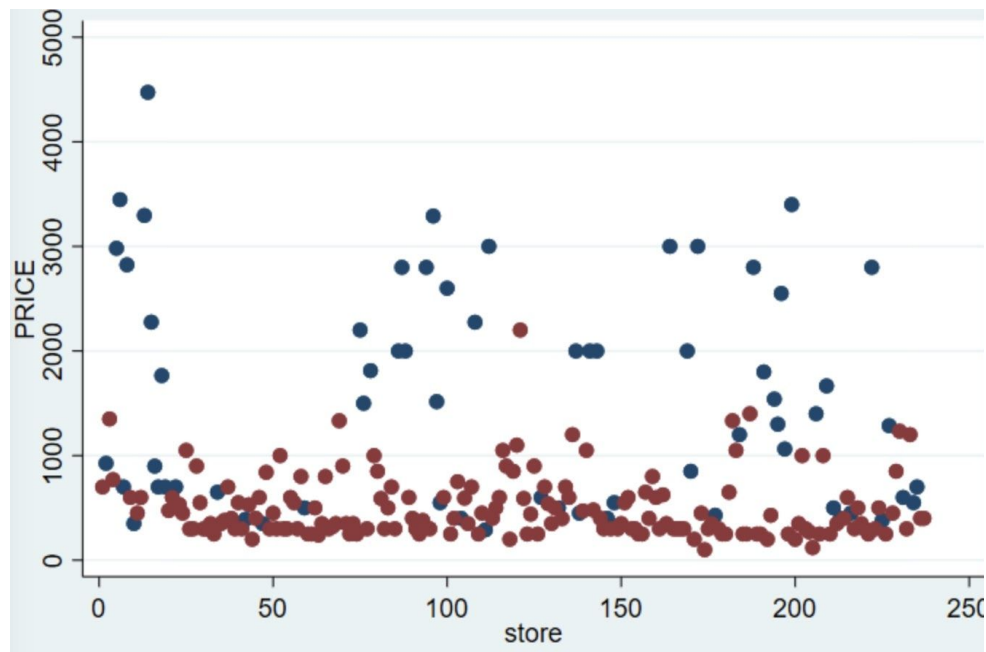


Topic: Factor affecting Thai massage pricing

Introduction

Thai spa industry does not only play a role as heritage preservation, it is also a big contribution to the domestic economy. It generates over 33 billion THB to Thai economy in 2019 while be able to maintain its growth at 8% per year ([Source](#)). In Thailand, there's over 13,000 spa and massage stores operating across country where 2,300 stores can be found online on booking and travel related platform such as Gowabi, TripAdvisor, and Agoda. We also found out that Thai massage is the most common service among all spa & massage stores. However, when we take a deep look into this industry, we found a great dispersion of service price where the hotel spa and the spa & massage places that are located in the department store show a higher price (graph 1).



Blue = Price of 1 hour Thai massage of hotel spa and the spa & massage places that are located in the department store

Red = Price of 1 hour Thai massage of General spa

Prior research said its depends on several service qualities such as: therapist professional skill, store design, hygiene, product and service knowledge, range of facilities, and store atmosphere that affect consumer willingness to pay or the price ([sources](#)). Another study said that customers tend to pay more for a place with friendly staff and places that use natural products ([sources](#)). But are there other determinants that can influence Thai massage prices rather than service attributes? This consequently contributes to the research gap and our research objective to find the factors that affect spa service price

apart from service quality by particularly analyzing Thai massage pricing in 8 districts of Bangkok that have high density of spa & massage stores.

This study looks at how Thai massage providers can price differently given the different factors or attributes of their store not their service. This study poses three questions: (1) What makes up Thai massage pricing model? (2) Does the distance from BTS/MRT affect Thai massage price? and (3) Which attribute of the spa store apart from service quality has the most impact on the prices charged for Thai massage? This study utilized a cross-sectional secondary data from Gowabi website, TripAdvisor, and Google Maps to extract store name, rating score, distance from BTS/MRT, and the price charged by the service provider. We also look at each store's website and social media to see whether they have the website and are active on their social media or not.

This paper is divided into four sections. 1) Literature review with the finding of prior relevant studies. 2) Methodology, 3) result of the analysis, and 4) conclusion with paper contribution. Before we move on, the definition of Thai massage and industry background is briefly explained below.

<Add more about the types of spa to give reader more background + Clarify types of spa & Massage>

There are 3 types of spa:

1. General Spa: A place that mainly focus on providing 60-240 minutes treatment located in community area, office building, and department store
2. Hotel Spa: a spa places located in 4-5 stars hotel
3. Destination spa: a resort centered on a spa located in tourism spot (95% located out of Bangkok)

Will elaborate more

Literature review

The study of factors affecting Thai massage price has not been done in the past as the common studies within the spa industry mostly investigate customers' motivation, satisfaction, and perception with regards to their willingness to pay. However, most findings have similar characteristics which can be great guidance to this study. **Gonzalez & Brea (2005)** investigated the relationship among service quality, customer satisfaction and behavioral intention in Spanish health spas. The study revealed that both service quality and customer satisfaction had positive and significant influence on behavioral intention. Meaning that, service quality will improve customer satisfaction which increases behavioral

intention and willingness to pay. Examining customer expectation and perception of service quality for spa establishments in eastern region of Thailand, **Chieochankitkan & Sukpatch (2014)** revealed that positive customer expectation and perception (Reliability, Responsiveness, Assurance, Empathy, Tangibility) can impact customer willingness to pay.

The results from these research imply that high service quality has an impact on the prices charged for Thai massage service. This indicates that we still need to incorporate the service factor into our methodology even if this study looks at how Thai massage providers can charge prices differently given the different attributes apart from service to prevent the endogeneity problem. We will use rating score and number of reviews on TripAdvisor to represent service quality aspects that may affect price charged by Thai massage providers. Still, the existing research within the spa industry hasn't covered the scope of this study as we would like to analyze other attributes apart from service quality. Therefore, we need to look into prior studies from related industries to see the factor that can affect the price of service.

In the hospitality and hotel industry, prior studies on factors affecting prices have been done and were given very similar results depending on the scope of the study. **Zhang and Ye (2011)** study show how room rates are influenced by quality of hotel attributes in association with customers willingness to pay where the factors such as location, amenities, and numbers of room are also taken into account. The result shows that room quality is the most significant factor for lower range segments where location is the most significant factor for luxury customers. Other researches show several important factors affecting the hotel room price such as location (**Bull, 1994**) (**Zhang, Zhang, Lu, and Cheng, 1994**), customer ratings (**Thrane, 2007**) (**Lee and Jang, 2012**), hotel amenities and services (**Schamel, 2012**), market accessibility (**Yang, 2016**), and proximity of competitors (**Becerra, Santaló, and Silva, 2013**).

Previous empirical studies often employed a linear regression model, considering only the relationship between hotel room price and explanatory variables. At the same time, Hedonic pricing treats differentiated products as a bundle of attributes which was also widely used in many prior studies. For instance, **Bull (1994)** investigated factors such as hotel age, distance, and star on decision making using hedonic pricing, exhibited reduction in room rates as distance from town center increases or star rate decreases while [< more example of research paper using Hedonic pricing model >](#)

Therefore, in this study, we would like to employ hedonic pricing to be our method to answer our key questions.

This paper aims to solely focus on factors affecting Thai massage price by using aforementioned literatures as a guidance. The result must be important and useful for the business sector within the spa

industry, especially for Thai massage providers to know the significant determinant influencing their price, hence, could apply and improve to increase their ability to charge higher prices.

Methodology

Hedonic Pricing Model is a regression model to influence various factors on the price of a good. It is widely used for the real estate market, however, it is flexible enough to use with other markets. We will, therefore, use this model to find “Factors affecting price of Thai massage in Bangkok” that can indicate the factor which has the most impact on price and can be useful for the future of the spa's strategy.

A.Data

The data was collected by observation via tripadvisor.com and facebook.com. Since the population of the study are Thai massage places in 8 high competitive intensity areas in Bangkok, we randomly pick 237 samples. they were used to represent all Thai massage places in these 8 areas. To assure that the data collection is unbiased, only Traditional Thai Massage programs would be observed. Moreover, we collected from sole sources for each factor. Firstly, the number of review and rating scores of those massage places were collected from tripadviosor.com. Secondly, to classify if the Thai massage place has been active on social media, we observe this on facebook.com. Thirdly, the distance from MRT or BTS were measured by measuring the walking distance from Thai massage places to the nearest MRT or BTS station on Google Map. In order to have an accurate comparison, Thai massage prices were standardized for one person per hour. In addition, full prices of Thai massage were only considered in order to avoid promotion strategy problems.

The problem of the sample collection is gathering data from Tripadvor.com might represent only Thai massage places where incorporate with Tripadvisor.com. The one where does not incorporate will be excluded from this hypothesis testing. And the number of review might not represent the ability to charge high price, since we did not exclude negative review from the data collection.

B.Variables

Since we focus on pricing of Thai massage, dependent variable would be PRICE of Thai massage per person per hour. For independent variables, in the past research, it was mentions that 7Ps factors affected the selecting of spa services of customer. However, to do further analysis, we have collected

useful data to set interesting factors. Since our population is Thai massage places in 8 high competitive intensity area which includes BANGRAK, DUSIT, KLONGTOEY, PATHUMWAN, PHRA NAKON, RATCHATHEWI, SATHRON and WATTANA, we suspect if locating in each areas would affect ability to charge price of Thai massage places. Therefore, we set each district as dummies. There are additional interesting factors which we expected significant impact on Thai massage pricing, consist of good facilities; PARKING LOT and distance from BTS/MRT, located in HOTEL or DEPARTMENTSTORE. In addition, the Thai massage places' strategy might have an impact on Thai massage pricing eg. having their own PRODUCT, having their own WEBSITE, been monthly active on SOCIAL MEDIA to promote their service, number of REVIEW and SCORE rating on Tripadvisosor.com. All the variables that were used are shown in table 1.

Table 1.

Factor	Variable	Definition
Dependent Variable		
Price	PRICE	Price of Thai Massage per person per hour(THB)
Independent Variables		
Location	PARKING LOT	Thai massage place has parking lot (Yes=1)
	MRTBTS	Kilometers the place away from
	HOTELDEPARTMENT	Thai massage place is located in hotel either department store (yes=1)
District	BANGRAK	Thai massage place is located in Bangrak (yes=1)
	DUSIT	Thai massage place is located in Dusit (yes=1)
	KLONGTOEY	Thai massage place is located in KlongToey (yes=1)
	PATHUMWAN	Thai massage place is located in Pathumwan (yes=1)
	PHRA NAKON	Thai massage place is located in Phra Nakon(yes=1)
	RATCHATHEWI	Thai massage place is located in Ratchathewi (yes=1)
	SATHRON	Thai massage place is located in

		Sathron (yes=1)
	WATTANA	Thai massage place is located in Wattana (yes=1)
Product	PRODUCT	The place has its own spa product brand (yes=1)
Online channel	WEBSITE	The place has its own website
	SOCIAL	Been active on social media within 7 days
	REVIEW	Number of review on Gowabi
	SCORE	Score or star rating on Gowabi

C. Statistical treatment of data

The data collected were ready to use for regression analysis on STATA. Multiple regression analysis was used to determine factors affecting Thai massage pricing. The regression equation is as follows:

$$PRICE = \beta_0 + \gamma_1(PARKING) + \gamma_2(HOTELDEPEATMENT) + \gamma_3(DISTRICT) + \gamma_4(PRODUCT) + \gamma_5(WEBSITE) + \gamma_6(SOCIAL) + \beta_1(MRTBTS) + \beta_2(REVIEW) + \beta_3(SCORE)$$

where γ represents dummy variables and β represents either discrete or continuous variables.

However, after we ran regression, we noticed that every thai massage places that is located in hotel or department store has parking lot. This might cause collinearity problem. Therefore, we decided to dropped out samples those are located in hotel or department and excluded HOTELDEPARTMENT variable from the regression. The final regression equation is as follows:

$$PRICE = \beta_0 + \gamma_1(PARKING) + \gamma_2(DISTRICT) + \gamma_3(PRODUCT) + \gamma_4(WEBSITE) + \gamma_5(SOCIAL) + \beta_1(MRTBTS) + \beta_2(REVIEW) + \beta_3(SCORE)$$

The data using multiple regression analysis because the dependent variable is a continuous variable and OLS is sufficient.

Results

Table 2 shows summary statistics of dataset. Out of 237 observations, 27.4 percent is hotel spa and spa locating within the department store and 72.6 percent is general spa. Table 3. reports correlations among Hoteldepartment and other variables as we observe a high correlation between hoteldepartment, parkinglot, and website. Therefore, we decide to run another regression that exclude sample hoteldepartment (dummy=1) to see what factor would affect the ability of Thai massage places that are not located in hotel/department store to charge high price. The summary statistic of data without samples that hoteldepartment dummy=1 is presented in table 4.

Table 2. Summary statistics

`. summarize`

Variable	Obs	Mean	Std. Dev.	Min	Max
price	237	791.2911	771.4436	100	4473
parkinglot	237	.5696203	.4961772	0	1
mrtbts	237	.6898608	.5490953	.02	2.6
hoteldepart	237	.2742616	.4470856	0	1
product	237	.2320675	.4230453	0	1
website	237	.6962025	.4608696	0	1
social	237	.5232068	.8465342	0	11
review	237	105.4873	166.3263	1	1306
rating	237	4.320675	.5604504	2	5
pathumwan	237	.1983122	.3995725	0	1
klongtoey	237	.0886076	.2847779	0	1
dusit	237	.021097	.144012	0	1
wattana	237	.3080169	.4626507	0	1
sathorn	237	.0675105	.2514351	0	1
bangrak	237	.185654	.3896501	0	1
phranakhon	237	.0548523	.2281737	0	1
ratchathewi	237	.0590717	.2362579	0	1

Table 3. Correlations between hoteldepartment and other variables <will add this>

Table 4: Summary statistic of data without samples that hoteldepartment dummy=1

. summarize					
Variable	Obs	Mean	Std. Dev.	Min	Max
price	172	502.3837	306.5548	100	2200
parkinglot	172	.4186047	.4947707	0	1
mrtbts	172	.7391802	.5799381	.02	2.6
hoteldepartment	172	0	0	0	0
product	172	.1918605	.3949136	0	1
website	172	.6337209	.4831937	0	1
social	172	.4709302	.5006116	0	1
review	172	120.5145	184.8972	1	1306
rating	172	4.241279	.5734726	2	5
pathumwan	172	.1395349	.3475155	0	1
klongtoey	172	.1104651	.3143839	0	1
dusit	172	.0116279	.107517	0	1
wattana	172	.3313953	.4720892	0	1
sathorn	172	.0639535	.2453844	0	1
bangrak	172	.2034884	.4037681	0	1
phranakhon	172	.0697674	.2554985	0	1
ratchathewi	172	.0523256	.2233329	0	1

Table 5 shows the regression results according to two sample sets. Column (1) explains the result using all samples. The model explains 48 percent of the variance in the dependent variable and significant impact of the following variables; availability of the parking lot, the spa & massage place is a hotel spa or located in a department store, the store has a website, overall review score, and the spa & massage place is located in Sathorn area. In column (2), all variables are included but we drop out the samples that hoteldepartment dummy=1. In other words, we drop out the samples of hotel spa and those located in the department store as we see high correlation between hoteldepartment and other variables while those with dummy hoteldepartment=1 show a clear ability to charge high prices. Therefore, we would like to see whether the results will be the same for general spa or not. The results show the significance of the following variable: availability of the parking lot, overall review score, and the spa & massage place have products under their own brand.

Table 5: Regression result <need to create table to represent data, divide data into 2 column. Currently, it is still a result from Stata>

```
. regress price parkinglot mrtbts product website social review rating pathumwan kl
> ongtoey dusit wattana sathorn bangrak phranakhon ratchathewi, robust
```

```
Linear regression               Number of obs   =       172
                               F(15, 156)       =        7.42
                               Prob > F         =       0.0000
                               R-squared         =       0.3846
                               Root MSE      =       251.79
```

price	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
parkinglot	207.8464	50.99339	4.08	0.000	107.1198	308.5731
mrtbts	-48.58588	56.90612	-0.85	0.395	-160.9918	63.82006
product	172.0927	72.38893	2.38	0.019	29.10372	315.0816
website	132.3995	38.95398	3.40	0.001	55.45415	209.3448
social	-51.62894	48.3825	-1.07	0.288	-147.1983	43.9404
review	-.1761575	.1177432	-1.50	0.137	-.4087342	.0564192
rating	104.6087	43.48682	2.41	0.017	18.7097	190.5077
pathumwan	57.78348	86.68719	0.67	0.506	-113.4487	229.0156
klongtoey	74.49847	91.9319	0.81	0.419	-107.0935	256.0904
dusit	234.3144	238.3182	0.98	0.327	-236.4326	705.0614
wattana	77.2086	77.94875	0.99	0.323	-76.7626	231.1798
sathorn	10.07585	125.9676	0.08	0.936	-238.7463	258.898
bangrak	-9.296996	78.62401	-0.12	0.906	-164.602	146.008
phranakhon	37.14631	111.0646	0.33	0.738	-182.2381	256.5307
ratchathewi	-76.79992	82.96492	-0.93	0.356	-240.6795	87.07966
_cons	-105.6906	197.6412	-0.53	0.594	-496.0887	284.7075

Linear regression

Number of obs = 237
 F(16, 220) = 10.72
 Prob > F = 0.0000
 R-squared = 0.4831
 Root MSE = 574.47

price	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
parkinglot	219.358	85.22458	2.57	0.011	51.39695	387.3191
mrtbts	-36.75597	99.09908	-0.37	0.711	-232.061	158.5491
hoteldepartment	749.5049	135.0859	5.55	0.000	483.277	1015.733
product	175.2731	110.7408	1.58	0.115	-42.97538	393.5217
website	253.0581	75.34923	3.36	0.001	104.5594	401.5568
social	-23.85487	68.06422	-0.35	0.726	-157.9962	110.2865
review	-.224415	.1452476	-1.55	0.124	-.5106697	.0618397
rating	213.9573	65.27007	3.28	0.001	85.32273	342.592
pathumwan	218.5976	173.758	1.26	0.210	-123.8456	561.0408
klongtoey	196.5932	179.7087	1.09	0.275	-157.5777	550.7642
dusit	540.716	658.493	0.82	0.412	-757.0458	1838.478
wattana	138.1466	157.4403	0.88	0.381	-172.1377	448.4309
sathorn	417.3995	245.3063	1.70	0.090	-66.05151	900.8505
bangrak	222.7192	161.759	1.38	0.170	-96.07642	541.5148
phranakho	117.0651	249.2424	0.47	0.639	-374.1432	608.2734
ratchathewi	33.76142	169.0323	0.20	0.842	-299.3683	366.8912
_cons	-811.6771	310.2788	-2.62	0.010	-1423.176	-200.1779

To explore the result, let's first look at variables that were often discussed in prior research from the hospitality and hotel sector. Many research shows the significance of location in determining the price for service offering especially in the hotel sector as shown in Zhang and Ye (2011), Bull (1994), and Zhang, Zhang, Lu, and Cheng (1994). In this study, only Sathorn district is statistically significant to the price of Thai massage at 90 percent confidence in the regression that includes hoteldepartment samples. Sathorn location can help drive up the price of Thai massage by about 437 THB according to the model in column one. Apart from that, location that is represented through district is not statistically significant. We also went on to see the significance of location through variable BTSMRT which measures the walking distance from the stores to the nearest BTS or MRT station as it can reflect the ease of transportation and how prime the location is. Still, variable BTSMRT is not statistically significant. This implies that district or location and distance from BTSMRT has no significant effect on Thai massage price which is in contrast to the results of prior research in the hospitality and hotel sector. This is because customers visit the spa & massage store only for the ease of relaxation while those who go to hotels might need to transport to several places nearby leading to the different impact of location on price. Additionally, the

reasons that Sathorn has a significant effect on Thai massage prices is because many hotel spas are located in the Sathorn area which make this location to have a significant effect on price.

What the study has found significant for all spa & massage stores are the availability of Parking lot, Rating score, whether they have a website or not, and whether they have products under their own brand or not which will be elaborated afterward. The availability of parking lot is fairly new to the research in the spa field where we found that it can tremendously allow the general spa to charge a higher price around 207 Thai Baht compared to those general spa without the parking lot. As for rating score, our finding shows that a higher rating score has a positive impact on price for both cases with and without $\text{hoteldepartment}=1$ samples like what Gonzalez & Brea (2005), Thrane (2007), and Lee and Jang (2012) have found in their previous studies. However, the significance of rating and mark up on price is less when we drop out the sample of hotel spa and those spa & passage places that are located in the department store. For website, our study has found that having a website can also help raise the price of Thai massage ranging from 130 to 253 Thai baht which could be seen as a key element in price markups. Lastly, for general spa that are not located within the hotel and department store, to have the spa product under their own brand can help increase the price of Thai massage by 172 Thai baht while this is not applicable for those places that dummy $\text{hoteldepartment}=1$.

Conclusion

This paper examined factors affecting the ability to charge higher price for Thai massage apart from service quality where other attributes than those of previous research in the field are added to see if they have an effect on prices or not. The study only looked at the price of 1 hour Thai massage and focused on eight most popular areas with a high density of massage stores in Bangkok. The finding indicates that hoteldepartment has the most impact on price which are statistically significant and positively affect the price of thai massage. Therefore, we run a regression on both samples that dummy $\text{hoteldepartment}=1$ and $\text{hoteldepartment}=0$ to see whether the factor affecting price for hotel spa, spa & massage store that is located within the department store, and general spa are the same or not. We found that location is not statistically significant to the general spa which is in contrast to the research within the hospitality and hotel sector. Besides, having a parking lot, website, and a high rating score can help drive the price up for every spa & massage store while having products under their own brand can help general spa to mark up price.

The results help identify characteristics apart from service quality that affect price. It helps broaden existing research on the spa industry especially for those who have Thai massage as part of their service. This study also benefits spa investors who want to start spa & massage business to guide them relevant factors that help increase price.

Like any research, this study has certain limitations involved. The paper collected review scores of spa & massage places from TripAdvisor.com that doesn't have a benchmark for scoring and may not provide the whole picture of customer opinions. Unlike rating for hotel that has cleanliness, location, service, and value combined. Therefore, it largely depends on customer judgment and might not be standardize across all samples. Furthermore, the study still lacks variables to measure competition intensity such as number of Spa and Massage location within 1 kilometer radius due to time limitation and online platform constraint. With competition intensity, we will be able to analyze whether more competition pushes down the price or attracts more customers and raises prices where future research can be carried out and clear out our limitations.