

# The Effect of Franchising on Competition:

## An Empirical Analysis

by

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### Abstract

Much of the theoretical literature on franchising suggests that the franchisor often has incentive to decrease the level of price competition among franchised locations. Using a unique hotel dataset, this paper finds that price competition is greater among franchised properties compared to company-owned properties. While a franchisor may be taking actions to reduce price competition among her franchisees, the empirical results in this paper suggest that these actions do not result in the franchisees selecting prices that maximize the joint profits of the franchisor's locations.

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## I. INTRODUCTION

The theoretical literature on franchising generally assumes that each franchisee selects price (or quantity) to maximize the profits of his location.<sup>1</sup> Because each franchisee does not consider how his price affects the franchisor's other locations, these models predict greater competition among franchised locations compared to locations owned by the franchisor (that is company-owned). In these models, the franchisor often has incentive to decrease the level of price competition among franchised locations because decreasing competition allows her to extract greater fees from the franchisees. This paper is one of the first to empirically address whether price competition is greater among franchised properties than among company-owned properties.

While Section 1 of the Sherman Act has historically prevented the franchisor from dictating to the franchisee a minimum or maximum price, there are direct and indirect manners by which the franchisor can influence the franchisee's price. For example, a franchisor can directly affect the prices selected by her franchisees through the franchise fees. The franchisor may also threaten not to renew the franchise agreement or terminate the agreement based on a technicality if the franchisee does not adhere to the franchisor's pricing policies. Another manner by which a franchisor can directly affect the level of competition is by advertising a price and in small print indicate that it is "limited to participating franchisees".

Even without directly affecting the franchisee's revenues or costs, a franchisor may indirectly affect the level of competition by changing the game being played between her franchisees. For example, the franchisor can take actions to decrease the franchisees' monitoring costs and to increase communication between the franchisees. Tirole (1990) and Kandori and Matsushima (1998) demonstrate that the likely outcome of these actions is a

decrease in price competition.<sup>2</sup> Perhaps this is why several hotel chains encourage regular meetings between managers of franchised and company-owned properties located in the same geographic area.

While much of the theoretical literature suggests that a franchisor has incentive to reduce price competition among its locations, whether the franchisor has this ability is an issue that has received minimal empirical attention. The empirical literature on franchising primarily focuses on testing the different explanations for franchising. This is done by considering the mix of company-owned and franchised outlets, the location characteristics of franchised outlets, and the fee structure of the franchise agreement (See Lafontaine and Shaw, 1999; Lafontaine, 1992; Brickley and Dark, 1987; and Norton, 1988). Hastings (2004) is the only empirical paper I am aware of that pertains to the price competition issue addressed in this paper. Hastings finds that gasoline prices in markets where a Thrifty gasoline station was acquired by ARCO do not depend on whether the station became a company-owned versus a dealer-run ARCO station. Based on this result, she concludes that market prices are not affected by whether a station is company-owned or dealer-run.

This paper uses annual, property-level information on all lodging properties in Texas to test whether price competition is greater among franchised properties compared to company-owned properties. Consider two company-owned Budgetel Inns located in El Paso: the Budgetel of El Paso and the Budgetel Inn-El Paso West. In 1997, the average price for a room at the Budgetel of El Paso was \$41.92 and the average price at the Budgetel Inn-El Paso West was \$47.40. This paper tests whether these average prices would be lower if both of these Budgetel Inn hotels were franchised instead of company-owned. This would be

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<sup>1</sup> See Mathewson & Winter (1985), Bonanno & Vickers (1988), Rey & Stiglitz (1995), and many others. LaFontaine & Slade (1997) present an overview of this literature.

<sup>2</sup> Chamberlin (1933) and Bain (1956) were among the first to suggest that the likely outcome of these changes would be to decrease the level of price competition. Chapter 6 of Tirole (1990) explains in a supgame context why decreasing the cost of monitoring decreases price competition. Kandori and

expected if each franchisee selects price to maximize the profits of his location and company-owned properties select prices that maximize joint profits. The empirical results indicate that the average prices would indeed be less if the properties were franchised. This provides evidence that the actions taken by the franchisor to reduce competition among her properties do not result in franchisees selecting prices that maximize the joint profits of the franchisor's locations.<sup>3</sup>

Whether the franchisor has the ability to decrease competition among franchised locations has broad implications in regards to how firm structure affects competition. For example, if franchising does result in greater competition, perhaps licensing and divisionalization also affect competition. If this is indeed the case, anti-trust cases should consider firm structure in their rulings.

The rest of this paper is organized as follows: Section II provides an overview of the lodging industry while Section III presents descriptive statistics of the lodging industry in Texas. The identification strategy and the empirical results are presented in Section IV. Section V discusses alternative explanations for the empirical results and Section VI concludes.

## **II. THE LODGING/HOTEL INDUSTRY**

### **2.1 Overview**

The lodging industry is both vertically and horizontally differentiated. Lodging properties are vertically differentiated based on accommodations and the amenities provided.

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Matsushima (1998) demonstrate that when players receive private signals on other players' actions, the ability to communicate allows them to share common beliefs, which can decrease competition.

<sup>3</sup> There exists numerous empirical papers on the lodging industry including Conlin and Rysman (2004), Conlin and Kadiyali (1999), Norton (1988), Kehoe (1996), Mazzeo (2000a, 2000b), and Fernandez and Marin (1998). Using the same dataset as this paper, Conlin and Rysman (2004) quantify the common agency issue in the Texas lodging industry while Conlin and Kadiyali (1999) measure the effect of the concentration of market idle capacity on competition. The other papers use different datasets and consider: (i) the type of lodging properties that are likely to be franchised, managed and company-owned; (ii) whether firms entering a specific market select differentiated products to reduce price competition; and (iii) whether multi-market contact affects the level of competition.

The amenities offered also result in horizontal differentiation with some properties offering kitchenettes to attract customers interested in an extended stay, others offering dry cleaning services to attract those traveling on business, and still others constructing playground areas to attract families. Properties further differentiate themselves horizontally by their location.

While the lodging properties often offer highly differentiated products, the 1990s saw many hotel chains achieve greater consistency among their properties with the same brand affiliation by requiring these properties to offer similar accommodations and amenities.

Another important industry trend in the 1990's was the increase in the level of price discrimination as sophisticated yield management techniques were implemented.

## **2.2 Major Players**

The major players in the lodging industry are franchising companies, management companies and owners/operators.

Franchise agreements in the hotel industry allow the franchisee to use the franchisor's trademark (i.e. become brand-affiliated), operating system and operating procedures. Most franchisors also provide a centralized reservation system, national advertising and volume discounts.<sup>4</sup> While some franchising companies do not own or operate any of the lodging properties affiliated with their brand, others have a mix of franchised and company-owned properties. In addition, a single franchisor often owns the trademark to multiple brands. Along with a relatively small up-front payment, the fees associated with these franchise agreements are usually a function of gross revenue, the number of reservations booked through the franchisor's reservation system, and/or the number of rooms.<sup>5</sup> In addition to these fees, franchisees must also meet certain standards set by the franchisor. These

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<sup>4</sup> These volume discounts are on items such as furniture, fixtures, equipment and toiletries.

<sup>5</sup> For example, the 1997 franchise fee associated with Choice Hotel's Clarion Brand is a \$40,000 minimum up-front fee, 2.75% of gross revenue for royalty fees, 1% of gross revenue for advertising/marketing fees and 1% of gross revenue for reservation fees. For most brands, franchise fees are non-negotiable; resulting in properties that become affiliated with a particular brand in the same year being charged the same franchise fees.

standards often involve furnishings, fixtures and cleanliness. Unlike some other industries, franchise contracts in the lodging industry rarely contain exclusive territory provisions.

Management companies are agents of the property owners who are entirely responsible for day-to-day operations and management of the lodging property. As such, the management company pays all expenses associated with the property and remits the remaining cash flow to the property's owner. The fees specified in a management contract are usually functions of both gross revenue and operating income. Sometimes, management companies do have an equity stake in the property.<sup>6</sup> A number of companies that franchise also manage properties (such as Hyatt and Holiday Inn) they do not own. There also exist properties that are operated by management companies who do not own a brand trademark and enter into a franchising agreement with another company. For example, the 293-room Southwest Hilton Hotel in Houston is a franchised property under management contract with Capstar Hotel Company.<sup>7</sup>

The last major player in the lodging industry is owners/operators. As the name implies, these individuals and companies own as well as operate properties. Some of these owners/operators have their own brand such as Drury Inns. Others choose to become brand-affiliated by entering a franchise agreement (and becoming a franchisee) or remain an independent.<sup>8</sup>

### **III. DATA SOURCES**

I obtained the data used to test how franchising affects price competition from numerous sources. The property-level information comes from the Texas State

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<sup>6</sup> See Eyster (1988) for a comprehensive discussion of hotel management contracts.

<sup>7</sup> Because management companies have the authority to select price, I classify managed properties (in the empirical specification) as company-owned when the management company owns the brand trademark. When the management company does not own the brand trademark, I classify these properties as franchised.

<sup>8</sup> Because of the different types of players in the lodging industry and the fact that certain firms are in multiple activities, it is important to be clear when referring to the different players. A property's brand

Comptroller's Office, Source Strategy Incorporated (SSI), the 1991 through 1997 Directory of Hotel & Motel Companies, two phone surveys, and Lodging Hospitality magazine. This annual information consists of price, quantity, capacity, location, brand affiliation, brand's corporate affiliation, whether a brand-affiliated property is franchised or company-owned, and taxpayer identification number for all lodging properties in Texas from 1991 through 1997.

The Texas State Comptroller requires every lodging property with annual revenue over \$13,000 to report this revenue. SSI, an independent marketing research firm located in San Antonio, aggregates and augments this (public) information in their annual reports entitled *Texas Hotel Performance Factbook*. In addition to information on property name, capacity, and revenue, SSI's *Factbooks* contain information on each property's average annual price and brand affiliation. SSI estimates average annual price from the revenue reported to the Comptroller's office, their own surveys, financial reports, information from appraisers, chain directories, American Automobile Association (AAA) directories, and information provided by Smith Travel Resource.<sup>9</sup> SSI could often obtain a property's brand affiliation from the state tax returns. However, SSI incorrectly reported some brand affiliations. I identified and corrected these brand affiliation mistakes using the 1991 through 1997 Directory of Hotel & Motel Companies, the subsequent year taxpayer information in the Comptroller records, and a phone survey of individual properties and brands' corporate offices.<sup>10</sup> These same three avenues identified whether a property was franchised, company-

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affiliation refers to the brand trademark the property operates under. A property's corporate affiliation refers to the corporation who owns the trademark of the brand with which the property is affiliated.

<sup>9</sup> Smith Travel Resource is a private consulting firm that conducts monthly surveys of lodging properties throughout the United States. The surveys include questions on the property's average daily room rate, occupancy rates and operating expenditures.

<sup>10</sup> Determining the exact point in a year a property changed brand affiliation is difficult. In a number of cases, the taxpayer information provided clues as to whether the change occurred early or late in the year. In other cases, the phone survey yielded this information. If the change occurred after June 30, the database identifies the change as occurring in the subsequent year. Discussions with specific properties indicate that SSI often did not identify a brand change that occurred late in the year until the subsequent

owned, or managed.<sup>11</sup> Finally, the Comptroller's records provided the taxpayer identification number. See Conlin and Rysman (2004) for a detailed discussion of this taxpayer information.

In addition to the property-level information, county-level travel expenditures and retail wages were obtained from the Texas Tourism Division's report entitled *Travel Spending for Texas Counties*, county-level population and per capita income were obtained from the U.S. Census Bureau, and city-level tax rates were obtained from the Texas Tourism Division.<sup>12</sup> Finally, I identified the sector (Full-Service, Limited-Service or Extended Stay) of each brand from lodging magazines, lodging textbooks and discussions with industry experts. Table 1 contains detailed information on the sector classification for each brand and the percent of each brand's Texas properties that are franchised in 1991 and 1997.

Table 2 contains a statistical overview of the Texas lodging industry in the 1990s and indicates that the demand for and supply of lodging properties in Texas increased throughout the 1990s. All appropriate values have been converted to 1996 dollars. While the average number of rooms per property remained in the eighties, the number of properties increased over eight percent from 1991 to 1997. Along with this increase in the number of properties, there was also an increase in the average annual price (from \$43.93 in 1991 to \$49.69 in 1997) and an increase in the average annual occupancy rate (from 49.8 in 1991 to 55.3 in 1997). The most dramatic change is the increase in the percent of brand-affiliated properties

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year. Therefore, for those properties where I do not have knowledge on when in the year the brand changed, I relied on SSI's information.

<sup>11</sup> Because the information in the 1991 through 1997 Directory of Hotel & Motel Companies was incomplete and dated, hotel corporations were contacted (through a phone survey) in an effort to identify whether the properties affiliated with their brands were franchised, managed or company-owned in years 1991 through 1997. Most of these corporations were forthcoming with this information. For those who did not respond to our request, the individual properties were called and a manager was asked if they were a franchised property. As a cross check, I compared these responses to the taxpayer information obtained from the Comptroller's office. Often, company-owned properties have identical taxpayer information.

<sup>12</sup> While providing information on the large majority of properties in Texas, the Tourism Division information on tax rates did not include all cities where lodging properties are located. I obtained additional property tax rates through a phone survey. These include both city and county taxes. The state tax rate on lodging properties remained constant at 6% throughout the 1990s.



(from 31.7 percent in 1991 to 49.5 percent in 1997). This increase in the percent of brand-affiliated properties has been primarily the result of the increase in franchised properties. Finally, the increase in the supply and demand for lodging properties from 1991 to 1997 has been accompanied by an increase in travel expenditures, population, per capita income, retail wages and tax rates.

The second section of Table 2 provides information on brand affiliation changes. This section indicates that it is common for properties to change brand affiliation and the number of these changes peaked in 1995. Slightly less than 70 percent of these changes occurred in franchised, not company-owned, properties. Before 1995, almost all properties that changed from one brand affiliation to another involved a change in corporate affiliation. In 1995 through 1997, almost half of these brand changes involved no change in corporate affiliation. During these years, many corporations with multiple brands were “realigning” their properties (some of which were recently acquired) to obtain greater consistency among properties with the same brand affiliation. The fact that more properties went from being independent to brand-affiliated than from being brand-affiliated to independent contributed to the growth across years in the number of brand-affiliated properties.

The last section of Table 2 characterizes entry and exit in the industry. This section demonstrates the large number of properties that enter and exit each year and the increase across years in the number that enter. Of those properties that enter in 1992 only 8.9 percent are brand-affiliated while 70.1 percent of entering properties in 1997 are brand-affiliated. A reason for this increase is that in the later years, brand affiliation is often a requirement for obtaining construction financing. In addition, brands were more likely in the later years to help in the financing of a property. Of entering properties that are brand-affiliated, 79 percent are franchised. Because few properties that exit are brand-affiliated, entry and exit contributed to the growth in brand affiliations.

In summary, the main conclusions from Table 2 are that: (i) the total number of properties, the average annual price, the average annual occupancy rate, the percent of properties that are brand-affiliated, and the percent of properties that are franchised have increased dramatically; (ii) properties' brand affiliations often change; and (iii) there is substantial entry and exit.

#### **IV. IDENTIFICATION STRATEGY AND EMPIRICAL RESULTS**

##### **4.1 Identification Strategy**

The goal of the paper is to empirically estimate the differential effect of franchised versus company-owned properties on price competition. The challenge in doing so is identifying an exogenous change in ownership structure. Unfortunately, whether a brand-affiliated property is franchised or company-owned is not random. Certain brands specialize in franchised properties while others focus on company-owned properties. In addition, for those brands with both franchised and company-owned properties, the type a property selected to be company-owned may differ significantly from the brand's franchised properties. They may differ in terms of not only amenities but also the markets in which these properties are located. For example, a brand's company-owned properties may have more amenities and be located in markets with higher expected demand growth. The primary challenge when estimating the effect of franchising on price competition is to adequately address these endogeneity issues associated with the property, brand, and market.

To address these endogeneity issues, I use market level changes in the number of rooms affiliated with a brand to test whether price competition is greater among franchised properties. More specifically, suppose a 115-room LaQuinta hotel operated throughout the 1990s in Austin, Texas. Following the opening of a 148-room, company-owned LaQuinta hotel in Austin at the start of 1996, the average price for the existing 115-room property increased to \$66.72 in 1996 (from \$65.72 in 1995). I test whether this price increase would

be less than \$1.00 if the entering property was franchised rather than company-owned. By considering the differential effect on the change in the average price of the existing hotel, I address the property endogeneity issue. By included brand fixed effects, the second specification described below addresses not only the property endogeneity concern but also the brand endogeneity issue.<sup>13</sup> The third specification below better addresses the market endogeneity issue by comparing the change in average price of the 115-room LaQuinta hotel from 1995 to 1996 with the change in average price of Austin hotels that offer similar amenities to the LaQuinta hotel and testing if this difference depends on whether the entering property is franchised or company-owned.

#### 4.2 Empirical Specifications and Results

Table 3 contains the results of three specifications with each successive specification addressing an additional endogeneity concern. In the estimation of all three specifications, I exclude those property-year observations where days open or number of rooms changed by more than fifteen from the prior year as well as those whose brand affiliation changed from the prior year. The excluded observations are primarily properties that entered the market within the past year, exited the market that year, or are likely to have undertaken major renovations.<sup>14</sup> For all specifications, a market is defined as a city-sector and the residuals of observations of the same property (different years), with the same brand affiliation, and in the same city-year are allowed to be correlated (Conley, 1999).

I first estimate the following specification:

$$\Delta p_{ibmt} = \alpha_t + \mathbf{h}_{it}\beta_h + \mathbf{m}_t\beta_m + \mathbf{b}_{mt}\beta_b + \varepsilon_1.$$

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<sup>13</sup> See Mundlak (1978) and Hausman and Taylor (1981) for details of how brand fixed effects address brand endogeneity.

<sup>14</sup> Renovations are likely to not only result in a change in the number of days opened and number of rooms but also in the average annual price. Many properties that change brand affiliation are required to do certain renovations. I am interested in how market changes in brand affiliations affect a property's price. If entering, exiting and renovated properties are included in the estimation, they may substantially affect the estimation because these are the properties with the largest change in average price across years.

The dependent variable,  $\Delta p_{ibmt}$ , is the percent change in property  $i$ 's price (from year  $t-1$  to year  $t$ ) where property  $i$  is affiliated with brand  $b$  and located in market  $m$ .<sup>15</sup> Defining the dependent variable in this manner allows me to account for unobservable property-specific attributes that do not change across years, such as property location and the size of the rooms. I regress  $\Delta p_{ibmt}$  on a vector of year indicator variables, a vector of property specific variables ( $\mathbf{h}_{it}$ ), a vector of market-level variables ( $\mathbf{m}_t$ ), and a vector of variables corresponding to market-level changes in the number of rooms affiliated with the same brand ( $\mathbf{b}_{mt}$ ). The set of property specific and market-level variables include those likely to change property  $i$ 's price from year  $t-1$  to year  $t$ . The property specific variables are the percent change in days open and number of rooms as well as a franchise indicator variable. The market-level variables are the percent change in county-level travel expenditures, population, per capita income, retail wage and city-level taxes as well as market entry and exit.<sup>16</sup>

The brand specific, market-level variables ( $\mathbf{b}_{mt}$ ) allow differential affects for market level changes in the number of rooms attributable: (i) to the brand's franchised properties and the brand's company-owned properties; and (ii) to brand entry/exit and brand affiliation changes.<sup>17</sup> For changes involving franchised properties, the variables allow differential affects for whether or not the franchisee is also the franchisee of the existing property in the market with the same brand affiliation. For changes attributable to brand affiliation, the variables allow differential affects for those involving a change in corporate affiliation and those not involving a corporate affiliation change.<sup>18</sup> Finally, a variable is included that

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<sup>15</sup> Independent properties are treated as a separate "brand".

<sup>16</sup> These variables are calculated as the fraction of the total capacity in the city-sector accounted for by entry/exit and affiliation changes.

<sup>17</sup> Properties sometimes change capacity (i.e., number of rooms) across years. Most of these capacity changes involve very few rooms. I do not control for these market-level changes in the specification because: (i) market capacity changes involving a particular brand are primarily attributable to entry, exit and affiliation changes; and (ii) information on when in the year a property changes capacity is unavailable.

<sup>18</sup> For example, an affiliation change in 1997 from Holiday Inn to Holiday Inn Express does not involve a corporate affiliation change because both trademarks are owned by Bass Hospitality. However, a brand

accounts for market-level changes in the number of rooms for a brand's properties that do not change affiliations but do change from franchised to company-owned or visa versa.

To clarify how these brand specific, market-level variables are created, consider a property located in El Paso that is affiliated with the LaQuinta brand in 1994 and 1995. Assume that the total yearly capacity of El Paso rooms in the limited service sector is 200,000 in 1995.<sup>19</sup> In 1995, suppose that another property affiliated with LaQuinta opens in El Paso. If this entering property has 50 rooms and is open 200 days in 1995, then the *brand entry/exit* variable is equal to five percent ( $50 \times 200 / 200,000$ ) for the property that is affiliated with LaQuinta in both 1994 and 1995. If the entering property is operated by a different franchisee, then the *brand entry/exit by different franchisee* variable equals five percent for the existing LaQuinta property. If the entering property is company-owned, then this variable is equal to zero. If no property affiliated with LaQuinta entered or exited El Paso in 1995, then these brand entry/exit variables would equal zero for the existing LaQuinta property. Similar market variables are constructed for brand affiliation changes. In addition, the market variable involving no change in brand affiliation but a change between franchised and company-owned is constructed in an analogous manner.<sup>20</sup> Finally, note that independent properties do not directly affect the coefficient estimates associated with these variables because these market-level variables always equal zero for these properties.<sup>21</sup>

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affiliation change from Holiday Inn to Ramada in 1997 would involve a corporate affiliation change because the Ramada trademark is owned by HFS in 1997. The movement in product space and the change in the level of competition are likely to depend on whether the brand affiliation change also involves a corporate affiliation change.

<sup>19</sup> This total yearly capacity is obtained by multiplying each property's number of rooms by the number of days the property is opened and then summing over all El Paso properties in the limited service sector.

<sup>20</sup> Note that constructing the brand specific, market-level variables in this manner does not differentiate between whether the LaQuinta open both years is franchised or company-owned. In over 85 (90) percent of the cases where the entering property or the property changing affiliations is franchised (company-owned), the existing property is also franchised (company-owned). See Section 4.3 for discussion of robustness results.

<sup>21</sup> Brand entry and exit are treated symmetrically when constructing the brand market variables. Because so few brand-affiliated properties exit and those that do are all franchised (see Table 2), I do not construct separate market-level variables for entry and exit.

The first column of Table 3 contains the estimates associated with this specification.<sup>22</sup> The coefficients on the variables associated with *brand entry/exit by different franchisee* and *brand affiliation change by different franchisee* represent the differential effects of entry/exit and affiliation change by a different franchisee compared to a company-owned property. If the level of competition between properties is greater due to franchising, one would expect these coefficients to be negative. The coefficient estimate of  $-0.314$  indicates that the price of an existing property with the same brand affiliation will decrease 0.628 percentage points more if the entering property accounting for two percent of the city-sector's total capacity is operated by a different franchisee compared to being company-owned. (Two percent is the average percent of the city-sector's capacity accounted for by the property entering or changing affiliations.) While the coefficient associated with *brand affiliation change by different franchisee* is negative, it is neither statistically nor economically significant. The difficulty in determining at what point in the year a property changed brand affiliations is one potential reason for this lack of significance. This baseline estimate suggests that competition is indeed greater among franchised properties.

The second column of Table 3 more adequately addresses brand endogeneity by presenting estimates from the following specification.

$$\Delta p_{ibmt} = \alpha_t + \alpha_b + \mathbf{h}_i \beta_h + \mathbf{m}_t \beta_m + \mathbf{b}_{mt} \beta_b + \varepsilon_2$$

This specification is similar to the prior specification except brand fixed effects ( $\alpha_b$ ) are included. While including brand fixed effects does not appreciably change many of the coefficient estimates, it does increase the coefficient associated with *brand entry/exit by different franchisee* (from  $-0.314$  to  $-0.227$ ) and this coefficient does not remain statistically significant.

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<sup>22</sup> The coefficient estimates associated with the property specific and market-level variables are available from the author.

While the second specification does better at addressing brand endogeneity, it may be similar to the first specification in its inability to account for market endogeneity. While some of the market demand and cost variability across years is accounted for by controlling for changes in travel expenditures, population, per capita income, retail wage and taxes as well as city-sector entry and exit, these variables may not adequately capture the change in market conditions. By estimating the following specification, I better address market endogeneity.

$$\Delta p_{ibmt} - \Delta p_{-imt} = \alpha_t + \alpha_b + h_{it}\beta_h + b_{mt}\beta_b + \varepsilon_3$$

This third specification is similar to the second, except the dependent variable is now the percent change in property  $i$ 's price minus the average percent change in price of all other properties in the same market.<sup>23</sup> Because the difference in these percent changes should not be affected by common, market-level demand and cost shocks, the independent variables in the prior specifications that account for market level changes are not included in this specification.<sup>24</sup> This specification tests whether the differential effect on average price of properties in the city with the same brand affiliation compared to similar properties in the city with different brand affiliations depends on whether the brand entry/exit (or affiliation change) is by a franchised or company-owned property. The third column in Table 3 contains the results of this specification.

These results provide strong evidence that competition is greater among franchised properties than among company-owned properties. The coefficient estimate associated with *brand affiliation change by different franchisee* is negative and statistically significant.<sup>25</sup>

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<sup>23</sup> For example, if the average price of a Comfort Inn located in El Paso increased from \$49 in 1993 to \$52 in 1994 and the average price of all other El Paso properties in the Limited Service Sector increased from an average of \$50 in 1993 to \$51 in 1994, then the dependent variable for this observation would equal  $(52-49)/49 - (51-50)/50 = 0.041$ .

<sup>24</sup> The results do not change appreciably if these variables are included.

<sup>25</sup> Because they share a common reservation system, a national advertising campaign, and offer similar amenities, properties with the same brand affiliation are likely to be closer substitutes than properties with different brand affiliations. If competition is greater among franchised properties, one would expect the

This estimate of  $-1.464$  indicates that the price of an existing property with the same brand affiliation will decrease 2.928 percentage points more than other properties in the city-sector if the entering property accounting for two percent of the city-sector's total capacity is operated by a different franchisee compared to being company-owned. The differential effect is quite large considering that the average percent change in price across years is 0.62 for properties that do not change brand affiliations nor appreciably change capacity. While the negative coefficient estimate ( $-0.149$ ) associated with *brand affiliation change by different franchisee* is not statistically significant, it is economically significant.<sup>26</sup>

While primarily interested in the coefficients associated with the variables representing *brand entry/exit by different franchisee* and *affiliation change by different franchisee*, several of the other coefficient estimates merit discussion. The most surprising is the relatively large negative coefficients associated with *brand entry/exit by same franchisee* and *brand affiliation change by same franchisee*. Possible explanations are that those markets where the same franchisee owns both properties differ from those markets where different franchisees own the properties and/or that properties operated by a single franchisee are closer substitutes (see Section V for evidence).

In addition, the positive coefficient in the third specification associated with *brand affiliation change* ( $0.134$ ) suggests that a brand affiliation change by a company-owned property appears to not appreciably change and, perhaps, increases the price of an existing property in the market with the same brand affiliation. Perhaps the affiliation change results in greater collusion between the properties. As for the coefficient estimates associated with

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differential effect associated with franchised and company-owned properties to be greater for properties with the same brand affiliation. This differential effect would be greater with increased competition for properties with the same brand affiliation if one models product differentiation as a linear city and compares this price differential when entry occurs or when a product moves (due to a property changing brand affiliation) closer to one of the other products (property with same brand affiliation).

<sup>26</sup> If quantity was used (instead of price) to construct the dependent variable in the third column of Table 3, the coefficients associated with *brand entry/exit by different franchisee* and *affiliation change by different franchisee* would be statistically and economically insignificant.



*brand changes from company-owned to franchised* (without a change in brand affiliation), they are close to zero and not statistically significant. The lack of precision is not surprising given that from 1991 through 1997, only four properties changed from being franchised to being company-owned and only six properties changed from being company-owned to being franchised.<sup>27</sup>

### **4.3 Robustness Results and Alternative Specification**

While the results in Table 3 are based on a market being defined as a city-sector, the coefficient estimates in Column 3 are robust to alternative market definitions. Specifically, defining a market as a zip code-sector causes the coefficient estimates to change very little. The results in Column 3 are also robust to the set of observations included in the estimation. While only observations where days open and number of rooms did not change by more than fifteen are included when estimating the specifications, the results do not change appreciably when the 15 days/rooms criteria is changed to 10, 20 or 30 days/rooms. In addition, excluding all properties located in the three largest cities in Texas (Dallas, San Antonio and Houston) does not appreciably change the coefficient estimates.

The specifications in Table 3 are restrictive in that they do not allow brand entry/exit and affiliation change to have a differential effect if the existing property is company-owned compared to franchised. To allow for a differential effect, I interact the brand entry/exit and affiliation change variables with a dummy variable indicating whether the existing property is company-owned or franchised. The conclusions drawn from this specification are similar to those drawn from the prior specification; where the coefficient associated with brand entry/exit by a different franchisee is interpreted as the differential effect associated with both properties being franchised compared to both being company-owned. As mentioned, the

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<sup>27</sup> While not presented in the table, the magnitudes of the coefficients associated with the variables included to control for market-level changes in demand and supply suggest that market-level demand and cost shocks are important when predicting the growth in a property's price.

reason for this is that in most cases when the entering property is franchised (company-owned), so is the existing property. The same applies for brand affiliation changes.<sup>28</sup>

## V. ALTERNATIVE EXPLANATIONS

While the results in Table 3 support the premise that competition between franchised properties affiliated with the same brand is greater than between company-owned properties, there are alternative explanations. One alternative explanation is that franchised properties affiliated with the same brand and located in the same city are closer substitutes than company-owned properties. Another explanation is that market entry or an affiliation change decreases the costs of the existing property with the same brand affiliation more if the entering property is franchised.

### 5.1 Closer Substitutes

It is more likely that substitutability explains the negative coefficients associated with the different franchisee variables if the cities where this brand entry/exit and affiliation changes occur differ for franchised and company-owned properties. Although there are lodging properties in 256 cities in Texas, only the larger cities can support multiple lodging properties affiliated with the same brand. Among all 256 cities, the average number of properties per city is slightly less than nine, yet the average is 69 in cities where an existing property experienced entry/exit or an affiliation change by another property with the same brand affiliation. Furthermore, the eleven large cities where an existing property experienced entry/exit or an affiliation change by a company-owned property with the same brand affiliation account for over 95 percent of the cases where the entry/exit or affiliation change was by a franchised property.<sup>29</sup> This suggests that city differences do not explain the negative coefficient estimates associated with brand entry/exit by a different franchisee.

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<sup>28</sup> The results discussed in this section are available from the author.

<sup>29</sup> These 11 cities are Amarillo, Arlington, Austin, Corpus Christi, Dallas, El Paso, Fortworth, Houston, Irving, Lubbock and San Antonio.

These negative coefficient estimates are also less likely due to competition if these franchised properties are of a similar average quality than these company-owned properties. This does not appear to be the case. The average price of the existing property with the same brand affiliation when a franchised property enters or changes affiliation is \$54.64 and is \$52.22 when entry or affiliation change involves a company-owned property. The average prices for the property entering or changing affiliation are also similar for franchised and company-owned properties (\$48.23 and \$47.76, respectively).

The fact that the city locations and average prices do not differ appreciably suggests that the negative coefficient estimates associated with a different franchisee are not attributable to these franchised properties being closer substitutes. In addition, importance placed on standardizing properties with the same brand affiliation and the ability of the brand to better achieve standardization among company-owned properties makes it even less likely that these results are due to franchised properties being closer substitutes. However, franchised properties affiliated with the same brand could be in closer proximity to each other than company-owned properties.<sup>30</sup>

To test if the results in Table 3 are due to substitutability via geographic proximity, I use [www.switchboard.com](http://www.switchboard.com) and company websites to obtain the property addresses and [www.mapquest.com](http://www.mapquest.com) to obtain the distance and driving time between properties in the same city with the same brand affiliation. Unfortunately, I could only identify slightly less than two-thirds and slightly more than a third of the distances and driving times associated with the entry/exit and affiliation changes, respectively.<sup>31</sup>

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<sup>30</sup> The court cases claiming territory infringement in the hotel industry include Choice Hotels International Inc. v. Okeechobee Motel Joint Venture, L&E Corporation v. Days Inn of America Inc., Orlando Plaza Suite Hotel, LTD.-A v. Embassy Suites Inc., Camp Creek Hospitality Inns, Inc. v. Sheraton Franchise Corporation ITT, and Linquist & Craig Hotels & Resorts Inc. v. Holiday Inns Franchising Inc., and Holiday Inns Franchising Inc. v. Terry Branstad, John Hammons and Omaha Hotel Inc.. The rulings on these cases have almost always been in favor of the franchisor in regards to territory infringement.

<sup>31</sup> Obtaining distance measures in late 1999 was problematic because numerous lodging properties changed brand affiliations and/or number of rooms between 1997 and late 1999. This often prevented me from

Table 4 contains the average distance and driving time between those properties that entered, changed affiliation toward the brand or changed affiliation away from the brand and other properties in the city with the same brand affiliation. The table also distinguishes between entry and affiliation change by a company-owned property, a property operated by a different franchisee and a property operated by the same franchisee. Table 4 indicates that: (i) the average driving time and distance are similar whether the property entering or changing brand affiliations is company-owned or operated by a different franchisee; and (ii) the average driving time and distance is much less for the few cases where the franchised properties have the same franchisee. This suggests that the differential effects associated with entry/exit and affiliation change by a different franchisee compared to a company-owned property are not the result of franchised properties being in closer proximity.<sup>32</sup>

## 5.2 Costs

There are two explanations why a property's costs could change as the result of having another property with the same brand affiliation in close proximity: (i) there are economies of scale that the property is able to achieve when there is another property in the same geographic area; and (ii) the brand's costs of monitoring the property decrease which results in a change to the property's costs. Because economies of scale are often achieved by becoming affiliated with the brand (through, among other things, quantity discounts), a property's costs are not likely to change appreciably if another property locates in close

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definitively identifying property addresses. This caused the most difficulty in the larger cities (Dallas, Houston and San Antonio) where there often existed numerous properties affiliated with the same brand, each having a similar number of rooms.

<sup>32</sup> In order to include distance and driving time in the prior specifications, observations for which these variables could not be obtained (primarily large, franchised properties in Dallas, Houston and San Antonio) must be dropped from the estimation. After dropping these observations, the coefficients associated with entry/exit and affiliation changes by a different franchisee are similar whether or not the distance or driving time variables are included in the specifications. In addition, the coefficient estimates associated with distance and driving times vary in sign and almost all are close to zero. However, when the time variables are not included (i.e., same as prior specifications), the coefficient estimates associated with entry/exit and an affiliation change by a different franchisee remain negative but do change significantly from Column 3 of Table 3. This is due to the fact that the dropped observations, for which distance and driving time could not be obtained, are non-representative.

proximity. If the costs did change, I would expect costs to decrease more if the properties are company-owned because these properties are likely to be better able to coordinate activities. As for the brand's monitoring costs declining, this is likely to increase the costs of franchised properties more than company-owned. The large majority of the monitoring done by the brand involves quality issues such as cleanliness and amenities. Because of the externality associated with brand reputation which the franchisee does not take into account when selecting quality, increased monitoring is likely to have a greater affect on the quality, and thereby the costs, of franchised relative to company-owned properties. (See Mathewson & Winter (1985) for a discussion of this externality issue in the context of franchising.) Therefore, if costs do change as the result of having another property with the same brand affiliation in close proximity, I would expect the decrease in the properties' costs to be greater if the properties are company-owned rather than franchised. The effect of cost changes on the coefficients of interest in Table 3 would be opposite in direction as the predictions obtained from the competition argument.

## **VI. CONCLUSION**

This paper empirically tests whether price competition is greater between franchised properties compared to company-owned properties. The results indicate that the level of price competition is indeed greater between franchised properties and this increased competition is not the result of franchised properties being closer substitutes. This suggests that while the franchisor may be taking actions to reduce price competition among her franchisees, these actions do not result in the franchisees selecting prices that maximize the joint profits of the franchisor's locations. If the franchisor is able to take actions to decrease price competition, this will likely benefit both the franchisor and his franchisees. However, the higher prices will obviously hurt consumers.

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TABLE 1  
Sector Classification

Number of Properties (Percent of Properties' Franchised) in 1991 and 1997

	FULL SERVICE SECTOR		LIMITED SERVICE SECTOR		EXTENDED STAY SECTOR			
	1991	1997	1991	1997	1991	1997		
Fairmont	1 (0)	1 (0)	Hampton	20 (95)	50 (96)	Residence	10 (50)	26 (69)
Westin	4 (25)	3 (0)	LaQuinta	81 (3)	96 (1)	Homewood	2 (0)	9 (78)
Four Seasons	4 (0)	3 (0)	Holiday Express		44 (100)	DoubleTree Suites	2 (50)	3 (67)
Hyatt	6 (67)	7 (71)	Fairfield		28 (100)	Sheraton Suites		1 (0)
Sheraton	20 (100)	7 (100)	Country	2 (100)	12 (100)	Hawthorn	7 (100)	8 (100)
Omni	1 (0)	9 (11)	Wingate		2 (100)	Embassy	11 (55)	12 (33)
Marriott	18 (22)	14 (29)	Homeplace	7 (100)		Summerfield		2 (0)
Renaissance		3 (0)	Drury	8 (0)	15 (0)	Sumner Suites		6 (0)
Loews	1 (100)		Days	59 (100)	137 (100)	MainStay		1 (100)
Stouffer	3 (0)		Comfort	30 (100)	73 (100)	AmeriSuites	5 (80)	7 (0)
Bristol	1 (100)	1 (100)	Best Western	112 (100)	156 (100)	HomeGate		7 (0)
Crowne Plaza	2 (50)	2 (100)	Shoney's		6 (33)	Travel Suites		2 (100)
Hilton	25 (96)	20 (95)	Budgetel		8 (13)	Lexington	6 (67)	4 (50)
Red Lion		2 (0)	Ramada Ltd		38 (100)	Villager	1 (100)	1 (100)
Courtyard	14 (14)	31 (52)	Quality	16 (100)	24 (100)	Comfort Suites		13 (100)
Adam's Mark		3 (0)	Sleep		10 (100)	StudioPlus		3 (0)
Radisson	9 (89)	16 (100)	Motel 6	76 (1)	92 (4)	Extended Stay		1 (100)
DoubleTree	7 (57)	9 (44)	Super 8	6 (100)	63 (100)			
Wyndham	5 (40)	5 (40)	Travelodge	15 (100)	22 (100)	<b>Total:</b>	<b>44 (64)</b>	<b>106 (56)</b>
Holiday	92 (92)	81 (91)	Red Roof	5 (0)	21 (0)			
Ramada	45 (100)	49 (100)	Rodeway	19 (100)	27 (100)			
Four Points		7 (100)	Econolodge	38 (100)	41 (100)			
Medallion		2 (100)	Park	8 (100)	5 (100)			
Holiday Select		4 (100)	Allstar	9 (0)				
Clarion	1 (100)	2 (100)	Homestead		23 (4)			
Howard Johnson	16 (100)	27 (100)	Microtel		2 (100)			
Harvey	7 (0)	6 (0)	Travelers	4 (0)	8 (0)	<b>Independents:</b>	<b>1823 (0)</b>	<b>1461 (0)</b>
			Red Carpet	1 (100)	3 (100)			
			Exel	4 (0)	2 (0)			
<b>Total:</b>	<b>282 (76)</b>	<b>314 (75)</b>	<b>Total:</b>	<b>520 (43)</b>	<b>1010 (58)</b>			



TABLE 2

	1991	1992	1993	1994	1995	1996	1997
Total Properties	2669	2686	2721	2778	2806	2884	2891
Average Capacity	85.2	84.9	83.9	83.7	84.1	85.6	88.5
Average Annual Price*	43.93	44.32	45.05	45.66	47.05	48.47	49.69
Average Annual Occupancy Rate	49.8	50.8	52.6	54.5	54.9	54.4	55.3
Percent of Properties Brand-Affiliated	31.7%	33.1%	34.8%	36.9%	40.2%	44.2%	49.5%
Percent of Properties Franchised	21.8%	22.7%	24.2%	26.0%	28.8%	31.8%	36.2%
County-Level Travel Expenditures (\$1,000)*	1079	1123	1178	1248	1358	1487	1651
County-Level Population (1,000)	692	714	719	740	778	812	862
County-Level Per Capita Income (\$1,000)*	18.7	19.2	19.4	20.2	20.8	21.3	22.1
County-Level Retail Wage Expenditures (\$1,000)*	436	451	469	499	532	561	605
City-Level Tax Rates	6.08%	6.10%	6.12%	6.28%	6.35%	6.42%	6.94%
	Change in Brand and Corporate Affiliation						
Number of Properties that Change Brand Affiliation		25	46	23	67	44	39
Number of Properties that Change Brand but not Corporate Affiliation		2	6	2	32	17	17
Number of Properties that Change from Independent to Brand-Affiliated		46	50	36	39	45	39
Number of Properties that Change from Brand-Affiliated to Independent		19	19	9	19	27	16
	Entry and Exit						
Number of Properties that Enter		168	158	179	197	211	191
Number of Brand-Affiliated Properties that Enter		15	30	53	86	135	134
Number of Franchised Properties that Enter		10	28	38	73	103	107
Number of Properties that Exit	151	124	121	169	133	184	
Number of Brand-Affiliated Properties that Exit	0	4	2	3	4	3	
Number of Franchised Properties that Exit	0	4	2	3	4	3	

\*All values are in 1996 dollars.

**TABLE 3**  
Effect of Franchising on the Level of Competition : County- and City-Level Controls for Demand and Cost Changes.

	Percent change in Price	Percent change in Price	% Δ in Price minus % Δ in average city-sector price
Brand Entry/Exit in City	0.100 (0.092)	0.072 (0.064)	0.004 (0.064)
Brand Entry/Exit by Different Franchisee in City	-0.314** (0.149)	-0.227 (0.141)	-1.464** (0.489)
Brand Entry/Exit by Same Franchisee in City	-3.511** (0.613)	-3.593** (1.273)	-0.524 (1.746)
Brand Affiliation Change in City	0.016 (0.146)	-0.104 (0.137)	0.134 (0.121)
Brand Affiliation Change by Different Franchisee in City	-0.083 (0.143)	-0.035 (0.135)	-0.149 (0.133)
Brand Affiliation Change by Same Franchisee in City	-0.172 (0.117)	-0.115 (0.103)	-0.231** (0.062)
Brand Affiliation Change with Corporate Affiliation Change in City	0.044 (0.132)	0.108 (0.133)	-0.004 (0.129)
Brand Changes from Company-Owned to Franchised in City	0.061 (0.040)	0.042 (0.040)	0.042 (0.043)
Property Specific Variables	YES <sup>2</sup>	YES <sup>2</sup>	YES <sup>2</sup>
City- and County-Level Variables	YES <sup>2</sup>	YES <sup>2</sup>	NO
City-Sector Entry/Exit and Affiliation Changes <sup>1</sup>	YES	YES	NO
Year Effects	YES	YES	YES
Brand Effects	NO	YES	YES
R-Squared	0.040	0.063	0.018
Observations	11,224	11,224	11,224

Standard errors are in parentheses. \* Statistically significant at .10 level; \*\* Statistically significant at .05 level.

When calculating the standard errors, I allow the residuals to be correlated for observations of the same property (different years), with the same brand affiliation and in the same city-year (Conley, 1999).

1. The entry/exit and affiliation change variables are the percent of yearly city-sector capacity attributable to entry/exit and affiliation change.

2. Property specific variables include percent change in days open and number of rooms as well as a franchise indicator variable. County specific variables include percent change in county travel expenditures, county population, county per capita income, county retail wages and county/city hotel tax rates.

TABLE 4  
Average Driving Time and Distance Between Properties.

	Driving Time in Minutes			Distance in Miles		
	Entry	Affiliation Change		Entry	Affiliation Change	
		Toward	Away		Toward	Away
Company-Owned Property	21.33 (51)	19.03 (35)	21.57 (7)	12.16 (51)	11.05 (35)	14.24 (7)
Property with Different Franchisee	20.40 (90)	18.93 (74)	20.85 (49)	12.61 (90)	10.82 (74)	15.01 (49)
Property with Same Franchisee	14.67 (2)			8.07 (2)		

Number of cases is in parentheses.

Source: Author's calculations using [www.switchboard.com](http://www.switchboard.com) and [www.mapquest.com](http://www.mapquest.com).