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An Evaluation of Guests' Preferred Incentives to Shift Time-Variable Demand in Restaurants

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Abstract

Asked for their reactions to specific demand-shifting tactics based on revenue management, patrons of a restaurant in Ithaca, New York, indicated that they generally would be willing to shift their dining time to off-peak hours in exchange for discounts on menu items. Better than three-quarters of the 367 respondents agreed that they would accept an incentive for dining at an off-peak time. Specific results and conclusions are detailed below.

Keywords

revenue management, pricing strategies

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An Evaluation of Guests' Preferred Incentives to Shift Time-variable Demand in Restaurants

by ALEX M. SUSSKIND, DENNIS REYNOLDS, and ERIKO TSUCHIYA

Asked for their reactions to specific demand-shifting tactics based on revenue management, patrons of a restaurant in Ithaca, New York, indicated that they generally would be willing to shift their dining time to off-peak hours in exchange for discounts on menu items. Better than three-quarters of the 367 respondents agreed that they would accept an incentive for dining at an off-peak time. Specific results and conclusions are detailed below.

Keywords: revenue management; pricing strategies

As airlines and hotels continue to build and refine successful revenue- management strategies, restaurants have recently realized the value that revenue-management planning can bring to the bottom line. Because the operational elements of restaurants differ from those of airlines and hotels, restaurants cannot simply apply the same revenue-management strategies as those used by airlines and hotels. To provide an enhanced understanding of how to use revenue management in restaurants, we first

provide a brief overview of revenue management and its strategic levers. Next, we examine and identify the specific characteristics of restaurant revenue management. We then show how price- and value-based strategies can be used to enhance revenue by shifting demand from peak or oversold periods to shoulder or low times. Focusing on the use of packaging, pricing, and discounts, we then test consumers' perceptions of incentives to dine during off-peak business periods and observe how these perceptions are related to guests' dining behavior. We conclude with a discussion of proposed revenue-management strategies restaurants can use, based on our findings.

Overview of Revenue Management

Revenue management is characterized by a set of techniques designed to help a business sell the right products to the right guest at the right time and for the right price.[1] This can be achieved by understanding a business's inner workings and constraints and by managing the business's capacity to obtain the best profit or revenue.[2] A revenue-management strategy helps a firm's managers decide how to allocate and price its capacity to capture as much demand as possible given the operation's constraints. To apply revenue-management techniques effectively, the business's operating structure should feature: (1) relatively fixed capacity (e.g., seats, hours of operation); (2) predictable and time-variable demand (i.e., high-demand or hot and low-demand or cold periods throughout the operating day); (3) perishable inventory (i.e., revenue lost due to an unsold seat cannot be recouped during a given meal period or operational time period); (4) micro-segmented markets (i.e., each daypart or slices of a daypart can be desirable to different guest types);

(5) fluctuating demand (e.g., 11:30 a.m. through 1:00 p.m. during lunch and 6:30 p.m. through 8:00 p.m. during dinner tend to be much busier than other operating times); (6) advance sales of products and services (a feature that is rare in restaurants, but applies to catering and banquet operations); and (7) low variable-to-fixed cost ratio (in most restaurants, variable costs range from 30 to 50 percent of sales).[3] These characteristics suggest that it is possible to maximize revenue through an understanding of consumer demand relative to optimal operational capacity. Therefore, revenue-management strategies should be viewed as key marketing and management activities.

Revenue management is particularly well suited to the airline and hotel industries because consumers of these products and services typically use a relatively long planning horizon, are required to pay in advance (fully or in part) for consuming the service, and often have flexibility in arranging the services (e.g., arrival and departure times and days). Revenue management has been recently applied to the restaurant industry, but a limited number of specific strategies to implement these techniques have been offered.[4] To implement revenue management in restaurants—as in the airline and hotel industries—one needs a clear understanding of the menu sales mix, the contribution margin of the menu items,[5] and a direct understanding of the capacity constraints that influence product and service delivery.[6]

While the restaurant industry shares many of the characteristics of the airline and lodging industries (in particular, fixed capacity, time-variable demand, and perishable inventory), it is more challenging to implement broad-based revenue-management strategies in restaurants because consumers do not normally prepay for the

services, as they do in other industries, and duration of use is far less predictable, as we explain next.

Strategic Levers

Restaurants have two main strategic levers that can be shaped to manage revenue. Those are meal duration and pricing.[7]

Meal duration. Although meal duration can theoretically be predictable, it is unpredictable in most restaurants. Thus, one key aspect of revenue management is to gain at least some control of meal duration. Through duration controls, operators can manage revenue across all time periods, as opposed to focusing only on the high-demand periods.[8] Several processes can be used to affect duration in restaurants, including gaining a better understanding of the uncertainty of arrival (e.g., having a well-communicated reservation policy), creating a better understanding of the uncertainty of the duration, or shortening the turnover time between guests (e.g., streamlining service processes and procedures).[9]

Kimes and Chase note that restaurants are typically categorized as using a fixed-price format under conditions of unpredictable customer duration. They suggested that because restaurant operators do not control duration directly, they should pursue some type of duration-management approach to overcome that limitation.[10] That suggestion notwithstanding, we are limiting the analysis here to focus mainly on price- and value-related demand-shifting incentives, rather than on duration control.[11]

Pricing. Prices can be presented as fixed or variable. Fixed prices remain constant for all guests at all times, while variable pricing offers different prices to different sets of customers. Variable prices can be differentiated by limiting features or services on offerings, by adding additional value through product or service enhancements, or by enacting price reductions.[12] Variable-pricing techniques can be implemented in the form of coupons, discounts, or premiums on specific product classes that are reserved for certain consumer groups (e.g., senior citizens) or are applied during specific time periods to affect the value proposition.[13] To manage pricing practices for revenue management, an appropriate price mix and rate fences should be used.[14]

Appropriate price mix. Operators need to offer a reasonable mix of prices to differentiate the goods and services they sell. If there is little perceived difference in the customers' minds among the prices of products and services, a differential approach to pricing is not likely to be effective.[15] At the same time, if consumers view prices as unfair, it is difficult to build and maintain business as consumers' perceptions are formed from their knowledge of reference prices.[16] Consumers' reference prices are formed in a number of ways, including peer reports, published market prices, last price paid, and average price paid.[17] Reference prices change over time. To avoid perceptions of unfairness, prices should be set so that operators capture the highest possible price without sacrificing demand for a particular product or service or a series of products or services.[18] It is also important not to unnecessarily cheapen the product or service experience for the customer when manipulating the pricing structure.

Rate fences. Having a well-constructed pricing structure alone does not necessarily ensure that a demand-based pricing strategy will be effective.[19] Discernible sets of criteria that distinguish prices

(known as rate fences) are needed to support price differentiation among levels of product or service offerings.[20] Rate fences specify the conditions under which the specific prices apply and help control the price-value relationship.[21]

Rate fences can be physical or nonphysical.[22] Physical rate fences are structured around tangible features, such as décor or location. An example of a physical rate fence in a restaurant is a separate dining room or menu, such as the Pool Room and the Grill Room at the Four Seasons Restaurant in New York City, where the menu offerings, features, and the setup of each room are notably different from those in the restaurant's other sections during lunch and dinner. Nonphysical rate fences are structured around intangible elements such as time (e.g., having a happy hour or an early bird special); transaction-based features (e.g., a pretheater menu or tasting menu, or special payment arrangements that lead to price concessions); buyer-based features (such as the "Good Neighbor Card" at Max and Erma's Restaurants, where regular customers receive a percentage discount on all of their purchases); and limited or restricted availability (e.g., offering coupons or special pricing to a number of targeted guests).[23]

Timing and Framing of Demand-based Pricing

In the restaurant industry, the revenue that is generated per guest is unknown until the guest completes the service experience.[24] This is a different situation from airlines and hotels, where the rate (and most of the associated revenue) is fixed before the guest arrives. In restaurants, by contrast, the dollar amount each guest spends can vary substantially not only by meal period but also by hour of the day and by day of

the week. For example, at a restaurant with à la carte pricing, some guests may order wine, soup, appetizers, an entrée, and dessert, while others dining at the same time may order just a cup of soup and an appetizer. This dynamic makes pricing and rate fences all the more essential to restaurant operators to ensure that they are able to capture their demand.[25] Given the noted challenges of dealing with revenue management in restaurants, it seems that effective revenue management would start with a sound structural setup and design to minimize inefficiencies in service delivery to guests[26] and then proceed with activities to shift demand at peak times to maximize demand across the entire set of operating days and hours, once an efficient operating system has been achieved.[27]

As noted above, restaurants have distinctive characteristics that must be considered in the application of revenue management. These characteristics make it difficult to apply the revenue-management strategies used by airlines and hotels. This is due not only to structural differences in how service is delivered and consumed in restaurants but also to guests' perceptions of value, including time and price. The strategy of shifting and increasing demand through incentives (time-, monetary-, product-, or service-based) is one of the few options available to restaurant operators.

Shifting and increasing demand. Restaurants normally have high-demand periods and low-demand periods. During peak operating times, guests often have to wait to receive service, while during off-peak hours guests can be served with little or no wait. Restaurant operators can increase the number of guests they serve by attracting guests from busier times to slower times.

How guests perceive wait time as part of their service experience is subjective.[28] If guests desire to patronize a popular restaurant and find value in that experience, they will likely accept long wait times during peak hours or find alternative times that have shorter wait periods. Failing that, they will find another restaurant (if they choose not to wait). Some guests may have flexibility in their schedules that provides them with options to avoid waiting, while other guests may not have such flexibility. Guests must therefore evaluate the opportunity cost of waiting as a tradeoff between the cost of waiting and pursuing any available alternatives.[29] Guests will therefore make a value judgment about how and where to spend their time, based on the available options and the anticipated outcomes of those options.

Price Discounts versus Price Premiums

When a person is confronted with the choice of receiving a discount for a product or service or paying a premium for what is framed as an enhanced level of product or service, behavioral-decision and prospect theories argue that the discount would be preferred over the premium because a discount is viewed as a gain, while a premium is viewed as a loss.[30] However, the perceived psychological utility and the perceived economic value of the discount directly influence a consumer's desire to seek out and take advantage of price discounts.[31] This contention has recently been supported in a study that showed that demand-based differential pricing presented as discounts was perceived more favorably by restaurant guests than were prices presented with a surcharge.[32]

Typical strategies used to shift restaurant demand are time-limited discounts and special off-peak menus. Time-limited coupons and time-limited cash discounts (or, on the other hand, having guests pay a premium to dine during peak times) can attract price-sensitive guests to come during slow times.[33] Discounted fixed-choice menus, such as early-bird specials, pretheater menus, and late-night menus, may be attractive to price-sensitive guests but are more likely to suit time-sensitive guests. Other demand-shifting incentives are distinctive product offerings such as a premier menu or a set of premium offerings that are available only during off-peak times and service offerings such as live music or entertainment that is presented during slow times or times when guests must wait.

In this investigation, we explore restaurant guests' preferences for demand-shifting incentives. To that end, we seek to understand the perceptual and behavioral characteristics of restaurant guests relating to specific pricing strategies with which restaurant operators can shift demand from high-demand to low-demand periods. In sum, we propose the following research questions to examine consumers' perceptions of demand-shifting incentives:

1. To what extent are restaurant guests interested in receiving incentives presented as discounts or premiums (e.g., financial or product- or service-related) to shift demand away from peak hours of operation?
2. To what extent are restaurant guests' age, sex, and income related to their desires for incentives to shift demand?
3. To what extent are guests' dining characteristics (i.e., party size, dining occasion, dining companions, anticipated spending, and anticipated wait time) connected to their desires for incentives to shift demand?

In the next section, we describe the research we undertook to examine consumer preferences for incentives that

allow a restaurateur to better manage and understand guest demand.

The Study

This study was conducted at a casual-theme restaurant in upstate New York with a year-round dining-room seating capacity of 180. The average check including alcoholic beverages was approximately $28.00 during the study. The restaurant is considered popular in the community and consistently serves between 450 and 550 covers on Fridays and Saturdays, with a typical table-turnover rate of between 2.5 and 3.05 and an average meal duration of approximately seventy minutes. The restaurant does not take reservations and the queue for a table normally begins between 6:00 and 6:30 p.m. on Fridays and between 5:30 and 6:00 p.m. on Saturdays. Guests' waiting time often exceeds one hour during peak times on Friday and Saturday nights. Exhibit 1 displays the quoted wait times given by the host staff to guests upon their arrival. Those people who did not get seated were not included in our figures but are included in the arrival-pattern data.

Exhibit 2 displays guests' average arrival pattern for the series of Friday and Saturday nights we investigated. The arrival pattern was assembled primarily from observation.

Measurement

Using the questionnaire presented in the accompanying box, we collected data from 371 restaurant patrons over three weekends (three Friday nights and two Saturday nights) in the early spring of 2002. The researchers approached guests after they were placed on the waiting list and asked them to complete a one-page questionnaire consisting of twenty questions. The questions gathered a demographic profile (i.e., age, gender, and household income) and their episode-specific dining characteristics: (1) party size, (2) with whom the guests were dining (i.e., friends, family, significant other, business associate), (3) the purpose of the meal (i.e., regular meal or special occasion), (4) anticipated wait time, and (5) expected per-person expenditure for their meal. In addition, the questionnaire asked whether the guests had flexibility in their arrival times and whether incentives would influence that flexibility at all. Likewise, the participants were asked to rate the desirability of five possible rate fences presented as general incentives on five-choice Likert-type scales ranging from a low of *not desirable at all* to a high of *very desirable*.

The five general incentives were as follows:

1. *Time-limited coupon*—defined as a non-physical, time-based, limited-availability rate fence. It was presented to the respondents as a coupon that can be used during only a specific time period for free or reduced prices on items such as drinks, appetizers, and desserts.
2. *Discounted fixed-choice menu*—defined as a nonphysical, time- and transaction-based rate structure. It was presented to the respondents as a discounted menu package, such as an early-bird special, pretheater menu, or late-night menu.
3. *Cash discount*—also defined as a nonphysical, time- and transaction-based rate structure. This was presented to the respondents as a discount (i.e., 5 to 10 percent) from the total bill if guests were to dine during a specific time period (i.e., 5:00 to 6:00 p.m. or 10:00 to 11:00 p.m.).
4. *Distinctive product offerings*—defined as a nonphysical, time- and transaction-based rate structure. This incentive was presented to the respondents as a set of premium, gourmet offerings, or special items available only at off-peak times.
5. *Distinctive service offerings*—defined as a physical rate structure. This was presented to the respondents as services such as live music, entertainment, or activities that are offered to guests during off-peak hours.
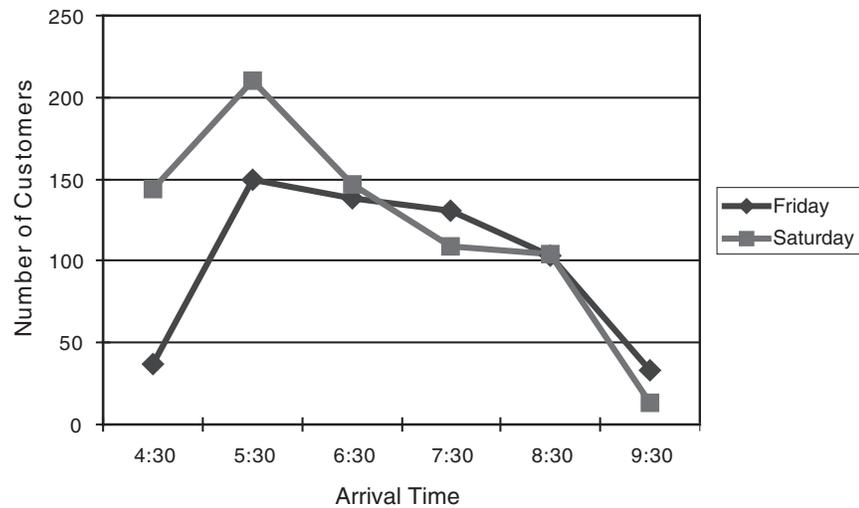
Exhibit 1:
Quoted Wait Time in Minutes to Guests in Half-hour Increments

Time	Friday 1	Friday 2	Friday 3	Saturday 1	Saturday 2
5:30	0	15	15	10	20
6:00	0	45	30	75	60
6:30	10	60	45	75	90
7:00	60	90	75	105	120
7:30	60	90	75	90	120
8:00	60	80	90	90	90
8:30	30	90	90	75	60
9:00	30	30	30	45	60

Exhibit 2:
Restaurant Arrival Pattern

Note: Mean arrival times for five nights of the study described in the accompanying article.

In the analyses, the five incentives were examined in relationship to the participants' sociodemographic characteristics and dining behaviors and preferences.

Are Guests Interested in Demand-shifting Incentives?

We first asked the guests, "If the restaurant offered you an incentive to dine earlier or later to avoid waiting for a table would you take the incentive?" Of the 367 guests responding to the question, 284 (77.3 percent) indicated that they would be willing overall to receive an incentive to dine at an off-peak time, while the remaining 83 (22.7 percent) indicated that they would not be interested in receiving incentives to dine at alternative times.[34]

Exhibit 3:

Examination of the Guests' Interest in Receiving Demand-shifting Incentives

	Favored Incentives	Did Not Favor Incentives
Time-limited coupon[a]	3.40	2.72
Discounted limited or fixed-choice menu[a]	3.20	2.58
Cash discount[a]	4.13	3.69
Distinctive product offerings	2.94	2.78
Special service offerings	3.40	2.72

a. Indicates a significant difference between the two groups at the $p < .01$ level.

A series of *t*-tests revealed that the guests would be interested in receiving three of the five incentives to dine at an alternative time (see Exhibit 3). The guests interested in receiving incentives favored time-limited coupons, discounted fixed-choice menus, and cash discounts. Regardless of the guests' preferences for receiving incentives to dine during off-peak times, they rated the desirability of distinctive product offerings and distinctive service offerings similarly.

Demographics and Potential Demand-shifting Incentives

The respondents' general demographic characteristics are summarized in Exhibit 4. We found few significant differences in the willingness of different demographic groups to shift demand.

Age. We used regression analysis to examine the relationship between the guests' ages and their reported preferences for the five incentives presented to them. The data revealed that young respondents reported a preference for receiving time-limited coupons, receiving a cash discount, and special service offerings, suggesting that younger guests found these incentives to be more attractive than the older guests did.[35] The relationship between the guests' age and their preference for receiving either a discounted fixed-choice menu or a distinctive product offering was not significant.

Household income. The study participants' incomes were measured using five categories (see Exhibit 4). Of the five income groupings, the analysis of variance (ANOVA) revealed a significant difference between the dependents and the guests who reported that they earned greater than $100,000 per year. The dependents indicated a significantly stronger preference to use a time-limited coupon than did the highest reported earners in the sample. (The dependents' rating was $M = 3.57$, and for the high earners, $M = 2.92$).[36] There were no other statistically significant differences across the other four incentives and the five groupings of income.[37]

Gender. Our analyses revealed no statistically significant differences among the respondents' preferences across each of the five demand-shifting incentives examined based on sex.

Guests' Dining Behavior

The average expected spending was $25.21 ($SD = 9.31, median = $25), rang-

Exhibit 4:
Guests' Demographic Profile

Age: ranging from 18-75, $M = 32$, $SD = 13.46$, Median = 27
Sex: 62 percent female

Annual household income:
Dependents[a]	114	(30.7 percent)
Less than $25,000	22	(5.9 percent)
$25,000–$49,000	55	(14.8 percent)
$50,000–$99,000	61	(16.9 percent)
Over $100,000	44	(12 percent)

a. These respondents are generally college students who are still dependents of their parents.

ing from $10.00 to $80.00, which is consistent with the $28.00 average check reported by the point of sale system during the study. Regression analyses revealed that the five demand incentives were not significantly related to guests' anticipated spending—with one exception. Guests who reported a higher level of anticipated spending per person also indicated that special product offerings might entice them to dine during the restaurant's off-peak times.[38]

Party size. The average party size was 4.3 ($SD = 2.71$, median = 4) and ranged from one to twenty. Regression analyses revealed that none of the five demand incentives was significantly related to party size.[39]

Waiting time. We asked how long participants were typically willing to wait to dine at this restaurant (where they were already waiting). The average time the guests reported they were willing to wait was 38.71 minutes ($SD = 17.86$, median = 30 minutes). Regarding demand-shifting incentives, the shorter the time the guests were willing to wait to be seated, the more interested they were in receiving - discounted fixed-choice menus ($\beta = -3.04$, $p < .001$). None of the other four incentives was seen as a significant incentive

to dine at an off-peak time for the restaurant.[40]

Dining companions. We asked participants to report with whom they were dining. The study participants reported the following three main categories of dining companions: friends (44.7 percent), family (38.8 percent), and significant others (15.9 percent). Only two participants indicated they were dining for business purposes (0.5 percent), which is no surprise given that the study was conducted on weekend evenings. The one-way ANOVA revealed significant effects for two of the five demand incentives: time-limited coupons and discounted fixed-choice menus.[41] A closer examination of the guests' responses revealed that guests dining with significant others were more interested in receiving time-limited coupons ($M = 3.64$, $p < .05$) than those who were dining with friends ($M = 3.13$) or with family members ($M = 3.23$). In addition, guests dining with significant others were more interested in receiving discounted fixed-choice menus ($M = 3.36$, $p < .05$) than those dining with friends ($M = 2.92$). We found no significant differences when comparing parties comprising friends and family members ($M = 3.16$) and significant others and family members. In each case, guests din-

ing with significant others were more interested in receiving demand-shifting incentives.

Dining occasion. Asked to describe their dining occasion, participants reported the following two categories of dining purpose: 47.5 percent reported they were having a regular meal, and 52.5 percent reported some type of special occasion (e.g., birthday, anniversary, work- or school-related celebration, or social gathering). The ANOVA revealed that the special service offering was the only incentive that produced a significant effect in the analysis by dining occasion.[42] A closer examination of the guests' responses revealed that those dining for a regular meal were less interested in receiving a special service offering as an incentive ($M = 2.94$) than were those dining for a special occasion ($M = 3.40$).[43]

Discussion and Practical Implications

In this study, we examined restaurant guests' preferences for demand-shifting incentives relative to their demographic characteristics and dining characteristics. We did so with the hope of offering restaurant operators some insight into how guests may react to the use of rate fences to smooth out demand and revenue flow across time periods. This study builds on the work of Kimes and Wirtz, who examined restaurant consumers' perceptions of fairness in the application of rate fences, and found that consumers view coupon pricing, time-of-day pricing, and daypart pricing as more fair than day-of-the-week pricing and table-location-based pricing.[44] Echoing those conclusions, our findings showed that consumers favored discounts over surcharges or service enhancements, which is also consistent with consumer-behavior and hospitality-management

findings.[45] In this study, we have highlighted and examined several direct incentives and processes that when implemented and managed by operators, can lead to increased opportunities for revenue enhancement, by shifting guest demand to underutilized times.

In this study, 284 (76.5 percent) of the guests we surveyed indicated that they would be interested in using incentives to dine earlier or later to avoid waiting, and the same number of guests also reported that they generally had flexibility in their arrival time. Moreover, 220 respondents indicated they had both flexibility in their arrival time and interest in receiving incentives to dine during off-peak hours, although that relationship is not significant ($r = -.05$, $p = .15$).[46] This suggests that there is room to implement incentives in this context, but the incentives offered must be carefully matched to the guests' needs and dining profiles.

As noted in Exhibit 1 and Exhibit 2, there is little room to shift guest demand to earlier times during the weekend meal periods, as the restaurant fills up quickly starting at 5:00 p.m. with an initially short wait for tables becoming a substantial wait until 9:00 p.m., when demand appears to taper off. It seems that the restaurant could benefit from having customers dine late, given that many guests have apparently figured out that the easiest way to get a table with a short wait is to arrive early.

Guests' Preferences for Incentives

Our analyses of this restaurant's patrons did uncover several patterns of demographics and dining behavior that can be used to further develop a demand-shifting strategy for restaurant operators through the application of rate fences. First, we found that guests who favored incentives were most interested in a cash discount.

This type of incentive is offered by other service-based businesses (e.g., grocery stores) where guests with club cards receive cash discounts on specific products or during specific time periods. These card-based systems also allow the operator to track guests' use of the incentives and can be combined and merged with large database systems, such as Gazelle, that offer detailed information about consumers' shopping habits and lifestyles. The next-most-popular incentive was that of time-limited coupons. These are easily distributed to guests through direct mail or local newspapers and can specifically target coupon discounts to guests at the most appropriate time to shift demand. For example, a free-drink or free-appetizer coupon may be more appropriate during early evening hours, while free-dessert coupons might be best suited to later time periods, when the restaurant traffic has slowed down. The third-most-popular incentive was the discounted fixed-choice menu. This type of menu can also be time variable, targeting different guests with an early-bird menu, happy-hour menu, or a late-night menu. Because these types of menus bundle menu items, the operator has better control of the average check

Many restaurant patrons would accept discounts as an incentive for changing their dining time to off-peak hours—but not all of them would do so.

during the times at which the specials are offered, and can therefore focus on filling seats at a predetermined revenue level during those time periods.

While not significant in the analyses, distinctive service offerings and special product offerings were ranked fourth and fifth, respectively. These findings are consistent with the research which shows that customers view price discounts more favorably than price premiums or surcharges.[47] Although less popular among guests, distinctive service offerings can include various forms of entertainment to enhance the guests' experience while dining or waiting. It is important, however, that the entertainment or service enhancement be carefully matched to the restaurants' theme and clientele. For example Darden's Bahama Breeze restaurants regularly offer live performances of steel drums or Caribbean music to enhance the guests' experience in the restaurant. These features appear to stimulate additional demand and compensate for normally long waiting times.

Likewise, special product offerings available during off-peak periods to stimulate additional demand were perceived as less popular among study respondents. Only those reporting a high-income level were interested in such features. An incentive of this type could be implemented by serving prime rib or lobster from 5:00 to 6:00 p.m. (or from 9:00 to 10:00 p.m.) at a premium price to entice guests to arrive earlier (or later) to enjoy the special items in time-limited supply. While this option was viewed as the least desirable of the incentives by our study participants, programs such as this are popular in Asia, where special menus and products are viewed as a luxury and are not readily available throughout the day and may even require preordering prior to arrival.[48]

Study questionnaire

Q1. Who are you dining with? (Please select one)

Friend(s)	Family	Significant Other
Business Other	Other (please specify)	

Q2. Why are you dining today?

Regular Meal	Celebration (i.e. Birthday, Anniversary)
Business	Other (please specify)

Q3. Activity before coming to this restaurant: (Please select one)

Home	Work	Travel/Vacation
School	Shopping/Errands	Other

Q4. What time did you arrive at the restaurant? __ __:__ __ PM

Q5. Were you the decision maker about the time to come and eat?   Yes   No

Q6. Regarding payment will you be: splitting the bill   paying for the whole bill   not paying

Q7 What is your:
Age: ___ ___   **Sex:**   Male   Female
Number of people in your party: __ __

Household Income:	Dependent	Under $25,000	$25,000–$50,000
	$50,000–$99,000	$100,000+	

Q8. Generally how long are you willing to wait to dine at a restaurant like this? (e.g., 50 minutes, 90 minutes)
___ ___ minutes

Q9. Generally, if the restaurant offered you an "incentive" to dine earlier or later to avoid waiting, would you take the incentive?   Yes   No

Q10. Which of the following incentives would be the most desirable to you?

	Not desirable at all		Neutral		Very desirable
A. Time-limited Coupon	1	2	3	4	5
(Only useable at a specific time, e.g., free drink, appetizer, or dessert)					
B. Discounted Limited, or Fixed-Choice Menu	1	2	3	4	5
(e.g., early bird menu, pre-theater menu, or late night menu)					

(continued)

C. Cash Discount   1   2   3   4   5
(discounting 5-10% from your bill if you dine during a specific time period)

D. Unique Product Offerings   1   2   3   4   5
(Premier set menu only available at non-peak times)

E. Unique Service Offerings   1   2   3   4   5
(e.g. live music or entertainment at an earlier/later time)

Q11. Did you have any flexibility in your arrival time to come earlier or later than you did?

Yes	No, please describe the reason(s) why.

Q12. Did you use the "phone ahead" seating system offered by the restaurant to reduce your wait time?

Yes	No, please describe the reason(s) why.

Q13. How much do you think you will be spending *per person* for your meal (including food & beverages)
$____.__

Guest demographics and incentives. We found that certain demographic characteristics offered additional insight beyond the analyses described above. This is particularly relevant because specific guest-based data are now readily available from companies like Gazelle.

Young respondents indicated a preference for cash discounts, time-limited coupons, and distinctive service offerings. Consistent with income data reported about this young demographic subgroup, they seem to be relatively price sensitive and may be the best candidates to be enticed to dine during off-peak hours. They are also more likely to be accustomed to taking advantage of specials or discounts (as dependents). With the skewed arrival patterns that indicate a large inflow of guests during the early eve-ning hours, it seems that this subgroup could be moved toward the later hours with discounts or coupons or offered entertainment during the later operating hours that would be more consistent with a young demographic groups' lifestyle.

Dining behavior and incentives. Those customers intent on above-average spending during their visits expressed interest in receiving special product offerings. This is consistent with the proposition that consumers who are willing to pay more for quality and product differentiation may do so at the expense of other factors, such as convenience.

Customers who indicated that they are not willing to wait long periods of time expressed interest in discounted, limited-choice menus. Fixed-choice menus such

as early-bird specials and pretheater menus are known for offering a realistic sample of a restaurant's offerings at a higher value proposition, delivered in a more time-efficient manner than is typical of the regular menu. This type of offering could clearly be used between 5:00 and 6:00 p.m. but would likely appeal to a different demographic segment from that of a late-night menu (as noted above).

People dining with significant others (as opposed to friends and family) showed a preference for time-limited coupons and discounted fixed-choice menus. This may be a result of the combined nature of activities that constitute a "date." A date will often combine a meal with other activities—such as a movie or a concert, making an off-peak incentive more attractive to this demographic group.

Study Limitations

This study has the key limitation that it uses a sample of patrons from a single restaurant during five weekend meal periods—the restaurant's busiest times. This limits our ability to apply these findings directly to the restaurant's own weekday meal periods and to other restaurants in general. While most studies of restaurant revenue management ultimately need to be site specific to be implemented, broad-based studies clearly add value to our understanding of how restaurants and their patrons interact. These data do, however, offer insight into a sample of guests' perceptions and dining behavior during a restaurant's busiest time. Second, when asking respondents about their preferences for and flexibility to take advantage of incentives to dine earlier or later, we did not delineate these issues well. From the data, we could not tell the extent to which guests were flexible in their dining behavior (e.g., two hours versus thirty minutes) or whether they found dining earlier or

later to be more (or less) desirable. In addition, we could have better described the definitions and application of the five demand-shifting incentives we explored. Our demographic and behavioral analyses suggest that this distinction is important and should be considered in further research of this kind.

Third, we did not record the guests' actual waiting times in the restaurant and reported only the average wait quoted to guests by the host staff. As a result, the wait time experienced by the customers is probably inflated, as these figures were not adjusted for those patrons that used the phone-ahead system (or for the fact that the hostess may overestimate waiting times). In the current study, the correlation between the guests' anticipated waiting times in minutes ($M = 40.4$, $SD = 17.28$) and the quoted waiting times ($M = 75.89$, $SD = 26.46$) was weak ($r = .04$, $p = .19$, $N = 366$). This would be problematic for the operator if this set of figures represented the precise relationship between expected wait time and actual wait time. This relationship should be measured more precisely in future investigations.

Last, we intentionally did not combine this study of guests' characteristics and preferences with the operational elements normally associated with studies of revenue management. Analysis that combines guests' perceived needs and desires with the specific capacity and ability of the restaurant to handle structural or operational changes that actually meet those needs (as a condition for maximizing demand) is an important next step in this line of research. We recognize the importance of service blueprints and maximizing worker productivity in terms of ticket times, greeting, seating, and concluding the guest experience.[49] A related issue is resource use. Since labor scheduling and other operational characteristics that are directly

under management's control (e.g., pay rates, motivational strategies) can have substantial implications on revenue, these operating inputs must be recognized as potential factors in defining the optimal revenue-generating model.[50]

Conclusion

As with all revenue-management strategies, it is important to gauge the effectiveness of any tactic that is used. It makes no sense to offer a discount to customers who are willing to pay full price, for instance, just as it makes no sense to offer guests incentives to do things that they are not interested in doing. The outcome from any restaurant revenue-management effort should be to maximize the amount of revenue you can collect from each transaction in each daypart without diminishing the guests' experience. It should be noted, however, that it is worthwhile to offer discounts and incentives only if such incentives will bring in additional business at low-demand times sufficiently above marginal costs without at the same time compromising the regular flow and demand for the products and services. That is, one should not offer discounts during peak demand periods or offer incentives to guests who are willing to pay top dollar for their chosen dining experience. That insight introduces another set of questions regarding price elasticity and how demand curves relate to pricing strategies—all of which are beyond the immediate scope of this article.[51]

Waiting is part of life and particularly part of an experience with a restaurant of the type we studied here. Having long waits for tables in a restaurant does not necessarily mean that there is a problem. Demand in restaurants like Cheesecake Factory, Houston's, and Outback Steakhouse far exceeds supply on most days—meaning that guests usually must wait for tables. The presence of queues may indicate untapped opportunities that can be used to better satisfy guests, to enhance a restaurant's top line, and ultimately, to fortify the bottom line. A prime example of capitalizing on uncaptured demand is Outback Steakhouse's pioneering takeaway service that has now been institutionalized in one form or another in most of the casual-dining chains. Outback does not offer price discounts or specials but merely found a way to streamline takeout orders to the extent that it enhanced uncaptured revenue, actually lowered the cost of service for a portion of its earned revenue, and enhanced the experience for those guests both dining in and carrying out. This represents just one example of an operator matching its capacity and structure to guest needs to create additional value for the guests and revenues for the company—revenue management at its best!

Endnotes

1. Barry A. Smith, John. F. Leimkuhler, and Ross M. Dan, "Yield Management at American Airlines," *Interfaces*, vol. 22, no. 1 (1992), pp. 8–31.
2. Sheryl E. Kimes, "The Basics of Yield Management," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 30, no. 4 (November 1989), p. 15.
3. See: Sheryl E. Kimes, Richard B. Chase, Sunmee Choi, Phillip Y. Lee, and Elizabeth N. Ngonzi, "Restaurant Revenue Management: Applying Yield Management to the Restaurant Industry," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 39, no. 3 (June 1998), pp. 32–39; and Sheryl E. Kimes, Deborah I. Barrash, and John E. Alexander, "Developing a Restaurant Revenue-Management Strategy," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 40, no. 5 (October 1999), pp. 18–29.
4. Ibid.

5. Bill Quain, "Revenue Enhancement, Part 4," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 40, no. 3 (June 1999), pp. 38–47.

6. Brian Sill and Robert Decker, "Applying Capacity-Management Science," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 40, no. 3 (June 1999), pp. 22–30.

7. See: Sheryl E. Kimes and Richard B. Chase, "The Strategic Levers of Yield Management," *Journal of Service Research*, vol. 1, no. 2 (November 1998), pp. 156–66; and Kimes et al., pp. 32–39.

8. Kimes et al., pp. 32–39.

9. Ibid.

10. Kimes and Chase, pp. 156–66.

11. For a discussion of the application of duration-control techniques, see: Sheryl E. Kimes, "Restaurant Revenue Management: Implementation at Chevys Arrowhead," on pages 52–67 of this *Cornell Quarterly*.

12. Kimes and Chase, pp. 156–66.

13. See: William D. Diamond and Leland Campbell, "The Framing of Sales Promotions: Effects of Reference Price Change," *Advances in Consumer Research*, vol. 16 (1989), pp. 241–47; Dhruv Grewal and Howard Marmorstein, "Market Price Variation and Consumers' Search Decisions for Durable Goods," *Journal of Consumer Research*, vol. 21 (December 1994), pp. 452–60; and Shih-Fen S. Chen, Kent B. Monroe, and Yung-Chien Lou, "The Effects of Framing Price Promotion Messages on Consumers' Perceptions and Purchase Intentions," *Journal of Retailing*, vol. 74, no. 3 (1998), pp. 353–72.

14. Kimes and Chase, pp. 156–66.

15. Sheryl E. Kimes and Jochen Wirtz, "Perceived Fairness of Demand-based Pricing for Restaurants," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 43, no. 1 (February 2002), pp. 31–38.

16. A reference price is defined as the dollar value that consumers assign to product or service. See: Lisa E. Bolton, Luk Warlop, and Joseph W. Alba, "Consumers' Perceptions of Price (Un)Fairness," *Journal of Consumer Research*, vol. 29 (March 2003), pp. 474–91.

17. See: Ibid.; and Kimes and Wirtz, pp. 31–38.

18. Thomas J. Kelly, Nicholas M. Kiefer, and Kenneth Burdett, "A Demand-Based Approach to Menu Pricing," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 35, no. 1 (February 1994), pp. 48–52.

19. Kimes and Chase, pp. 156–66.

20. See: R. D. Hanks, R. O. Cross, and R. P. Noland, "Discounting in the Hotel Industry: A New Approach," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 33, no. 3 (June 1992), pp. 40–45; Kimes and Chase, pp. 156–66; and Kimes and Wirtz, pp. 31–38.

21. Hanks et al., pp. 40–45.

22. Ibid.

23. Kimes and Wirtz, pp. 31–38.

24. Exceptions to this characteristic are prix fixe menus, banquets, and catering where the revenue per guest (or average check) is predetermined by the operator or by contract prior to consumption by the guest.

25. See: Kimes and Wirtz, pp. 31–38; and Kimes, on pages 52–67 of this *Cornell Quarterly*.

26. Sill and Decker, pp. 22–30.

27. For applications see: Ibid.; Kimes et al., pp. 18–29; and Kimes, on pages 52–67 of this *Cornell Quarterly*.

28. See: Jacob Hornick, "Subjective versus Objective Time Measurement: A Note on the Perception of Time in Consumer Behavior," *Journal of Consumer Behavior*, vol. 11, no. 3 (June 1984), pp. 615–18; and Susan Powell Mantel and James J. Kellaris, "Cognitive Determinants of Consumers' Time Perceptions: The Impact of Resources Required and Available," *Journal of Consumer Research*, vol. 29 (March 2003), pp. 531–38.

29. Rongrong Zhou and Dilip Soman, "Looking Back: Exploring the Psychology of Queuing and the Effect of the Number of People Behind," *Journal of Consumer Research*, vol. 29 (March 2003), pp. 517–30.

30. Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," *Journal of Business*, vol. 59, no. 4 (1986), pp. S251–78.

31. Grewal and Marmorstein, pp. 452–60.

32. Kimes and Wirtz, pp. 31–38.

33. Ibid.

34. Missing data were treated listwise, on an analysis-by-analysis basis throughout the manuscript. This data treatment resulted in a slightly different *n* for each grouping of analyses reported. The usable sample size for each set of analyses is reported along with the statistical tests for reference.

35. Time-limited coupons: $\beta = -2.26$, $p < .001$; cash discounts: $\beta = -1.71$, $p = .02$; and service offerings: $\beta = -1.37$, $p = .04$. $F(5, 339) = 5.71$, $p < .001$, $R^2 = .08$, $n = 345$ for the equation.

36. $F(5, 339) = 3.03$, $p = .01$, $\eta^2 = .04$, $n = 345$; $p = 0.006$ for the dependent and greater than \$100,000 income categories using Duncan's multiple range test of difference.

37. To ensure that the missing income data were not systematic, the missing data were treated as a separate (sixth) factor in the one-way ANOVA.

38. $\beta = 1.19$, $t(1) = 2.17$, $p = .03$, and $F(5, 296) = 1.65$, $p = .15$, $R^2 = .03$, $n = 302$ for the equation.

39. $F(5, 325) = .40$, $p = .85$, $R^2 = .006$, $n = 331$.

40. $\beta = -3.04$, $p < .001$ and $F(5, 341) = 3.15$, $p < .001$, $R^2 = .04$, $n = 347$.

41. Time-limited coupon: $F(2, 340) = 3.65$, $p = .03$, $\eta^2 = .02$, $n = 331$; and discounted fixed-choice menu: $F(2, 340) = 3.53$, $p = .03$, $\eta^2 = .02$, $n = 331$.

42. $F(1, 337) = 13.33$, $p < .001$, $\eta^2 = .04$, $n = 339$.

43. $t(337) = -3.65$, $p < .001$.

44. Kimes and Wirtz, pp. 31–38.

45. See: Tversky and Kahneman, pp. S251–78.; and Kimes and Wirtz, pp. 31–38.

46. $\chi^2(1) = 1.06$, $p < .30$, $\eta^2 = .003$, $n = 358$.

47. See: Tversky and Kahneman, pp. S251–78; and Kimes and Wirtz, pp. 31–38.

48. This statement is based on the observations of the third author, as a function of her work in the Asian hospitality industry.

49. For examples of operationally focused applications see: Sill and Decker, pp. 22–30; and Kimes et al., pp. 18–29.

50. Dennis Reynolds, "Hospitality-productivity Assessment Using Data-envelopment Analysis," *Cornell Hotel and Restaurant Administration Quarterly*, vol. 44 (April 2003), pp. 130–37.

51. For a detailed discussion of perceived pricing practices in restaurants, see: Kelly, Kiefer, and Burdett, pp. 48–52; and Kimes and Wirtz, pp. 31–38.

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