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Markets
The U.S. Lodging Industry

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This feature explores the operation of individual markets. Patterns of behavior in markets for specific goods and services offer lessons about the determinants and effects of supply and demand, market structure, strategic behavior, and government regulation. Suggestions for future columns and comments on past ones should be sent to James R. Hines Jr., c/o *Journal of Economic Perspectives*, Department of Economics, University of Michigan, 611 Tappan Street, Ann Arbor, Michigan 48109-1220.

Introduction

The U.S. lodging industry appears highly competitive. Ownership concentration appears low. Across the United States, the industry includes 50,000 properties that are owned by almost 30,000 distinct firms and sole proprietors. Variable costs are low relative to fixed costs, and unused rooms cannot be stored for future sale, so price-cutting should be attractive. However, this paper argues that, unexpectedly, oligopolistic market structures in many local lodging markets, combined with behavioral norms of cooperation, sustain profits in what might otherwise be an industry of cutthroat competition.

We must take appropriate caution in inferring economic profitability from accounting data, but even when we do, a variety of data cumulatively suggest that the U.S. lodging industry is quite profitable. First, U.S. hotel companies—

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including franchisors, franchisees, and independent hotel operators—have enjoyed an aggregate annual pretax income of between $12 billion and $22 billion on revenues of approximately $100 billion over the last decade (Standard and Poor's, 2005). Second, a majority of hotels operate above "break-even occupancy"—the percentage of rooms that must be sold on average for a hotel to show positive pretax income. Hanson (2005) estimated this popular industry benchmark to stand at roughly 53 percent since 2000. Using the Smith Travel Research occupancy database of more than 20,000 hotels nationwide, I calculated that the occupancy of an average hotel was 62.6 percent of available rooms in 2000; 58.5 percent in 2002; and 60.1 percent in 2004. Third, to get a sense of return on asset valuation in this industry dominated by private firms, O'Neill (2003) collected sales prices and contemporaneous income information for 327 hotels sold between 1990 and 2002. The average hotel in the sample sold for $12.8 million and generated $1.72 million in net operating income annually, or a 13.4 percent return on the sales price.

To describe the patterns of competition and cooperation in the U.S. lodging industry, I combine theoretical arguments, empirical regularities from published research, descriptive statistics from industry and government sources, and anecdotal evidence from the trade press and from interviews that were conducted by me and by my students with managers of over 200 properties nationwide. I also point out many questions worthy of further analysis. My hope is that the paper piques the interest of readers and spurs future research about this fascinating industry.

Market Concentration

The market structure of the lodging industry is not readily apparent from looking at the names on hotel and motel marquees because, behind the scenes, a number of companies own multiple brands. Moreover, some lodging firms manage properties directly, others franchise to local owners, some work as membership cooperatives, and others mix these elements.

As shown in Table 1, the ten largest brand owners hold over 50 percent of the U.S. market when we include all properties that are either directly managed by these firms or franchised out to others. As a different measure, the 50 largest "third-party" management companies that act as franchisees control 3,000 larger-than-average properties (Lodging Hospitality, 2003). The 3,000 properties include many of the properties franchised by the top ten brand owners and thus counted in Table 1. Small franchisees and independent operators own and operate the remaining properties.

Casual observers often assume that the relevant market for the lodging industry must be local, rather than national. This claim is half true. About half of room rentals involve corporate accounts, which are often negotiated nationally, and conference business, where cities compete. The other half of rooms are rented to individual business and leisure "transient" travelers. For this segment, competition

Table 1
Top Brand-Owning Hotel Companies in 2004, Based on Number of U.S. Properties

Company	*Major brand(s) owned*	*Total brands*	*Company type*	*Total rooms*	*Total properties*
Cendant	Super 8, Days Inn	8	F	518,140	6,383
Choice Hotels	Comfort Inn, Quality Inn	8	F	396,081	4,884
Best Western	Best Western	1	Mem.	309,557	4,108
Intercontinental	Holiday Inn	7	O/M/F	538,907	3,557
Marriott	Marriott, Courtyard	9	M/F	502,575	2,800
Hilton	Hilton, Hampton	7	O/M/F	351,496	2,196
Accor	Motel 6, Red Roof	5	O/M/F	136,385	1,252
Starwood	Sheraton	6	O/M/F	229,544	739
Carlson Hospitality	Radisson	5	O/M	147,540	883
Extended Stay	Extended Stay America	5	O/M	67,606	608
Totals		61		3,197,831	27,410

Source: Hotel & Motel Management. September 20, 2004.
Notes: F = franchisor, Mem. = membership cooperative, M = management company, O = property owner. Best Western functions largely as a franchisor although the members collectively own the brand.

is local. Our interviews have consistently found that very few hotels believe that they have more than four or five active local rivals, which hints at the possibility of oligopoly power. Even though hotels set prices, not quantities, Kreps and Scheinkman (1983) show that a price-setting oligopoly can achieve rents as long as the members first commit to a fixed capacity. This scenario applies to hotels: the number of rooms is largely fixed based on initial construction. Hotels may also enjoy some market power because customers face nontrivial search costs to find competitors' prices (for example, Diamond, 1971).

Evidence from the Smith Travel Research database demonstrates the pricing benefits of fixed capacity in a local market. Table 2a shows daily prices for the 247 U.S. chain hotels that reported at least seven days of a complete sellout of their local market in 2005. The average daily rates received by the hotels on market sellout days were 25 percent higher than those received by these same hotels on all other days of the year, including those days when some but not all hotels in the market sold all their rooms. What about those hotels not fortunate enough to reside in markets that sell out? Table 2b shows the price variation at all hotels, based on their own relative occupancy levels. Even if a hotel always has some excess capacity, it enjoys 15 percent higher average daily rates in the 90 days when it has the highest occupancy relative to the 90 days when it has the lowest. Conlin and Kadiyali (2006) suggest an additional silver lining for excess capacity in the lodging industry: they argue that it deters entry.

Not surprisingly, hotels make most of their money from the transient market segment where travelers must choose among a small number of local competitors. The conventions and long-term corporate accounts market seg-

Table 2a

Average Daily Rates for 247 U.S. Chain Hotels Reporting At Least Seven Days of a Complete Market Sellout in 2005

Hotel type	*Number of U.S. hotels*	*Average price on market sellout days*	*Average number of days where market sells out*	*Average price on all other days*
Upscale & luxury	13	$133	9.5	$107
Mid-scale (with and w/o F&B)	151	$ 97	11.3	$ 77
Economy & budget	83	$ 73	10.9	$ 53

Table 2b

Average Daily Rates for 17,251 U.S. Chain Hotels Reporting 300+ Days of Price and Revenue Data in 2005

Hotel type	*Quartile of highest occupancy*	*2nd quartile of occupancy*	*3rd quartile of occupancy*	*Quartile of lowest occupancy*
Upscale & luxury	$117	$110	$105	$99
Mid-scale (with and w/o F&B)	$ 79	$ 73	$ 71	$69
Economy & budget	$ 54	$ 50	$ 48	$47

Note: A common breakdown of quality tiers in lodging from low to high quality—which corresponds roughly to ratings of one to five diamonds by AAA—is budget, economy, mid-scale, upscale, and luxury (or upper-upscale). Often budget and economy are merged into one tier, and upscale and luxury hotels into another. F&B = food and beverage service.

ments often involve deep discounting. For example, the convention segment pits city against city, instead of hotel against hotel, and the cities compete vigorously. Marlene Hight of the American Economic Association explained to me (on March 6, 2006) that the Allied Social Science Association (ASSA) requests bids from three to five cities for each year's conference. For the ASSA, she stated that the only decision variable is the single-room rate for its members, since the belief is that any of its finalist cities will provide excellent support for the meetings. When a convention organizer asks a city's tourist board to prepare a bid, the board in turn solicits bids from individual hotels convenient to the main convention site. The ASSA typically only accepts bids from other hotels equal or lower than the rate of the main conference hotel.

Why do convention planners often enjoy a buyer's market? One reason is that cities have been oversold on the economic spillovers from conventions by overoptimistic politicians and consultants, and they have responded by subsidizing convention centers and proximate "headquarters" hotels. Sanders (2004) describes detailed cases of four hotels underwritten by city bonds after private investors could not be found—in Sacramento, St. Louis, Myrtle Beach, and Overland Park, Kansas—and notes that none are enjoying a performance level even close to that

anticipated by rosy feasibility studies.[1] These new publicly subsidized hotels have created excess supply, forcing existing hotels in the vicinity to lower their rates to maintain market share. Moreover, large brand-affiliated flagship hotels that serve as convention hubs are sometimes viewed as loss leaders by their brand-owning franchisors: that is, franchisors are more concerned that the properties promote the image of the brand than that the properties make money as stand-alone entities.

Negotiations over price in the other half of the lodging industry, the individual business and leisure "transient" segment, look quite different. Not only do the transient travelers face a limited number of options for their stay in a local market, but the concentration in the local market may be higher than it appears. Nearby hotels of different brands may be owned or operated by the same franchisee owner. In addition, multi-unit owners can transfer detailed knowledge across their locations (Darr, Argote, and Epple, 1995). These factors help to explain the results of Ingram and Baum (1997) that multi-unit ownership leads to higher survival rates for hotels.

The best detailed evidence on common ownership of different brands in a local market comes from Texas, where the Comptroller of Public Accounts makes public the location, brand name, owner name, and quarterly revenues of every hotel in the state. The data can be downloaded at ⟨http://www.window-.state.tx.us/ecodata/taxfiles.html#hotel⟩. Conlin and Kadiyali (2006), Kalnins (2004), and Kalnins and Chung (2004, 2006) have described and analyzed these data. The 1,387 franchised hotels in Texas in 1999 were distributed across 536 zip codes, 351 of which have more than one hotel with a name brand. In 145 cases, the same franchisee operates two or more hotels of different brands in the same zip code. In a further 187 cases, a firm operates one branded and one nonbranded hotel in the same zip code. On one dimension, however, industry concentration may be lower than it appears to a casual observer: franchisees are very willing to compete aggressively against others affiliated with the same brand, though these are typically found in neighboring markets rather than in the same market (Kalnins, 2004).

In addition, firms that own and operate multiple hotels often find themselves competing against each other in more than one market, a structural feature known as "multimarket contact" that can also create rents for oligopolies. Bernheim and Whinston (1990) show that a pair of firms that compete in a concentrated market where tacit collusion is possible can shift enforcement power to a less concentrated market where they also both participate. For example, assume Waco is a concentrated and profitable lodging market while

[1] Sanders (2004) notes that feasibility studies for headquarters hotels in Denver, Colorado Springs, Raleigh, and Omaha also appear flawed. In another article, Sanders (2002) describes a similar zeal by consultants to overestimate the market potential of the convention centers themselves. One large flaw of these feasibility studies is that they fail to take into account simultaneous supply growth in competing cities, a manifestation of a common psychological bias called the "inside view" by Kahneman and Lovallo (1993).

Abilene has excess supply. Two hotel owners, each with units in both cities, can use the threat of a price war in Waco to discourage price cutting in Abilene. Korn and Baum (1999) and Gimeno and Jeong (2001) review the large empirical literature covering many industries, which is, for the most part, supportive of this theory. In the lodging industry, Fernandez and Marin (1998) found higher prices in Spanish markets where hotels with brand-level multimarket contact are present. It would be interesting to pursue this insight by looking at multimarket contact in the U.S. lodging market at the franchisee level, because franchisees stand to gain the most from the softened competition.

Vertical Separation, Franchising, and Management Companies

A large body of academic work shows how industries can increase market power by organizing in a vertically separated fashion. In particular, vertical separation creates the possibility of "double marginalization," which occurs when two parties in the chain of production, each with some market power of their own, act independently to increase their price and profit margin. The ability of downstream retailers such as franchisees to set prices with a positive margin gives their upstream counterparts such as franchisors the ability to increase their own margins in equilibrium (Bonanno and Vickers, 1988).[2]

Vertical separation in the lodging industry takes place via franchising contracts. Revenue-based royalties paid by the franchisees provide franchisors with their upstream margins. Franchisors typically receive additional revenue-based payments for "joint advertising funds" and fixed fees for reservations made through their central booking systems. These expenses may total as much as 9 percent of a franchisee's gross room revenues. Some franchisees are nonbranded "third-party" management companies that pay an additional revenue percentage to the owners of the physical property.[3] Because these royalties increase the franchisees' marginal costs, the franchisees will take them into account when setting the profit-maximizing room prices. As a result, an oligopoly's competitive equilibrium price will be higher than it would be in the same market in the absence of vertical separation.

Franchising has grown dramatically, possibly in part because of the competition-reducing benefits of double marginalization (Lafontaine, 1995). Only 2 percent of all U.S. motels were affiliated with franchised chains in 1962, while 64 percent were affiliated by 1987 (Jakle, Sculle, and Rogers, 1996, p. 150). According to Lomanno (2002a) the number of branded chain hotel rooms (franchised and

[2] Until 1997 it was per se illegal for upstream firms such as franchisors to dictate prices at separately owned downstream affiliates such as the franchisee-owned hotels. The practice is now analyzed on a case-by-case basis (Blair and Lafontaine, 1999). Nonetheless, lodging prices vary too much by location for the franchisor to find dictating prices from afar to be an attractive strategy.

[3] In some management contracts, the owner pays the operator a percentage, typically of both profits and revenues (Eyster, 1988, pp. 15–16), rather than the other way around. In this case there is no additional double marginalization because the management company still sets price.

company-operated) doubled in the United States between 1986 and 2001 from 1.5 to 3.0 million rooms. Independent hotels, those with no brand affiliation, remained constant at 1.2 million rooms during this period. In Texas, at the end of 1999, 1,636 hotels (45 percent) were affiliated with branded chains and 1,999 (55 percent) were unaffiliated. Of the branded hotels, 85 percent were operated by franchisees while only 15 percent were company-operated by the brand-owner.

The two major corporations that act as franchisors are Choice Hotels and Cendant, the two largest hotel companies listed in Table 1. Choice owns the Clarion, Comfort, Quality, Rodeway, and Econolodge brands and franchised all of its 4,884 U.S. hotels in 1999. Cendant owns Ramada, Howard Johnson's, Super 8, and Days Inn and franchised all of its 6,383 U.S. properties in 1999. The Intercontinental company franchises 83 percent of its Holiday Inn properties. Marriott franchises 63 percent of its properties and manages directly the remaining 37 percent (Marsan and Wolchuk, 2001). In the past, brand owners La Quinta and Accor (Motel 6, Red Roof) owned and operated almost all their hotels (Kalnins, 2004), but these two chains are now making a transition into franchising.

The presence of management companies among franchisees has not been recently documented. Mid-tier properties such as Holiday Inn and Ramada listed 4 percent and 2 percent of their properties as affiliated with independent management companies in 1986. Days Inn had the largest economy-tier management company presence with 8 percent at that time (Eyster, 1988, p. 10). The largest management company that does not own a brand itself is the Interstate Hotel Corporation. Their website shows that they operate 207 U.S. hotels as franchisees of 27 distinct brands!

Agglomeration, Referrals, and Call-Arounds

A common assumption is that more firms in the market will lead to greater competition and lower rents. However, retail and service firms may purposely locate together because of agglomeration benefits. Firms are able to attract more customers as a group, relative to what they could all attract individually, when their products are heterogeneous and require personal inspection (Fischer and Harrington, 1996). Hotels satisfy this criterion. A customer should be more likely to stop at a location where there are multiple hotels, to compare tacit dimensions of quality such as maintenance levels or susceptibility to traffic noise. In addition, some hotels possess resources that attract more demand to the area, a benefit that spills over to other proximate hotels (Kalnins and Chung, 2004). Our interviews have found that hotels with well-known upscale brand names may: 1) attract demand that exceeds their own supply, 2) signal safety in an isolated area, and 3) indicate that services such as full-service restaurants are available.

Empirical studies using hotel revenues and market entry as the dependent variables show correlations consistent with the notion that upscale brands generate greater demand for their geographic area. Using a one-year cross-sectional data set of 14,995 U.S. hotels from the Smith Travel Research database, Canina, Enz, and

Harrison (2005) found higher revenues for economy hotels in markets with more upscale hotels. In Kalnins and Chung (2004), we analyzed the location decisions of 570 new hotels in Texas built in the 1990s. We found that, on the one hand, the presence of upscale and mid-tier brands such as Hyatt and Holiday Inn in a market significantly increases the likelihood that economy brands such as Econolodge and Days Inn, as well as independent hotels, will enter that market. On the other hand, the presence of economy hotels and independent hotels significantly decreases the likelihood that a mid-tier or upscale hotel will locate in a market. Our second result is counterintuitive if all hotels seek to differentiate themselves from their local competition in terms of quality tier (Mazzeo, 2002) or in terms of size and price (Baum and Haveman, 1997). But the findings make sense if the upscale and mid-tier brands do in fact generate greater demand for the area as a whole and the economy tier consumes that demand.

The spillovers between hotels that have clustered together in the vicinity of other properties create opportunities for interaction. When fully booked, hotels partially internalize the demand spillover by referring or "walking" guests to a hotel of the booked hotel's choice. For example, Ingram and Roberts (2000) found a positive correlation between managers' participation in informal social networks and revenues per room among 50 Australian luxury hotels. Managers of these hotels emphasized referrals as a major benefit of belonging to the networks, although hotels are not formally compensated for this practice.[4]

The ability of hotels to refer overflow customers to each other appears to support a nearly universal practice known as the "call-around," the practice of exchanging occupancy and rate information via telephone with neighboring hotels. The call-around is so common that performing this task is often listed as a part of the job description in "help wanted" advertisements. In a post titled "Make friends with your neighbors?" on March 16, 2005, a hotel manager inquired about the benefits of this practice on the Internet bulletin board ⟨http://www.hospitality-forum.com⟩.[5] One response emphasized the benefits of call-arounds and, particularly, the referrals that function as a reward for participating in call-arounds: "Call arounds help you adjust your rates on a day-to-day basis. We like to send our overflow and overbookings to a few hotels in the area that reciprocate." Another response suggests more indirect benefits of social ties: "If a competitor is filled, and the staff is aware of three properties—ours being one—with rooms avail, but is on more open terms with our staff, we anticipate getting the bulk of the referrals."

Our interviews found that a large majority of hotels participate in call-arounds, though quite a few complained about the practice; they say that others consistently inflate the occupancies they report during call-arounds. A few savvy hotels told us

[4] See Granovetter's (2005) article in this journal for a survey of how social ties help explain economic phenomena.

[5] The full text of this exchange has been removed from the hospitality forum website, but it can be found in Appendix 1, which is appended to the on-line version of this article at ⟨http://www.e-jep.org⟩.

that they double check call-around numbers with historical data provided by data collection firms such as Smith Travel Research. In our interviews, only one manager ever admitted that *his* hotel inflates occupancy information: the hotel wants to convey an image that it is prospering, he explained. Why would hotels overstate their occupancies in call-arounds, other than pride? Announcing a high occupancy rate may cause the rival hotel to raise its price, a desired outcome. But it would also decrease the likelihood of a referral from the rival, who may be under the false impression that the overstating hotel is booked.

Several plausible explanations exist for the referrals and call-arounds. The reciprocal "walking" of guests between two hotels may be nothing more than a way for hotels to gain some benefit when their amenities have attracted more customers than they can hold. If two hotels are the ones in a local market that are most typically full, it would make sense for one to walk excess customers only to the other, because it will be most able to reciprocate at other times. Many hotels have emphasized to us that referrals are a mechanism to sustain call-around participation, but the benefit of the latter practice is not obvious. The manager quoted above suggests that call-arounds help "adjust rates," perhaps implying that by knowing the neighbors' rates he can avoid undercutting the rates or else that he can set higher rates if he knows that neighboring hotels are fully booked.

In November 2005, the French Competition Council decided that call-arounds made by six luxury hotels in Paris were anticompetitive and helped to keep market prices high, a charge upheld in French courts in February 2006. An Associated Press newswire reported the Council's specific charge: "Although the six hotels did not explicitly fix prices, . . . they operated as a cartel that exchanged confidential information which had the result of keeping prices artificially high" (Gecker, 2005). In response, industry executives insisted that their market has always been competitive and that the call-arounds are used merely for forecasting and to "to bring more people to the area and to maximize hotel utilization" (*Hotels Magazine,* 2006). An irony in this case is that the hotels—much like our interview subjects—openly described the details of call-arounds. The only reason that the Competition Council found out about the practice was that a hotel executive explained it on a nationally televised documentary.

I am not convinced that the popularity of call-arounds arises from an ability to facilitate collusion. After all, hotels can get information on rate and vacancy status by calling other hotels and posing as potential customers. Several hotel managers have told us that they make such calls on a regular basis, either in lieu of or in addition to call-arounds. One franchisee mentioned that he counts the number of cars in competitors' parking lots. Another sends employees to the lobbies of competitors to observe the volume of check-ins. The kind of information that can be acquired without cooperation may be less detailed, but it should suffice for advantageous price-setting. Further, theoretical research suggests oligopolists need to conceal information about the demand they face, not share it, if they wish to maximize profits (Ponssard, 1979; Gal-Or, 1985), which makes the norm of call-arounds even more difficult to understand. Call-arounds likely improve hotels'

profitability in some fashion; if not, why would the practice have become so commonplace?[6] But more theoretical and empirical research is necessary to pin down which of several possible mechanisms—such as collusion, forecasting, or managing occasional excess demand—provides the main link between call-arounds and improved financial performance.

Formal and Informal Cooperation among Hotel Owners and Managers

The Gujarati Hotel Phenomenon

Cooperation among the owners and operators of lodging properties within a local market is particularly pronounced among the many U.S. hotels owned and operated by members of a single immigrant entrepreneur group: Asian Indians from the state of Gujarat. The Asian American Hotel Owners' Association (AAHOA) was founded in 1989 and according to its website at ⟨http://www.aahoa.com⟩ it claims 8,700 members with 18,000 U.S. properties—36 percent of the U.S. total! Nearly 98 percent of AAHOA members trace their ancestral roots to Gujarat (PTI News Agency, 2005). A large majority of AAHOA members share the surname "Patel." According to the organization's website, 17 of 20 regional directors share the Patel surname. In 1999, Gujaratis franchised 287 Texan branded economy-tier hotels, franchised 143 branded mid-tier hotels, and owned 612 unbranded motels (Kalnins and Chung, 2006); the corresponding numbers for non-Gujaratis are 418, 683, and 528 respectively. Among individual chains, Gujaratis owned 46 of 138 Texan Best Westerns; 69 of 102 Comfort Inns; 78 of 126 Days Inns; 22 of 30 Econolodges; and 55 of 84 Super Eights.

Group membership allows immigrant entrepreneurs to generate two types of social capital (Portes and Sensenbrenner, 1993).[7] First, group members contribute to the welfare of others in the group due to a principled sense of shared values and shared destiny, without a need for direct reciprocity. Second, failure to honor formal or informal agreements results in a loss of reputation and status within the group.

Anecdotal and statistical evidence supports the idea that Gujaratis contribute to and benefit from social capital in the lodging industry. Kalnins and Chung (2006) found that Gujarati unbranded motels increase their likelihood of survival if they are proximate to other Gujarati hotels, but only if those others are franchised branded hotels. No such effect was found for two important control groups: Gujarati unbranded motels in the vicinity of non-Gujarati franchised hotels, and non-Gujarati unbranded motels in the vicinity of Gujarati franchised hotels. These results imply that Gujarati unbranded motels receive substantial help from the larger, more prosperous hotels owned by Gujarati franchisees. Our interviews

[6] See, for example, Ellickson (1989) for a convincing case that community-wide norms arise because of their ability to maximize wealth for the group. But see also Granovetter (1985) for a spirited critique of this line of reasoning.

[7] For a thorough and multidisciplinary review of the social capital concept, see Adler and Kwon (2002).

corroborated these findings. Gujarati franchisees told us they helped their non-branded counterparts by giving them low- or no-interest loans, by giving them their used furniture and supplies, and by referring their overflow business.

Cooperation among Hotel Owners in General

In many industries, competition extends beyond the lowering of prices into the realm of personal mistrust and derogatory rhetoric. In contrast, hotel owners and managers appear to be collegial and cooperative. For Gujarati hotel owners, the ethnic link forms an obvious basis for civility. But what explains this spirit in the case of the average hotel owner without such ties? My hotel school colleagues often emphasize the service nature of the product. Friendly, service-oriented hoteliers are constitutionally eager to talk, share information, and give referrals. I believe another important explanation stems from the fact that hotels in a local market have many more common concerns to deal with than do most businesses. Also, because they are hotels, they have facilities to hold regular meetings about these concerns. Several hotel managers have mentioned to us that they hold a prestigious position within the local business community as the result of their ability to host local gatherings.

Hotel owners and managers tell us that they meet frequently to coordinate strategy around issues of shared concern. For example, hotel owners have joined together to fight higher local and state hotel taxes, to clean up the highways on which they are located, to keep nearby beaches public, to lobby for the building of convention centers, and to lobby against the subsequent proposals for publicly funded hotels in the vicinity of the new centers. Ingram and Inman (1996) describe an episode involving hoteliers on the U.S. side of Niagara Falls. A century ago, hotels with views of the falls were building tall fences around their properties, so that only paying guests could enjoy the view. The overall result was detrimental to the falls' appearance and caused a drop in demand for all area hotels. Hotel owners formed voluntary organizations that lobbied for fence-free public parks. One motive for this cooperation was the perceived threat of competition from hotels on the Canadian side of the falls, which were capturing more business due to the U.S. fences.

One interesting question is how hotels can sustain active participation in these demand-enhancing voluntary organizations. After all, cartels are notoriously unstable due to the allure of free-riding (for example, Salant, Switzer, and Reynolds, 1983). Yet local lodging associations are ubiquitous throughout the United States. Most hotels have insisted to us that they participate actively in these associations, and franchisor and management organizations appear to encourage their participation.

The referrals discussed earlier may encourage at least a share of local hotels to participate in voluntary associations. Referrals may act as a mechanism through which benefits can be limited to members, yielding a case similar to that modeled by Farrell and Shapiro (1990). In-group/out-group theory from social psychology, summarized by Brewer (2003, pp. 29–31), provides the basis for a second explanation: proximate hotel owners may view each other as an "in-group," especially if they face an obvious out-group adversary like hotels over a border or a tax-increasing government. Hotel managers who are eager to cooperate in voluntary

associations due to the intrinsic rewards of helping their in-group may find that, even without explicitly colluding, they are more likely to choose prices that yield a high-margin cooperative equilibrium.

An Experiment: Do Margins Decrease Before Rooms "Perish"?

A hotel faced with the prospect of empty rooms has an incentive to start trimming prices. Hotels may find this incentive especially strong because most lodging guests pay a substantial premium over the hotel's marginal cost per room. Yet hotels may ignore this incentive if cooperation or (tacit or explicit) collusion are the norm in their market. According to a popular hotel management text, the difference in cost between an occupied room and an empty room ranges from $20 per night for economy motels to $75 for luxury hotels (Rutherford, 2002, p. 323). Yet the average daily rates actually paid by customers across the United States are $52 for the economy tier and $144 for the luxury tier (Standard and Poors, 2005). An internal analysis at a full-service upscale chain (typically four AAA diamonds) suggests that the marginal cost of an occupied hotel room is even lower: $15 at a typical airport location and $20 in a major city's downtown. The chain's flagship property in Manhattan incurs the highest marginal cost at $35. Only one hotel manager has been willing to reveal marginal cost per occupied room directly in our interviews. The general manager of a mid-tier (three AAA diamonds) chain property in Santa Monica, California, with an average daily rate of over $100 told one of my students that his hotel would see a short-term benefit from filling excess capacity even if he received as little as $25. Nonetheless, he emphasized that his hotel never discounts—even if rooms would go empty—because he believes that it would lower the perception of the property's value in the long term.

Do circumstances exist in which the price of a hotel room might drop to marginal cost? The strongest pressure for marginal cost pricing should occur in the evening just before the rooms "perish." To investigate directly the possibility that hotels may lower prices at the last minute to fill excess capacity, I hired two students to call 167 hotels in the evenings, asking "How much is a room for tonight?" and then "Can you go any lower than that?" On average, the 161 hotels with vacancies quoted prices more than double the marginal cost for the hotel's quality tier based on the estimate of the Rutherford (2002) textbook. Ninety of these hotels stuck to their original prices, even though the alternative was almost certainly an empty room. In some cases, the students pointed out that other hotels in the vicinity had vacancies and lower prices, but this changed no one's answer. The price reductions offered by the remaining 71 hotels were typically no more than 10 percent.[8]

Seventy (all chains) of the 167 hotels subsequently reported to the Smith Travel Research database their occupancies for the exact dates on which we called.

[8] Details of this survey can be found in Appendix 2, which is appended to the on-line version of this article at ⟨http://www.e-jep.org⟩.

Thirty of these reported occupancies below the national break-even threshold of 53 percent discussed in the introduction. Only ten of these 30 hotels offered a discount, while 12 of 40 above the threshold did so, implying that level of occupancy is not related to the willingness to lower prices. However, occupancy on one particular day may be an outlier. Therefore, I also retrieved the average occupancy from all of 2005 for these 70 hotels, which I note is correlated 0.70 with the occupancies for the night of the call. Using this benchmark, 20 hotels reported occupancies of less than 53 percent. Ten of these 20 consistently poor performers gave discounts, while only twelve of the 50 reporting occupancies above break-even were willing to discount. This pattern suggests some relationship between poor performance and willingness to discount at the last minute—although the evidence is weaker than I had anticipated before conducting the experiment.

A colleague at the Cornell Hotel School has conducted similar surveys with smaller samples over many years. She notes that the "Can you go any lower than that?" question was more fruitful in the early 1990s, with callers receiving discounts of up to 50 percent from the initial quoted price (Kimes, 2002).[9] More recently, her callers too have been receiving few discounts from the original quoted price. She argues that this change in behavior comes from hotels' belated realization that too much of a price reduction cheapens the image of a room's value. Perhaps to shame those hotels that may be prone to discounting, the lodging industry has evolved a name with a moral tone to describe the practice of keeping constant prices: "price integrity."

Owners and general managers appear unwilling to give their employees much leeway to lower prices. More research is required to determine why. Similar to Ausubel and Deneckere's (1989) logic for the case of durable goods and to the Santa Monica manager's opinion mentioned above, hotels that rely on repeat business may refuse to haggle and discount because it could hurt their future bottom line as their customers become accustomed to last-minute haggling. But hotels that do not rely on repeat business may well free-ride and continue to discount because they will gain business today and will not see those customers again. Alternatively, perhaps the hotels were afraid that our callers were really employees of other hotels wishing to detect defection from a tacit or explicit agreement. Also, since social ties and norms are an important part of the local hotel community, who would like to be known within a group as possessing little integrity, even of the pricing variety?

Coda: Oft-Cited Explanations for Profitability

This paper has made a case for the roles of imperfect competition and cooperation in the maintenance of lodging industry profits in the United States. I conclude by noting two common explanations for profitability that frequently

[9] See Hanks, Cross, and Noland (1992) for a humorous transcript of a conversation in which a caller negotiated a final price of 50 percent lower than the initial quoted price for a room.

appear in the trade presses. One set of arguments revolves around the idea that hotels have learned about their customers over time. First, they have learned a form of revenue management that accurately reflects the willingness-to-pay of different customer types; that is, hotels now know how to price rooms based on different attributes, so as to enjoy some price discrimination ability (Kimes, 2002). If customers wish to haggle, for example, the hotels can give them a room with no view rather than just a lower price. Second, hotels have learned to identify unique amenities valued by customers. For example, certain lodging brands have made headlines by insisting that franchisees add expensive beds and plasma televisions in all rooms. Managers of many mid-tier and upscale properties have told us that the amenities do indeed reduce competitive pressure to lower prices, but they also frequently complain that popular amenities are rapidly imitated and generate a new set of expectations by customers, leaving only higher costs for the hotels themselves. While I believe that hotels have improved their knowledge of customers' willingness-to-pay and amenity preferences over the last two decades, and I believe that this knowledge has created short-term profit opportunities, I also believe that in a market with fairly rapid adaptation, the resulting monopolistic competition will not sustain high profits over time.

The most popular explanation for the profitability of lodging is demand-driven industry growth. Indeed, the evidence about higher prices on high-occupancy days that I presented in Tables 2a and 2b supports this idea: markets sell out because demand is higher than supply. But demand growth alone does not explain industry profitability. Demand for lodging dropped sharply after September 11, 2001, while the supply of rooms continued to grow. As noted earlier, occupancy of an average hotel for these years dropped from 62.6 percent in 2000 to 58.5 percent in 2002. However, the lodging industry remained profitable (Lomanno, 2002b; Standard and Poors, 2005). This ability to sustain profits in the face of a substantial fall in demand and rising supply suggests that other forces are at work as well, such as those generated by the cooperation and connections among managers in local hotel markets.

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Appendix 1
The Benefit of Call-Arounds

A hotel manager recently inquired about the benefits of call-arounds on the Internet bulletin board ⟨http://www.hospitality-forum.com⟩. In a post titled "Make friends with your neighbors?" he asked:

> Just wondering how you guys handle your local competitors. I personally like to know all the area owners/managers and like to keep in communications regarding rates and occupancy. I have found that we are able to better set our rates and refer overflow to each other. I feel like this is better for your local area. I have although come across a few that refuse to share any information or even communicate. I am just wondering what everyone's views are on this issue.

There were two responses. The first response reads:

> We encourage communication across the board.
>
> We expect our GM's [general managers] to know all of the other GM's within their competitive segment and to some extent beyond. This type of communication is at the very least mutually beneficial to all. Beyond that, we have memberships in the Chamber of Commerces [COCs] in all areas that we operate, we expect a representative from each property to attend at least one local function per month, and each member of our ownership group attends at least one function per month.
>
> In those areas where the COC has a tourism or travel related subcommittee we expect our GM's to be active participants. These sorts of activities provide for both contacts with our competitors, networking with local business people, and of course the opportunity to influence community wide activities in directions that benefit us. In the instances where we've have suitable facilities, we host COC events. Yes, this creates something of an 'open house' for rival GM's and owners to snoop around, but the benefit in terms of potential business outweighs the 'risks'. In one instance it further served as a recruiting tool for a gentleman who is now a GM for one of our properties.
>
> Lastly, b/c all of our properties are in markets where walk-in business is very important, our properties do 7 pm call arounds offering out our overflow or advising our availability. We've found that we gain business by virtue of our 3–11 and audit staffs being friendly with their peers at other properties. If a competitor is filled, and the staff is aware of three props—ours being one—with rooms avail, but is on more open terms with our staff, we anticipate

getting the bulk of the referrals. In that respect we're every bit as concerned about positive lines of communication starting at the guest contact level.

The second response reads:

Staying in touch with area GMs and Salespeople can be a huge benefit to your property. Call arounds also help you adjust your rates on a day-to-day basis. We like to send our overflow and overbookings to a few hotels in the area that reciprocate. In my opinion this helps the area lodging industry. I have however came across some GMs that like to keep their information top secret and have asked us not to call their property again.

Appendix 2
Pricing Survey

To investigate the possibility that hotels may indeed lower prices to fill excess capacity right before the rooms "perish," I hired two students to call 212 economy and mid-tier Texan hotels with listed phone numbers to see if hotels would lower their prices late in the evenings. The calls all took place on Monday–Thursday evenings in January 2006 between 9:00 and 11:00 Central Standard Time. Of these locations, 167 were actually hotels and someone answered the phone. Of these, 161 of these hotels had rooms available for the same night. The students began the conversation by asking, "How much is a room for tonight?" Forty-six independent motels quoted prices averaging $35.72; 62 economy chain (2 stars in AAA) hotels averaged $49.95; and 53 mid-tier chain hotels (3 stars) averaged $75.49. These prices are approximately double the marginal cost numbers mentioned in the text.

The students then asked, "Can you go any lower than that?" Seventeen independent motels did so, lowering price from an average of $36.91 to $32.09. Twenty-five economy chain hotels lowered prices from an average of $54.82 to $48.31, while 29 mid-tier hotels lowered prices from $77.89 to $67.86. Several hotels, though unwilling to lower price, were willing to provide some amenities gratis such as business center services or breakfasts. Two hotel managers said: "Come on in and we'll talk about it." In some cases, the students had previously called a proximate hotel on the same street. The students mentioned lower prices at the competing location, but this only swayed three hotels that had already given some discount to give a small additional discount.

I found it striking that 90 hotels flatly refused to consider a discount even when the alternatives were that rooms were likely to go empty for the night. And the discounts that were given were not large, typically no more than 10 percent. In many cases these discounts were simply the official AAA discounts that hotels were willing to give even though the students said that they were not members.

If hotels refused to discount, the students asked, "Would you rather have the

room go empty?" Most managers/clerks stated some form of "I don't have the authority to go lower" or "The computer won't let me." The interesting question is, of course, why the owner or general manager would not give the authority. Possibly the employee would then give the lowest possible price to everyone? Another common answer is that the customers will talk to each other and some will be outraged that they paid more. I am skeptical about this answer. First, at the economy and mid-tier hotels, there is not much chance of guest interaction. Second, this problem does not seem to arise in other industries such as airlines.

I note that all the questions were phrased in a way to avoid outright deception. The questions listed above do not directly imply that the caller actually wanted a room. For example, the students never said "I would like a room" or "I will take the room if you give a discount," because of course they were not going to do so.

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