

A HEDONIC PRICING ANALYSIS OF HOTEL ROOM RATES IN BANGKOK

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Abstract

Despite the ongoing global financial slowdown and a series of natural disasters that have taken place in Thailand, Bangkok still ranks high on the list of top tourist destinations in terms of the number of international visitors. This dramatic increase in the number of international tourist arriving in Bangkok benefited the hotel industry in Bangkok and brought about huge revenue earnings for the country. This study analyzed the status of Bangkok hotel room rates, differentiated by hotel characteristics. Using a hedonic pricing method, this study based its analysis on the data obtained from online hotel reservations for 141 different Bangkok hotels.

The findings showed that the general room rates charged by hotel chains were approximately 32% higher than independent hotels. During high seasons, the weekend room prices charged by hotel chains were higher if the room had larger space and if the hotel was located closer to the city center. Regardless of seasonality, any new hotel chain located near the Bangkok city center that also had its own bar and restaurant facility, charged weekend room rates that were higher than older chain hotels, located further from the city center, and without bar and restaurant facilities. This study also noted in particular how accessibility to the Bangkok Mass Transit System (BTS Sky Train) and proximity to the city center affected hotel pricing, coming to the conclusion that any hotel in Bangkok located either near a BTS station or the city center charged room rates much higher than hotels located further away.

Keywords: Hedonic pricing method; hotels; Bangkok; characteristics; room rate.

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INTRODUCTION

In spite of severe flooding crisis and the global economic slowdown in 2011, the tourism industry in Thailand has retained a high growth in international tourist numbers with an expected total number of arrivals reaching 4.89 million in the second quarter of year 2012, up 10 percent over the same quarter of year 2011 (Bank of Thailand, 2013). These figures highlight a positive sign of foreign travelers' confidence towards the tourism sector and indicate that the industry itself has quickly recovered from the impact of the country-wide flood. Although Bangkok, the capital of Thailand, was annually threatened by serious floods resulting in economic damages and losses, it also claimed the World's Best Cities award in 2013, based on the Travel+Leisure Magazine's online survey. The year of 2013 marks the fourth in a row that Bangkok has remained the top destination for international travelers (Travel + Leisure, 2013). With an estimated 21 million tourists visiting Thailand last year, 2012, a significant increase in the number of tourist arrivals, by more than 15% from 2011, has been calculated, generating revenue of more than US\$ 38 billion for the country (Mahtani, 2013).

The hotel market in Bangkok has hence become highly competitive with many hotels attempting to improve the competency of their resource allocations and market strategies, as well as the enhancement of their loyalty customer programs. Room pricing decisions is one of the key factors for a hotel marketing strategy because the hotel room rate is one of the significant determinants when customers decide to

select their accommodation. The hotel price also affects the customer's perception of the hotel service quality because, between hotels, a room price difference can signal service quality differences (Hung et al., 2010; Thrane, 2007). Many previous studies (Chen & Rothschild, 2010; Hung et al., 2010; Israeli, 2002; Thrane, 2007) attempted to investigate the factor of room pricing in capital cities because of the profound variability from one city to another, or even within the same capital city.

Therefore a hedonic pricing analysis, a suitable ordinary least square (OLS) technique, has been widely used in logging studies to analyze hotel room rate variation because it can assist in uncovering the hotel attributes or characteristics for which guests are willing to pay (Chen & Rothschild, 2010; Hung et al., 2010; Monty & Skidmore, 2003; Thrane 2007). Hedonic prices not only come into effect when quality differentiated hotel goods are sold in the competitive market, but they can also be categorized under the rubric of non-market because goods and services in the hotel industry sometimes have qualities not provided by the market (Espinete, Saez, Coenders & Fluvia, 2003; Haab & McConnell, 2002). The purpose of this study was to investigate the hotel characteristics that most influenced room rates in Bangkok's hotels and also to compare the most influential characteristics in the Bangkok hotel market.

THEORETICAL BACKGROUND

The hedonic pricing model was introduced by the Waugh's study (1928) of price

differences in agricultural products. However, it has been fully rationalized by Rosen's work in 1974 where the equilibrium hedonic price is achieved when the differences in the observed price of the product reflect variations in its observed characteristics. It also said that the observed room rate in a market is affected by the particular hotel characteristics (Espinet et al., 2003; Haab & McConnell, 2002; Rosen, 1974).

With regard to an hedonic pricing analysis of lodging studies, many researchers have examined either package tour features determined by the choice of the tour operator, destination, hotel and relevant attributes or hotel characteristics affected by the room rate, distance, city center, hotel star rating, and so on (Aguilo, Alegre & Sard, 2001, 2003; Espinet et al., 2003; Papatheodorou, 2002; Sinclair, Clewer & Pack, 1990; Thrane, 2005).

In relation to previous studies on the city hotel, Thrane (2007) analyzed the determinants on the room rates of hotels in Oslo, the capital of Norway, by using a seemingly unrelated regression method (SUR). This technique revealed that hotel chain and the distance to the city center both have a major influence on Oslo hotel room rates. The results showed that in Oslo any room belonging to a hotel chain will be more expensive than the non-hotel chain room. Furthermore, the results also showed that the closer a room is to the city center, the more expensive it will be.

Chen & Rothschild (2010), on the other hand, studying the influence of different attributes on hotel room rates in Taipei, the capital of Taiwan, Republic of China, found that distance to the city center has a nega-

tive relationship on the hotel price, implying that the expensive hotels in Taipei are located far from the center because they are typically of a resort type, providing more amenities to customers.

A similar study of hotels in Taiwan, by Hung et al. (2010) used a quartile regression to discern the determinants of hotel prices in terms of different quartiles and found that both distance to the city center and hotel chain-affiliation have no impact on Taipei room rates. In terms of expense, an older hotel in Taipei is cheaper than a newer one. In contrast, Lee & Jang (2012) conducted research on the Chicago hotel market with the data obtained from online websites and found that hotels located in the central business district have a higher demand season, prices, and profits. More importantly, the chain hotel room rate in Chicago, during both high and low seasons, is still higher than those which do not belong to the chain. Consistently, a recent study in Beijing by Zhang et al. (2011) with a geographically weighted regression found that hotel characteristics such as star rating, hotel size, hotel age, and location have an important influence on hotel room rates.

METHODOLOGY

1. Hedonic Pricing Model

The hedonic pricing model consists of two stages; a first-stage and second stage analysis. In the first stage analysis, information about the prices of differentiated products and their characteristics is used to discover the implicit prices of characteristics. This information is then used for

analysis in the second stage to obtain the demand functions for the characteristics of the product. The second stage, however, needs more data and has more complexity in an estimation resulting in an uncertain outcome. Thus, the estimation in the hedonic pricing model is applied only to the first stage of the analysis. In particular, the hedonic pricing models used in hotel studies mainly focus on how influential hotel characteristics affect the room rate (Bateman et al., 2002; Champ & Boyle, 2003; Rosen, 1974). Theoretically, in a hedonic pricing model, the hotel room rate can be defined as the set of its attributes or characteristics.

Let H represent the bundle of hotel attributes or characteristics:

$$H = (H_1, H_2, H_3, \dots, H_n) \\ \text{where } i = 1, \dots, n$$

Hedonic pricing function for H_i is defined as follows:

$$P(H) = F(H_1, H_2, H_3, \dots, H_n) \\ \text{where the hotel room rate } P(H) \text{ is a function of all its characteristics}$$

To compute the implicit price where $(\partial P(H), \partial H_i)$ stands for any hotel characteristic H_i , the log-linear functional form is one of the simpler forms which performs well, because if the dependent variable is the log of the room rate, then the interpretation of the implicit price is the approximate percentage change in the room rate when the hotel characteristic is present (Bateman et al., 2002).

2. Data

Hotel prices in Bangkok were taken

from the Agoda internet hotel reservation website (www.agoda.com). They were collected twice within two periods between October and November, 2012 – the period of high season and the low season between July and August, 2013. Some studies (Chen & Rothschild, 2010; Lee & Jang, 2012; Thrane, 2005), using internet based hotel room data, confirmed that this is a very appropriate and suitable method to gather data because any given hotel price search reveals little difference between those found on the internet and travel agents. This finding mirrors the customer's expectation and willingness to pay, as well as providing the best available rates. Crnojevac, Gusic & Karlovcan (2010) also claimed that the internet not only provides potential hotel guests with accessibility to reliable and correct information but also reduces their time, expense, and the inconvenience of making a reservation through conventional booking methods.

Although Online Travel Agents (OTA), such as Agoda.com, account for 30 percent of hotel bookings in much of the Asian market, as a data source they may represent a much higher percentage of consumer information collection. The people making online hotel bookings are mostly leisure travelers with little differentiation in age and gender (Kapoor & Quinby, 2012). The data for this current research consisted of 141 Bangkok sample hotels randomly selected, as a dependent variable, via online reservation for a one-night weekend stay in a single or double room. The booking was made two weeks in advance – in general, many hotels require this window of time (Kisilevich, Keim, Palivatkel & Rokach, 2011). In this case, the dependent

variable is a logarithm based on a log-linear form (See Table 1).

The selection of the hotel characteristics as the independent variables was based on various studies (Chen & Rothschild, 2010; Espinet et al., 2003; Lee & Jang, 2012; Monty & Skidmore, 2003; Zhang et al., 2011) and the details on their characteristics were mainly provided by internet hotel reservation websites. Included in the lodging attributes, Zhang et al. (2011) found that hotel age (AGE) has a significant impact on the room rate. The older the hotel, the higher the room rate it charges. Hung et al. (2010) and Zhang et al. (2011) also found that the number of rooms (ROOM) influences the room rate. The hotel which has a greater number of rooms is considered a large hotel. The larger hotel tends to charge a higher room price. Conversely, Juaneda, Raya & Sastre (2011) argued that in the case of coastal hotels, the number of rooms can have a slightly negative impact on the room rate. When any coastal hotel has more rooms, its room rate becomes cheaper than one of otherwise equal status, but with fewer rooms.

Room size (SIZE) can also have a significant effect on the room rate. The larger the room size, the higher the rate (Chen & Rothschild, 2010; Monty & Skidmore, 2003). Many studies (Lee & Jang, 2012; Monty & Skidmore, 2003; Shoval, 2006; Thrane, 2007) confirmed that location is one of major hotel attributes that can affect hotel price. Thus a hotel located near the city center charges a significantly higher room rate than one which is further out from the center. Regardless of either high or low season, Lee & Jang (2012) found

that the many hotel room rates in downtown Chicago are almost identical. Therefore, this study took CEN, a distance, in kilometers, between the hotel and Bangkok city center into consideration. For example, the Siam Square site is the proximate Bangkok city center because it is not only the main hub of Bangkok's Mass Transit System (BTS), but from here one can also access the major business and shopping areas.

Moreover, the variable BTS was included as the distance in kilometers between a particular hotel and the Bangkok Mass Transit System (BTS) station. BTS is quite a significant factor since the Bangkok skytrain, one of the key transportation systems in the Bangkok metropolitan area, has operations covering all the main business districts. In addition, it carries millions of both local and tourist passengers commuting around the Bangkok area, avoiding the heavy traffic congestion and saving on commuting costs and time. The findings of Sirikolkarn (2008) and Thamrongrisook (2011) showed that the BTS has had significant impact on the escalation of its nearby property prices and bringing more development to the communities. Subsequently, it can be argued that the room rate of a hotel located close to the transport system increases. Moreover, Zhang et al. (2011) revealed that the room rate of hotels located near Beijing's transport hub is more expensive than one farther away from the transport station. (This information on both CEN and BTS had been obtained from the internet-based application, Google Maps.) Next, hotel chain (CHAIN) has been recognized to be one of the important determinants influencing

the room rate. Many researchers have found that hotel chains offer a higher room rate than one not part of a chain (Chen & Rothschild, 2010; Lee & Jang, 2012; Thrane, 2007; Wu, 1998). Based on our 141 randomly sampling chosen hotels in Bangkok, only 36.9% or 52 were hotel chains. These fifty-two hotel chains consist of both local and international hotel groups such as The Erawan Group, Dusit Group, Grande Asset Development, and Central Hotels and Resorts.

In addition, the numbers of bars (BAR) and restaurants (REST) as part of a hotel's amenities have both been included in this study. The findings by Chen & Rothschild (2010) stated that a Taipei room rate is more expensive if the hotel has a bar and café, while some studies suggest that a restaurant is another attribute to be considered (Espinete et al., 2003; Lee & Jang, 2012). Finally, remaining hotel characteristics, for instance dummy variables such as LCD/ Plasma television (TV), complimentary wifi (WIFI), complimentary breakfast (BREAK), business center (BUSINESS), fitness center (FITNESS), pool (POOL), spa (SPA), etc., had all been incorporated into this study based on prior study findings. They also were expected to have the positive sign, resulting in an increased room rate (Chen & Rothschild, 2010; Sard, 2002; White & Mulligan, 2002).

A star rating independent variable was not included in this study because Thrane (2007) persuasively argued that star ratings were more likely to cause a multicollinearity problem because there is no official star rating classification, which is uniformly provided and updated. Al-

though the Thai Hotel Association provides information about hotel rating in Thailand, that information has limitations in that the classification took place for only one year, 2012, and it has not been updated since 2012 (Thai Hotel Association, 2012). Datar & Chowdhry (2010) also observed that "Star rating systems can vary from global region to global region, country to country, and in many cases even within countries. And there's further disarray about which star rating denotes the best of the best". This is consistent with previous research by Lee & Jang (2012) that star rating is not practical because of questions on uniformity, reliability, and availability of systems. To guard against all problems, this study then did not include star rating in its consideration.

Consequently, this study embraced the information of prior literature reviews which included the major transportation variable BTS, as well as that of CEN, representing the distance from a particular hotel to the downtown center, to determine an impact on the hotel room rates. This difference provided more information for understanding the hotel characteristics affecting Bangkok hotel prices.

Therefore our model in log-linear functional form whose dependent variable was the hotel room rate per night on a given weekend in Bangkok (PRICE) was regressed on the length of time a hotel had been operating (AGE), number of rooms (ROOM), hotel room size (SIZE), distance from the city center (CEN), distance from the Bangkok Transport System (BTS), room with a LCD/Plasma Television (TV), complimentary wifi (WIFI), complimentary breakfast (BREAK), number of bars

(BAR), business center (BUSINESS), fitness center (FITNESS), pool (POOL), spa (SPA), number of restaurants (RESTAU), high season period (SEASON) and hotel associated with a chain (CHAIN).

Regarding reliability and validity of all variables used in studies, Szafran (2012) argued that checking reliability and validity of the work would be a tedious job; however, the best method is to follow the prior work done by other researchers, who had collected the data. Therefore the variables used in this study were revised and examined in accordance with works of Chen & Rothschild, (2010); Espinet et al. (2003); Lee & Jang (2012); Monty & Skidmore (2003); Sirikolkarn (2008); Thamronsriskook (2011); Thrane (2005; 2007); Zhang et al. (2011).

3. Model Specification

Our study had been divided into three log-linear specific models as follows:

Model I: A one-night weekend hotel room rate during the low season period, (PRICE_Low) as a dependent variable is a function of all hotel attributes.

In (PRICE_Low) = f (AGE, ROOM, SIZE, CEN, BTS, TV, WIFI, BREAK, BAR, BUSINESS, FITNESS, POOL, SPA, RESTAU, CHAIN)

Model II: A one-night weekend hotel room rate during the high season period, (PRICE_High) as a dependent variable is a function of all hotel characteristics.

In (PRICE_High) = f (AGE, ROOM, SIZE, CEN, BTS, TV, WIFI, BREAK, BAR, BUSINESS, FITNESS, POOL, SPA, RESTAU, CHAIN)

Model III: A one-night weekend ho-

tel room rate (PRICE) as dependent variable is a function of all hotel attributes.

In (PRICE) = f (AGE, ROOM, SIZE, CEN, BTS, TV, WIFI, BREAK, BAR, BUSINESS, FITNESS, POOL, SPA, RESTAU, SEASON, CHAIN)

Based on these three disparate models, seasonality is one of the most influential factors in the tourism industry, affecting hotel room rates either positively or negatively (Maharjan, 2012). Lee & Jang (2012) also claimed that in low-demand seasons, it will be an increased price-based high competition, where an hotel offers the discounts or lowers its own price compared with other hotels to fill its room capacity because of the profit-maximization behavior of hotels, while in peaks or high-demand period there would be less or low price competition among the hotels, so there is no incentive for them to provide any discount or promotion during that time. In summary, Table 1 shows the details for all dependent and independent variables taken into account in this study.

4. Estimation and Misspecification Diagnostics

To diagnose all misspecification problems in a classical regression model, outlier, normality, functional form, multicollinearity and heteroscedasticity, respectively, were tested. At first, before estimating the data, the outliers were detected by calculating three times the standard deviation from its mean. This was done because the outlier will distort the statistical estimates resulting in faulty conclusions. Removing them not only increases more accuracy but also reduces the errors of inference dramatically

Table 1: Descriptive statistics for hotel characteristics variable (N =141)

Variable	Description of variable	Mean	S.D.
PRICE	Room rate per night on a weekend (US\$)	77.464	37.845
PRICE_High	Room rate per night on a weekend in high season (US\$)	78.589	36.109
PRICE_Low	Room rate per night on a weekend in low season (US\$)	76.339	39.602
Log(PRICE)	Price, logged	4.243	0.463
Log(PRICE_High)	Price in high season, logged	4.264	0.452
Log(PRICE_Low)	Price in low season, logged	4.221	0.474
AGE	Time of hotel being operated, (year)	8.646	8.433
ROOM	Number of rooms	229.518	164.019
SIZE	Hotel room size in square meters	37.435	12.702
CEN	Distance from the center (in kilometers)	4.158	3.412
BTS	Distance from the BTS (in kilometers)	0.910	0.648
TV ¹	Room with a LCD/Plasma Television = 1, if not = 0	0.702	0.459
WIFI ¹	Complimentary wireless internet service = 1, if not = 0	0.752	0.434
BREAK ¹	Complimentary breakfast =1, if not = 0	0.312	0.465
BAR	Number of bars	0.702	1.026
BUSINESS ¹	Hotel has a business center =1, if not = 0	0.773	0.420
FITNESS ¹	Hotel has a fitness center = 1, if not = 0	0.809	0.395
POOL ¹	Hotel has a pool = 1, if not = 0	0.787	0.411
SPA ¹	Hotel has a spa = 1, if not = 0	0.454	0.500
RESTAU	Number of Restaurants	1.998	1.909
SEASON ¹	High season period = 1, if not = 0	0.500	0.500
CHAIN ¹	Hotel is associated with a chain = 1, if not = 0	0.369	0.484

¹Dummy variable

(Osborne & Overbay, 2004). To assess normality, the central limit theorem was applied because the research data included the study of 141 units, considered a good sample size, with a normal in shape sampling distribution (Kennedy, 2003).

The determination of the correct sample size is quite essential; however, Zikmund (2000) suggests that the selection of sample size is also based on the judgment of researcher. Therefore, to choose a sample size analogous to other similar, prior studies can give the new researcher an insight into the judgments and the conclusions of other researchers. Pre-

vious studies using hedonic pricing analysis, namely the studies of Chen & Rothschild (2010); Hung et al. (2010); Monty & Skidmore (2003), and Thrane (2007); and all had a sample size of less than 100. Therefore our study based on 141 hotels in Bangkok was considered as a small sample size. To ensure sufficient variety and detail in sample size, this study also came up with three models: low-season, high-season, and the total number. The total number represented the combination of both low and high seasons, resulting in a total sample size of 282 with the dummy variable of SEASON included.

A second problem is heteroscedasticity which occurs mostly in cross-sectional data when the error variance differs across the observations resulting in a misleading conclusion. Heteroscedasticity is a result of outlier and maybe due to an omitted explanatory variable or incorrect functional form (Gujarati & Porter, 2009; Kennedy, 2003). Thus, we applied the Ramsey's RESET (regression error specification) test to check our functional form of log-linear, as well as the Breusch-Pagan Lagrange multiplier (LM) to test the heteroscedasticity problem (Greene, 2008). As a result, all three models used in this research were statistically exempted from both incorrect functional form and a heteroscedasticity problem with a 0.1% level of significance.

Based on previous studies (Chen & Rothschild, 2010; Hung et al., 2010; Lee & Jang, 2012), a hedonic pricing model in general faces a multicollinearity problem when some or all of the independent variables are highly correlated with one another. This creates low t statistics and thus high P-values, hence the coefficients become insignificant (Koop, 2008). Then, the variance inflation factor (VIF) was used to detect multicollinearity and if the VIF is higher than 10, as a rule of thumb, it indicates a collinearity problem (Gujarati & Porter, 2009; Verbeek, 2008). Therefore, all the independent variables used in this study, after diagnosis, had the value of a VIFs less than 3. Hence, they were significantly free from multicollinearity problems.

In summary, log-linear had been applied to the model employed for this study; Zhang et al. (2011) also confirmed that log-linear is the most appropriate form to analyze the hotel price compared with a linear

and semi-linear form. It was estimated that the use of a STATA statistical program, a log-linear hedonic model under an ordinary least square (OLS) estimation with a sandwich estimator of variance, can provide actual standard errors, although the data are not identically distributed (Long & Freese, 2006). As for result interpretation, any coefficient (β) would be expressed in terms of percentage change with the calculation by $100 * (\exp(\beta) - 1)$ in percentage terms; while in an expression of monetary unit would be calculated by $(\exp(\beta) - 1) * \text{an average price of a room in the sample}$ (Monty & Skidmore, 2003; Gujarati & Porter, 2009).

RESULTS

Table 2 provides the parameter estimates for the three OLS models, given their coefficient (β), t-statistics, and level of significance. First, all three models indicated a one-night weekend room rate in a logarithm as a function of a number of hotel characteristics. Models I and II depicted the full estimation with all hotel attributes as explanatory variables for the periods of low and high seasons, accordingly, while Model III showed the combination of data from both periods with a dummy variable of SEASON, to determine whether the factor of high season affects the Bangkok room rate or not. Although all the results of our study showed an R square of 0.61, 0.57 and 0.58 accordingly, a recent study by Zhang et al. (2011) strongly confirmed that a global average of R square, on a hedonic pricing study of the hotel room rates, is 0.547 with the range varying from

Table 2: Estimation results of three different hedonic models

Hotel Attributes	Model I: Low Season N = 141		Model II: High Season N = 141		Model III: The Total N = 282	
	Coef.	t-statistics	Coef.	t-statistics	Coef.	t-statistics
AGE	-0.010*	-2.220	-0.005	-1.230	-0.007*	-2.510
ROOM	0.000	0.410	0.000	0.410	0.000	0.600
SIZE	0.007**	2.970	0.010***	3.890	0.008***	4.990
CEN	-0.023***	-3.760	-0.016**	-2.700	-0.019***	-4.670
BTS	-0.073	-1.860	-0.031	-0.900	-0.052*	-2.060
TV	0.140*	2.050	0.175*	2.480	0.157**	3.280
WIFI	0.076	1.200	0.083	1.400	0.079	1.860
BREAK	0.072	1.210	0.115	1.870	0.093*	2.230
BAR	0.050	1.790	0.050	1.820	0.049**	2.600
BUSINESS	0.091	1.000	0.038	0.390	0.065	0.980
FITNESS	0.258	1.970	0.047	0.320	0.152	1.580
POOL	-0.011	-0.090	0.062	0.570	0.026	0.320
SPA	0.082	1.250	0.062	0.960	0.072	1.610
RESTAU	0.054*	2.610	0.049*	2.360	0.051***	3.610
CHAIN	0.279***	4.770	0.272***	4.890	0.275***	6.960
SEASON					0.044	1.190
Constant	3.445***	32.330	3.394***	27.750	3.398***	42.060
R-Square	0.617		0.571		0.587	
Adjust						
R-Square	0.571		0.52		0.562	

Remarks: *** P < 0.001; ** P < 0.005; * P < 0.05

0.227 to 0.922. Hence, our study has the right and reasonable values of R square to explain a between 57% and 61% variation in the price of a Bangkok hotel room.

Next, in order to interpret an implicit price for the hotel characteristics in a log-linear model, we calculated, by exponential of its coefficient minus 1, [exp (coefficient) -1] times 100 if we interpret in percentage, while in value of dollars, we multiply the [exp (coefficient) -1] with the average of a sample hotel room rate (See Table 3).

As evidenced by the details highlighted in Model I, during the low season for the

hotel market in Bangkok, the duration a hotel has been operating (AGE) has a significant negative impact on the hotel room rate. Therefore, a higher priced hotel room was resulted from a newly opened hotel. In addition, a hotel located near the city center (CEN) charged a higher room rate, about 2.25% more, than one located farther away. In other words, if a hotel is located farther away than 1 kilometer from the city center, its room rate is cheaper, by about \$US 1.72, than one in the center of Bangkok. The rate for a room with a LCD/ Plasma television (TV) was significantly higher, by about 15%, than a room with-

Table 3: Estimation of implicit price for each hotel attribute in terms of percentage and price (US\$) change

Hotel Attributes	Model I: Low Season N = 141		Model II: High Season N = 141		Model III: The Total N = 282	
	Percentage (%)	Price (US\$)	Percentage (%)	Price (US\$)	Percentage (%)	Price (US\$)
	AGE	-1.007*	-0.768*	-0.494	-0.388	-0.751*
ROOM	0.011	0.008	0.011	0.008	0.011	0.008
SIZE	0.721**	0.550**	1.039***	0.817***	0.880***	0.682***
CEN	-2.255***	-1.721***	-1.679**	-1.320**	-1.967***	-1.524***
BTS	-7.022	-5.360	-3.098	-2.435	-5.080*	-3.935*
TV	15.053*	11.490*	19.179*	15.071*	17.098**	13.244**
WIFI	7.860	5.999	8.690	6.828	8.274	6.409
BREAK	7.454	5.690	12.206	9.592	9.805*	7.595*
BAR	5.119	3.907	5.110	4.015	5.115**	3.962**
BUSINESS	9.560	7.297	3.894	3.060	6.689	5.182
FITNESS	29.417	22.454	4.782	3.758	16.450	12.742
POOL	-1.094	-0.835	6.411	5.038	2.589	2.006
SPA	8.548	6.525	6.446	5.065	7.492	5.803
RESTAU	5.513*	4.208*	5.073*	3.986*	5.293***	4.100***
CHAIN	32.189***	24.570***	31.378***	24.657***	31.783***	24.619***
SEASON					4.451	3.447
Constant	3036.664***	2317.886***	2878.893***	2262.234***	2890.929***	2239.313***
R-Square	0.617		0.571		0.587	
Adjust						
R-Square	0.571		0.52		0.562	

Remarks: *** P < 0.001; ** P < 0.005; * P < 0.05

out one; while a hotel in Bangkok with a restaurant (RESTAU) charged approximately 5.51 % more for a room than a hotel without a restaurant. Regarding hotel chain (CHAIN) establishments in Bangkok, these room rates were more expensive, by about 32.2%, than a non-chain hotel room. On average, hotel chains in Bangkok charged US\$ 24.6 higher for a one-night weekend room than a non-hotel chain room.

Even after accounting for the variables of complimentary wifi (WIFI), number of

bars (BAR), business center (BUSINESS), fitness center (FITNESS), spa (SPA), and complimentary breakfast (BREAK), this study showed the correct signs, but no statistical significance. Of particular interest is the statistics concerning the distance from the hotel to the BTS station. It was found that distance from the city center (CEN) has a greater influence on the hotel price in Bangkok, compared with a BTS variable whose coefficient was correct but insignificant in this model.

Model II demonstrated the period of

high season. It found that of all hotel characteristics, a hotel associated with chain (CHAIN) still has a substantial impact on the room rate. For a one night weekend stay in the high season period, a chain hotel or hotel brand in Bangkok charged a room rate, on average, US\$31.4 higher than a non-chain one. On the one hand, if a hotel has its own restaurant, it routinely charged a higher room rate than a hotel without a restaurant. Indeed, a hotel with a restaurant facility typically charged 5% more. As for *ceteris paribus*, a larger hotel sized room in Bangkok was priced higher than a smaller one, and during the high season periods, the room price of hotels located near the city center was much higher than those lying outside the center.

The results of Model III, whose data was accumulated from both periods of low and high season, were mostly consistent with the outputs of Model I and II. Of all three results, the Model III data unambiguously showed that belonging to a chain hotel (CHAIN) has the most profound impact on a Bangkok room rate. All else being equal, if any hotel in Bangkok is associated with a chain, the room rate is more expensive, by 32%, than the one not so associated. For example, the room rate of a chain hotel, on the one hand, was US\$ 25 on average higher than that of an independent hotel.

The restaurant facility (RESTUA) was the second most influential hotel attribute. Other attributes being equal, hotels with its own restaurant charged room rates pegged US\$4.10 higher than a hotel without one. Regardless of seasonality, the room size attribute was a crucial factor in setting room rates in Bangkok, in that a

larger size room had the rate 0.88% higher.

Other important hotel characteristics include bar facility (BAR), free breakfast (BREAK), and a LCD/Plasma television (TV). If a Bangkok hotel had its own bar, its room rate was 5.11% higher than a hotel without a bar. Also, a complimentary breakfast has an influence on the room price for a weekend stay. A room that included a free breakfast was more expensive, about US\$ 7.59, than a room in a hotel without a free breakfast. All things being equal, a room provided with a LCD/Plasma television was 17% more expensive than one without it. This showed that the bar facility, free breakfast, and a LCD/Plasma television each have an important influence on the room rate in the Bangkok market.

Of particular note is the number of years that the hotel has been in operation (AGE). The data evidences a statistical significant level of 5%, which implies that if a hotel in the Bangkok market is newly opened or is newly operated, it will charge a higher room rate than a hotel that has been operating for a longer time. In other words, the room rate of a newly opened Bangkok hotel is higher than for one that has been operating for a long time.

Another arresting statistical finding revealed that both distance from the city center (CEN) and distance from the Bangkok Mass Transit System (BTS) have a big influence on the Bangkok room rates. Any hotel near the city center charged a room price 2% or US\$1.52 higher than a hotel located more than 1 kilometer distance from the city center. That is, for a hotel located 5 kilometer or greater distance from city center (this study used Siam Square BTS station as the city center

point), its room rate was US\$ 7.62 less than a room closer to city center. Additionally, the room price for a one-night weekend stay for any hotel located more than 1 kilometer distance from a BTS station was on average of US\$ 4 lower than one located near the BTS. That is, a Bangkok hotel located more than 5 kilometers distance from a BTS charged about US\$20 less for a weekend room than the hotel located near to the BTS station.

SEASON was used as dummy variable in Model III, and the findings were incorporated in this study to determine whether the high season has an impact on the room rate in Bangkok. The result showed that it has the positive sign as the correct one, but it was not statistically significant at any level.

Most of the findings of this three model based study parallel the findings of earlier studies. Although other expected attributes such as a business center (BUSINESS), spa (SPA), fitness center (FITNESS), pool (POOL), number of rooms (ROOM), and complementary wifi (WIFI) were insignificant, they still had the correct signs.

DISCUSSION AND CONCLUSIONS

This study, based on a hedonic price theory, provides a more comprehensive analysis of, and practical information concerning hotel characteristics influencing a one-night weekend room rate in the Bangkok hotel market. Of all these Bangkok hotel characteristics, whether a room belongs to a hotel chain is the most significant factor influencing a room rate, which is consistent with the previous stud-

ies, most notably Chen & Rothschild (2010), Lee & Jang (2012), and Thrane (2007), who conducted their research in other capital cities. It has been found that customers would rather pay a higher price for the hotel brand than book into an unknown hotel (Wu, 1998). Another benefit of being part of a hotel chain is that during a low season the hotel chains are somewhat protected from low demand because of a central reservation system or their guest reward system (Lee & Jang, 2012). So this is consistent with our study that room rates in Bangkok during the low season period were about 32.18% more expensive than the non-hotel chain rooms, resulting in an increase of revenue for those hotels.

In recent years, Bangkok has experienced a strong growth of international tourist visitors, particularly inbound Chinese tourists. Additionally, there are many new faces amongst the chain hotels, including the Sofitel So, Okura Prestige, The Siam, and W Hotel, each of which opened their doors to the Bangkok market in 2012. The recent study conducted by Jones Lang Lasalle shows that the revenue per available room (RevPAR) in the Bangkok area has been increasing from 11.6% to 20.7% in 2012. As a result, Bangkok hotels have had one of the fastest increases in RevPAR in the Asian region (Jones Lang Lasalle, 2013).

Based on our findings, whether the hotel has its own bar and restaurant facilities, which is the second most significant hotel attribute, has a major influence on the room rate in Bangkok. Given this trend, hotels in Bangkok are likely to open their own bars and restaurants. Popular market-

ing in Bangkok suggests that the facility bar or restaurant situated with alluring vistas, such as on the top of the hotel building or with other alluring outdoor spaces, improves the marketing image of the hotel and makes it more popular. The better image for the hotel, created by the hotel bar and restaurant, can possibly provide an incentive to increase hotel room rates. The number of new roof-top bars and restaurants has been mushrooming, operated by such hotels as the Park Society at the Sofitel So, Vertigo and Moon Bar at the Banyan Tree Hotel, Three Sixty at Millennium Hilton Hotel, and the Speakeasy at Hotel Muse.

Another influential factor on Bangkok room rates is the distance from the hotel to the city center. The results of this study confirm that in a hotel, for example Siam Kempinski Hotel, the Four Seasons Bangkok, and the St. Regis Hotel, all located near downtown Bangkok, hike up its room price. This is in line with the findings of Thrane (2007), in Oslo, where a hotel room located far away from the downtown area is much cheaper than one located near the capital's center. In addition, Lee & Jang (2012) stress that selection of a good location is crucial for hotel developers because location is an intrinsic attribute of the hotel's product, price and competition. Additionally, this study found that distance from the hotel to a BTS station has a major impact on a hotel's room rate. This finding is associated with prior research conducted on property prices in downtown Bangkok (Sirikolkarn, 2008; Thamrongrisook, 2011). A higher property price likely indicates ease of accessibility to a mass transportation system. Due

to the expense of properties near the BTS system, the room rate of a hotel located near the BTS was found to be higher than an otherwise equal hotel, but located farther away. It is noticeable that many Bangkok hotels with a minimum room rate of US\$ 200 per night are located near the center of Bangkok, as well as a BTS station; for example, the InterContinental Bangkok, Plaza Athenee Bangkok, the Four Seasons Bangkok and The Okura Prestige. The apparent findings of this current study are that in the Bangkok market a hotel located close to the city center and to a BTS station charges a higher room rate than a hotel located at a farther distance.

Finally, despite these findings being consistent with previous works, this study has a few limitations. Firstly, this study was conducted using exclusively Bangkok hotels, so it provides preliminary information particular to the hotel market in Bangkok only. Secondly, the data availability is somewhat incomplete and problematic. Hotel reservation websites, sometimes, are neither updated regularly with current information nor do they provide all of a hotel's particular details and characteristics. Lastly, due to the data limitation and availability, the implicit price estimates are based on only those used by online travel agents (OTAs), who are all consumers of hotel services. Therefore, a further study would best explore, examine, and compare more hotels in different cities, concentrating, in particular, on uncovering influential hotel attributes within the greater Southeast Asian region. Such findings would provide invaluable statistical details not only for a hotel developer, but also for a tourism stra-

tegic planner operating within the region's hotel market.

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