



AENSI Journals

Australian Journal of Basic and Applied Sciences

ISSN: 1991-8178

Journal home page: www.ajbasweb.com



The Contributions of Certain Variables in Determining Room Rates

¹Dr. Eder Paschoal Pinto, ²Mr. Antônio Augusto da Silva Abreu, ³Dr. José Marcos Carvalho de Mesquita.

Unichristus, School of Business. Avenida Dom Luís, 911, Aldeota. 60160-196 Fortaleza, CE, Brazil

²Statistic Locum. Av. Raja Gabaglia n. 1011 Sala 704, Luxemburgo, 30380-403 Belo Horizonte, MG, Brazil.

³Fumec University. School of Business. Rua Cobre, 200, 30310-190 Belo Horizonte, MG, Brazil

ARTICLE INFO

Article history:

Received 19 September 2014

Received in revised form

19 November 2014

Accepted 22 December 2014

Available online 2 January 2015

Keywords:

Hotel Location, Hotel Management, Hotel Quality, Occupancy Rate, Room Rate, Salvador, Brazil.

ABSTRACT

Background: Researchers have given enormous importance to the hospitality industry, especially through studies that have analyzed the factors that affect traveler's decisions to book accommodation in hotels (e.g. room rate, amenities and location). However, data are generally examined from a guest's or a manager's point of view. **Objective:** This study examines factual data aiming to understand the extent to which the occupancy rate, quality, location and organizational form explain the room rates of hotels classified as four and five star. Data from hotels established in Salvador, Bahia, Brazil, for a period of eleven years were gently provided by hoteliers and analyzed by multiple regression tests. **Results:** Among the six models obtained, the best model shows that the predictor variables explain 72.8% of the fees charged by the hotels examined in our research, and that the 'hotel quality' and 'occupancy rate' variables are those that contribute most positively to the configuration of the response variable. **Conclusion:** The models delivered by this study are the outcome of the multiple regression tests performed with five variables. There are other variables which might be included. However, the five variables explain 72.8% of the fees. The study is relevant to hoteliers because it analyses variables that directly affects the revenues of hotels. Knowing its contributions, hoteliers can decide investments to enhance outcomes.

© 2015 AENSI Publisher All rights reserved.

ToCite This Article: Dr. Eder Paschoal Pinto, Mr. Antônio Augusto da Silva Abreu, Dr. José Marcos Carvalho de Mesquita., The Contributions of Certain Variables in Determining Room Rates. *Aust. J. Basic & Appl. Sci.*, 9(1): 283-291, 2015

INTRODUCTION

Pricing is one of the most sensitive components of the marketing mix because it generates revenue, profit, and contributes to the company market share (Nagle *et al.*, 2010; Palia, 2008; Poundstone, 2010; Smith, 2012), whereas other components of the marketing mix (product, place, promotion and so on) produce costs (Kotler and Keller, 2011). Therefore, managers need to overcome challenges associated to data analytics, predictive modeling and, pricing strategic refinement (Smith, 2012), especially in the hospitality industry.

Findings reveal that a hotel's amenities and services influence a traveler's decision about booking accommodation – this has been shown to be the case, for instance, in Hong Kong (Chan and Wong, 2006; Chu and Choi, 2001) and in the United Kingdom (Aggett, 2007). However, there are differences between guests' and hoteliers' perceptions, in terms of the values delivered by the hotel industry (Gava and Silveira, 2007; Nasution and Mavondo, 2008). Travelers also consider hotel location when booking accommodation – as has been shown, for instance, in Singapore (Lee, 2011), in the UK (Aggett, 2007), in the US (Lee and Jang, 2011) and worldwide (Kyriakidis and Rach, 2010). Furthermore, hotel room rates have positive effects on occupancy rates, as has been shown in Singapore (Lee, 2011).

The following variables have been taken into consideration by hotel managers when making decisions on pricing: (1) hotel location – as shown in Norway (Thrane, 2007) and in the US (Lee and Jang, 2011); (2) occupancy rates – as shown in Taiwan (Hunget *et al.*, 2010); and (3) hotel accommodation and services – as shown in Brazil (Pinto and Santos, 2012), in Norway (Thrane, 2007), and internationally (O'Connor, 2002)

From the last decade, the form in which hotels are organized has been calling for researchers' attention, for instance in France (Bottiet *et al.*, 2009), in Taiwan (Lin, 2013), and internationally (Kyriakidis and Rach, 2010).

Many of the studies mentioned above were carried out by means of interviewing people, rather than using factual data, and they focused on quality. In contrast, this study analyzes data contained in hotel accounts (for occupancy rate and room rate), in documents assessing hotel amenities (for hotel quality), and hotel sites (for brand and location). In other words, this paper examines three variables in respect of which hotel managers make decisions (room rates, quality, and organizational form) and two variables that depend on the decisions of other

people (the quality of the region where the hotel is located, and bookings). Briefly, this study aims to fix its contribution examining the extent to which the occupancy rate, quality, location and organizational form explain the fees charged by four and five star hotels, therefore, enhancing our understanding of pricing decision-making in a real-world hotel market setting.

In the next sections, we present findings of previous research carried out around the world concerning the variables chosen for the research, and, after that, we present the research design, followed by the data analysis and the conclusion.

Previous Research, Hypotheses and Research Questions:

The first question that stimulated us to design the research may be written, as: Is there a relationship between room rate and hotel quality? According to previous research, the answer is yes.

Following the concepts of hedonic pricing theory – in which the hotel room rate is regarded as an additive function of the hotel services and facilities available to travelers –, Thrane (2007) studied the relationship between the prices charged by hotels located in metropolitan area the Norwegian capital of Norway and the hotel attributes. He found that several attributes, especially the service, accommodation and location of the hotel, explain the variation in room rates.

In research conducted with hoteliers of 47 hotels established in Belo Horizonte, Brazil, Pinto and Santos (2012) found that rates differ within and among customer segments, and that luxury hotels charge higher room rates than those ranked lower. In a similar vein, O'Connor (2002) investigated online pricing strategies announced by the major international hotel companies across various online distribution channels. He found that rates have not changed very much, however he observed statistically significant differences in different market segments.

Based on Thrane's (2007) findings we can formulate the first hypothesis:

(H₁) There is a positive relationship between a hotel's quality (number of stars) and its room rates.

Moreover, based on the findings of Pinto and Santos (2012) and O'Connor (2002), another hypothesis arises:

(H₂) There is a statistically significant difference in the room rates of four and five star hotels.

The second issue that stimulated us to design the research may be written as: 'Is there a relationship between room rates and occupancy rates?' According to previous research, the answer is yes.

Aiming to discover the determinants of pricing strategies, Hung et al. (2010) used data from 58 international tourist hotels established in Taiwan. An ordinary least square regression showed that, among other variables, the condition of the market is one of the main factors influencing hotel room rates, i.e., a growth in demand for accommodation tends to cause an increase in price. On the other hand, Lee (2011) discovered that the volatility of room rates has a positive effect on the occupancy rates of hotels established in Singapore. However, examining data for 47 hotels located in Belo Horizonte, Brazil, Pinto and Santos (2012) found no statistically significant relationship between room rates and occupancy rates in the majority of the tests they performed.

Based on the findings of Hung et al. (2010) and to some extent those of Lee (2011), we formulate the following hypothesis:

(H₃) There is a positive relationship between occupancy rates and room rates.

The third issue that stimulated us to design the research may be written as: Does hotel location influence travelers when they decide to make a reservation? According to previous research, the answer is yes.

A joint survey carried out in 2006 by Deloitte and New York University revealed that 97% of affluent leisure travelers and 93% of affluent business travelers consider hotel location extremely influential when they are booking a room (Kyriakidis and Rach, 2010, p. 5). Similarly, Lee (2011) discovered that terrorism in Singapore's neighboring countries has had a negative impact on the occupancy rates of hotels in Singapore. Furthermore, as described above, Thrane (2007) found that the hotel location has an impact on room rates.

Based on these findings, we formulate the following hypothesis:

(H₄) There is a positive relationship between hotel location and room rate.

The fourth question that stimulated us to design the research is: 'Is there a relationship between room rates and organizational form?' Linking the previous findings about decisions to book accommodation and their influence on prices, the answer is yes.

According to the report issued by Deloitte Consulting, 57% of affluent leisure travelers and 54% of business travelers consider the hotel brand in their decision about booking accommodation (Kyriakidis and Rach, 2010). Likewise, as a result of interviewing 198 guests at two co-branded hotels in Taiwan, Lin (2013) found that brand relates to purchase intention.

Considering that travelers consider the hotel brand when booking accommodation (Kyriakidis and Rach, 2010; Lin 2013), and that high demand tends to stimulate price increases (Hung et al., 2010), we formulate the following hypotheses:

(H₅) There is a positive relationship between the room rate charged by a hotel and its organizational form; and

(H₆) Hotels belonging to chains tend to charge higher room rates than independent hotels.

To verify these variables for hotels in Salvador, we established the following general research question: 'To what extent do quality, location, occupancy rate, and organizational form predict hotel rates?'

In brief, the earlier findings reported in the theoretical framework section show that the room rate charged by a hotel has a close relationship with its services and accommodation; the location of the hotel influences travelers when they are deciding to make a booking, tending to cause high demand for rooms (occupancy) and price increases; and brand shows a certain relationship with occupancy rate and, consequently, also tends to stimulate price increases. Such results lead us to formulate the next hypotheses:

(H₇) The room rate is the response variable of the following explanatory variables: quality, occupancy rate, location, and organizational form; and

(H₈) Each explanatory variable contributes with different weight to define the response variable.

It is fundamental to note that there are other variables which might be included to understand hotel room rates, such as financing costs, taxes, licensing and legal issues (Sanjeev *et al.*, 2012) and several pricing methods, such as: Mark-Up Pricing, Absorption Cost Pricing, Targeting Rate of Return Pricing, Marginal Cost Pricing and Competition-Based Pricing.

Research design:

In order for the reader to have a better understanding of the city – and its main tourism points – where the research was carried out, we begin this section by describing the profile of Salvador. After that, we describe the procedures performed for collecting and analyzing the data.

Profile of Salvador:

The Portuguese people founded the city of Salvador in 1549. It is the capital of Bahia state, and it was Brazil's capital for more than 200 years, from 1549 to 1763. It is characterized as a city of architectural, cultural, and natural beauty. Many of its baroque buildings, such as fortresses and churches, were built in the seventeenth and eighteenth centuries and are still preserved; this includes the medieval layout of the historic center of Salvador, in the Pelourinho area, which was declared a world heritage site in 1985 by the United Nations Educational, Scientific and Cultural Organization.

The majority of the hotels chosen for the research operate close to beaches or close to the carnival circuit. Therefore, we give a description of these tourist attractions.

Salvador is known as the Bay of All Saints. It has more than 50 kilometers of beaches, some of which are open to the sea while others have calm water; and there are more than 50 tropical islands that are covered with coconut trees. The main event that attracts tourists to Salvador is the carnival, usually held in February. Carnival is a festival of contagious joy, since it joins blocks with thousands of tourists. An 'electric trio' inspires the tourists (a truck on which there is a musical band and a (usually famous) singer). Within each block, the revelers can enjoy themselves in relative safety, because there is a rope and dozens of bodyguards protecting the revelers. However, outside the block, there are assaults, fights and garbage.

Method of Data Collection:

In order to carry out this study, we chose the following variables to test their impact on the response variable (room rate): quality, occupancy rate, location, and organizational form.

During a period of eleven years, data concerning to room rates, occupancy rates and classification (number of stars) has been collected by the Union of Hotels, Restaurants, Bars, and Other Similar Establishments of Salvador, which kindly provided us the data for this study. The Union usually collects data for all its affiliated hotels, but, for the purposes of this study, we chose the data for the four and five star hotels that were open during the eleven years.

The hotel managers have been instructed to calculate the annual room rates and occupancy rates for the period. In terms of annual room rates, they initially calculated the daily average of the room rates by dividing the daily total revenue by the number of occupied units. After that, the daily averages were summed and divided by the number of days in the respective month. Then, the result for each month was summed and divided by twelve; all values were averaged to 2013, according to an official inflation index, namely, IGP-M. The managers followed a similar procedure to calculate the annual occupancy rates. Initially, they calculated the daily average of occupancy by dividing the total number of inhabited units by the number of units available. After that, the daily averages were summed and divided by the number of days in the respective month. Then, the monthly results were summed and divided by twelve.

The hotel managers also informed the hotel classification (number of stars), according to the assessment of external auditors' committees which, in their official determinations, followed the Regulation of the Official System of Types of Lodging. It is important to note that, up to 2010, the quality of Brazilian hotels was officially symbolized through stars, according to the comfort, convenience, services, and reception delivered by these hotels, resulting the following classification: Super Luxury (*****SL), Luxury (*****), Superior (****),

Tourist (***), Economy (**), and Simple (*). In 09 December 2010, the Minister of Tourism signed a decree to alter the official classification system, keeping the stars as symbols, but changing the categories to Hotel, Inn Farm Hotel, Historic Hotel, Bed and Breakfast, and Flat and Resort.

We collect the distances between the hotels and the tourist attractions on websites. For the purposes of this study, we chose several tourist attractions (beach, convention center, carnival circuit), with the aim of testing the impact of hotel location (for the different tourist attractions) on the response variable (room rate). The beach was chosen because it is the place on which leisure tourism concentrates; given that there are various beaches, the nearest one to the hotel was chosen. The Salvador Convention Center was chosen because it hosts the major events of Bahia State. The 'Barra-Ondina' carnival circuit – which since 1996 has been considered as the official merriment route in the city – was chosen because nearly 50% of the hotels under investigation are close to the circuit and the event attracts thousands of tourists during the carnival period. Moreover, the hoteliers informed us of the organizational form of the hotel (whether it belonged to a chain or was independent).

Methods of Data Analysis:

We performed tests of multiple regression analysis to find a model that explains the room rates charged by the hotels established in Salvador from the explanatory variables (hotel quality, hotel occupancy rate, hotel location, organizational form).

A measure that explains the accuracy and quality of a model is the coefficient of determination (R^2). R^2 shows the proportion of the variability present in the observations of the response variable that is explained by the regressive variables – the closer that the measure R^2 is to 100%; the better is the model adjustment. Moreover, we performed tests to verify the variance inflation factor (VIF), the regression coefficients (β), the dichotomization of the categorical variables (dummy type), and the normality of residuals.

Variance inflation factor is a measure that assesses the degree of multicollinearity among predictor variables; when the result is less than 4 or 5, it indicates that there is no problem of multicollinearity. The regression coefficient (β) is a measure that expresses a direct comparison between the regression coefficient and its relative powers of explanation of the dependent variable. The dichotomization of categorical variables (dummy type) aims to show the effect of different levels of a non-metric variable (categorical variable) in predicting the dependent variable. It can take only two values: 0 (zero) or 1 (one): if a hotel belonged to a hotel chain the value was 0, if it was an independent hotel the value was 1; a four star hotel took the value 0, and a five star hotel took 1. The normality of residuals (difference between the actual room rate charged by hotels and the price estimated by the tests of the multiple linear regressions) was assessed using the Shapiro-Wilk and Kolmogorov-Smirnov methods – nonparametric methods that aim to assess whether the sample under study follows a certain distribution.

The hypothesis to be tested is that the distribution is not normal; if the probability of significance (p) is greater than 5% (0.05), it can be concluded that the data follow a normal distribution. However, it is recommended that the p values are close to or higher than 0.10 ($p > 0.10$) before one can affirm, with confidence, that the variable follows the normal distribution. Further, we assessed the constant variance of the error term for the estimated regression model.

Findings and discussion:

This section presents the data analysis and discusses the model that best explains the impact of the predicting variables on the response variable.

Data Analysis:

67% of the five star hotels and 56% of the four star hotels established in Salvador that are affiliated to the Union of Hotels, Restaurants, Bars, and Other Similar Establishments of Salvador, Bahia, Brazil, disclosed their data during the eleven-year period. With regard to organizational form, seven of these belong to hotel chains (50%) and seven are independent (50%). The following chains are represented in this research: Accor, Atlantic Towers, Blue Tree, Deville, National Inn, Othon, and Sol Express. These hotels obtained the following annual averages of occupancy rates: 76.38%, 62.30%, 66.61%, 66.90%, 68.38%, 68.18%, 62.91%, 62.15%, 62.54%, 66.86%, and 67.60% in the last year.

One hundred fifty-four averages of room rates have been obtained over the last 11 years (14 hotels, 11 years). Therefore, the composition of the hotel sample data (panel type) were repeated for the 11 periods of data collection, according to the average rates in each of the years studied.

Our hypothesis was that there would be a statistically significant difference in the room rates between four and five star hotels (H_2) and between hotels belonging to chains and independents (H_6). We predicted that the five star hotels would charge higher room rates than the four star hotels, and that hotels belonging to chains would charge more than independent hotels.

The comparisons between the four and five star hotels and between the hotels belonging to chains and the independents – regarding the room rate – were performed using the Student's t-test for independent samples.

This test aims to verify whether there is a difference between two independent groups with respect to the means of the variables of interest.

As seen in Table 2, there is a statistically significant difference ($p < 0.05$) between the different categories: the five-star hotels charge lodging rates significantly higher than the four-star hotels. Therefore, hypothesis H_2 is accepted. However, in relation to the type of hotel, there is no statistically significant difference between the hotels belonging to a chain and the independent hotels. Thus, hypothesis H_6 is rejected.

The Pearson correlation analysis was used as the method for assessing the relationship between two variables of interest (Y: explained variable; X: explanatory variable); it aims to measure the magnitude of the relationship:

- $r > 0 \rightarrow$ indicates direct relationship, i.e., an increase in X is accompanied by an increase in Y.
- $r < 0 \rightarrow$ indicates indirect relationship, i.e., an increase in X is accompanied by a decrease in Y.

A high r value, positive or negative (close to +1 or -1) shows that there is a strong relationship, and a value close to zero shows that the relationship is weak or absent.

As can be seen from Table 3, the relationships between the explanatory variables show that there is a significant correlation between 'Distance to Carnival Circuit' and 'Distance to Convention Center'. However, the degree of correlation is considered weak, i.e., the values of the correlation coefficients are equal to or lower than 0.40 ($r \leq .40$), which are weak. The other relationships between the predictor variables show no significant correlations. Therefore, there is no a priori presence of multicollinearity among the variables, and all them can be used to estimate the fees charged by the hotels.

A Pearson correlation analysis is also used as a method of pre-selecting independent variables; the higher the correlation coefficients of these variables with the dependent variable, the greater the predictive accuracy. In this vein, as seen in Table 3, the relationship between room rate and each predictor variable shows that in two out of four tests the relationship is statistically significant ($p < 0.05$). However, only the relationship between the variables 'Room Rate' and 'Distance to Carnival Circuit' show an acceptable r value. Therefore, the other three explanatory variables should a priori not be selected. However, besides the binary relationship a researcher also takes the multiple regression analysis (MRA) into consideration.

MRA is a statistical technique used to analyze the relationship between a single response variable and several regressive variables. The tests allow one to check the degree to which each of the predictor variables contributes, when significant, positively or negatively, to the response variable.

To verify the multiple relationships among the researched variables, we established the following general research question: 'To what extent do the quality, location, occupancy rate, and organizational form predict the room rates?'

In brief, the previous findings reported in the theoretical framework section show that room rates charged by a hotel have a close relationship with its services and accommodation (the quality of the hotel); that hotel location influences travelers' booking decisions, tending to cause a high demand for rooms (occupancy) and price increases; and that brand shows a certain relationship with occupancy rate and, consequently, also tends to stimulate price increases. Such results led us to formulate hypotheses:

(H_7): The room rate is the response variable of the following explanatory variables: quality, occupancy rate, location, and organizational form; and

(H_8): Each explanatory variable contributes with different weight to define the response variable.

To answer the general research question and examine hypotheses H_7 and H_8 , we performed tests using the following mathematical equation:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i$$

Where,

$Y_i \rightarrow$ hotel rate (dependent variable), with i varying from 1 to N; this assumes the hotel room rate includes all fees for the use of hotel facilities.

$\beta_0 \rightarrow$ the intercept of the regression line.

β_1 to $\beta_n \rightarrow$ the regression coefficients (or β coefficients) of each predictor variable.

X_1 to $X_n \rightarrow$ the predicting variables: quality, location, occupancy rate, organizational form.

$\varepsilon_i \rightarrow$ sampling error or estimation error.

As seen in Table 4, within the predicting variables set, the quality of a hotel (whether it has four or five stars) is the variable that presents the highest power (weight) in all the tests performed to explain the response variable (room rate); quality is followed by occupancy rate.

Taking into consideration that the best coefficient of determination (R^2 adjusted = 72.8%) is obtained from the model that includes all the variables in the study, we decided to adopt this as our model.

As can be seen in Table 5, according to the standardized results, the quality of a hotel is the variable that presents the highest power (weight) to explain the response variable (room rate), followed by occupancy rate; the other variables contribute with lower power. Therefore, the room rate is indeed the response variable of the explanatory variables (quality, occupancy rate, location, and organizational form) and each explanatory variable

contributes with a different weight to define the response variable. These results allow us to accept hypotheses H₇ and H₈.

In sum, the findings suggest that the following model is the best one to be used by the hoteliers of Salvador to calculate the room rates in hotels classified as four and five star:

Hotel room rate = $[(21.2 + (0.62 \times \text{Hotel Quality}) + (0.27 \times \text{Occupancy Rate}) + (0.22 \times \text{Distance to Carnival Circuit}) + (0.21 \times \text{Distance to Convention Center}) + (0.21 \times \text{Hotel Organizational Form}) + (0.09 \times \text{Distance to Beach})]$.

The two factors that most positively influence the room rate are whether the hotel is classified as a five star hotel, and whether it has a high occupancy rate.

Discussion of Findings:

As seen in Table 2, the five star hotels charge significantly higher lodging rates than the four star hotels. We also discovered that the quality of a hotel is the variable that shows the best influence on room rates among the seven explanatory variables tested in the model. Taking into consideration that: (1) the Brazilian Regulation of the Official System of Types of Lodging states that the higher the quality, the higher the number of stars, and; (2) the hedonic pricing theory states that the room rate is an additive function of the hotel services and accommodation available to travelers; we can infer that our findings are obvious. Nevertheless, is this statement unquestionable?

The concept of quality is not yet settled in the hotel industry, as follows: (1) Fernandez and Bedia (2004) found that the quantity of stars is not a guaranteed way of determining the quality of a hotel. The authors found that the official classification of hotels established in Cantabria (northern Spain) diverged from the assessments processed by customers in a survey; (2) Nasution and Mavondo (2008) carried out research in Indonesia aiming to clarify the values that hotel managers believe they are offering to their customers and the values that customers really experience. The authors concluded that, in the different hotel segments, the values that customers appreciate are different from those that the hoteliers believe they are providing. In addition, in research in a state in southern Brazil, Gava and Silveira (2007) discovered that the customers do not recognize the attributes offered by the hotels, to provide satisfaction to guests, in the same way that managers believe to be offering.

According to the model selected for this discussion, occupancy rate is the variable that comes second in terms of contribution to the setting of room rates. Hung et al. (2010) and Lee (2011) have also found that occupancy rate has a positive effect on room rate.

In its turn, organizational form has a weight of 0.21 among the explanatory variables. Therefore, it seems that this variable does not affect room rates very strongly. This conclusion differs from the findings of Kyriakidis and Rach (2010) and Lin (2013). Similar results are shown by the three variables relating to location.

Comparing the variable 'the distance between the hotel location and the nearest beach' with the other variables relating to location, we find that it shows the weakest power of explanation (0.09) of the response variable (room rate). We speculate that the reason for this finding is that 38% of the hotels in the study (the Deville, Fiesta, Golden Tulip, Othon, and Pestana hotels) do not focus their business on leisure tourism but on business tourism events. Perhaps for this reason, two of these are situated in places far from beaches, and three are located in places in which the beaches are not attractive for bathing; these are among the biggest hotels in Salvador. However, the other two variables relating to location (distance to Carnival Circuit; distance to Convention Center) show a similar power of influence on room rates to that of organizational form.

Previous studies, for example in Norway (Thrane, 2007) and the US (Lee and Jang, 2011), have also found that the hotel location variable relates to pricing strategies. However, according to Kyriakidis and Rach (2010, p. 5): '...given the marketing saturation in gateway cities worldwide with leading brands sited close to one another, location is likely to become increasingly less important'.

Conclusion:

We conducted the study to explain the extent to which the quality, location, occupancy rate, and organizational form predict hotel room rates.

The two major hypotheses for this study are:

(H₇) The room rate is the response variable of the following explanatory variables: quality, occupancy rate, location, and organizational form; and

(H₈) Each explanatory variable contributes with different weight to define the response variable.

The findings show that all the explanatory variables relate to the response variable with different weights. Therefore, we accept both hypotheses.

Among the six models we created, the best one shows that the predictor variables explain 72.8% of the fees charged by the hotels in our research, and that having five stars and a higher occupancy rate are the factors that most positively contribute to the configuration of the response variable.

Placing the focus exclusively on the results achieved by this study, one could assert that there is no doubt that the quality of a hotel (its services and accommodation) shows a remarkable influence on room rate, but previous findings commented in the theoretical section revealed that the concept of quality is not yet clear enough in the hotel industry. The extent to which quality influences room rate therefore remains questionable in certain regions.

In order to compare these findings, we recommend to researchers to extend this study to other regions. We recommend researching all segments of customers, with the aim of extending the coverage. Moreover, we also recommend research that substitutes the variable 'hotel quality' by 'cost to operate', but keeps the other variables.

Table 1: Annual average of the room rates in the period.

Classification/rate	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Four star hotel	220.28	203.73	174.58	161.70	168.33	178.22	173.27	156.41	156.21	148.07	162.36
Five star hotel	368.12	320.85	274.18	262.75	260.73	266.27	263.08	238.66	235.22	213.26	226.27
Average	294.20	262.29	224.38	212.22	214.53	222.24	218.18	197.53	195.72	180.67	194.31

Notes:

Values averaged to 2013.

Data are expressed in Brazilian currency.

Source: Information from hoteliers.

Table 2: Descriptive and Comparative Measures of the Study.

Variable	n	Descriptive Measure				
		Minimum	Maximum	Median	Average	Standard Deviation
Hotel Classification (Quality)						
Four stars	99	111.25	272.91	171.10	179.06	33.78
Five stars	41	205.33	432.00	258.96	283.03	57.13
Conclusion:		Four stars < Five stars			→ p < 0.001	
Organizational form						
Chain	63	111.25	432.00	176.28	199.60	68.65
Independent	77	138.32	401.17	203.83	217.61	57.62
Conclusion:		Chain = Independent			→ p = 0.094	

Notes:

The results were considered significant at a significance level of 5% ($p < 0.05$), and, thus, there is 95% confidence that the conclusions are correct.

Table 3: Correlation Analysis between the Variables in the Study.

	Room Rate		Distance to Beach		Distance to Carnival Circuit		Distance to Convention Center		Occupancy Rate	
	r	p	R	p	r	p	r	p	r	p
Room Rate	1.00	0.000	0.08	0.353	0.40	<0.001	0.09	0.299	0.22	0.011
Distance to Beach	—	—	1.00	0.000	-0.09	0.268	-0.04	0.680	-0.06	0.471
Distance to Carnival Circuit	—	—	—	—	1.00	0.000	-0.28	0.001	0.09	0.292
Distance to Convention Center	—	—	—	—	—	—	1.00	0.000	0.04	0.647
Occupancy Rate	—	—	—	—	—	—	—	—	1.00	0.000

Notes: r → Pearson correlation coefficient

p → Significance probability

Table 4: Test Results for Six Models.

Variable	β Model 1	β Model 2	β Model 3	β Model 4	β Model 5	β Model 6
Distance to beach	0.095	-	-	-	-	-
Distance to Carnival Circuit	0.216	0.198	-	0.170	-	-
Distance to Convention Center	0.208	0.204	0.145	0.214	0.162	-
Occupancy Rate	0.272	0.275	0.292	0.312	0.323	0.323
Hotel Quality	0.624	0.636	0.728	0.649	0.728	0.727
Organizational Form	0.214	0.196	0.176	-	-	-
R ²	74.0%	73.2%	70.6%	69.5%	67.6%	65.0%
R ² adjusted	72.8%	72.1%	69.6%	68.6%	66.8%	64.4%

Notes:

Database: 133 cases (13 hotels, 11 years); 21 cases ignored.

B: Standardized coefficients.

All tests showed the p-values to be statistically significant.

Variables of the model:

Continuous variables: Distance to Beach, Distance to Carnival Circuit, Distance to Convention Center, Occupancy Rate.

Dichotomous variables: Hotel Quality (four star = 0; five star = 1), Organizational Form (belonging to a hotel chain = 0; being an independent hotel = 1).

Table 5: Regression Analysis Using the Hotel Rate as the Response Variable.

Variable	Non Standardized Coefficient	Standardized Coefficient	Evaluation Parameters		
	B	β	T	p	VIF
Constant (b_0)	21.220	—	1.1	0.276	—
Distance to Beach	8.380	0.095	2.0	0.043	1.058
Distance to Carnival Circuit	1.424	0.216	3.8	<0.001	1.530
Distance to Convention Center	2.699	0.208	4.2	<0.001	1.144
Occupancy Rate	1.609	0.272	5.9	<0.001	1.045
Hotel Quality	76.267	0.624	11.9	<0.001	1.342
Organizational Form	23.022	0.214	4.5	<0.001	1.095

Notes:

Database: 133 cases (13 hotels, 11 years); 21 missed cases.

T: Regression analysis statistic

p: Probability significance

VIF: Variation inflation factor.

Continuous variables: Distance to Beach, Distance to Carnival Circuit, Distance to Convention Center, Occupancy Rate.*Dichotomous variables:* Hotel Quality (four star = 0; five star = 1), Organizational Form (belonging to a hotel chain = 0; being an independent hotel = 1)

REFERENCES

- Aggett, M., 2007. What Has Influenced Growth in the UK's Boutique Hotel Sector? *International Journal of Contemporary Hospitality Management*, 19(2): 169-177.
- Botti, L., W. Briec and G. Cliquet, 2009. Plural Forms versus Franchise and Company-Owned Systems: A DEA Approach of Hotel Chain Performance. *Omega*, 27(3): 566-578.
- Chan, E.S.W. and S.C.L. Wong, 2006. Hotel Selection: When Price is not the Issue. *Journal of Vacation Marketing*, 12(2): 142-159.
- Chu, R. and T.Y. Choi, 2001. Determinants of Hotel Guests' Satisfaction and Repeat Patronage in the Hong Kong Hotel Industry. *International Journal of Hospitality Management*, 20(3): 277-297.
- Fernandez, M.C.L. and AM.S. Bedia, 2004. Is the Hotel Classification System a Good Indicator of Hotel Quality? An application in Spain. *Tourism Management*, 25: 771-775.
- Gava, R. and T. Silveira, 2007. A Orientação Para o Mercado sob a Ótica da Empresa e dos Clientes na Indústria Hoteleira Gaúcha (The Market Orientation from the Perspective of the Company and Clients in the 'Gaúcha' Hospitality Industry). *Revista de Administração Contemporânea*, 2(11): 49-69.
- Hung, W.T., JK. Shang and F.C. Wang, 2010. Pricing Determinants in the Hotel Industry: Quantile Regression Analysis. *International Journal of Hospitality Management*, 29(3): 378-384.
- Kotler, P. and K.L. Keller, 2011. *Marketing Management*. Pearson Prentice Hall.
- Kyriakidis, A. and L. Rach, 2010. *Hospitality 2010 — An in-depth report into driving shareholder value in the hospitality sector*. Deloitte Consulting.
- Lee, S.K. and S. Jang, 2011. Room Rates of U.S. Airport Hotels: Examining the Dual Effects of Proximities. *Journal of Travel Research*, 50(2): 186-197.
- Lee, C.G., 2011. The Determinants of Hotel Room Rates: Another Visit with Singapore's Data. *International Journal of Hospitality Management*, 30(3): 756-758.
- Lin, Y.C., 2013. Evaluation of Co-Branded Hotels in the Taiwanese Market: The Role of Brand Familiarity and Brand Fit. *International Journal of Contemporary Hospitality Management*, 25(3): 346-364.
- Nagle, T.T., J.E. Hogan and J. Zale, 2010. *The Strategy and Tactics of Pricing: A Guide to Growing More Profitability*. (5th ed.), Pearson Prentice Hall.
- Nasution, H.N. and F.T. Mavondo, 2008. Customer Value in the Hotel Industry: What Managers Believe they Deliver and what Customers Experience. *International Journal of Hospitality Management*, 27: 204-213.
- O'Connor, P., 2002. An Empirical Analysis of Hotel Chain Online Pricing Strategies. *Ingenta Connect*, 5(2): 65-72.
- Palia, A.P., 2008. Target Profit Pricing with the Web-Based Breakeven Analysis Package. *Developments in Business Simulation and Experiential Learning*, 35: 197-204.
- Pinto, E.P. and D.G.V. Santos, 2012. Tarifas e Taxas de Ocupação em Hotéis, Conforme suas Formas de Organização e Viajantes que Acolhem (Rates and Occupancy Rates of Hotels, According to their Forms of Organization and Segment of Travelers they Host). *Turismo em Análise*, 23(2): 355-379.
- Poundstone, W., 2010. *Priceless: the myth of fair Value (and How to Take Advantage of it)*. Hill and Wang.
- Sangeev, G.M., K. Gupta and Bandyopadhyay, 2012. Financial Challenges in the Indian Hospitality Industry. *Worldwide Hospitality and Tourism Themes*, 4(2): 163-173.
- Smith, T.J., 2012. *Pricing Strategy: Setting Price Levels, Managing Price Discounts, & Establishing Prices Structures*. Cengage Learning.

Thrane, C., 2007. Examining the Determinants of Room Rates for Hotels in Capital Cities: The Oslo Experience. *Journal of Revenue and Price Management*, 5: 315-323.