

Competitive Sets for Lodging Properties

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Abstract

This article illustrates the differences in the composition, characteristics, and performance evaluation of competitive sets of hotels determined using two methods—the common product type classification scheme and the less commonly used cluster analysis based on average daily rate (ADR) as the clustering variable. The analysis examined annual ADR, occupancy, and revenue per available room (RevPAR) for a group of hotels in a portion of a single U.S. metropolitan market. The comparison of the two methods shows the following: the average variability of ADR and RevPAR is less for the cluster-based competitors than it is for competitor groups determined using product type; most clusters contain a variety of product types (confirming that competition occurs across product types); most product types are categorized into different clusters; and the average RevPAR difference between the particular hotel and its reference competitive group is less for the ADR-cluster-based reference group than it is for the product type reference group, indicating that the performance of hotels within cluster competitive groups is more similar than in product type competitive groups. Comparing competing hotels based on the two methods can provide information regarding the extent of congruence between the hotel's intended competitive position and its position as seen by customers.

Keywords

competitive set; cluster analysis; strategic management

Competitor identification is an integral first step in valuation, strategy formulation, and performance evaluation processes. A variety of approaches have been developed to address this task. Competitor groups are conceptualized based on, for example, resource similarity or market commonality (Chen 1996), attributes of firms (the supply-based approach), attributes of consumers (the demand-based method) (Clark and Montgomery 1999), and product type (Peteraf and Bergen 2003). The product-type approach implies that sellers of similar types of products tend to be direct rivals for the patronage of the same general customers. However, many researchers have emphasized the similarities (or differences) between usage, brands, preferences, and information on choice sets as viewed by consumers. These factors determine how consumers view product substitutes (Levitt 1960; Day, Shocker, and Srivastava 1979; Porter 1980; Chen 1996; Clark and Montgomery 1999; Peteraf and Bergen 2003; DeSarbo, Grewal, and Wind 2006).

Although product type is frequently used to identify competitors in the lodging market, similarity based upon product type alone may not be sufficient to identify all competitors, since the characteristics of hotels are not uniform. Moreover, product type may fail to reflect the competitive position of the property or the set of competitors from the guests' perspective.

Thus, depending on the purpose of analysis, other competitor-identification approaches may be relevant.

The main purpose of this article is to show the importance of the definition of the competitive set in the lodging industry by comparing the two definitions of competitive sets, namely, product type and average daily rate (ADR) (as a proxy for consumers' view of the hotel).

We believe that while the product type reflects a property's initial strategic orientation, the hotel's ADR reflects its current competitive position. The competitors defined by these two methods are substantially different. We also show how to integrate the two definitions and that the integration provides information useful for performance improvement and strategy formulation.

We note that our aim in this article is neither to address the full set of complexities involved in identifying competitors nor to analyze the various methods of determining competitive sets. Instead, we want to demonstrate the effects of two different definitions of competitive set. We also illustrate why the appropriate definition of the competitive set depends upon the purpose of the analysis.

We organize this article along the following lines: In the next section, we briefly review the literature discussing competitive set identification. Next, we summarize the data sample

and describe and compare the characteristics of the competitive sets determined by the two classification schemes. In addition, we discuss the implications of the applying the results of both methods to compare a hotel's competitive stance. Finally, we suggest the limitations of this research and propose future research.

Literature Review

The identification of competitive sets plays an important function in many fields. In industrial organization economics (IO), firms in the same industry are considered to be competitors (Porter 1981; Barney 1986; Chen 1996). The basic premise is that competition and returns to firms are determined by the structure of the industry—that is, the production technology, cost structure, and barriers to entry—as these factors determine the number and the size of the firms, the competition level of the industry, the behavior of the firms, and the performance of the industry. Empirical research in IO has typically used three- or four-digit standard industry codes (SICs) to define competitors. However, defining markets by the industry unit may fail to capture the complexity of the market (Day 1981; Kadiyali, Sudhir, and Rao 2001; Hatten and Hatten 1987). Instead of the entire industry, competitive sets are often defined by focusing on similarities in firms' resources or strategy, product type or usage, or consumers' needs.

When firms focus on demand-side competition, the main premise is that firms are competitors if consumers view their products as substitutes (DeSarbo, Grewal, and Wind 2006), regardless of management's intent. In this view, competitors are not based just on a firm's rivalry for scarce factor inputs but also on the satisfaction of consumers' needs (e.g., Bergen and Peteraf 2002; Besanko et al. 2004; Porac, Thomas, and Baden-Fuller 1989). Customers define competitors by the group of firms that offer products or services that yield the greatest utility or customer surplus (Besanko et al. 2004; Porac, Thomas, and Baden-Fuller 1989), focusing on product functionality or service support. The consideration of demand-side factors ensures that the competitor definition accounts for the degree to which products are substitutable in the eyes of consumers (Levitt 1960; Day, Shocker, and Srivastava 1979; Porter 1980; Chen 1996; Clark and Montgomery 1999; Peteraf and Bergen 2003; DeSarbo, Grewal, and Wind 2006). Although all luxury hotels belong to a single product type, for example, consumers may not consider all of them when they make a purchase decision, or they may also consider other product types. The hotels considered by the consumers represent the set of products judged to be substitutes.

In contrast, when the central focus is supply-side competition, a common approach used is to classify competing firms according to resources or strategies (Ketchen, Thomas, and Snow 1993; Penrose 1959), including physical capital resources, human capital resources, and organizational capital resources

(Barney 1991). The firm's resources are regarded as the foundation for its strategy and profitability (Wernerfelt 1984; Barney 1991; Grant 1991; Peteraf 1993). This approach implies that firms with similar resources have a higher likelihood of posing a competitive threat to each other.

The strategic group approach focuses on the firms with similar strategies within an industry (Cool and Schendel 1987; Hunt 1972; McGee and Thomas 1986; Mehra 1996). Porter developed three potentially successful generic strategies, namely, cost leadership, differentiation, and focus (Porter 1980). The strategic group approach implies that firms in a particular group compete more intensely with one another than firms in different strategic groups (Fiegenbaum, Thomas, and Tang 2001; Nair and Filer 2003; Smith et al. 1997).

Because firms with similar resources or strategy do not necessarily compete with each other, a simultaneous consideration of both the demand-side and the supply-side attributes has emerged (Abell 1980; Day 1981; Porac and Thomas 1990; Scherer and Ross 1990; Chen 1996; Bergen and Peteraf 2002). Even if firms follow the same strategy, they may not compete if they do not overlap in terms of the customer needs they serve (Chen 1996; Bergen and Peteraf 2002). Consequently, this approach recognizes that integrating these two perspectives can yield rich insights (DeSarbo, Grewal, and Wind 2006).

Another approach in competitor identification is to examine managers' cognitive perception about the market and competitors (Reger and Huff 1993; Porac and Thomas 1990). Unlike customers, managers are more likely to characterize their competition relative to their firm's perceived competitive advantage (Porter 1980). Hence, managers are more likely to define their competition on the basis of supply-side attributes (Clark and Montgomery 1999), input factors, geographical location, economies of scale (e.g., Porac et al. 1995), and reputation (Abrahamson and Fombrun 1992).

Lodging competitors have been defined in a variety of ways, most commonly by size, location, proximity, and published price (Baum and Mezas 1992; Ingram and Inman 1996; Baum and Haveman 1997; Baum and Lant 2003). Location and price have been used as dimensions of similarity since it is a widely held view that location (Chung and Kalnins 2001; Canina, Enz, and Harrison 2005) and price (Enz, Canina, and Lomanno 2009) have a significant impact on a hotel's success. Some researchers suggested the use of actual rates rather than published rates (Yesawich 1987; Mathews 2000). In terms of the consumers' perspective of competitor identification in the lodging market, Yesawich (1987) noted conceptually that substitutability of the properties is a matter of the guests' perception of the hotels in the same market area. Morgan and Dev (1994) identified the competitive set of the hotel brands based on the consumers' perspectives in terms of purpose of stay, satisfaction, and demographic measures.

The product type is another commonly used attribute to define lodging competitors (Haywood 1986; Yesawich 1987;

Mathews 2000; Ingram and Roberts 2000; O'Neill, Beauvais, and Scholl 2004). Products of similar type resemble one another in terms of overall outward characteristics that appeal to the same general customer set (Peteraf and Bergen 2003). This method is broadly consistent with both the demand- and the supply-based approaches since the resources, strategic orientation, and guests are considered. Thus, these products and the firms that provide such products are likely to be close competitors in the market.

Two Methods to Identify Lodging Competitors

Despite all this research, no theoretical model guides the determination of competitive sets in the U.S. lodging industry, and so we examine two methods: the product type and a variant of the published price approach, which involves clustering hotels by ADR cluster.

Not all properties of the same product type necessarily belong to a single competitive set. The problem with defining competitors by product type is that properties of similar type vary by age, renovation schedules, and modes of operation. As Day and Nedungadi (1994) pointed out, competitor identification is partly a matter of strategic choice and partly an empirical question of which competing alternatives are perceived to be substitutes. Defining competitive sets by product type does not account for the possibility that guests may include several product types in competitive sets. In contrast, a property's ADR captures the property's current competitive condition from both managers' and consumers' perspectives.

Product Type

Even though the terms luxury or economy hotel are widely used, no uniform rule determines hotel product types. Several organizations identify the categories differently under various titles, for example, AAA's diamond rating system or Mobil's star rating system, but these categorizations do not necessarily agree with each other. While these ratings are based on an evaluation of the individual properties, more often the product type is identified at the brand level as well. Smith Travel Research (STR) uses its well-known brand or chain classification (chain scale segments) and price classification (price segments), and JD Power and Associates also categorizes the chain brands in familiar categories. Currently, almost all internet booking sites provide their own categorizations of hotel properties. Some lodging firms refer to their own brand by a particular product type (e.g., InterContinental Hotels calls itself an upper-upscale brand).

Other hotel categories are full service and limited service or chain and independent. As lodging companies developed niche markets, new segments and terms emerged, for example, select service.

Using the product type to determine the competitive set is useful when analyzing certain issues—such as opportunities in a given location, the performance of the management of the property relative to managers of properties with similar characteristics—or, for consumers, as an observable information cue about the quality level of the property. But product-type classifications may not capture a hotel's actual competitive position. In particular, consumers' perceptions regarding a set of hotels are critical in determining a hotel's positioning.

ADR

We seek to demonstrate that cluster analysis based on ADR will identify competitive sets by capturing the current competitive conditions, both from the standpoint of the product type and the consumer's view of the choice set. The basis of this approach is that items with similar attributes tend to sell for similar prices in a competitive market (Marshall 1920), and price theory asserts that the market price reflects the interaction between demand considerations and supply considerations. Since it is an average of actual room rates, ADR is an indicator of customers' value assessment for a particular hotel. If the hotel proposes a price that is not consistent with the perceived value, a prospective guest will not accept the deal and will search further.

Moreover, ADR also reflects customers' evaluation of the actual quality delivered by the hotel (Parasuraman, Zeithaml, and Berry 1985) with relation to the price they paid. If consumers feel that the price paid was not justified by the quality of the product (Oh and Jeong 2004), subsequent purchase intent is diminished (Dodds, Monroe, and Grewal 1991; Oh 1999; Kashyap and Bojanic 2000). Hence, managers have an incentive to offer a price that is aligned with the current competitive condition of their property since fair behavior is instrumental to the maximization of long-run profits (Kimes and Noone 2002; Rohlfs and Kimes 2007).

The common price similarity approach applied by STR and others categorizes properties according to the distribution of ADRs at the local level. Cutoff points are predetermined, however, with the luxury category filled by hotels with the top 15 percent ADR, upscale the next 15 percent, and so forth.

Unlike the price segment approach, cluster analysis does not constrain the number of categories or predetermine the cutoff points, because it uses statistical analysis to determine the clusters (Everitt 2001). Instead, the number and percentage of properties in each competitive set are determined by the cluster analysis for each market. Classifying a large set of objects into groups of similar characteristics has been applied in many fields of study. Statistically, a cluster is formed by minimizing the variance within a group and maximizing the variance between groups. Smaller variance implies that the objects are more similar.

This article adopts Ward's minimum variance clustering method, one of the agglomerative clustering algorithms. (See Timm [2002] for a discussion of the statistical analysis.) In the agglomerative approach, the clustering procedure starts by putting each single object in its own cluster. In the subsequent steps, the distance between the clusters is estimated, and the closest clusters are combined to build new aggregate clusters (Hair, Anderson, and Tatham 1987). Ward's method is designed to minimize the information loss that occurs in the clustering process. Hence, at each stage of agglomeration, Ward's method minimizes the increase in the total within-cluster sum of squared error (Everitt and Dunn 2001). There are two major issues in cluster analysis: which variables to use to divide the objects and how many clusters are optimal. As we said above, we will use hotel ADR as the clustering variable. Results of the analysis are found in the graph in the appendix.

Data Sample and Results

We obtained data from STR for forty-nine hotels in one tract within an urban area. As a result, the local economic conditions and the demand generators are the same for all of these properties. We must caution that the results of our analysis cannot necessarily be generalized to all locations, but preliminary analyses of other locations reveal similar results. We computed annual ADR, occupancy, and revenue per available room (RevPAR) for 2004 based on the monthly revenue, room supply, and demand. We also grouped the hotels by product type using STR's chain scale segments.

Product Type Competitive Sets

The average and standard deviation of ADR, occupancy, and RevPAR by product type are shown in Exhibit 1, panel A. Not surprisingly, the standard deviation of ADR is much higher for the luxury segment than it is for any other segment, including the independent segment, which comprises properties of various rates and product types. We found a similar pattern in tests of other markets.

The ADR range for luxury properties, \$288.44, is noticeably large, making the task of determining the competitive set particularly challenging for the luxury segment in this local market.

In contrast to this market's luxury properties, the mean ADRs of the full-service midscale, limited-service midscale, and economy properties are similar. The average RevPAR of the limited-service midscale properties is even slightly higher than that of the full-service midscale. We can surmise that the midscale properties in this area compete with each other regardless of whether they have food and beverage (F&B) facilities. Furthermore, it is likely that the economy segment competes with the midscale segments.

Since the product type of independents varies from luxury through economy, we categorized the independents into a product type by classifying them according to their ADR and whether they have F&B facilities on-site, with the results shown in Exhibit 1, panel B.

The likelihood of competition across the product types becomes clearer by looking at the distribution of properties in the scatter plot of ADR by product type shown in Exhibit 2. (Similar results were attained from market price segment analysis.) Given the significant overlaps in ADRs among the different product types, we see no clear cutoff point between the product types in terms of ADR. So, for instance, luxury, upper upscale, upscale, and independent properties coexist in this market within the ADR range of \$200 and \$250. Similarly, upscale, midscale with F&B facilities, midscale without F&B facilities, economy, and independent hotels compete in the rate range of \$120 to \$160. In sum, the high heterogeneity of product types that fall within specific ranges of ADR supports the idea that guests do not restrict themselves to properties of a particular product type when they consider hotels.

ADR Cluster Competitive Sets

The ADR cluster analysis clarifies the complexities of this market. Exhibit 3 gives a rough idea of the different ADR clusters in this market. For instance, two properties in the upper right side have a distinctively high ADR. The rest of the properties are congregated on the left side of the diagram, but they appear to be divided roughly into four or five groups.

More specifically, five clusters were suggested by the statistical analysis. (For a discussion of cluster analysis statistics, see SAS Institute 1988). Overall, the standard deviations of ADR, occupancy rate, and RevPAR are lower for the ADR cluster than they are for the product type competitive sets, as shown in Exhibit 4. This implies that the cluster analysis successfully grouped together the homogeneous properties, based on their rates.¹

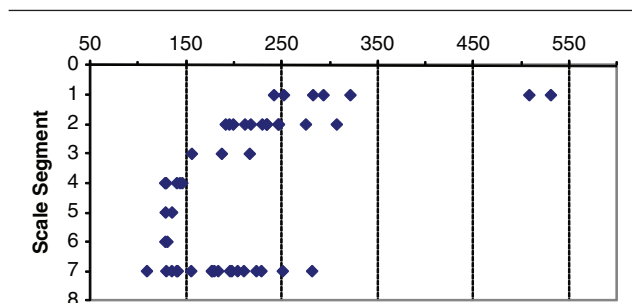
The product type of the properties in a cluster is shown in Exhibit 5. None of the cluster-based competitive sets contains the full set of properties within a given product type. The luxury, upper-upscale, and upscale properties are divided into multiple clusters, while the midscale and economy segments are collapsed into one cluster. Perhaps most interesting is cluster 1, which contains one upscale hotel, nine midscale hotels with F&B, two midscale properties without F&B, and four economy properties. Again, we see that competition undoubtedly occurs across the different product types.

The summary statistics for ADR, occupancy rate, and RevPAR for each of the identified clusters are presented in Exhibit 6. To compare the characteristics of the ADR cluster competitive sets to those of the product types, we classified each of the clusters into a corresponding product type category by choosing the minimum distance between each cluster and

Exhibit 1:
Characteristics of Properties

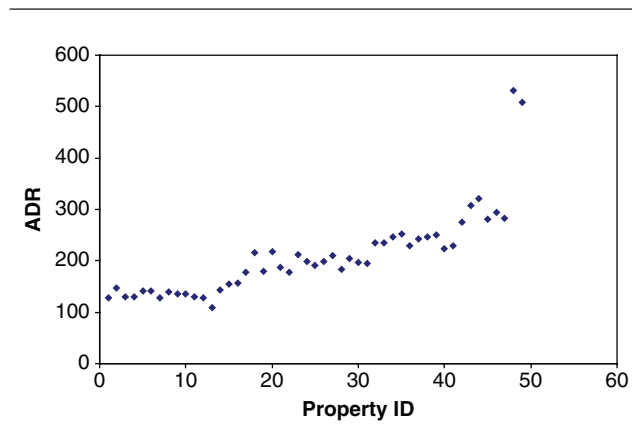
Product Type	Number of Properties	Mean		Standard Deviation		Average Daily Rate (ADR) (\$)		Revenue per Available Room (RevPAR) (\$)		Occupancy (%)	
		ADR (\$)	RevPAR (\$)	ADR (\$)	RevPAR (\$)	Min	Max	Min	Max	Min	Max
Panel A: Characteristics of properties by product type											
Luxury	7	347.05	284.06	120.54	81.37	241.82	530.26	205.88	403.13	76.00	90.80
Upper-upscale	12	232.43	198.08	33.87	35.44	191.50	307.20	139.41	264.39	64.00	90.70
Upscale	3	186.73	169.91	30.16	27.54	156.21	216.52	142.80	197.86	90.20	91.40
Midscale w/ food and beverage (F&B)	5	137.72	118.23	8.25	8.41	128.40	146.27	106.22	127.95	82.70	91.00
Midscale w/o F&B	2	132.25	118.41	4.68	20.81	128.94	135.57	103.70	133.12	80.40	98.20
Economy	2	129.66	116.82	1.51	6.30	128.59	130.73	112.37	121.28	87.40	92.80
Independent	18	184.55	150.39	45.03	33.70	109.44	281.48	99.69	231.64	73.30	91.10
Overall sample	49	210.47	176.40	83.95	65.34	109.44	530.26	99.69	403.13	64.04	98.20
Panel B: Characteristics of properties by product type with independents classified within a product type											
Luxury	7	347.05	284.06	120.54	81.37	241.82	530.26	205.88	403.13	76.03	90.77
Upper-upscale	17	234.36	196.25	31.50	31.84	191.50	307.20	139.41	264.39	64.04	90.68
Upscale	10	187.54	156.23	16.87	18.99	156.21	216.52	129.73	197.86	73.26	91.41
Midscale w/ F&B	9	140.15	119.01	8.40	6.32	128.40	155.55	106.22	127.95	75.37	90.97
Midscale w/o F&B	2	132.25	118.41	4.68	20.81	128.94	135.57	103.70	133.12	80.42	98.20
Economy	4	124.59	112.20	10.14	9.12	109.44	130.73	99.69	121.28	87.39	92.77
Overall sample	49	210.47	176.40	83.95	65.34	109.44	530.26	99.69	403.13	64.04	98.20

Exhibit 2:
Average Daily Rate (ADR) by Product Type



Note: Product type: one luxury, two upper-upscale, three upscale, four midscale with food and beverage, five midscale without food and beverage, six economy, seven independent.

Exhibit 3:
Average of the Absolute Value of the Difference in Average Daily Rate (ADR), Occupancy, and Revenue per Available Room (RevPAR) between the Focal Hotel and the Reference Group by Product Type. Average Daily Rate (ADR) by Property



each product type. This method classifies cluster 4 and cluster 5 as separate luxury clusters. Cluster 3 is characterized as upper-upscale, cluster 2 is closest to upscale, and cluster 1 can be viewed as midscale with F&B.

For the overall sample, the standard deviation of ADR is significantly lower for the ADR cluster competitive sets (\$12.28) than for the product type competitive sets (\$46.62). In addition, the overall variability of occupancy and RevPAR is lower for the ADR cluster groups (5.27 percent and \$14.00) than for the product type groups (5.57 percent and \$35.05).

Looking at the differences in ADR between the ADR cluster and product type, we can see that the two luxury properties in cluster 5 do not seem to be comparable in terms of ADR and RevPAR to any other properties in the luxury category, even though the average occupancy of these two luxury properties is lower than that of any other ADR cluster and product type.

The diversity of product types in cluster 1 shows up in the standard deviations of ADR and RevPAR, which are relatively low in the other four clusters compared to cluster 1.

Since the luxury and the upper-upscale segments show the most differences in ADR, we computed the absolute value of the difference between a property's ADR, occupancy, and RevPAR and the corresponding value for the reference group (ADR cluster and product type) and then averaged these differences in values by the product type. The results are shown in Exhibit 7. Next, we examine how this information can be used for a competitive analysis.

Evaluation of Competitive Position

Various competitive analyses can be performed once the competitive set is identified, particularly by comparing the characteristic of the property's intended position, as represented by the product type, with the characteristics of the current position, as indicated by the property's ADR cluster.

Current position versus intended position. One potential use for the comparison of the two methods is simply to provide information about the properties with similar ADRs but different product types, especially since a difference between a property's product type and cluster type indicates a possible inconsistency between the property's intended market position and its perceived competitive position. The low-ADR luxury properties that are grouped into the lower-tiered cluster type, for instance, may need to reevaluate their current position, perhaps by renovating or upgrading the amenities or service or rebranding to a lower-tier flag.

Performance evaluation. Another comparison from the two segmentation methods is to evaluate a property's performance, using the competitive set as a benchmark. Other hotels in the same or adjacent ADR clusters should constitute reasonable benchmarks for analysis of ways in which to improve performance. In this article, we use RevPAR to analyze properties' relative performance. Other useful profitability measures, such as operating profit or net profit margin, were not available in this data set.

The implications of the differences between product type and cluster categorizations. In this section, we compare the cluster placement of a particular property with the characteristics of the product type within that cluster and the same product type properties in other clusters. When a property is placed in a cluster type higher than hotels of the same product type, we can infer that the strategies and management of the property are effective, or that the hotels with higher scales are struggling to compete for whatever reason. This knowledge will be helpful in the development of operating, pricing, and marketing strategies. If a property is placed in a cluster with higher product type properties and, moreover, outperforms the cluster, it is doing well indeed.

When a property is placed in a cluster with predominately lower product type properties, its management might reconsider service levels, amenities, or facilities. If the positioning is intentional, the property should at least fall at the high end of the cluster's price range. If the property underperforms relative to the cluster, this implies that the lower price fails to signal any value to the consumers, and management should examine benchmark properties in the higher cluster.

Exhibit 4:
Within-Group Standard Deviation of Average Daily Rate (ADR) and Revenue per Available Room (RevPAR) by Product Type and by Cluster

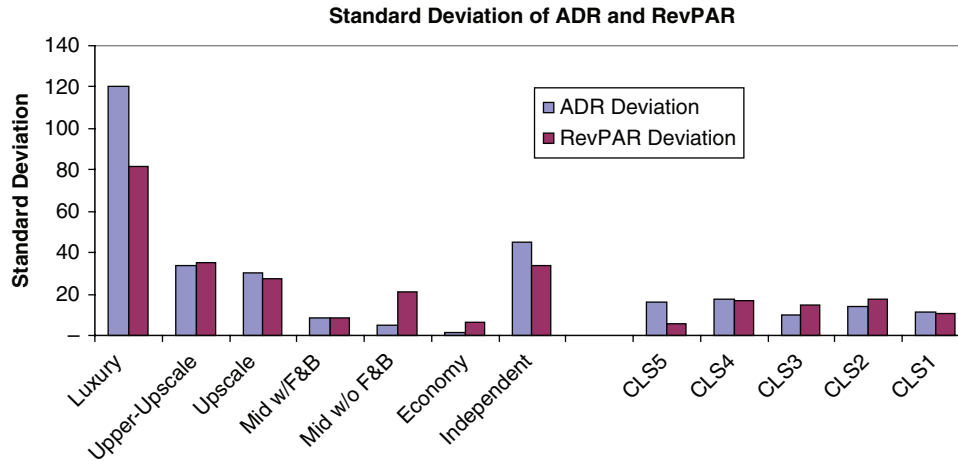


Exhibit 5:
Product Type Characteristics of Properties by Cluster

Cluster Number	Number of Properties	Number of Properties in Cluster in Each Product Type Category					
		Luxury	Upper-Upscale	Upscale	Midscale w/ Food and Beverage (F&B)	Midscale w/o F&B	Economy
CLS 5	2	2					
CLS 4	6	3	3				
CLS 3	10	2	8				
CLS 2	15		6	9			
CLS 1	16			1	9	2	4

With that background, we examine this market’s competitive situation, as shown in Exhibit 8. The cluster–product type reference group is shown in Exhibit 8. The cluster–product type reference group is defined as the properties with the same product type within the cluster. So, for property 1, a luxury property in cluster 5, the difference in the cluster RevPAR is property 1’s RevPAR less cluster 5’s average RevPAR; the difference in the product type RevPAR is property 1’s RevPAR less all luxury hotels’ average RevPAR; and the difference in the cluster–product type RevPAR is property 1’s RevPAR less the average RevPAR for cluster 5’s luxury properties.

We already noted properties 1 and 2 in their own cluster, with rates higher than those of other luxury properties. The average RevPAR for the two properties in cluster 5 is about \$145 higher than the average RevPAR of the luxury properties in cluster 4—putting them at the extreme high end of the luxury segment.

Cluster 4 consists of three luxury and three upper-upscale properties. We should expect these three luxury properties to outperform relative to the cluster. Properties 4 and 5 do outperform the cluster, but they underperform relative to the overall luxury type category. Given the overwhelming performance of

the two luxury properties in cluster 5, this underperformance is most likely not an issue for these two hotels. Moreover, two other supposed luxury properties (properties 9 and 10) have even lower ADRs, putting them in cluster 3. Property 9 achieves an ADR that is \$105.23 below the average ADR of the luxury type, and property 10’s ADR is \$94.89 below the luxury average. Note that if the two luxury properties in cluster 5 are excluded from the set of luxury properties, the three luxury properties in cluster 4 outperform the luxury category.

Looking at property 3, the other luxury property in cluster 4, it underperforms relative to the cluster RevPAR, although it outperforms each of the reference groups on occupancy. Perhaps this hotel’s management is intentionally boosting occupancy by maintaining a low ADR compared to each of the reference groups, but this approach has not resulted in a higher relative RevPAR. By contrast, property 8, an upper-upscale hotel, outperforms the other properties in cluster 4, demonstrating the effectiveness of its management strategies. Even though properties 6 and 7 outperform other upper-upscale hotels, their management might wish to evaluate the strategies of property 8 to improve their positions.

Exhibit 6:
Characteristics of Properties by Cluster and Product Type

Cluster	Number of Properties	Characterization of Cluster Based on Product Type	Means						Standard Deviations					
			Average Daily Rate (ADR) (\$)		Occupancy (%)		Revenue per Available Room (RevPAR) (\$)		ADR (\$)		Occupancy (%)		RevPAR (\$)	
			Cluster	Product Type	Cluster	Product Type	Cluster	Product Type	Cluster	Product Type	Cluster	Product Type	Cluster	Product Type
CLS 5	2	Luxury	519.02	347.05	77.00	83.20	399.38	284.06	15.89	120.54	1.30	5.46	5.30	81.37
CLS 4	6	Luxury	293.51	347.05	84.40	83.20	247.66	284.06	17.73	120.54	4.00	5.46	16.84	81.37
CLS 3	10	Upper-upscale	238.85	234.36	85.90	83.64	205.31	196.25	10.10	31.50	4.80	6.54	14.89	31.84
CLS 2	15	Upscale	196.34	187.54	81.70	83.28	160.42	156.23	13.75	16.87	6.70	5.99	17.75	18.99
CLS 1	16	Midscale w/ food and beverage	136.28	140.15	87.20	85.05	118.72	119.01	11.56	8.40	5.40	4.46	10.81	6.32
Standard deviation relative to group mean									12.28	46.62	5.27	5.57	14.00	35.05

Exhibit 7:**Average of the Absolute Value of the Difference in Average Daily Rate (ADR), Occupancy, and Revenue per Available Room (RevPAR) between the Focal Hotel and the Reference Group by Product Type**

Product Type	Number of Properties	ADR Reference Group (\$)		Occupancy Reference Group (%)		RevPar Reference Group (\$)	
		Cluster	Product Type	Cluster	Product Type	Cluster	Product Type
Luxury	7	11.11	98.27	2.40	4.64	7.78	65.90
Upper-upscale	17	10.30	23.74	4.45	4.60	13.45	25.91
Upscale	10	12.62	12.81	3.87	4.69	15.25	13.71
Mid w/ food and beverage (F&B)	9	7.33	6.04	3.36	3.23	4.74	4.71
Mid w/o F&B	2	4.02	3.31	8.89	8.89	14.71	14.71
Economy	4	11.68	7.57	2.85	1.85	7.80	6.26
Overall	49	10.20	26.75	3.89	4.32	11.00	23.18

In that regard, the cluster analysis gives managers an indication of where to look for benchmarks. For example, even though properties 9 and 10 outperform the other hotels in cluster 3, they are luxury properties competing mainly with upper-upscale properties, which are themselves not achieving the top rates for their product category. In this situation, the benchmark for these two properties is probably the luxury properties in cluster 4 (since the two in cluster 5 are out of reach). By the same token, the upper-upscale properties in cluster 3 that underperform relative to their product type should probably evaluate themselves relative to the upper-upscale properties in cluster 3 only.

In sum, if a property is in the highest product type within the cluster, and there are no other same-type properties in a higher cluster, then the best reference group is the cluster-product type. An example is cluster 5, properties 1 and 2. If there are same-type properties in a higher cluster, and they outperform their cluster-product type, then look at the same-type properties in a higher cluster. Examples of this case are cluster 4, properties 4 and 5; cluster 3, property 10; cluster 2, properties 21 through 24; and cluster 1, property 34. If they do not outperform their cluster-product type, then the first set of properties to use as a reference group are those in the same cluster-product type, and the second set of properties are those in the same type but in a higher cluster. Examples are cluster 4, property 3; cluster 3, property 9; and cluster 2, properties 19 and 20. If they are the second segment or a lower segment in a cluster and outperform the cluster, then the first reference group is the higher-type properties within the cluster; the second group is the same types within the cluster; and the third group is the same-type properties in a higher cluster. Examples are cluster 4, property 8; cluster 3, properties 15 through 18; cluster 2, properties 31 through 33; and cluster 1, properties 39 through 43. If a property is in the second segment, or a lower segment, in a cluster and underperforms the cluster, then the relevant reference group is the same-type properties within the cluster; examples are cluster 4, properties 6 and 7; cluster 3, properties 11 through

14; cluster 2, properties 25 through 30; and cluster 1, properties 35 through 38.

Conclusion and Remarks for Future Research

The evaluation of a hotel's competitive position is an important element for successful strategic management and performance evaluation. At the property level, the corporate-level strategy is implemented and the product and service are delivered to the customers. Since the local outcome is transferred to the corporate level, knowledge of local competition is important not only at the property but also at the corporate level. However, identifying competitors is not always a straightforward matter. We note that there is no simple answer to the question of how to best determine a hotel's competitive set.

In this article, we have discussed two key methodologies for identifying lodging competitors—product type and ADR clustering—demonstrating how those methods would work in a local market. We have illustrated that the two methods identify different competitors and, furthermore, that the characteristics of the competitive sets and performance evaluation differ under the two approaches. For the sample local market that we studied, the primary empirical findings and practical implications are as follows:

- The variability of ADR decreases as the analysis shifts down market from luxury to economy segments. This reflects the lower variability in the characteristics of low-cost properties as compared with high-end properties. Determining competitive groups is more difficult for the highly differentiated high-end properties than for low-cost properties.
- The average variability of ADR and RevPAR is less for cluster-based groups than it is for product-type groups. Stated another way, properties in cluster-based competitive sets are more similar in terms of

Exhibit 8:
Average Difference in Average Daily Rate (ADR), Occupancy, and Revenue per Available Room (RevPAR) between the Focal Hotel and Various Reference Groups

Property Number	Cluster	Product Type	RevPAR Reference Group (\$)			Occupancy Reference Group (%)			ADR Reference Group (\$)		
			Cluster	Product Type	Cluster/Product Type	Cluster	Product Type	Cluster/Product Type	Cluster	Product Type	Cluster/Product Type
1	5	Luxury	-3.75	111.58	-3.75	0.94	-5.27	0.94	-11.24	160.73	-11.24
		Luxury	3.75	119.08	3.75	-0.94	-7.15	-0.94	11.24	183.21	11.24
3	4	Luxury	-5.45	-41.85	-12.30	1.30	2.54	0.44	-10.95	-64.49	-16.55
		Luxury	7.36	-29.03	0.52	-5.08	-3.84	-5.94	27.92	-25.63	22.31
		Luxury	18.62	-17.77	11.78	6.35	7.59	5.50	-0.16	-53.70	-5.76
		Upper-upscale	-21.24	30.17	-14.40	-2.09	-1.32	-1.24	-18.48	40.67	-12.87
3	3	Upper-upscale	-16.02	35.39	-9.18	-2.13	-1.35	-1.27	-12.03	47.12	-6.42
		Upper-upscale	16.73	68.14	23.57	1.64	2.42	2.50	13.69	72.84	19.29
		Luxury	0.57	-78.18	-7.18	-0.81	1.96	-1.10	2.97	-105.23	-5.17
		Luxury	14.93	-63.82	7.18	1.39	4.16	1.10	13.31	-94.89	5.17
2	2	Upper-upscale	-21.96	-12.90	-20.02	-5.77	-3.46	-5.70	-10.16	-5.68	-8.13
		Upper-upscale	-21.30	-12.24	-19.36	-3.59	-1.29	-3.52	-15.41	-10.92	-13.37
		Upper-upscale	-13.49	-4.43	-11.56	-9.50	-7.20	-9.43	12.08	16.56	14.11
		Upper-upscale	-3.74	5.32	-1.80	1.83	4.14	1.91	-9.22	-4.73	-7.18
		Upper-upscale	5.21	14.27	7.14	3.97	6.27	4.04	-4.72	-0.23	-2.68
		Upper-upscale	6.06	15.12	8.00	4.17	6.48	4.25	-4.31	0.18	-2.27
		Upper-upscale	15.10	24.16	17.03	3.58	5.88	3.65	7.35	11.84	9.39
		Upper-upscale	18.63	27.70	20.57	4.74	7.04	4.81	8.10	12.59	10.14
		Upper-upscale	-21.01	-56.84	-25.06	-17.66	-19.60	-16.66	21.34	-16.68	13.36
		Upper-upscale	-1.43	-37.25	-5.47	1.32	-0.61	2.33	-4.84	-42.86	-12.82
2	2	Upper-upscale	4.96	-30.86	0.92	1.25	-0.68	2.26	3.02	-34.99	-4.96
		Upper-upscale	6.89	-28.94	2.85	3.95	2.02	4.96	-1.02	-39.04	-9.00
		Upper-upscale	7.98	-27.85	3.94	-1.69	-3.62	-0.68	14.11	-23.91	6.13
		Upper-upscale	26.85	-8.97	22.81	6.79	4.86	7.80	15.28	-22.74	7.29
		Upscale	-30.69	-26.51	-28.00	-8.44	-10.02	-9.11	-19.27	-10.47	-13.95
		Upscale	-20.94	-16.75	-18.24	-2.98	-4.55	-3.65	-19.17	-10.36	-13.85
		Upscale	-10.34	-6.16	-7.65	1.87	0.30	1.20	-16.77	-7.97	-11.45
		Upscale	-9.91	-5.72	-7.22	0.24	-1.34	-0.44	-12.66	-3.86	-7.34
		Upscale	-3.19	1.00	-0.50	-1.48	-3.06	-2.15	-0.35	8.45	4.97
		Upscale	-1.26	2.93	1.43	-1.25	-2.82	-1.92	1.48	10.28	6.80
		Upscale	5.99	10.18	8.69	-0.09	-1.66	-0.76	7.55	16.36	12.88
		Upscale	8.66	12.85	11.35	8.49	6.92	7.82	-8.88	-0.08	-3.56
		Upscale	37.44	41.63	40.13	9.68	8.10	9.00	20.18	28.98	25.50

(continued)

Exhibit 8: (continued)

Property Number	Cluster	Product Type	RevPAR Reference Group (\$)			Occupancy Reference Group (%)			ADR Reference Group (\$)				
			Cluster	Product Type	Cluster/Product Type	Cluster	Product Type	Cluster/Product Type	Cluster	Product Type	Cluster/Product Type		
	I												
34		Upscale	24.08	-13.44	0.00	4.17	8.13	0.00	19.94	-31.33	0.00		
35		Mid w/ food and beverage (F&B)	-12.50	-12.79	-12.79	-4.52	-2.33	-2.33	-7.88	-11.75	-11.75		
36		Mid w/ F&B	-4.72	-5.01	-5.01	0.78	2.97	2.97	-6.76	-10.63	-10.63		
37		Mid w/ F&B	-1.48	-1.77	-1.77	-11.87	-9.68	-9.68	19.27	15.40	15.40		
38		Mid w/ F&B	-1.33	-1.62	-1.62	-0.50	1.69	1.69	-0.94	-4.81	-4.81		
39		Mid w/ F&B	1.19	0.90	0.90	-3.82	-1.63	-1.63	7.48	3.60	3.60		
40		Mid w/ F&B	3.08	2.79	2.79	-1.14	1.05	1.05	5.18	1.31	1.31		
41		Mid w/ F&B	4.34	4.05	4.05	-3.11	-0.92	-0.92	10.00	6.13	6.13		
42		Mid w/ F&B	4.80	4.51	4.51	0.75	2.94	2.94	4.11	0.24	0.24		
43		Mid w/ F&B	9.23	8.94	8.94	3.73	5.92	5.92	4.38	0.51	0.51		
44		Mid w/o F&B	-15.02	-14.71	-14.71	-6.82	-8.89	-8.89	-7.33	-3.31	-3.31		
45		Mid w/o F&B	14.40	14.71	14.71	10.96	8.89	8.89	-0.71	3.31	3.31		
46		Economy	-19.03	-12.51	-12.51	3.85	1.01	1.01	-26.83	-15.15	-15.15		
47		Economy	-6.35	0.17	0.17	0.15	-2.70	-2.70	-7.68	4.00	4.00		
48		Economy	-3.25	3.27	3.27	1.85	-0.99	-0.99	-6.67	5.02	5.02		
49		Economy	2.56	9.07	9.07	5.53	2.69	2.69	-5.55	6.13	6.13		

ADR and RevPAR than are hotels in competitive sets grouped by product type.

- Most clusters contain hotels in more than one product type, supporting the notion that, from the guests' perspective, competition occurs across product types.
- Hotels in most product types are categorized into different clusters when relative ADR is considered. We found substantially different ADRs and RevPARs for the properties within each product type.
- The average RevPAR difference between a particular hotel and the reference competitive group is less when one compares it to the cluster reference group than when the reference group is the hotel's product type. The performance of hotels within competitive groups established by cluster analysis is more similar than for those in competitive groups established by product type.
- When differences exist between a particular hotel's product type and market characterization of the cluster (by ADR), this indicates that there may be inconsistencies between the targeted market or product type and consumers' perceived quality.
- If the property in question is grouped in a cluster that is characterized as a higher product type than that of the hotel, then the ADR of that hotel is higher than the ADR of other same-type properties in lower clusters. We can make the following inferences:
 - quality perceived by consumers exceeds target market and product type;
 - the strategies and management of the property are quite effective;
 - the other properties in the cluster-product type may be less appealing to consumers; and
 - if it outperforms the cluster as well as the product type, then it is in great shape, although it might be difficult to sustain such a position in the long run.
- If cluster analysis places a property in a competitive group that is characterized as a lower market segment than the hotel's product type, we can conclude that the hotel's ADR is lower than that of other properties in the same product type that compete in higher clusters. For this hotel, we can infer the following:
 - the hotel's quality falls short of its target based on consumers' perceptions;
 - the strategies and management of the property require analysis;
 - management may need to address issues that make the property unappealing to consumers;
 - it would be useful to evaluate the property's physical condition, renovation and maintenance schedules, service quality, pricing strategy, and marketing policy; and

- while the property probably falls within the upper tier of the price range within the cluster, if it underperforms relative to the cluster this implies that the lower price fails to signal value to the consumers.

Identifying competitors is a consequence of identifying customers in common and similar products. We are not arguing to disregard the industry's categorization by product type, in part because the intended product position influences customers' expectations of the product's quality. What we propose is to consider also another measure of similarity such as ADR, which provides a more complete picture of competitors. If only the product-type system was applied, the two luxury properties at the highest end would have been evaluated as outperforming their competitors, but the story was different based on ADR clusters.

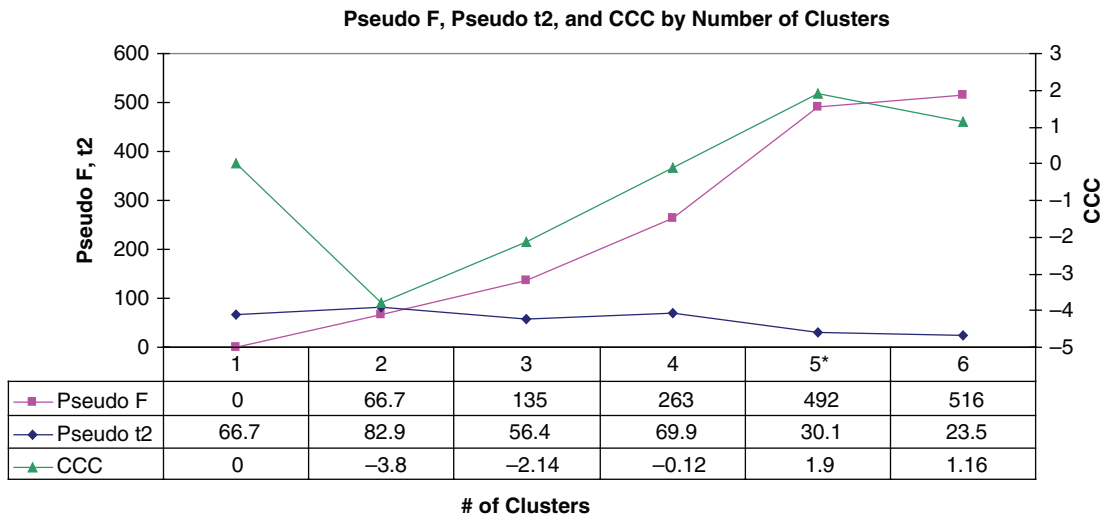
Defining competitors involves classifying firms on the basis of relevant similarities. We have shown that in addition to product type, ADR similarity can be used to determine direct competitors. The integration of the two approaches provides insights beyond those available when the two are considered separately.

Identifying competitive sets through product type or price is straightforward. However, since the outward characteristics and service quality of hotels are heterogeneous, an area for future research is the examination of other relevant similarities for identifying competitors both within specific locations and more broadly defined locations. In particular, it is agreed that firms are competitors to the extent that they satisfy the same basic needs. In addition to amenities, price, and quality, guests make choices based on such factors as distance to local demand generators. In addition to the inclusion of the product type and price in competitor identification, it may be useful to include these other measures, as well as size, age, and number of years since last major renovation, among others. Furthermore, what drives customer choice is not only whether the property can satisfy a given need but how well it can do so. As a result, customer satisfaction measures may be useful as well.

Strategic management focuses on the relationships between strategy, competitive market, and performance. Each of these constructs is multidimensional. The competitive market is related to firms, customers, and managers; while performance consists of financial, operational, and overall effectiveness (Venkatraman and Ramanujam 1986). The multidimensionality of these constructs creates a conceptual challenge in that an array of combinations could be developed along these dimensions to group organizations. Consequently, we see no simple answers to the question of how to best determine competitors. However, despite its limitations, we believe that this article is a start to an area of research that will be useful to the industry.

Appendix

Pseudo F, t², and Cubic Clustering Criterion (CCC) by Number of Clusters



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Note

1. The pairwise *t*-tests and Wilcoxon tests of the differences in the mean average daily rates (ADRs) and the mean revenues per available room (RevPARs) among the clusters were significantly different at the 1 percent level with the exception of the mean ADRs and RevPARs between clusters 4 and 5, which were significantly different at the 10 percent level in the Wilcoxon test.

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