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Competitive Pricing Decisions in Uncertain Times

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This article examines the pricing, demand (occupancy), and revenue dynamics in the U.S. hotel industry for the period 2001 to 2007. The results of this seven-year study, which compares hotels' rates to the pricing behavior of competing hotels, reveal that in both bad times (2001–2003) and good times (2004–2007), hotels that offered average daily rates above those of their direct competitors had lower comparative occupancies but higher relative revenue per available rooms (RevPAR). Based on 67,008 hotel observations, this pattern of demand and revenue behavior was consistent for hotels in all market segments (resorts and extended-stay properties were excluded from the study). Overall, the results suggest that the best way for a hotel to have higher revenue performance than its competitive set is to maintain higher rates. This finding suggests that lodging demand may be inelastic in local markets. The results of this study confirm the stance of hotel operators who resist the pressure to undercut competitors' prices.

Keywords: hotel operations; strategic pricing; lodging demand; macroeconomics

Many hoteliers contend that discounting room rates is a necessity during tough economic times—and also a strategy to "steal market share" in good times. With the current global economic slowdown, the temptation to drop rates has again surfaced. This occurred after September 11, 2001, when many hotel operators discounted rates in the hopes of stimulating consumer demand or capturing additional market share from their competitors. In either case the objective was to enhance revenue. Some operators resisted discounting and then faced what Watkins (2003) termed the "dilemma of the empty room." As the industry began to recover in 2004, demand began to rise, followed by prices (PKF 2003). As 2007 came to a close, the industry once again appeared to be bracing for another bout of bad

times. As Patricia Davis, corporate director of revenue management for Kor Group, noted recently, "When times are good, you set up your strategy and sort of just close (deals) as business comes in as you expect it, but when you're in a situation like right now, where the unexpected happens every day, you're trying to figure out what to tweak" (in Kirby 2009).

Competitors' decisions to drop or raise rates are a key input for pricing decisions, but it is not always clear why competitors drop their prices or why others follow. Research has identified a variety of factors that shape pricing decisions, including cost, value, and elasticity (Stibel 2007). Value pricing (lowering rates) to satisfy customers' demand for a better deal is not a substitute for maintaining high quality, and this can be extremely risky (Hayes and Huffman 1995). In principle, if value pricing can increase market share through larger volume, and the extra costs are less than the extra revenue (i.e., the profit margin is not shrinking), then discounting rates can improve revenues. Of course, if discounting overtaxes the staff and facilities, the long-run benefit may be diminished. In the hotel business, this happens when extremely high levels of occupancy make it difficult to maintain the physical facility and put stress on staff to deliver consistent service quality.

Despite the importance of understanding the impact of pricing decisions facing a firm in the lodging industry, we have seen few studies addressing this issue (for exceptions, see Hiemstra and Ismail 1993; Canina and Carvell 2005; Damonte, Domke-Damonte, and Morse 1998/1999). To determine how pricing decisions affect performance, estimates of the price elasticity of demand are often required, as well as other parameters. Examining the few published studies, we observe that a variety of approaches exist for calculating demand elasticities. These analyses focus on the elasticity of demand for the lodging market as a whole, not the elasticities experienced by distinct markets or individual firms.[1] Academic researchers have pursued various methods to estimate price elasticity of market-level demand in various industries (Chung 2006; García and Tugores 2006; Skuras, Petrou, and Clark 2006). Due to an array of complex empirical problems, the estimates produced in many studies have wide confidence intervals and, as a result, do little to clarify demand conditions.

We propose an alternative to calculating demand elasticities, to focus on understanding the impact of pricing decisions relative to competitors' prices, revenues, and occupancies. By analyzing local hotel competitors' relative occupancies and revenues in the context of comparative pricing behavior (e.g., percentage difference from competitors' average daily rates [ADRs]), our approach allows the exploration of the impact on demand and rooms revenue of pricing differences among hotels that directly compete in local markets. To demonstrate the principles of wise strategic pricing decisions in uncertain times, this article examines the relationship between competitive pricing, demand, and revenue per available room (RevPAR) in the U.S. hotel industry for the periods of 2001 to 2003 and 2004 to 2007.

Our goal is to understand the outcomes of relative pricing behavior of direct competitors in both bad and good times. As a starting point for analysis, we focus on a given hotel's rates in comparison to the pricing behavior of competing hotels. This study compares demand and overall rooms

1. The own-price elasticity of demand is defined as the percentage change in quantity demanded given a percentage change in price. The cross-price elasticity of demand is defined as the percentage change in quantity demanded given a percentage change in the price of a different good. The income elasticity of demand is defined as the percentage change in quantity demanded given a percentage change in income.

revenue for hotels that price above their competitors and those that price below their competitors. We acknowledge that cost and total revenue management issues are critical in making pricing decisions, but this investigation focuses only on issues of relative demand in competitive situations. Our decision to examine relative pricing behavior among competitors is due to the fact that many individual hotels are profoundly influenced by the pricing of their direct competitors. If competing hotels in a local market drop prices, for example, owners and operators of comparative hotels often feel pressure to follow that lead by reducing their own prices to maintain parity with their competitive set and avoid losing demand share. By the same token, in prosperous times some hotels drop prices to stimulate new demand or steal market share.

Since individual hotels and their competitors face the same competitive conditions, model misspecification, such as the omission of relevant variables and functional form, and other empirical problems related to estimating industry-wide demand and supply are not of concern in applying the comparative-difference approach. In addition, since the unit of analysis is the individual hotel, the results are relevant for those interested in making property-level pricing decisions. This approach, based on comparisons of local pricing behavior, allows us to observe the relative differences among local hotels in occupancy and RevPAR performance without oppressive data requirements and econometric problems found in many price elasticity studies. This comparative difference methodology is recommended as a plausible starting point in understanding the impact of pricing on demand and performance, along with the factors that are important to consider in property-level pricing strategy. Since most companies still use relatively simple strategies for determining prices, such as competitive pricing (pegging prices to competitors' prices) or cost-plus pricing (calculating the cost of a good or service and adding profit), we believe that the relative difference approach is a good starting point for understanding competitive pricing in local markets (Sahay 2007).

Studying Lodging Demand

A review of demand studies conducted in other industries reveals that a multitude of demand models and functional forms have been used in the literature (for example, see Chung 2006; García and Tugores 2006; Skuras, Petrou, and Clark 2006; Li, Song, and Witt 2004). The outcomes from these studies vary widely due to such factors as differences in the choice of mathematical models, estimated functional forms, level of aggregation, consideration for time (e.g., time series vs. cross-sectional study design), and duration of the study (short-run vs. long-run), as well as other factors (Divisekera 2003; De Mello, Pack, and Sinclair 2002; Turner and Witt 2001; Lim 1997; Crouch 1992, 1994, 1995). As a result, disappointing results from empirical studies on price elasticity of demand are common. Beginning with Rosen (1974), economists have employed various means of estimating demand and supply for differentiated products (such as hotels). However, there is still no agreement as to the best way to estimate elasticities for products differentiated by several attributes. In the studies of Feenstra and Levinsohn (1995) and Berry, Levinsohn, and Pakes (1995), products are assumed to compete only with their two closest possible competitors. However, a significant change in price could presumably make consumers move to a more distant competitor, making that assumption too stringent and resulting in biased estimates.

Because of data restrictions, most of those who estimate the impact of various factors on the demand for hotel room-nights focus on aggregate room demand as measured by

the total number of rooms sold across all U.S. markets at all price points. These are typically estimated using average prices for properties with varying quality and quantities in different market segments, yielding single industry-wide own-price and cross-price elasticity estimates (Canter and Maher 1998/1999; Jogaratnam and Kwansa 1990). These aggregate demand models estimate the price elasticity of demand for the lodging industry as a whole, but these estimates are not valid in evaluating pricing strategies at the property level. Just as one would not use average overall industry forecasts of occupancy and ADR as estimates in a local market, it is not meaningful to apply overall industry estimates of demand, supply, or price elasticity to a local market. In addition, since hotels are not homogeneous, it is misleading to apply a single estimate of price elasticity to multiple market segments. Instead, individual products' attributes and their market position are required as inputs to the demand estimation procedure. In sum, aggregate demand estimates are of limited practical use to hotels facing property-specific demand and pricing challenges. Changing market conditions and uncertainty also render the estimates largely inaccurate or outdated over time, leading managers to steer clear of estimating demand curves when making pricing decisions.

A few consulting and economic forecasting companies provide aggregate level models of lodging demand and supply as forecasts of ADR and occupancy. These models are frequently recalculated due to changes in market conditions and are estimated or adjusted to account for local market conditions that differ from those of the overall lodging market. However, such estimates of a hotel's own-price elasticity and cross-price elasticities are not published, and the consulting practices protect the details of their estimation methodology as proprietary information.

In reviewing lodging demand studies, we were unable to find a study that estimated a system of supply and demand at the property level that accounted both for local market competitive conditions and the property's attributes. In fact, we were even unable to find one at the aggregate level that estimated systems of both supply and demand. A few demand-related studies exist that examine issues related to hotel differentiation and geographic markets. Using aggregate data divided into categories of high- and low-priced hotels, Hiemstra and Ismail (1991, 1993) found that the price elasticity of demand varied across hotel segments' room rates. The price elasticity of demand was –0.35 for low-priced properties and –0.57 for high-priced properties. In addition, they found that the estimated parameters varied relative to a geographic market's population. Damonte, Domke-Damonte, and Morse (1998/1999), using aggregate county-level data for two adjacent counties, found that the price elasticity of demand varied for the two counties studied: Columbia County recorded a significant price elasticity of demand, of between –0.8 and –1.8, while Charleston County's price elasticity of demand was insignificant, between –0.1 and –0.3.

In the only study that estimates the price elasticity for hotel properties, Canina and Carvell (2005) found that demand is price-inelastic, and price elasticity measures vary across market segments. The authors control for quality differences by analyzing the effects of income, consumer confidence, own-price, and cross-prices by market-price segment. They report that the price elasticity was about –0.14 across market segments and ranged from –0.31 to –0.11 by market segment. While their results show that demand is price-inelastic, their estimates apply only to urban hotels in major metropolitan markets in the United States, and their elasticity estimates may not be applicable to

other markets. However, their results indicate that price discounts may not enhance revenues because the price elasticity of demand is inelastic. We now turn to a discussion of pricing behavior.

Rising and Falling Prices

Fundamental to price discounting is the view that demand is elastic—meaning that the percentage change in consumers' consumption volume will exceed the percentage change in price. The more that volume or quantity changes as a result of price changes, the more elastic is demand for the product. Conventional wisdom and microeconomic theory suggest that when prices fall, demand for a given product will rise. This fundamental principle is based on the premise of the downward-sloping demand curve (with price on the vertical axis and quantity on the horizontal axis). As prices fall, the quantity demanded will rise (holding other factors constant). Falling prices and rising demand are thought to result in higher revenue, but this pattern of behavior may not in fact lead to revenue increases. Indeed, increased revenue depends on the price elasticity of demand. If lodging demand is price-elastic, then as prices fall revenue will increase. If lodging demand is price-inelastic, on the other hand, then the percentage change in consumer demand is less than the percentage change in price. Under this situation, as prices for hotel rooms fall, revenue will decline because consumers will not purchase significantly more room-nights.

The Study

In light of the limited number of existing pricing studies in the lodging industry, this article explores the question of competitive pricing in the lodging industry and, more specifically, examines the degree to which hotels that reduce prices relative to their competitors will enjoy higher relative customer demand and accompanying higher revenues. The focus of this investigation is on individual hotels and their comparably performing direct competitors in local markets. To ensure that our study captures the competitive pressures that accompany pricing activities, we compare a hotel's pricing strategies to that of its competitive set of like hotels with similar previous revenue performance. In short, we only look at competitors who were comparable in their rooms' revenue performance for the previous year.

The competitive set is a key element of the pricing study reported here for the simple reason that an individual hotel's occupancy is influenced by the actions of its direct competitors. While pricing guidelines may be set by brands and corporate strategy, pricing behavior is fundamentally driven by what is happening in local markets.

Data

In cooperation with the Center for Hospitality Research at Cornell University and Smith Travel Research (STR), we explored pricing behavior using 67,008 hotel observations over a seven-year period, from 2001 through 2007. The sample size changed from year to year, ranging from 11,056 hotels (in 2001) to 16,369 hotels (in 2007). The data were drawn from the databases of STR, which collects monthly room demand, room supply, and room revenue by property for more than 98 percent of the population of branded lodging properties in the United States.[2]

By arrangement with STR, we obtained monthly property-level data for each of the

2. We would have preferred to explore GOPPAR (gross operating profit per available room), but unfortunately these bottom line data are not available. This study perforce focuses on revenue as compared to profit. Business mix data would also be valuable for understanding pricing behavior but is also unavailable for comprehensive industry analysis.

seven years.[3] Data were analyzed on a yearly basis rather than on a monthly basis to minimize pricing irregularities that may have occurred in a particular month but that are not representative of the property's overall pricing strategy (Ismail, Dalbor, and Mills 2002). We aggregated STR's monthly rooms data to arrive at the annual number of rooms sold, annual number of rooms available, and annual rooms revenue for each property and for each property's competitive set for each year. STR requires a minimum of four properties to constitute a competitive set. The relevant competitors were determined by the individual hotels that provided their competitive set choices to STR. STR supplied the total monthly rooms data for the competitive set by property. Properties that had less than twelve months of data were eliminated from the sample.

The key variables of interest in this study are the percentage differences between each hotel and its competitive set of hotels on metrics of price, demand, and revenue. Annual ADR, occupancy, and RevPAR were computed for each property in the sample and each property's competitive set. The percentage difference in ADR among direct competitors was used as the basis for making comparisons in pricing strategies. To calculate percentage difference in ADR, the annual ADR of a competitive set was subtracted from the annual ADR of each hotel and compared to the annual ADR of the competitive set, expressed as a percentage. For example, if a specific hotel had an annual ADR of $50.00, and the annual ADR of the competitive set was $60.00, the percentage difference would be –16.7 percent ([$50.00 – $60.00/ $60.00] × 100). Since rates charged by the hotel in this example were lower than those of its competition, we would say that the percentage difference in ADR was negative, and the hotel's $50.00 price represents a difference of 16.7 percent below its competitive set. The percentage differences in RevPAR and occupancy were computed similarly.

To ensure that the results are not driven by noncompetitors, we excluded properties that were unable to achieve a percentage difference in RevPAR within one standard deviation of zero of the average of their competitors. It is important that the performance of a given hotel is comparable to that of its competitive set; otherwise the study may err by comparing substantially different types of hotels. There are many reasons why a hotel that is part of a competitive set may not be comparable to the hotels in that competitive set. Some properties are included in a hotel's competitive set because they are physically adjacent, even though they are in a different market segment. In this case, performance differences are not due to differences in pricing strategies. For example, if the competitive set of an economy hotel contains only upscale properties, then its price and RevPAR are probably lower than those of competitors regardless of the hotel's pricing strategy. If we included this property in the sample, we may make erroneous conclusions that lower relative prices are associated with lower relative RevPARs when in fact it may be impossible for that economy hotel to achieve RevPAR performance at least as great as that of competing upscale properties. Consequently, to err on the side of a conservative and fair comparison, we eliminated from our sample any hotels with a past performance not comparable to that of their competitors. While this approach reduced our sample size, it does provide a cautious approach to comparing prices among competing hotels.

3. Extended-stay hotels were excluded from this study because the typical traveler stays more than ten days at these hybrid apartment-all-suite-hotel complexes. Their lengthy average stay means that these operations have distinctive demand characteristics. We also excluded resorts because of their seasonality, the all-inclusive nature of some, and the fact that others include meals in room pricing.

Exhibit 1:
Number of Comparable Hotels in the Sample by Year

Hotels per Period	*2001-2007*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Number of comparable hotels	67,008	7,901	8,360	9,328	9,424	9,622	10,985	11,388
Percentage of total sample	69.92	71.46	70.47	69.10	69.20	69.69	70.31	69.57
Number of hotels with percentage difference in revenue per available room (RevPAR) < 1 standard deviation	14,428	1,577	1,637	2,037	2,034	2,087	2,465	2,591
Percentage of total sample	15.06	14.26	13.80	15.09	14.94	15.12	15.78	15.83
Number of hotels with percentage difference in RevPAR > 1 standard deviation	14,399	1,578	1,866	2,134	2,161	2,097	2,173	2,390
Percentage of total sample	15.02	14.27	15.73	15.81	15.87	15.19	13.91	14.60
Total hotel observations	95,835	11,056	11,863	13,499	13,619	13,806	15,623	16,369

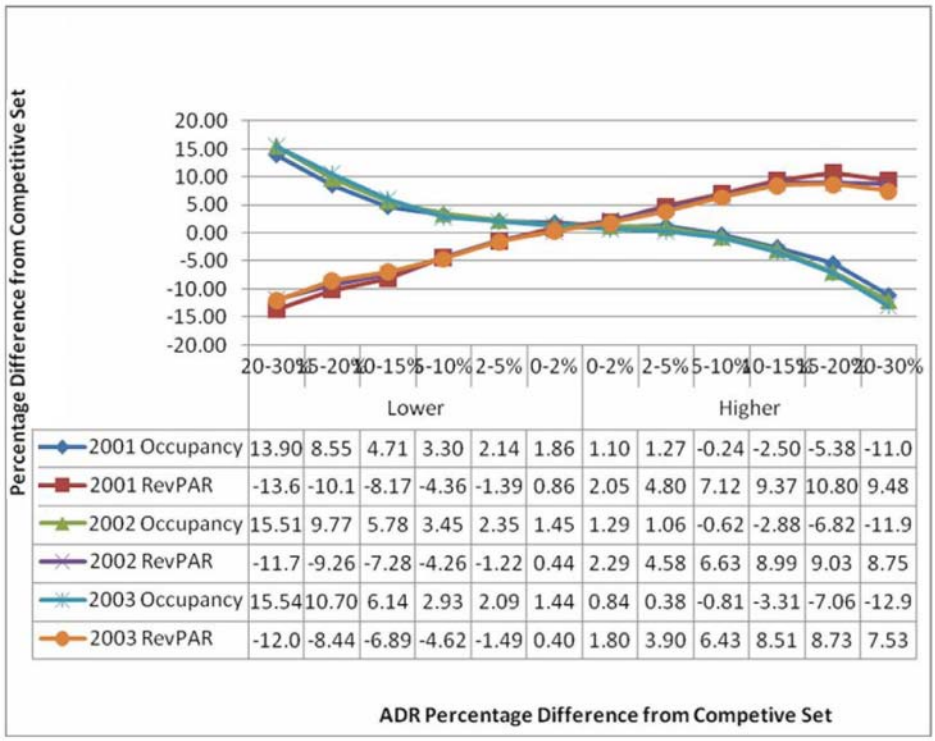
As we said, noncomparable properties were defined as those properties in which the absolute value of the percentage difference in RevPAR exceeded one standard deviation from zero of the average of its competitive set. The standard deviation in RevPAR percentage differences from the competitive set was calculated for each market segment for each year. All properties in which the percentage difference of RevPAR exceeds one standard deviation for the prior year were eliminated from the study, and they were included if their difference was less than one standard deviation. Note that inclusion or exclusion is based on rates and not on a hotel's market scale. Inclusion of hotels with rates within one standard deviation of each other provides a conservative test of relative price strategies because we eliminated those hotels that are most different from their competitive set in their performance in the preceding year. As a result of this procedure, it is possible to assert that each of the hotels included in the sample could obtain RevPARs comparable to those of their competitors, and thus the results will not be influenced by noncomparable properties.

A summary of the data sample, presented in Exhibit 1, shows the number of hotels and the percentage of hotels included in the study as well as the hotels that were excluded because their rate difference exceeded one standard deviation from zero. The number in the sample changes each year. For example, in 2007, of the 16,369 hotels available for study, 69.57 percent or 11,388 hotels were included in the study. The 4,981 other hotels were excluded from the study because their RevPARs were either substantially higher (14.60 percent were greater than one standard deviation) or substantially lower (15.83 percent were lower than one standard deviation) than those of their competitive set.

For the seven years in the study, just under 70 percent of the total sample of hotels was within one standard deviation of their competitive set in RevPAR performance. About 15 percent of the total sample of hotels generated substantially more RevPAR than their competitors did, and about 15 percent generated less RevPAR. By eliminating this 30 percent of the overall sample of hotels from the study, we believe the study captures true competitors.

The comparable hotels in this sample (N = 67,008 observations) were then grouped into twelve different pricing

Exhibit 2:
RevPAR and Occupancy Percentage Differences from the Competitive Set 2001-2003



	20-30%	15-20%	10-15%	5-10%	2-5%	0-2%	0-2%	2-5%	5-10%	10-15%	15-20%	20-30%
2001 Occupancy	13.90	8.55	4.71	3.30	2.14	1.86	1.10	1.27	-0.24	-2.50	-5.38	-11.0
2001 RevPAR	-13.6	-10.1	-8.17	-4.36	-1.39	0.86	2.05	4.80	7.12	9.37	10.80	9.48
2002 Occupancy	15.51	9.77	5.78	3.45	2.35	1.45	1.29	1.06	-0.62	-2.88	-6.82	-11.9
2002 RevPAR	-11.7	-9.26	-7.28	-4.26	-1.22	0.44	2.29	4.58	6.63	8.99	9.03	8.75
2003 Occupancy	15.54	10.70	6.14	2.93	2.09	1.44	0.84	0.38	-0.81	-3.31	-7.06	-12.9
2003 RevPAR	-12.0	-8.44	-6.89	-4.62	-1.49	0.40	1.80	3.90	6.43	8.51	8.73	7.53

Note: RevPAR = revenue per available room; ADR = average daily rate.

strategy categories based on their percentage difference in ADR (rate) from their competitive set by year. For example, a hotel having an annual percentage difference in ADR that was 5 to 10 percent higher than its competitors would be put in that price difference category, while other hotels would be put into a category for hotels that priced 2 to 5 percent below competitors, as appropriate. The price difference categories ranged from 20 to 30 percent above the competition to 20 to 30 percent below the competitive set, with the middle categories being 0 to 2 percent above competitors and 0 to 2 percent below the competition. After grouping hotels according to their pricing differences, we calculated the percentage difference between each hotel and its competitive set on occupancy and RevPAR.

The Bad Times, 2001–2003

The initial analyses covered the turbulent years of 2001 through 2003. Exhibit 2 shows the average percentage difference in occupancy and RevPAR performance for hotels that maintained either higher or lower ADRs compared to their competition. Overall, for hotels that undercut their competitive set on price, average percentage differences in occupancies were higher, but average percentage differences in RevPARs were lower compared to their competition. This pattern of higher occupancy but lower RevPARs when pricing

lower than competitors was true for hotels in all three years.

Occupancy winners. As shown in Exhibit 2, the maximum occupancy advantage over the competitive set was obtained by those hotels that had the lowest comparative ADRs. For example, in 2003, hotels that had ADRs 20 to 30 percent lower than their competitive set also had 15.54 percent higher occupancies. More to the point, these low-priced hotels reported the lowest comparative RevPARs. Clearly, the strategy of putting heads in beds was accomplished by dropping relative prices. In 2003, the hotels with prices 20 to 30 percent below those of the competition reported annual RevPARs 12.0 percent below the competition. In sum, while the goal of increased occupancy was achieved, the consequence for these hotels was substantially lower RevPARs than their competitive set.

Hotels that recorded relative prices 2 percent less than those of competitors experienced both higher relative occupancy and RevPAR. Hotels that charged relative prices less than 5 percent higher than competitors also recorded both occupancy and RevPAR gains relative to their competitors. Furthermore, higher comparative RevPARs were experienced by hotels with slightly higher competitive prices, as compared to slightly lower competitive prices. When hotels kept their relative prices more than 2 percent lower than their competition, they were rewarded with higher comparative occupancies but punished with lower relative revenue. Hotels that had relative prices more than 5 percent above the competition saw lower occupancies but higher relative revenue.

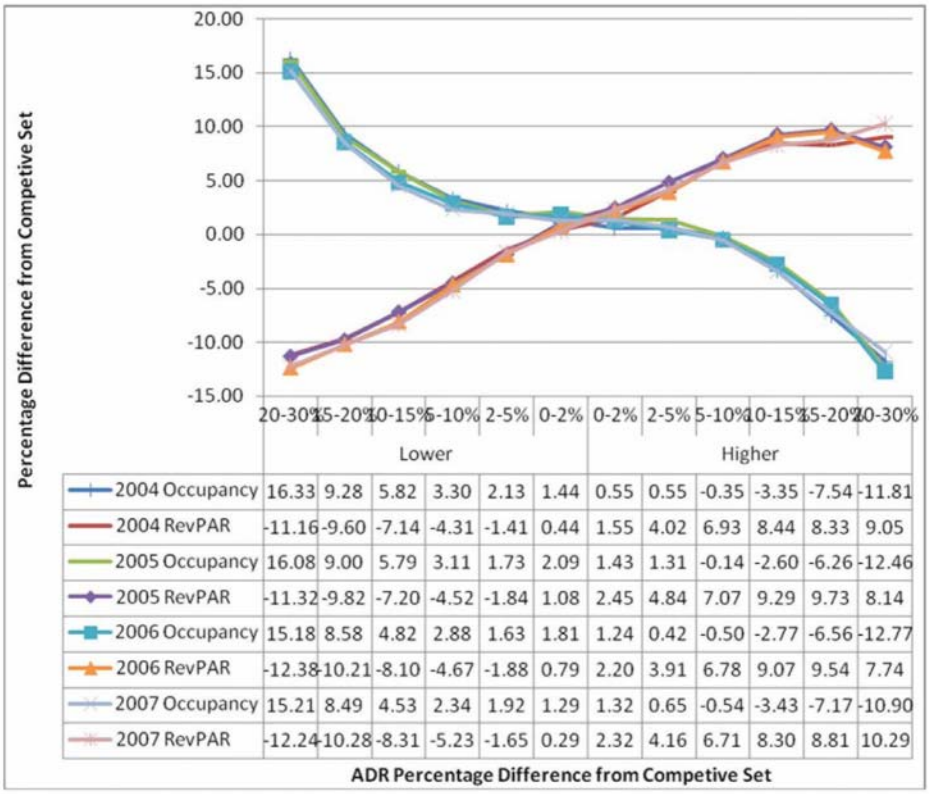
Revenue winners. According to the data, the maximum performance benefit for hotels in 2003 was obtained by those who maintained prices 15 to 20 percent above those of their competitive set. Hotels with these comparatively high prices yielded a 7.06 percent lower occupancy but saw the largest comparative RevPAR—8.73 percent higher than competitor hotels. Overall, hotels that did not undercut their competitors on price, but were instead higher-priced relative to their competitive set, ended each of the three years with higher comparative revenues per available room. In all three years, those hotels that offered average daily rates below their competitive set were relatively lower RevPAR performers, with higher occupancies. These results suggest the possibility that demand is inelastic in bad times because as prices fall, revenue decreases rather than increases. It appears that competitors' relatively low prices do not stimulate sufficient demand to yield higher revenues. The implications of this finding for operators will be discussed in a later section.

The Good Times, 2004–2007

One might anticipate that the outcomes of the industry's pricing behavior would change with the rebound in 2004, but we see no evidence to that effect. Instead, the analysis suggests a similar pattern of occupancies and RevPARs as was seen in the slack years. Exhibit 3 shows the percentage differences in RevPAR and occupancy performance for hotels that maintained either lower or higher ADRs compared to competitors from 2004 through 2007. Hotels with lower rates relative to competitors experienced higher occupancies, but their RevPARs were lower. This pattern of achieving higher occupancy but seeing lower RevPAR when offering lower rates compared to competitors was similar to the pattern found for the 2001 to 2003 period.

For each year from 2004 through 2007, the maximum occupancy advantage over the competitive set was obtained by those hotels that priced 20 to 30 percent lower

Exhibit 3:
RevPAR and Occupancy Percentage Differences from the Competitive Set 2004-2007



	20-30%	15-20%	10-15%	5-10%	2-5%	0-2%	0-2%	2-5%	5-10%	10-15%	15-20%	20-30%
2004 Occupancy	16.33	9.28	5.82	3.30	2.13	1.44	0.55	0.55	-0.35	-3.35	-7.54	-11.81
2004 RevPAR	-11.16	-9.60	-7.14	-4.31	-1.41	0.44	1.55	4.02	6.93	8.44	8.33	9.05
2005 Occupancy	16.08	9.00	5.79	3.11	1.73	2.09	1.43	1.31	-0.14	-2.60	-6.26	-12.46
2005 RevPAR	-11.32	-9.82	-7.20	-4.52	-1.84	1.08	2.45	4.84	7.07	9.29	9.73	8.14
2006 Occupancy	15.18	8.58	4.82	2.88	1.63	1.81	1.24	0.42	-0.50	-2.77	-6.56	-12.77
2006 RevPAR	-12.38	-10.21	-8.10	-4.67	-1.88	0.79	2.20	3.91	6.78	9.07	9.54	7.74
2007 Occupancy	15.21	8.49	4.53	2.34	1.92	1.29	1.32	0.65	-0.54	-3.43	-7.17	-10.90
2007 RevPAR	-12.24	-10.28	-8.31	-5.23	-1.65	0.29	2.32	4.16	6.71	8.30	8.81	10.29

Note: RevPAR = revenue per available room; ADR = average daily rate.

than their competitors. In 2007, for example, hotels that had the lowest ADRs relative to their competitive set also had 15.21 percent higher occupancies. Nevertheless, these low-price hotels still had the lowest comparative RevPARs. Once again, even in good times, offering lower rates yielded occupancy gains but RevPAR losses when compared to competitor hotels.

It is interesting to note, as shown in Exhibit 4, that around 66 percent of all hotels were pricing within 10 percent of their competition. The most frequent relative price discount for hotels was 5 to 10 percent below the competitive set. Similarly, the most popular pricing above the competition was also within the 5 to 10 percent range. In total, almost 30 percent of the hotels in this sample priced either 5 to 10 percent above or 5 to 10 percent below their competitors. We found only 7 percent of hotels priced at the extreme levels of 20 to 30 percent above or below the competition. Finally, 16 percent of operators maintained slight price premiums or discounts of a modest 0 to 2 percent, and 21 percent priced within 5 percent of competitors (whether above or below competitors' rates). We also note that the percentage of properties in each relative pricing category is similar in both time periods (2001-2003 and 2004-2007). This summary of hotels' pricing behavior shows that a large portion of hotels strive to price close to their competitors, but a rate structure that is 5 to 10 percent higher or lower

Exhibit 4:
Distribution of Hotels by Competitive Price Category, 2001-2007

	2001-2007			
Pricing Category	*Number of Observations*	*Percentage of Observations*	*2001-2003: Percentage of Observations*	*2004-2007: Percentage of Observations*
20-30%	3,082	4.60	4.56	4.62
15-20%	4,135	6.17	5.97	6.29
10-15%	6,835	10.20	10.02	10.31
5-10%	10,182	15.20	15.23	15.17
2-5%	7,397	11.04	11.27	10.90
0-2%	5,297	7.91	8.05	7.82
0-2%	5,185	7.74	7.83	7.68
2-5%	6,943	10.36	10.55	10.25
5-10%	9,222	13.76	13.68	13.81
10-15%	5,056	7.55	7.71	7.44
15-20%	2,345	3.50	3.38	3.57
20-30%	1,329	1.98	1.75	2.13
Total	67,008	100.00	100.00	100.00

than the competition is the most common overall pricing strategy. Over the seven-year period, hotels that price 5 to 10 percent lower than competitors have lower comparative RevPARs, while those that price 5 to 10 percent higher than competitors have higher comparative revenues.

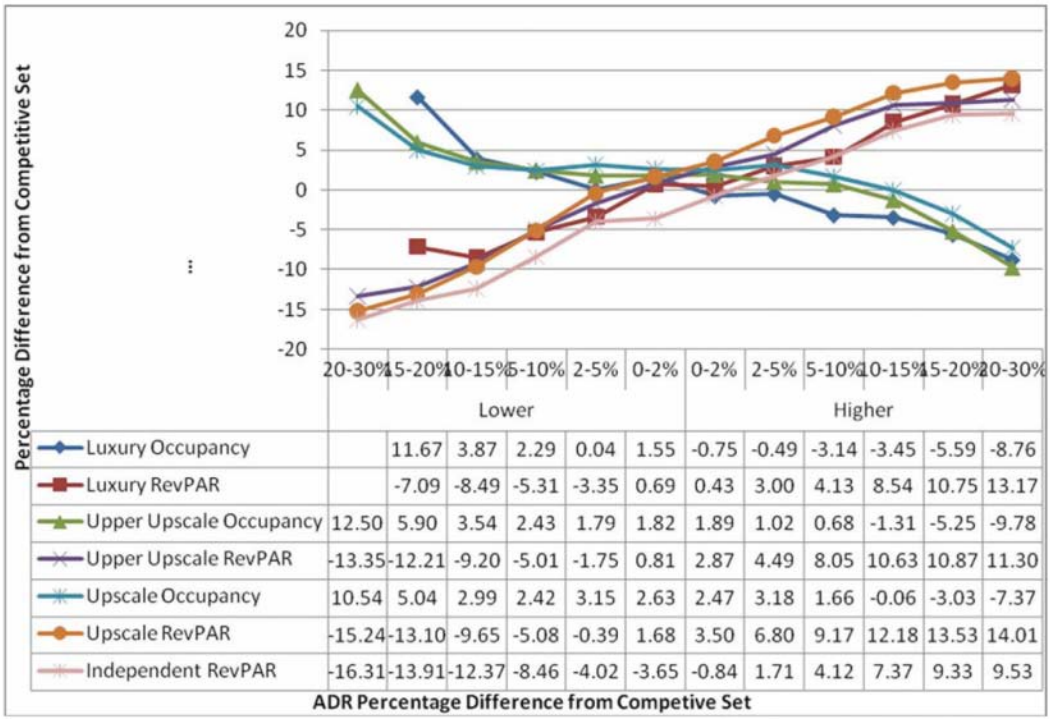
Pricing by Market Segment

Hotels are typically categorized into broad price and quality bands including the categories of luxury, upper upscale, upscale, midscale (full service), midscale (limited service), and economy hotels. These market segments vary on amenities, facilities, and services, as well as rates. A preliminary examination of the data revealed only modest differences in the pricing behavior of hotels in various market segments. Since the pattern of pricing is similar for all market segments, we grouped the three higher segments into one group and the lower segments into another. We relied on the STR market scale segments based on the actual, systemwide average room rates of major chains. We also aggregated the pricing data over the seven-year time horizon because the yearly patterns were not substantially different from each other. For those interested in more detailed data on individual years and market segments, see Enz, Canina, and Lomanno (2004) and Canina and Enz (2006b). We now turn to the pricing dynamics of competitor hotels serving higher market segments of the industry.

High-End Hotels: Luxury, Upper Upscale, and Upscale

Beginning with the most luxurious hotels in the United States, as shown in Exhibit 5, occupancies decline with rising comparative rate strategies. Hotels that price above the competition lose occupancy, but they have solid RevPAR premiums. In contrast, both occupancies and RevPAR rise for upper upscale and upscale hotels that price as much as 10 percent higher than their competitors do. Occupancies decline compared to competitor hotels only when upscale and upper upscale hotels have prices 10 to 15 percent above the competition. Regardless of the market segment, all hotels that priced above their competitors experienced higher comparative RevPAR performance. The largest percentage gains

Exhibit 5:
RevPAR and Occupancy Percentage Differences for Luxury, Upper Upscale, and Upscale Hotels Compared to the Competitive Set 2001-2007



	20-30%	15-20%	10-15%	5-10%	2-5%	0-2%	0-2%	2-5%	5-10%	10-15%	15-20%	20-30%
	Lower						Higher					
Luxury Occupancy		11.67	3.87	2.29	0.04	1.55	-0.75	-0.49	-3.14	-3.45	-5.59	-8.76
Luxury RevPAR		-7.09	-8.49	-5.31	-3.35	0.69	0.43	3.00	4.13	8.54	10.75	13.17
Upper Upscale Occupancy	12.50	5.90	3.54	2.43	1.79	1.82	1.89	1.02	0.68	-1.31	-5.25	-9.78
Upper Upscale RevPAR	-13.35	-12.21	-9.20	-5.01	-1.75	0.81	2.87	4.49	8.05	10.63	10.87	11.30
Upscale Occupancy	10.54	5.04	2.99	2.42	3.15	2.63	2.47	3.18	1.66	-0.06	-3.03	-7.37
Upscale RevPAR	-15.24	-13.10	-9.65	-5.08	-0.39	1.68	3.50	6.80	9.17	12.18	13.53	14.01
Independent RevPAR	-16.31	-13.91	-12.37	-8.46	-4.02	-3.65	-0.84	1.71	4.12	7.37	9.33	9.53

Note: RevPAR = revenue per available room; ADR = average daily rate.

in each price category were for hotels in the upscale segment, followed by upper upscale, and then luxury. However, luxury hotels that priced 20 to 30 percent higher than their competitors had 13.17 percent higher RevPARs.

Modest price discounts, between 0 and 5 percent, showed the greatest relative occupancy rates for hotels in the upscale segment. For hotels competing in the upper upscale segment, deeper discounting, at 5 to 10 percent, yielded the highest comparative occupancy. Finally, when luxury hotels discounted 10 to 20 percent, they experienced the greatest relative occupancy of any high-end hotels. It is interesting to note that luxury hotels did not engage in discounting beyond that level, unlike hotels in the upper upscale and upscale segments. Modest RevPAR premiums were found regardless of segment for hotels that dropped their prices by less than 2 percent. Deeper discounting yielded lower RevPAR for all high-end hotels. Overall, the pattern of demand and revenues shows that competitors have higher occupancies when they offer lower relative rates; however, they also face lower RevPARs, a pattern that leans toward demand being price-inelastic. The lowest-rated hotels, regardless of market segment, gain market share from their competitors in the form of higher occupancies. The important point, again, is that hotels with lower relative prices lose RevPAR while gaining occupancy.

Upscale and upper upscale hotels that priced within 2 percent of their competitive set (whether above or below) are quite

similar in their RevPAR and occupancy performance. It appears that modest 2 percent price variations relative to the competition constitutes a viable strategy for hotels in these market segments. Luxury hotels fare better by pricing 2 to 5 percent above their competitors, in that the occupancy loss (at 0.49 percent) is actually smaller than when pricing less than 2 percent above the competition, and RevPAR performance is 3.00 percent above competitors.

Midscale and Economy Hotels

Economy hotels can gain substantial occupancies by lowering their prices relative to the competition. For hotels in this segment that price 20 to 30 percent lower than their competitors, dramatic occupancy boosts (16.51 percent) can be obtained, as illustrated in Exhibit 6. Unfortunately, this market share benefit comes with substantially lower RevPARs—11.36 percent lower than other market competitors. Discounting rates relative to economy-segment competitors does not result in better RevPARs than the competition. Economy hotels that price above their competitors lose occupancy but gain modest RevPAR benefits. In this market segment, RevPAR gains are far more modest than in the midscale segments. Midscale hotels without food and beverage that price above the competition appear to have the most dramatic RevPAR benefits of the lower-segmented hotels. In contrast, midscale hotels with food and beverage have the largest RevPAR losses when they price below the competition. Keep in mind that this study does not look at total revenues, and hence it is possible that some hotels drop rates in the hopes of making up for this rate reduction in profits from food and beverage.

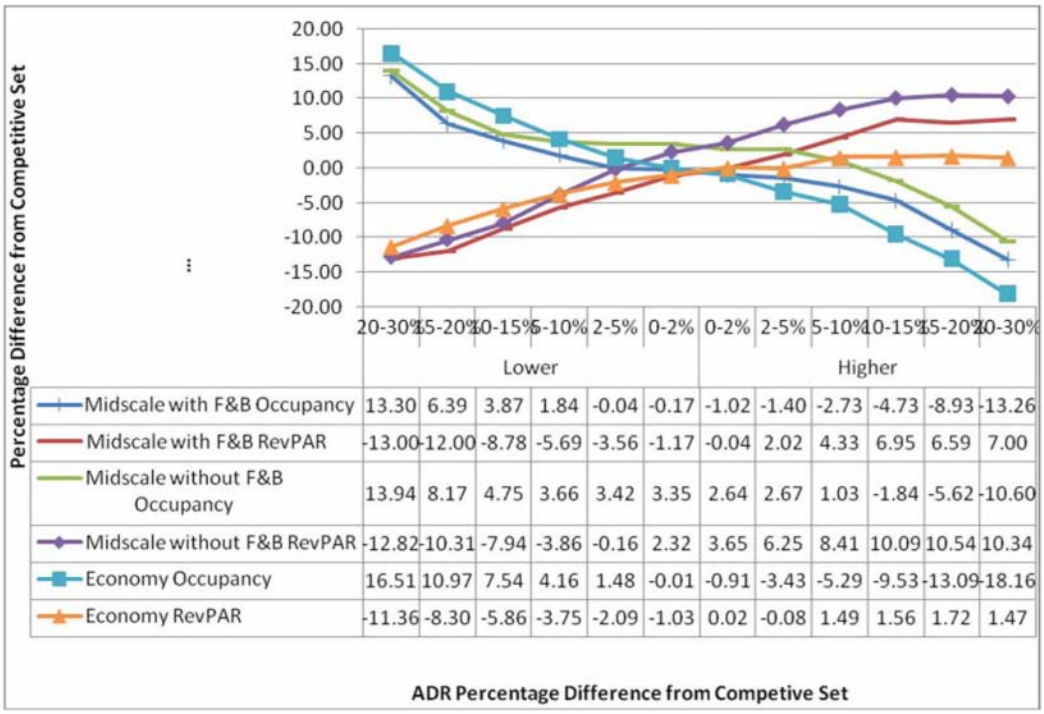
Lower occupancies and higher RevPARs are the norm for hotels that price above their competition in midscale and economy segments. Midscale hotels with food and beverage and economy hotels also lose occupancy when they price just a little (less than 2 percent) below the competition. Only midscale hotels without food and beverage get an occupancy boost for modest discounting. The greatest benefits from price discounting should be experienced by economy hotels that pursue this strategy because their customers are considered to be the most price-sensitive. Indeed, economy hotels did get the greatest occupancy benefit from pricing below the competition. Nevertheless, even in the economy segment, higher prices of 5 percent or more above competitors produced RevPAR benefits of about 1.5 percent as compared to the competition (1.47–1.72 percent).

For the seven-year period, over all of the market segments, the pattern of results reported in this study shows that price discounting leads to higher occupancy but lower RevPAR compared to the competition. Across the board, with higher prices come higher RevPARs. The dynamics between price and occupancy appear quite stable from segment to segment, but the degree to which higher prices produce dramatic or gradual drops in occupancy does vary by segment.

Popular Pricing Strategies

Since the most frequent pricing pattern in our sample is average rates (ADRs) between 5 and 10 percent above the competition or a similar percentage below the competition, a closer look at hotels that priced in this range is merited. As shown in Exhibit 7, economy hotels were the biggest beneficiaries of occupancy gains when they priced 5 to 10 percent below competitors. Market segments with the greatest occupancy benefits from this pricing strategy were, in order, economy,

Exhibit 6:
RevPAR and Occupancy Percentage Differences for Midscale and Economy Hotels Compared to the Competitive Set 2001-2007



	20-30%	15-20%	10-15%	5-10%	2-5%	0-2%	0-2%	2-5%	5-10%	10-15%	15-20%	20-30%
	Lower						Higher					
Midscale with F&B Occupancy	13.30	6.39	3.87	1.84	-0.04	-0.17	-1.02	-1.40	-2.73	-4.73	-8.93	-13.26
Midscale with F&B RevPAR	-13.00	-12.00	-8.78	-5.69	-3.56	-1.17	-0.04	2.02	4.33	6.95	6.59	7.00
Midscale without F&B Occupancy	13.94	8.17	4.75	3.66	3.42	3.35	2.64	2.67	1.03	-1.84	-5.62	-10.60
Midscale without F&B RevPAR	-12.82	-10.31	-7.94	-3.86	-0.16	2.32	3.65	6.25	8.41	10.09	10.54	10.34
Economy Occupancy	16.51	10.97	7.54	4.16	1.48	-0.01	-0.91	-3.43	-5.29	-9.53	-13.09	-18.16
Economy RevPAR	-11.36	-8.30	-5.86	-3.75	-2.09	-1.03	0.02	-0.08	1.49	1.56	1.72	1.47

Note: RevPAR = revenue per available room; ADR = average daily rate; F&B = food and beverage.

midscale (limited service), upper upscale, upscale, luxury, and midscale (full service). It is possible that full-service midscale hotels (with food and beverage) do not get the same occupancy benefit from lower prices because this segment of hotels is more likely to benefit from demand due to customers trading down from higher-price segments. For hotels that priced 5 to 10 percent above their competitors, the occupancy or demand losses were greatest for economy hotels. Luxury hotels also lost substantial occupancy (3.14 percent loss) when pricing 5 to 10 percent above competitors. The smaller losses for upper upscale hotels, in contrast, may reflect a trading-down strategy by luxury customers. The most interesting finding was for midscale hotels without food and beverage. This group of hotels experienced an occupancy gain when they priced 5 to 10 percent above the competition. This market segment was the only segment to see greater occupancy with higher prices.

Hotels that gained the most RevPAR when pricing 5 to 10 percent above their competitive sets were in the upscale, midscale without food and beverage, and upper upscale market segments (see Exhibit 7). Economy hotels gained a RevPAR advantage of only 1.49 percent, which is not surprising given this segment's price sensitivity. The notable benefits that were obtained by midscale limited-service hotels (8.41 percent gain) may indicate customers trading down

Exhibit 7:
Occupancy and Revenue per Available Room (RevPAR) Percentage Differences by Market Segment for Hotels That Priced 5 to 10 Percent above or below Their Competitors (2001-2007)

Market Segment	*Occupancy Difference When Pricing below Competitors*	*Occupancy Difference When Pricing above*	*RevPAR Difference When Pricing below Competitors*	*RevPAR Difference When Pricing above Competitors*
Luxury	2.29% gain	3.14% loss	5.31% loss	4.13% gain
Upper upscale	2.43% gain	0.68% loss	5.01% loss	8.05% gain
Upscale	2.42% gain	1.66% loss	5.08% loss	9.17% gain
Midscale with food and beverage (F&B)	1.84% gain	2.73% loss	5.69% loss	4.33% gain
Midscale without F&B	3.66% gain	1.03% gain	3.86% loss	8.41% gain
Economy	4.16% gain	5.29% loss	3.75% loss	1.49% gain

from a higher segment. It is possible that upper upscale and upscale hotels are also reaping benefits from customers who trade down from luxury hotels. Regardless of price segment, RevPAR gains come to those who price above their competitors, and consistent RevPAR shortages fall to those who price below their competitors. The percentage differences in RevPAR losses for discounters was similar across market segments and highest for midscale full-service hotels and luxury hotels.

Advice in Uncertain Times

Based on the findings above, we offer the following observations framed in a question-and-answer format.

- Does price discounting relative to the competition lead to increases in occupancy and ultimately increases in RevPAR?

Occupancy, yes; RevPAR, no. Offering guests prices that are lower than the competition does lead to higher occupancy percentages for the discounting hotel, but these comparatively lower prices also result in lower RevPAR performance than the competition.

- What happens when a hotel prices above its competitors?

Hotels that price higher than their competitors have lower occupancies but higher RevPARs, especially when they price significantly higher than their competitors do. It is also possible that some customers trade down to lower market segments. This possibility looks to be greatest for luxury and full-service midscale hotels.

- What is the best way to make money compared to your competition? Should a hotel offer low prices to fill rooms or maintain high prices despite the threat to occupancy?

The best way to have higher revenue performance than your competitors is to have higher rates. A hotel should not drop its prices below those of its true competitors if it wishes to enjoy a RevPAR premium.

- Do the dynamics between changes in price and occupancy differ by market segment, and do they depend on the economic environment?

This study found minuscule differences in various market segments or in years of plenty or recession. The general pattern of results was consistent. Whether you face

good or bad times, pricing above your direct competitors yields higher rooms revenue, while pricing below your competitors does not stimulate sufficient demand to give the hoped-for revenue boost to make up for the lower rates. Guests of luxury hotels appear to be less sensitive to price discounting, while customers of economy hotels are quite sensitive to small price increases.

Future Directions

The results of this article are relevant for competitive pricing decisions, as they offer insights into the effects of price levels on occupancy and RevPAR. The findings revealed a pattern of relationships connecting competitive price differences with the comparisons of occupancy levels and RevPAR performance, all within a competitive system based on operator-selected direct competitors. The analysis does not reveal an optimal pricing strategy or the impact of price changes on overall demand and RevPAR (nor was it intended to do so). Rather, the study shows the effects of pricing on relative demand and relative RevPAR in the context of a hotel's competitive set.

An evaluation of optimal pricing and the impact of price changes would require models of supply, demand, and profitability, including costs. This study did not offer such an approach, but we see a need for a methodology that is capable of estimating measures of the own-price and cross-price elasticities of demand for hotels by market segment and location using property-level data. This needed approach to understanding pricing is complex due to the heterogeneity within local markets and differences in competitive conditions across markets both in terms of supply and demand factors. As a result, it is important to control for the degree and variety of supply competitiveness, as well as the differences in the characteristics and preferences of consumers, which vary across market segments, geographical locations, and time. Complex though such an analysis may be, it is worthy of further consideration in future empirical investigations.

Since RevPAR rather than income is the performance measure in this study, the impact of competitive price positions on costs and income was not examined. Even though this type of analysis is straightforward, the lack of cost and income data availability made it impossible to include costs in our analysis. To examine optimal pricing, information is required on fixed and variable costs, as well as competitive conditions. The evaluation of optimal pricing requires an analysis of market competitiveness, cost functions, and prices. Linking pricing behavior to cost management is another area worthy of future research.

This study is one of the few that has examined competitive pricing in the lodging industry. Needless to say, more research is needed in the field of pricing strategies in the lodging industry to achieve a better understanding of optimal pricing behavior. Empirical research that examines the own-price and cross-price elasticities of demand and the relationships between price, demand, and costs will enlighten managers in their development of pricing strategies.

In closing, we must point out that this study in no way conflicts with the core principles of revenue management. To the contrary, in a study of more than thirty thousand hotels between 2001 and 2005, Canina and Enz (2006a) found that hotels that priced above their competition were among the best at revenue management, defined as the rate-to-occupancy relationship. So while revenue management is an essential tactic, this study suggests there is nothing wrong with maintaining your hotel's strategic rate position in both good times and bad—even when your competitors are discounting. Hotels in most market segments benefited from setting their prices even a small degree above the competition. By raising prices in a competitive

market, rather than lowering them, you will lose occupancy but fully make up for the loss in filled beds with higher RevPAR. For many hoteliers, once rates are lowered it is increasingly difficult to raise them again. It is our hope that by examining hotels that outperformed their competitive set, we can offer some sound information to inform those who are puzzling over the discounting debate.

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