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AGGLOMERATION EFECTS AND STRATEGIC ORIENTATIONS: EVIDENCE FROM THE U.S. LODGING INDUSTRY

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This study provides evidence regarding the strategic dynamics of competitive clusters. Firms that agglomerate (co-locate) may benefit from the differentiation of competitors without making similar differentiating investments themselves. Alternatively, co-locating with a high percentage of firms with low-cost strategic orientations reduces performance for firms pursuing high levels of differentiation. Further, the lowest-cost providers with the greatest strategic distance from the norm of the competitive cluster reap the greatest benefit from co-location with differentiated firms. We find empirical support for these ideas using a sample of 14,995 U.S. lodging establishments, and controlling for a number of key demand-shaping factors.

Competitive dynamics are defined by the moves and countermoves of firms and their competitors (Smith, Ferrier, & Ndofor, 2001). Organizations do not exist in a vacuum. They are inherently interdependent. Consequently, it is useful to study the strategic orientations of firms in the context of what other firms are doing. For example, the effectiveness of a particular strategy may depend on the strategies pursued by other firms in the same market (Mazzeo, 2002). Geographic clusters of firms are common in many industries, and these clusters provide an outstanding context in which to study strategic orientations, especially to the extent that the competitive dynamics of one cluster can be compared to the dynamics of other clusters in the same line of business (Chung & Kalnins, 2001; Mazzeo, 2002).

One way to distinguish among the strategic orientations of firms in a geographic cluster is by their levels of differentiation. Differentiation involves an attempt to create a product or service that is preferred over other offerings in a market (Caves & Williamson, 1985; Porter, 1980: 37). It often involves investments in superior fixed assets, raw materials, component parts, or technology, as well as comparatively high levels of service and advertising. If differentiation is successful, then a firm should be able to recover the additional costs through an increased price and/or higher sales volume (Porter, 1985: 153). For example, Mazzeo (2002) studied small motel markets and discovered that there are strong incentives for firms to pursue strategies that are different from competitors' in their local markets. An important issue is whether a firm may enjoy some of the benefits associated with the differentiating investments of others in its cluster without making similar resource investments.

The benefits that accrue from firm co-location are known as "agglomeration effects." In a study of the hotel industry in Texas, Chung and Kalnins (2001) discovered that in rural areas, chain firms and larger firms contribute "positive externalities" from their presence in competitive clusters. Independent and smaller hotels are the net beneficiaries of these externalities. Furthermore, Kalnins and Chung (2004) found that new hotels are attracted to areas with branded upscale hotels. Similarly, taking a production perspective, Flyer and Shaver (2003) used simulations to demonstrate that co-location tends to occur in industries where early entrants

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have made large investments in research and development or where research and development spending is symmetric across firms. Unlike in joint ventures, alliances, trade groups, and other interorganizational relationships, in industry clusters firms can extract the benefits associated with these externalities from other firms without their cooperation or consent.

Our study contributes to this research stream by demonstrating that high levels of differentiation in a competitive cluster are associated with higher levels of performance for firms in the cluster. Furthermore, the improvement in a firm's performance varies as a function of the difference between the strategic orientation of the firm and the average strategic orientation of firms in the cluster. We also find that locating in a competitive cluster with a high percentage of companies with low-cost strategic orientations tends to reduce performance for firms with higher levels of differentiation. Our hypotheses result from combining concepts found in research on agglomeration and differentiation (Kalnins & Chung, 2004). The data used in the study encompass an entire U.S. industry, as opposed to a single city (cf. Baum & Haveman, 1997) or state (cf. Chung & Kalnins, 2001; Kalnins & Chung, 2004). In addition, we provide new evidence regarding the benefits of clustering among large firms, following the work of Chung and Kalnins (2001). We find that firms pursuing a low-cost (economy) strategic orientation or a differentiation (upscale) strategic orientation are the only firms that enjoy the benefits of clustering with larger firms.

THEORY OF AGGLOMERATION

The theory of agglomeration explains why competitors often cluster in groups. Agglomeration is counterintuitive from a traditional economic perspective since competition is typically reduces performance. The hazards are well understood. Close proximity can increase competition for supplies such as labor, materials and capital. Exclusive technologies are harder to keep secret. Also, depending on the product or service provided, demand may need to be spread over more competitors. In fact, Baum and Mezias (1992) discovered that localized competitive influences increased failure rates in the Manhattan hotel industry over much of the 20th century. Nevertheless, as Porter (1998) pointed out, agglomeration is not uncommon (see also Lomi, 1995). For example, competitive clusters exist in entertainment (Hollywood), computer technology (Silicon Valley), high-tech automobiles (southern Germany), textiles (the Carolinas), and many other industries. They are especially common in service industries such as lodging, food, and retail, where they exist in many locations throughout the world. The characteristics of these competitive clusters vary. For example, in Manhattan, exclusive retail stores are mainly located on upper Madison Avenue, while the discount stores tend to be located on 14th Street. However, both the Gap and Tiffany's are located at Copley Plaza in Boston.

It is tempting to assume that agglomeration is primarily a result of natural advantages associated with particular geographic locations. Such advantages may include lower-cost factors of production or proximity to necessary resources such as lumber, waterways, or population centers. However, Ellison and Glaeser (1999) were only able to identify natural advantages in about one-fifth of the clusters they studied. Although they reasoned that including more variables capturing such advantages would have resulted in the identification of a higher percentage of clusters with natural advantages, they nonetheless admitted that other types of factors seemed important in a number of highly geographically concentrated industries. The literature on the economics of agglomeration suggests that geographical clustering in an industry leads to higher performance because of improved production and/or heightened demand (Marshall, 1920: 273). We will briefly review the production arguments and then focus on the demand benefits. In addition, we will argue that the benefits that are most important to firms in particular clusters depend on the nature of their industries.

Production Advantages of Agglomeration

Much of the agglomeration literature has focused on the benefits of production in proximity to close competitors. For example, Henderson (1986) found that industry localization can raise "factor productivity." Such an increase may occur because competitors in a cluster have access to resources that are not readily available to competitors not in a cluster (Shaver & Flyer, 2000; Tallman, Jenkins, Henry, & Pinch, 2004). In this regard, Shaver and Flyer (2000) discovered that firms with the weakest resources in areas such as technology, human capital, training programs, suppliers, and distributors tended to locate near stronger firms that made net contributions to resource-based externalities in their areas (see also Flyer & Shaver, 2003). Resources such as advanced technical knowledge are more easily transferred when competitors are in close proximity (Pouder & St. John, 1996; Tallman et al., 2004). Transfer is eased partially because co-located firms draw from the same local pool of

human resources with specialized skills and knowledge (Almeida & Kogut, 1999). For instance, Marshall (1920: 271) observed that workers with required skills are more abundant for firms clustered in a single area because potential employees with the required skills are naturally drawn to such an area.

Location in clusters can also allow greater access to leading suppliers, special services, or special relationships through interorganizational relationships such as joint ventures (Dyer, 1996). Baum and Oliver (1992) suggested that these types of relationships not only benefit the firms involved in them, but all firms in an industry, through increasing the availability of resources as a whole. Of course, an alternate view is that special relationships also raise entry barriers, making it harder for new firms to enter a market while protecting existing competitors (Gomes-Casseres, 1994).

Many of the production-based agglomeration arguments apply well to a technologically sophisticated manufacturing industry such as automobiles or computers, but not so well to a low-tech service industry such as lodging, restaurants, or retail stores. For example, sophisticated production requires workers with specialized skills, whereas low-tech service firms hire predominantly unskilled or semiskilled laborers (except for management). Consequently, clustering may not as readily offer labor pool benefits in these industries. The same logic applies to technology transfer. Technological advances are more likely to spread among firms that are in close proximity owing to information leakage and employee transfer (Tallman et al., 2004). Knowledge exchange is important to a technologically sophisticated manufacturing firm, but less important to a low-tech service firm such as a hotel or retail store. Similarly, sophisticated supplies are important to high-tech manufacturers, but low-tech service firms tend to use basic supplies that are readily available. We acknowledge the existence of high-tech service industries, such as financial services, that are likely to enjoy labor and technology transfer benefits. However, the point of this discussion is to demonstrate that the production-based benefits of agglomeration do little to explain the tendency of service firms with simple technologies and basic supply needs to cluster. To explain this phenomenon better, we now turn to demand-based theory.

Demand-Based Advantages of Agglomeration

Agglomeration can lead to benefits from increased demand through reduced search costs for consumers (Marshall, 1920: 273). These benefits are more important in industries with a high level of product heterogeneity because they require the largest amount of consumer search (Fischer & Harrington, 1996). Co-location allows consumers to evaluate a variety of offerings without leaving an area. Consequently, geographic areas with a large selection of competing services are more attractive to consumers. These benefits are not a result of resource spillovers such as those found in manufacturing firms. Instead, they are a result of firm heterogeneity that attracts more consumers to an area simply because the area has a wider variety of firms from which to choose (Marshall, 1920: 273). This effect is particularly important in service industries because the location itself is an inseparable part of the service provided, such as in a "megamall" of retail establishments.

From the firm perspective, co-location allows closer monitoring of competitors and the ability to respond to specific competitor moves. This advantage is similar in concept to the technology transfer benefit associated with manufacturing clusters. Another source of advantage in competitive clusters is what might be called "differentiation spillover." Just as a manufacturing firm might enjoy advantages from the investments in infrastructure and technology of competing firms in a cluster (relative to firms not found in the cluster), so also a service firm may benefit from the investments of competitors that make a location more attractive. Location is especially important to service firms. It is made even more important because it is a resource that is nonrenewable. It is also interesting to note that the first firm to enter a particular location may do much to create an advantage for the competitors that follow.

Unlike the heightened demand gains of heterogeneity, which firms in a cluster universally share, regardless of their individual strategic orientations, differentiation spillover effects are likely to benefit some firms more than others (Shaver & Flyer, 2000). For example, a firm may enjoy demand benefits, such as higher prices, as a result of other firms' high levels of investment in product differentiation. On the other hand, a highly invested firm may incur an additional cost in the form of lower achievable prices as a result of the lack of investment made by other firms in its cluster.

Product differentiation is a common dimension firms use to distinguish themselves in an attempt to reduce the effects of direct competition. According to Porter, "A firm differentiates itself from its competitors when it provides something unique that is valuable to buyers beyond simply offering a low price. Differentiation allows a firm to command a premium price, to sell more of its product at a given

price, or to gain equivalent benefits such as greater buyer loyalty during cyclical or seasonal downturns" (1985: 120). Differentiation often comes with increased costs, so a firm enjoys success with this strategy if the price it gains from differentiation exceeds the costs of creating it.

Many of the arguments underlying the theory of differentiation imply that a firm that pursues differentiation can retain its economic benefits. Otherwise managers might not have sufficient motivation to expend additional resources to differentiate. However, this assumption is violated by the observation that other firms may quickly imitate the innovations of leading firms (Barney, 1991). In these situations, a follower firm achieves some of the benefits while absorbing fewer of the costs. At the conceptual level, agglomeration is another example of following the leader, as one firm locates in an area and others follow.

Differentiation within Competitive Clusters in the Lodging Industry

A closer look at sources of differentiation through the lens of the lodging industry will help explain how the benefits of differentiation can be shared through agglomeration in a service setting. From this point forward, many of our examples will be based in the lodging industry, since we tested our theory in this industry. The lodging industry is an especially good context in which to study agglomeration effects because there are so many clusters, and the characteristics of those clusters can be compared (Chung & Kalnins, 2001; Mazzeo, 2002). However, similar illustrations could be drawn from other service industries. We are focusing on the demand-based effects of agglomeration because they are especially applicable to services, whereas the production-based effects are more relevant in manufacturing.

Porter (1985: 154) argued that differentiation grows out of a firm's chain of value-adding activities and that virtually any of these activities can be a source of differentiation. Similarly, MacMillan and McGrath suggested that a company "has the opportunity to differentiate itself at every point where it comes in contact with its customers—from the moment customers realize that they need a product or service to the time when they no longer want it and decide to dispose of it" (1997: 133). In the lodging industry, differentiation is possible through taking reservations, providing close proximity to attractive locations, transporting guests, providing parking services, checking guests in and out, handling baggage, servicing rooms, providing in-room guest services such as phone lines, modems, video entertainment, and food, and providing special services like dry cleaning, meeting rooms, a business center, or spa facilities (this is not intended to be a complete list). Although it is clear that the ways in which these activities are conducted can differentiate a firm, it is less clear that differentiation on any one service dimension would be sufficient to provide benefits to firms that locate in the same area. The one exception may be locating in an area with a favorable proximity to attractions such as theme parks or natural settings; however, the first firm to open in such a location did not create this advantage. Rather than a single service dimension, it is the sum of activities and how firms carry them out that create a level of differentiation that can provide benefits for other hotels in their cluster.

Strategic Agglomeration Benefits and Detriments

The demand-based advantages of locating among differentiated firms can come from a variety of sources. The presence of luxury and higher-end hotels, because of their service quality, architectural features, and reputations (to name but a few factors) increases the attractiveness of an area as a destination. For example, a tourist or business traveler is more likely to have a favorable impression of an area because of the presence of the product and service attributes of differentiated higher-end hotels. The lodging industry is fairly well structured within each market with regard to pricing and the quality and number of services provided (Mazzeo, 2002). A luxury hotel will offer a very wide range of high-quality services, while an economy hotel will offer limited services and a low price. Consumers look for signals with regard to the level and quality of services they expect to receive. One of the major signals is branding. Firms can use a brand name, such as the Ritz-Carlton or Budget Inns, to shape a consumer's expectations for a hotel that the consumer has not yet visited (Ingram, 1996; Wernerfelt, 1988). Nonetheless, independent hotels can be perceived as equivalent or superior to branded hotels. For example, The Breakers in Palm Beach is widely regarded as equal or superior to branded hotels in that market. Pricing and the types and quality of services provided are indicators of differentiation that apply across all types of lodging properties. They also create a set of expectations in guests with regard to what they will experience.

Of course, potential consumers must be aware of the quality of hotels in an area if firms are to enjoy the benefits of co-location, such as increased demand (Catrett & Lynn, 1999). Consumers achieve awareness through a variety of sources. For exam-

ple, they are guided by widely used rating services and guidebooks such as those provided by Mobil and the Automobile Association of America (AAA). In addition, firms that differentiate are likely to do more advertising so that they can generate enough revenues to cover increased costs. This advertising enhances reputation for an area, which can directly increase demand. Travel agencies, although declining in influence, also provide a lot of location information to consumers. The Internet, which is increasing in importance, has replaced travel agencies as a primary information source for many consumers. Consumers can click on a location and get excellent descriptions of all the lodging properties there. Consumers can also experience a location in person. If they are well satisfied, they are more likely to return, and differentiation should lead to higher satisfaction levels. All of these factors can increase the performance of hotels in a competitive cluster.

Although positive externalities of differentiation exist, not all the firms in a cluster will benefit equally (Chung & Kalnins, 2001; Shaver & Flyer, 2000). Higher-quality product providers are more likely to provide agglomeration benefits within a cluster, while those at the other end of the product segment continuum, the lowest-quality providers, will capture the greatest benefits. This inequity is due to the costs of differentiation and the associated high prices that must be obtained in order to recoup those costs. Differentiation can be expensive to pursue. In the lodging industry, a luxury classification entails expensive architectural, design, and operating system features such as marble staircases, state-of-the-art recreational facilities, high-tech entertainment and communications systems, costly art, expensive bedding, and larger rooms. Upscale hotels often provide extensive meeting and convention facilities that are both labor- and capital-intensive. Lower-end hotels can be the beneficiaries of these investments when their customers use the public facilities of higher-end hotels while staying in closely proximate low-cost operations.

Luxury and upscale hotels must charge higher room rates to recover the additional expenses associated with differentiating their products. However, lower-end hotels in the same markets are not burdened by the same cost factors. Consequently, they may enjoy the benefits of existing in an attractive market while keeping their prices relatively low. A value-conscious consumer will perceive the lower-priced hotels as bargains compared to competing hotels in the area. This should result in higher demand for the bargain hotels, as well as prices that are higher than they would be if the high-quality hotels did not exist. Consequently, one might expect that lower-end hotels in competitive clusters characterized by a high level of differentiation would have higher performance than lower-end hotels in other clusters. Firms are expected to select locations where the benefits of agglomeration should be maximal, given their own strategic orientations (Flyer & Shaver, 2003; Kalnins & Chung, 2004).

Hotel properties are classified on the basis of the extent of their quality and service differentiation (Mazzeo, 2002). The classifications are an indication of the "credible commitment" made by firms to a particular level of service quality (Ingram, 1996). In addition, hotels remain in their service quality groups over time because chains try to create and sustain a "specific image through the quality of amenities and services they provide" (Rushmore & Baum, 2001: 165). Widely used classifications in the industry include five levels: luxury, upscale, midscale with food and beverage services, midscale without food and beverage services, and economy.[1] In keeping with the foregoing discussion, we expected lower-quality, limited-service hotels to enjoy agglomeration benefits by locating in markets with more higher-quality incumbents than lower-quality ones. We expect to find this effect for all quality segments below the luxury level. That is, upscale properties will enjoy benefits from locating in clusters with higher proportions of luxury hotels, midscale properties will gain from locating with higher proportions of luxury *and* upscale hotels, and so forth. Given these arguments, the following hypothesis is appropriate:

> *Hypothesis 1a. Demand-based performance will increase for all firms below the most highly differentiated segment as a function of the proportion of other firms co-locating in the same geographic cluster that are pursuing greater levels of differentiation.*

We expect that the opposite argument will hold for luxury firms located in close physical proximity to firms pursuing a low-cost strategic orientation. Competitors with such a strategic orientation do not contribute as much to the attractiveness of a location because they do not offer the range of

[1] To assure that the classification used in this study was appropriate, we compared the expert placement of brands into these five classifications by four different industry expert groups—HVS International, Smith Travel Research, Bear Stearns, and Morgan Stanley. These independent sources were consistent and convergent on the lodging brands they placed in each of the five categories.

products and services from which competitors can benefit. If many lower-cost providers are found in the same competitive cluster, spillover effects will be negative for those firms pursuing the highest levels of differentiation in the cluster. In short, firms that pursue a high level of differentiation contribute to the positive agglomeration effects of others, but when in close proximity to low-cost providers, they suffer a loss from agglomeration.

Hypothesis 1b. Demand-based performance will decrease for the most highly differentiated firms as a function of the proportion of other firms co-locating in the same geographic cluster pursuing a lower-cost strategic orientation.

Support for Hypotheses 1a and 1b would suggest that the differentiation-related characteristics of clusters are associated with varying levels of firm performance, depending on the strategic orientation of a firm. These hypotheses capture both the beneficial and detrimental performance outcomes of co-location. The major insight rests on exploring the degree to which strategic orientation can enhance or detract from location choice. If, as we have just argued, some firms give, while others receive, benefits from the strategic orientations of other companies in their local markets, a logical next step is to explore who benefits the most. We now turn to the question of the degree of *strategic distance,* defined as the difference from the typical strategic orientation of firms in a cluster, that will yield the greatest demand-based benefits.

Being Different: The Advantage of Strategic Distance

According to our previous arguments, positive externalities exist for firms that co-locate with firms that have a strategic orientation of high differentiation, while the latter give but do not get benefits from co-location. In addition, the magnitude of the difference in strategic orientation is likely to amplify positive benefits for firms that are experiencing demand enhancement in their clusters. In particular, we argue that firms will reap the greatest benefits when they are farthest in strategic distance within a cluster of more highly differentiated firms. In this case, being different amplifies the positive benefits for firms with a low-cost strategic orientation.

For example, if a firm is pursuing a low-cost strategic orientation, then a greater distance between that strategic orientation and the average strategic orientation in the cluster means that the cluster is characterized by a higher average level of differentiation. Assume, for instance, that there are two economy hotels, each in different competitive clusters we will call A and B. Cluster A is made up primarily of higher-end hotels, and Cluster B contains primarily middle- or lower-end hotels. The economy firm in Cluster A should have higher agglomeration-based performance than the firm in Cluster B because Cluster A contains more highly differentiated firms and is therefore more attractive to consumers. Furthermore, we argue that the agglomeration benefit is even greater for the economy hotel in cluster A because the strategic distance between the dominant cluster orientation and that of the low-end hotel is greater than it is in cluster B. We suggest that two competitive advantages are working simultaneously. First, the low-cost providers experience agglomeration benefits from a large proportion of other firms with greater levels of differentiation. By association—by their presence in the cluster—they reap a revenue premium. Second, if these firms' strategies are the most distant from the typical strategies in their cluster, they can leverage a real difference. The agglomeration effect differentiates the cluster, and the distance from the norm measures the difference between a focal firm's strategic orientation and the average strategic orientation in the demand-enhancing cluster. The benefits of differentiation spillover and firm difference combine to enhance demand-based performance. To capture the enabling and enhancing effect of strategic distance, we propose:

Hypothesis 2a. Demand-based performance will increase for firms pursuing the lowest-cost strategic orientation as a function of the distance between their strategic orientation and the average strategic orientation in their competitive clusters.

The reverse argument should hold true for the most highly differentiated hotels. Less distance between a highly differentiated firm and the norm in the cluster means that the cluster is characterized by hotels that are more highly differentiated. Direction of strategic benefit is important because the most highly differentiated firms do not gain demand-enhancing benefits from being in a cluster with lower-end firms. Hence, the farther the strategic distance for higher-end providers, the more likely that the negative impact of agglomeration stated in Hypothesis 1b will be magnified:

Hypothesis 2b. Demand-based performance will decrease for firms pursuing the most highly differentiated strategic orientation as a function of the distance between their strategic orientation and the average strategic orientation in their competitive clusters.

In sum, we argue that strategy-based agglomeration *effects* are magnified by strategic distance from the norm: hotels pursuing a high-differentiation strategic orientation experience agglomeration *detriments* that are amplified by distance from the norm of the other hotels in their cluster, whereas hotels pursuing a low-cost strategic orientation experience agglomeration *benefits* that are augmented by distance from the norm of the other hotels.

METHODS

Data Sources

The sample used for this study was obtained from Smith Travel Research, an independent research organization that tracks lodging performance for all major North American hotels. This organization's data are the most comprehensive available on the industry, and were obtained through a strict and exclusive data-sharing arrangement. The data capture hotels across the entire United States, including over 98 percent of the chain hotel inventory, and are thus representative of the entire U.S. lodging population for branded hotels. Many independent hotels are also included in the database. They constitute a total of 1,162 firms in the sample.

The Smith Travel data consisted of monthly hotel-level performance data—room revenue and rooms sold for the year 2000. In addition, Smith Travel supplied categorical variables that describe some of the characteristics of each firm. These data included (1) the number of rooms in a hotel, (2) the Metropolitan Statistical Area (MSA) in which the hotel was located, (3) the more narrowly defined market tract in which the hotel was located, (4) the location type of the hotel, which could be urban, suburban, airport, highway, or resort, (5) the regional location of the company owning the hotel, and (6) the product/service quality segment category of the hotel (these variables will be clarified later). In addition, we collected U.S. Census Bureau data by MSA on population and area. Counts of state or county retail, service, and manufacturing establishments were obtained from the U.S. Census Bureau's *County Business Patterns.* Incomplete data for 6 hotels reduced the sample from 15,001 to the final sample of 14,995 lodging establishments.

Primary Variables

Agglomeration effects were measured at the tract level. The data provider, Smith Travel Research, identifies the location of a hotel by both MSA and tract. Tracts, as defined by Smith Travel, are a subset of a Metropolitan Statistical Area market and are defined by counties and/or zip codes. For example, the Boston MSA is divided into 10 tracts. A total of 550 tracts currently exist in the United States. The average number of lodging properties in the tracts in our sample was 27.9; the minimum number was 2, and the maximum was 74. Tracts provide a more refined geographic unit for studying agglomeration than MSAs since they better reflect the realistic options available to a consumer who desires to visit a particular location. Since Smith Travel would not reveal the actual identity or exact location of individual properties, even under the exclusive agreement that allowed access to other data, the tract was the smallest location grouping available. For the sake of consistency with our theory sections, we will refer to tracts as "competitive clusters" or simply "clusters."

For our test of Hypothesis 1a, we measured the proportion of lodging properties in a cluster that were pursuing a higher differentiation (i.e., product-quality) strategic orientation. Hypothesis 1b requires that agglomeration be measured as the proportion of lodging properties in a cluster that are pursuing a lower-cost strategic orientation. We adapted the Bear Stearns Financial Services Company's U.S. lodging industry categorization scheme to classify hotels into product segments (Adler & Lafleur, 1997; Dubé, Enz, Renaghan, & Siguaw, 1999). This scheme, which is stable over time and allows brand and individual hotel comparisons, divides the industry into five segments based upon important differences in product and service offerings. Hotels that offer full-service products operate food and beverage facilities and meeting facilities, and they have expensive guest services and amenities. These full-service hotels are divided into three categories based on quality: luxury, upscale, and midscale with food and beverage. Hotels with limited-service offerings do not operate food and beverage facilities and provide relatively few guest services and amenities. Limited-service hotels are divided into two categories: midscale without food and beverage, and economy. Table 1 gives an overview of the segment categorization scheme and examples of brand categories.

For Hypotheses 2a and 2b, we measured the distance between a firm's strategic orientation and the central tendency of the strategic orientations of other firms in the cluster. To measure central tendency, we assigned each strategy type a number from 1 ("economy") to 5 ("luxury"). We then calculated the average strategic type in the cluster. The distance score was the absolute value of a

TABLE 1
Overview of Product-Quality Segmentation of the Lodging Industry[a]

Industry Sector and Quality Levels	Characteristics of Quality Levels	Number of Brands	Brand Exemplar
Full service			
Luxury	Elegant; distinctive; highest-quality decor; upscale restaurants; full range of first-class amenities and customized services.	4	Four Seasons
Upscale	Well-integrated decor; quality furnishings; premium guest-room amenities and facilities; high staff to guest ratio.	31	Crowne Plaza
Midscale with food and beverage	Nicely appointed rooms; range of facilities; good-quality amenities; some special services available; restaurants.	18	Holiday Inn
Limited service			
Midscale with no food and beverage	Nicely appointed rooms; range of facilities may be limited; good-quality amenities.	21	Hampton Inn
Economy	Clean and comfortable; minimum of services and amenities.	56	Days Inn

[a] Sources: Bear Stearns, Smith Travel Research, and Dubé et al. (1999).

firm's own value minus the cluster's central tendency.

One of the most important performance measures in the lodging industry is revenue per available room, commonly called "RevPAR" (Chung & Kalnins, 2001; Ismail, Dalbor, & Mills, 2002). This indicator serves as the basis for long-term business planning and is used as a guide by investors and hotel owners and general managers. In addition, a measure such as revenue per available room is appropriate for a service context and our theory. Earlier we explained that production-based agglomeration benefits fit a manufacturing setting well, while demand-based advantages should be the primary driver of agglomeration in service businesses such as hotels, restaurants, and retail establishments. We then developed theory that explains how spillover effects from cluster differentiation are expected to influence demand at a firm level. RevPAR is a demand-based, firm-level measure.

We would have preferred to use multiple measures of performance (i.e., performance measures net of costs such as operating profit or net income), but they were not available to us. However, we have reason to believe that in many cases revenue per available room is closely related to other performance measures such as operating profit. To test this notion, we obtained a smaller proprietary data sample of 486 hotels that contains annual measures of revenue and net income per available room for the year 2001. The data were provided to us by PKF Consulting's Hospitality Research Group. The Pearson correlation coefficient between net income per available room and RevPAR was .65 ($p < 0.0001$). Obviously, there is not perfect correlation between these measures, but the strong correlation suggests that the RevPAR measure is linked to other performance measures that take into consideration the costs of operation. In addition, some of the error in this correlation may be explained by the fact that the data were not divided by strategy segment, and profit margins differ by segment owing to cost differences. To minimize these segment cost structure differences to some extent, we controlled for costs by conducting separate hypothesis tests for each of the five strategy segments. Revenue per available room was calculated by dividing total room revenue by the number of rooms available for sale. We summed monthly revenues for a year and divided by the annual number of rooms available. Monthly data were aggregated to the annual level as a means to eliminate seasonal fluctuations within clusters.

Control Variables

Many factors other than co-location impact the revenue performance of a lodging firm. Chung and Kalnins (2001) found that hotels in rural areas enjoyed superior performance when competitors in a cluster were larger than themselves. We therefore added a size-based agglomeration variable to the models to help establish the unique contribution of the differentiation-based agglomeration variable and the theory that surrounds it. This addition was especially important because we understand that size and differentiation are and should be related to

each other; however, we believe that differentiation-based agglomeration effects will be a consistent predictor of performance even after size is accounted for. We controlled for size-based agglomeration effects by measuring the proportion of hotels in a cluster that were larger in size than a focal firm, measuring size as number of rooms.

We also added a control for within-cluster product-quality heterogeneity (strategic dispersion). In our theory section, we argued that heterogeneity is one of the reasons a competitive cluster is attractive to potential consumers. By controlling for heterogeneity within clusters, we could better test for the firm-level differentiation spillover effects that were the primary focus of this study. However, the inclusion of such a measure was also a test to determine whether such heterogeneity really matters, as much of the research on agglomeration suggests. We created a Herfindahl-type index that measured the level of concentration or dispersion of strategy types in a given cluster. To do so, we tallied the number of hotels in each product-quality category, then divided each tally by the total number of hotels in the cluster. We squared each of these proportions and then summed them. High values suggest that the cluster is concentrated with respect to strategic orientation; low values suggest that the cluster is strategically dispersed. We also controlled for size dispersion with the coefficient of variation, calculated as the standard deviation of within-cluster size divided by the mean.

Although the data provider would not provide the exact identity of hotels, they did provide several other items of information from which we could create control variables. Four characteristics of each hotel were provided: its size (number of rooms), whether it was brand affiliated, its location type, and its geographic region.

Typically, large hotels are more expensive than small hotels and charge higher prices, resulting in a positive relationship between revenue per available room and size (Chung & Kalnins, 2001). Chung and Kalnins (2001) also found increased room revenues for hotels in rural areas with a high percentage of chain hotels in their markets. These findings may indicate that chains draw consumers to rural areas, perhaps through their advertising and brand recognition. Similarly, Ingram (1996) discovered that hotels were more likely to survive if they were associated with a brand. Consequently, we controlled for *chain affiliation* with a dummy variable (1, "brand affiliated"; 0, "independent"). With regard to the location of a hotel, urban and resort locations are expected to have higher revenue per available room on average than suburban, airport, and highway locations. Dummy variables were created for each of the setting categories, with 1 signifying that a hotel belonged to the category and 0 that it did not. We also expected hotels in highly populated regions with expensive real estate to have higher revenue per available room than hotels in more sparsely populated regions. For example, the cost of hotels in New England and in the Pacific regions may be greater than the cost in central U.S. areas. As for location type, we created dummy variables to capture region (New England, mid Atlantic, south Atlantic, north central, south central, west north central, west south central, mountain, and Pacific).

A few other demand-related variables were measured for each metropolitan area. They included the population, the land area in square miles, and the sum of the number of retail, service, and manufacturing establishments for the metropolitan area to which a hotel belonged.

Statistical Methods

We used a feasible generalized least squares (FGLS) procedure to test our hypotheses because of the potential for "nonspherical" errors (Greene, 2000). If we had omitted a possible agglomeration variable or a control variable that explained a portion of the variability in revenue per available room across clusters that was orthogonal to the other cluster-level independent variables, then this variability would be included in the variability of the disturbance term (Chung & Kalnins, 2001). As a result, the within-cluster disturbance terms would be correlated. Since there was more than one observation per cluster, the covariance matrix was likely nonspherical, violating a condition of ordinary least squares regression. Failure to use statistical methods that accounted for this dependence across observations within a cluster could have resulted in erroneous conclusions (Greene, 2000).

Appropriate testing of Hypotheses 1a and 1b required that we separately test the competitive benefits of each strategic category in each class of hotel (economy through luxury). Testing at the level of strategic orientation versus the industry (overall) level was necessary to accurately capture the benefits or detriments of agglomeration by strategic orientation. As explanation, consider a situation in which a low-end hotel pursing a low-cost strategic orientation is located in the same cluster as a high-end hotel pursuing a differentiation strategic orientation. If the low-end hotel has an average room rate of $50 and the high-end hotel's average rate is $300, then the only way the low-end hotel could have higher revenue per available room than the high-end hotel is if its occupancy is six times higher.

TABLE 2
Descriptive Statistics and Correlations for the Pooled Sample[a]

Variables[b]	Mean	s.d.	Minimum	Maximum	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. RevPAR	50.07	33.72	3.68	551.43																										
2. Agglomeration—differention-based	35.79	25.73	0.00	98.21	−.42																									
3. Agglomeration—low-cost-based	35.79	30.37	0.00	98.36	.42	−.91																								
4. Largeness	48.04	28.82	0.00	98.65	−.18	.43	−.44																							
5. Dispersion of strategies	3.14	1.77	0.33	12.10	.07	−.06	−.05	.02																						
6. Size dispersion	0.60	0.21	0.00	2.08	.31	.03	.02	.01	.04																					
7. Distance—strategy	1.02	0.69	0.00	3.40	.19	−.03	.19	−.17	−.12	.13																				
8. Distance—size	66.60	100.64	0.00	2,687.00	.35	−.17	.19	−.15	.06	.39	.24																			
9. Number of rooms	144.40	135.77	13.00	2,890.00	.41	−.33	.33	−.57	.05	.28	.22	.80																		
10. Chain affiliation	0.92	0.27	0.00	1.00	−.21	.16	−.17	−.02	−.02	−.13	−.08	−.10	−.03																	
11. Urban setting	0.13	0.33	0.00	1.00	.27	−.09	.09	−.07	.11	.26	.07	.24	.23	−.14																
12. Suburban setting	0.34	0.47	0.00	1.00	−.05	.02	−.01	.04	−.02	−.09	.04	−.08	−.09	.02	−.28															
13. Airport setting	0.15	0.36	0.00	1.00	.00	.03	.01	−.04	−.11	.06	.03	−.01	.03	.08	−.16	−.31														
14. Highway setting	0.33	0.47	0.00	1.00	−.23	.09	−.13	.09	.04	−.19	−.15	−.16	−.18	.09	−.27	−.51	−.30													
15. Resort setting	0.05	0.21	0.00	1.00	.20	−.14	.15	−.12	−.03	.12	.07	.18	.20	−.17	−.09	−.16	−.09	−.16												
16. Population	1.99	2.15	0.06	9.52	.32	.02	.01	.01	.22	.19	.10	.19	.19	−.03	.11	.03	.02	−.09	−.05											
17. Land	3.71	4.44	0.47	39.37	−.02	.00	.00	.01	.07	.09	.05	.05	.05	−.01	−.02	.01	.04	−.05	.04	.22										
18. Establishments	34.49	37.08	0.88	157.67	.36	.02	.01	.01	.20	.19	.10	.18	.19	−.04	.11	.03	.01	−.09	−.06	.97	.16									
19. New England region	0.04	0.19	0.00	1.00	.11	.01	.01	.00	−.09	−.06	.02	−.01	.01	−.03	.00	.00	−.02	.02	−.01	−.01	−.10	.14								
20. Mid Atlantic region	0.08	0.27	0.00	1.00	.16	.00	.00	.00	−.10	.00	.00	.03	.04	−.02	.04	−.02	−.01	.02	−.04	.09	−.11	.09	−.06							
21. South Atlantic region	0.26	0.44	0.00	1.00	−.05	.00	.00	.00	.05	−.10	−.01	−.01	.01	.02	−.03	−.03	−.01	.01	.11	−.05	−.09	−.05	−.11	−.17						
22. Northern region	0.14	0.34	0.00	1.00	−.06	.00	.00	.00	.08	−.14	−.04	−.05	−.03	.04	−.02	.04	−.04	.04	−.08	.11	−.09	.09	−.08	−.12	−.23					
23. Southern region	0.08	0.26	0.00	1.00	−.13	−.02	−.02	.00	.14	.01	−.06	−.05	−.06	.04	−.03	−.03	−.01	.07	−.03	−.17	−.08	−.17	−.05	−.08	−.17	−.11				
24. West north central	0.06	0.24	0.00	1.00	−.07	.00	.00	.00	−.09	−.01	−.02	−.03	−.03	.02	.02	.02	.00	−.01	−.06	−.08	.01	−.08	−.05	−.08	−.15	−.10	−.07			
25. West south central	0.12	0.32	0.00	1.00	−.08	.00	.00	.00	.02	.06	−.02	.00	−.01	.05	.00	−.04	.04	.04	−.06	−.04	.00	−.07	−.07	−.11	−.22	−.15	−.11	−.10		
26. Mountain region	0.08	0.27	0.00	1.00	−.05	.01	.01	.00	−.09	−.01	.02	.00	.00	−.02	.01	.03	.03	−.07	.03	−.08	.41	−.09	−.06	−.09	−.17	−.12	−.08	−.08	−.11	
27. Pacific region	0.15	0.36	0.00	1.00	.19	.01	.01	.00	−.02	.24	.10	.09	.04	−.11	.04	.04	.01	−.10	.07	.17	.07	.15	−.08	−.13	−.25	−.17	−.12	−.11	−.16	−.12

[a] n = 14,995. Coefficients of .02 and above are significant at $p < .05$, and those above .03 are significant at $p < .0001$.

[b] RevPAR is revenue per available room. Population is expressed in millions. Land (area) and establishments (number of) are expressed in thousands.

Since 100 percent is the highest possible occupancy rate, the high-end hotel would have to be nearly empty for this to happen. Although this is an extreme example, it demonstrates that the revenue of low-end hotels will never exceed that of high-end hotels. Consequently, the relevant comparison is among hotels with the same strategic orientation. By comparing hotels by strategic orientation across clusters, we were able to discern the effects from the characteristics of those clusters.

To demonstrate empirically the importance of dividing our sample by strategic segment, we tested for segment moderating effects, calculating *F*-tests on the intercept across segments and on the slope coefficient for the proportion of high-end properties across segments. These tests were accomplished by including dummy variables for each segment and including an interaction term between each of the segment dummy variables and the proportion of high-end properties in the overall regression equation. The *F*-statistic on the differences in the intercepts was 557.74 ($p < .0001$), and the *F*-statistic on the differences in the coefficient for the proportion of high-end properties across segments was 41.90 ($p < .0001$). In addition, all of the segment dummy variables and all of the interaction variables were significant at $p < .05$ or below. These results suggest that strategic segment moderates the relationship between agglomeration effects and performance, an indication of the importance of conducting separate tests by segment.

RESULTS

Table 2 presents descriptive statistics and correlation coefficients for all of the variables for the entire sample of 14,995 firms. The correlation coefficient between revenue per available room and the proportion of properties in the cluster pursuing high differentiation is negative and significant. This finding is to be expected because the overall correlation test does not account for segment differences, which means that luxury hotels are compared directly with economy hotels. The negative correlation coefficient is another indication of the importance of both controlling for segment in the overall model and dividing firms by strategic category before testing Hypothesis 1a.

Another relationship that is worthy of explanation is the high (.91) correlation between the two primary agglomeration variables. Recall that the differentiation-based variable measures the proportion of hotels that are pursuing a higher level of differentiation, and the low-cost variable measures the proportion of hotels that are pursuing a low-cost orientation. Consequently, the two variables are opposite ways of measuring the same basic phenomenon. Inclusion of both variables in the study is necessary because, by definition, there are no hotels that are more highly differentiated than those in the luxury category. Therefore, since the differentiation-based variable is 0 for all luxury hotels, Hypothesis 1a could not be tested for the luxury category with this variable. Instead, it was necessary to use the low-cost variable to conduct the test for luxury firms (Hypothesis 1b). The two variables are never included in the same model at the same time.

Table 3 presents FGLS models for all five segments. In Hypothesis 1a, we predict that hotels gain differentiation-based agglomeration benefits from spillover through co-locating with hotels that pursue high levels of differentiation. We found support for this hypothesis in all four segments for which it was appropriate (economy through upscale). In these models, coefficients for the proportion of properties in the cluster pursuing high differentiation are consistently positive and significant. These results indicate that positive agglomeration effects result from co-location in an industry cluster with a high percentage of firms pursuing differentiation. The overall model at the far right of Table 3 includes all firms below the luxury level and dummy variables to control for segment effects. Consistently with the tests for Hypothesis 1a, the coefficient for the proportion of properties pursuing high differentiation is positive.

Hypothesis 1b predicts that luxury firms will suffer negative effects from co-location in clusters with a high proportion of less differentiated competitors. The luxury segment model (shown at the far left in Table 3) demonstrates support for this hypothesis. The coefficient for the proportion of properties in the cluster with low differentiation is negative and significant. Negative externalities are associated with agglomeration in clusters of this type for the highly differentiated luxury firms.

Size-based agglomeration effects were positive and significant only in the economy, upscale, and luxury segments, with no significant size-based agglomeration effects found for hotels in the midscale market segments. The controls for heterogeneity were not significant except in the case of strategy dispersion for luxury hotels and size dispersion for economy hotels. Among the control variables, hotel size (number of rooms) had significant effects on revenue per available room for all but the upscale segment, while positive effects were found in two of the four other segments. The importance of the variables associated with location and region varied depending on the segment studied. Chain affiliation had a positive effect across the segments, but

TABLE 3
Results of FGLS Analysis for Influence of Differentiation-Based Agglomeration on Revenue per Available Room

Variables[a]	Luxury	Upscale	Midscale with Food and Beverage	Midscale with No Food and Beverage	Economy	Overall
Intercept	151.61****	60.36****	34.70****	19.90****	3.66	61.38****
Strategy-based agglomeration variables						
Proportion of properties in cluster pursuing high differentiation		0.49****	0.44****	0.30****	0.20****	0.13****
Proportion of properties in cluster pursuing low cost	–0.83****					
Size-based agglomeration variable						
Proportion of larger properties	0.15*	0.12****	–0.01	0.00	0.06****	0.03**
Heterogeneity in cluster variable						
Dispersion of strategies	3.27*	0.91	0.73	0.49	0.22	0.61
Size dispersion	15.61	6.41	2.92	2.27	7.11**	11.66**
Individual hotel variables						
Number of rooms	–0.00	–0.00	0.02**	–0.01*	0.03**	0.00
Chain affiliation	2.46	5.12**	3.27**	17.37****	7.81****	6.71****
Urban setting	–23.83****	–7.88*	–10.02****	–4.67*	–6.17*	–8.85****
Suburban setting	–27.41****	–8.34**	–12.95****	–6.61**	–6.03*	–9.46****
Airport setting	–27.55****	–4.34	–12.16****	–6.13**	–7.39**	–9.44****
Highway setting	–31.37****	–8.27*	–12.76****	–8.32****	–8.85**	–11.11****
Metropolitan Statistical Area variables						
Population	–0.00**	–0.00*	–0.00**	–0.00**	–0.00****	–0.00*
Land	–0.00	–0.00*	–0.00*	–0.00	–0.00	–0.00*
Establishments	0.00**	0.00**	0.00****	0.00****	0.00****	0.00**
Regional variables						
Mid Atlantic	22.27**	6.11	11.01**	8.05*	7.68**	5.89
South Atlantic	–3.17	–12.88**	–3.74	–0.31	–0.73	–6.49*
Northern	–4.69	–12.01**	–2.18	0.31	–2.32	–7.20*
Southern	–11.85	–17.68****	–5.19	–2.13	–2.65	–10.03**
West north central	–7.65	–16.01****	–2.09	–2.06	–1.87	–8.62**
West south central	–0.64	–13.27**	–2.98	–1.20	–2.23	–8.19*
Mountain	1.92	–10.62	–3.69	–3.66	–1.04	–7.02*
Pacific	19.29	–0.28	6.59	5.82	8.30**	2.35
Segment variable						
Midscale						–24.87****
Midscale with no food and beverage						–24.39****
Economy						–43.70****
n	1,741	1,887	2,835	3,925	4,607	13,254
χ^2 likelihood ratio	194.87	485.73	555.87	532.36	1,041.47	4,062.46
$\Pr > \chi^2$	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

* $p < .05$
** $p < .01$
**** $p < .0001$

tended to be more important in the middle segments. This pattern may exist because it is harder to create differences that appeal to consumers while pursuing a middle-of-the-road strategy, so brand affiliation becomes a more influential determinant of perceived value.

In Hypothesis 2a, we predicted that firms pursuing the lowest-cost strategic orientation would en-

TABLE 4
Results of FGLS Analysis of Influence of Strategic Distance on Revenue per Available Room

Variable	Luxury	Upscale	Midscale with no Food and Beverage	Midscale with Food and Beverage	Economy
Intercept	146.05****	–92.96****	45.06****	28.99****	12.47**
Strategic distance variables					
Distance between strategic orientation of hotel and central tendency in cluster	–26.90****	–16.63****	–10.64****	11.02****	8.88****
Distance between size of hotel and central tendency in cluster	0.02	0.01	0.03****	0.01	–0.00
Heterogeneity in cluster variables					
Dispersion of strategies	3.69**	1.69*	1.44*	0.09	0.47**
Size dispersion	16.07*	5.07	10.66**	3.16	3.08
Individual hotel variables					
Number of rooms	–0.03	–0.03****	0.02**	–0.01**	–0.01
Chain affiliation	0.29	4.82**	3.44**	17.55****	7.37****
Urban setting	–23.11****	–7.08*	–9.62****	–4.98*	–6.46*
Suburban setting	–26.39****	–6.90*	–13.15****	–6.72**	–6.31**
Airport setting	–26.55****	–2.88	–12.33****	–6.22**	–7.67**
Highway setting	–29.84****	–6.96*	–13.10****	–8.52****	–9.09**
Metropolitan Statistical Area variables					
Population	–0.00*	–0.00*	–0.00**	–0.00**	–0.00****
Land	–0.00	–0.00*	–0.00*	–0.00	–0.00
Establishments	0.00**	0.00**	0.00****	0.00****	0.00****
Regional variables					
Mid Atlantic	23.59**	7.95	9.56**	7.65*	8.89**
South Atlantic	1.56	–9.29**	–5.54	–2.20	0.83
Northern	–1.66	–9.30*	–4.65	–1.56	–0.29
Southern	–5.25	–12.80**	–8.55**	–5.29*	–0.42
West north central	–3.06	–12.74**	–4.93	–4.25	0.44
West south central	4.04	–9.39*	–5.93	–2.82	–0.25
Mountain	3.46	–8.69*	–4.88	–5.21*	0.37
Pacific	22.27**	1.40	4.79	4.79	7.99**
n	1,741	1,887	2,835	3,925	4,607
χ^2 likelihood ratio	184.00	468.07	665.69	523.95	939.5
Pr > χ^2	<.0001	<.0001	<.0001	<.0001	<.0001

* $p < .05$
** $p < .01$
**** $p < .0001$

joy greater spillover effects to the extent that their strategic orientations' distance from the norm in their clusters was high (an indication of a high degree of differentiation in the cluster). For completeness, we calculated a strategic distance variable for size of the lodging company also. In Table 4, the positive and significant coefficient for the variable representing this distance in the economy segment and in the midscale without food and beverage segment provides evidence to support Hypothesis 2a. The negative and significant coefficients for the distance measures in the three full-service segments supports Hypothesis 2b, which states that demand-based performance will decrease for firms pursuing the most highly differentiated strategic orientations in terms of the distance between their orientation and the average of the cluster. The pattern of results is consistent with negative effects for the full-service segments above midscale (with food and beverage) and positive

effects for the limited service and less differentiated segments. All of the effects were significant at the .0001 level.

DISCUSSION, LIMITATIONS, AND CONCLUSION

The empirical tests provide evidence for both positive and negative externalities of strategy-based agglomeration. The results show that positive agglomeration effects are caused mainly by benefits from differentiation spillover to lower-end firms. On the other hand, negative externalities of agglomeration are brought about by co-location in a cluster with firms that pursue low-cost strategic orientation. In fact, the most highly differentiated competitors appear to suffer the most from negative spillover if a high percentage of the other firms in their clusters are pursuing low cost. The hypothesis tests provide fairly strong evidence of the role of strategic agglomeration in that the predicted agglomeration effects were found across all strategic orientations. In addition, the reasonableness of the relative magnitude of this measure for each strategic orientation provides further support for the econometric specification of this model. In general, pricing is higher for highly differentiated firms than for low-cost firms. The relative magnitude of the coefficient is consistent with this fact in that the coefficient is the highest for upscale and the lowest for economy. The distance tests provide additional evidence because they demonstrate that the performance of a firm pursuing a low-cost strategic orientation increases as the average level of differentiation in its competitive cluster increases. Similarly, highly differentiated firms perform worse as the average level of differentiation in their clusters decreases.

These findings have implications with regard to the trade-offs firms make in choosing between differentiation and cost leadership. For a differentiation strategy to succeed, the additional revenue generated as a result of creating differentiating features has to exceed the additional costs of creating those features (Porter, 1985: 153). However, differentiation attempts can be problematic if the source of differentiation provides benefits to competing firms without requiring them to make the associated investments. If co-location reduces the ability of high-end firms to distinguish themselves on factors other than location, then it is possible or even probable that lower-end firms can enjoy some of the demand advantages created by the higher-end firms. In a low-tech service industry such as lodging, restaurants, or retail, high-end competitors may have difficulty preventing low-end competitors from entering the same market because entry barriers are insufficient. The high-end firms may also find that they provide the greatest spillover benefits to the firms that are most likely to attract their customers.

Our exploration of strategic distance revealed that being different can amplify the positive benefit for hotels with a low-cost strategic orientation. Proximity to high-end firms gives a revenue boost to limited-service providers, and the strategic distance magnifies the agglomeration benefits. For highly differentiated service providers, the greater their strategic distance from their cluster, the more revenue-diminishing co-location can be. Our results reveal that the greater the low-cost orientation of the cluster and the farther the distance of a high-end firm from the average of this type of cluster, the more undesirable co-location becomes. For the highest-end, luxury hotels, finding locations that are away from other hotels may be the best advice.

We want to emphasize that our theory applies most closely to service firms, for which location is an especially critical variable for success, agglomeration is very common, and local competition is fierce. Traditional production-based arguments for agglomeration provide an excellent explanation for co-location of manufacturing firms, but they do little to explain the popularity of the phenomenon in service firms. Our central arguments follow the reasoning that service firms agglomerate, in part, because of the expectation of increased demand. Since our dependent variable is based on demand effects, our results are consistent with this reasoning. However, there are two major types of demand-based benefits. Heterogeneity makes a location more attractive by reducing search costs through providing consumers with more choices. Our results suggest that these advantages do not appear to accrue to all competitors in a cluster.

To gain a clearer picture of firm-level spillover effects, we controlled for cluster heterogeneity based on both strategic orientation and size. Adding these controls to our models also represented a test of the idea that heterogeneity makes a location more attractive. The results suggest that the dispersion or heterogeneity in strategies enhances the performance of all but the limited-service midscale segment but is strongest for luxury firms. Apparently, high-end firms are best able to distinguish themselves from firms pursuing a low-end strategy if strategic heterogeneity is high. Size dispersion has a positive effect for firms in the luxury and full-service midscale segments. This result is interesting in light of the work of Mazzeo (2002), who found that there were incentives associated with

being different from competitors in small roadside motel markets. Size is one of many factors that can make a firm different from its competitors.

Size-based agglomeration was used as a control variable; however, it is interesting to note that we observed the benefits of size-based agglomeration for three of the five segment tests. For the most highly differentiated firms (luxury and upscale), performance was higher when they operated in clusters of large firms. A similar effect was found for firms pursuing the lowest-cost strategic orientation. These results both confirm and extend past findings. Chung and Kalnins (2001) found that size-based agglomeration influenced performance for firms in rural areas, which would typically be low-end properties. We discovered a similar size-based agglomeration effect, but for both highly differentiated firms and low-cost firms.

Most of the individual hotel control variables were significant in the models. One of the most important of these controls was chain affiliation. We found a positive effect of chain affiliation in all but the luxury segment. Firms that are perceived as different from other firms in this category may have enough appeal to wealthy consumers to counteract the effects of not being associated with a brand. They would tend to appeal to consumers more on the basis of amenities and image than brand. The benefits to firms with other strategic orientations are clear. When firms affiliate with a brand, they tap into multi-unit knowledge systems and standards honed by specialized corporate functional experts (e.g., in HR and marketing), large labor pools yielded by intrafirm career development practices, and special inputs, such as global marketing distribution channels, centralized accounting processes, and corporate training programs and initiatives. Also, they share in the image of the brand. Potential consumers know what to expect. A fruitful area for future study would be to explore the degree to which a multibrand organization reaps agglomeration benefit from its own higher-quality brands.

One of the major limitations of our study is that its cross-sectional design did not allow examination of the formation of clusters. Early entrants to any business often bear a disproportionate development expense. Locating in a new market can be expensive owing to the costs of training a local workforce, obtaining necessary community support and other factors such as building permits, and building consumer awareness through promotion and advertising. Our results might suggest that a firm that is more interested in keeping costs low can enter a market cluster later with relatively lower expenses and still reap the advantages created by early entrants. However, we did not test this notion. A longitudinal test of this idea would be appropriate (Kalnins & Chung, 2004).

Another weakness is that we were not able to obtain profit data for our sample companies. However, as we noted previously, an independent test indicated a fairly strong correlation between revenue per available room and profit per available room. Furthermore, our testing by quality segment does account to some degree for cost differences. For example, costs are likely to be more similar within segments than across segments. Consequently, although we have strong reason to believe that the differentiation-based agglomeration effects we discovered will influence profits similarly to revenues, future research should examine this issue more directly.

A possible limitation of this study is that the results come from the lodging industry and may not be generalizable to other industries. Nonetheless, there is no reason to believe that the competitive dynamics associated with differentiation spillover found in this service industry will not be found elsewhere, especially in other service industries. In fact, there is even a manufacturing-based counterpart to the idea of resource spillover. Shaver and Flyer (2000), for example, suggested that larger new manufacturing ventures had little incentive to cluster with other firms in the same industries because of their relatively strong resource positions. We believe that the basic idea that the benefits of differentiation are hard to deny to other competitors in a cluster can be applied in many businesses, particularly in services. In fact, proximity is not necessarily confined to geography. It can be measured across many organizational dimensions or traits (Baum & Mezias, 1992; Chung & Kalnins, 2001). Future research on similar phenomena in other industries is necessary to confirm these findings. Nonetheless, a focus on one industry in this study allowed the sample to be divided into segments based on strategic orientation, a necessary precondition to testing the hypotheses.

In addition, a possible bias could exist owing to endogeneity between the location decisions hotel companies were making and their cluster-based performance (Shaver, 1998). However, we do not believe that the problem Shaver identified was likely to have been serious in our study. In his conclusion, he stated, "Second, to the extent that mistakes are common, the factors that make one strategy more attractive than another are not well understood by decision makers, or all determinants of performance can be identified and measured, self-selection will not affect the estimates of strategy performance" (Shaver, 1998: 584). We believe

that factors associated with selecting a particular cluster are not well understood by decision makers, especially the primary factor we were examining in this study (the influence of the proportion of competitors pursuing a high level of differentiation). Part of our belief stems from the counterintuitive nature of what we are saying. It is somewhat counterintuitive to think that performance can increase by clustering close to competitor firms. Also, we included a large set of control variables that represent other location-related factors that influence performance. Their inclusion should help mitigate possible bias.

The practical implications of this study are that low-end competitors benefit from locating near differentiated firms (positive spillover occurs), while high-end firms lose value from locating near lower-end competitors (negative spillover occurs). With regard to positive spillover, consider a midscale firm with food and beverage services that is located in a cluster in which 40 percent of its competitors have high-quality strategic orientations. Compare this picture to one in which a midscale firm (also with food and beverages) is located in a cluster in which 75 percent of its competitors are in the high-quality segments. The difference of 35 percent (75% minus 40%) can be multiplied by the coefficient of .44 (see Table 3) and then by 365 days per year to determine the incremental potential benefit to the firm in the more densely high-quality cluster. The difference is $5,587.79. If we multiply this figure by the average hotel size of 144 rooms, the potential benefit is over $800,000 per year. Low-tech service industries tend to be fiercely competitive, with tight margins in many instances. Consequently, these results have managerial as well as statistical significance, especially considering that we controlled for so many other factors that influence demand. Of course, as differences across clusters increase or diminish, these numbers will vary. Also, the coefficient varies from segment to segment, with the strongest effects in the luxury segment and the lowest in the economy classification. In addition, it is interesting that the coefficient for the luxury category is −.83 in the lower-cost spillover test, which is nearly double the next highest coefficient. Basically, the results suggest that to obtain higher performance, firms should try to locate near higher-end and away from lower-end competitors. This finding is consistent with Kalnins and Chung's (2004) finding that new hotels tended to locate near branded upscale hotels and that owners of upscale hotels tended to avoid areas without similar resources.

In conclusion, we found that, in a service industry context, revenue performance was enhanced by co-locating in a market cluster with firms pursuing high differentiation. We attributed this agglomeration effect to differentiation-based spillover. We also found evidence of negative spillover as firms located among competitors pursuing low-cost strategic orientation. Furthermore, we found that being strategically distant from the average strategy of their cluster could amplify the positive benefit for low-cost hotels but harm highly differentiated hotels. Chain affiliation was found to be helpful to hotels across the segments, with the largest effects occurring in the middle strategies. The bottom line is that although some firms may bear disproportionate costs associated with differentiating their products or services, other firms can share in the benefits from such differentiation.

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