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Measuring the Effect of Revenue Management Practice on Hotel Performance

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Abstract

This research investigates the significance of the revenue management system and the effect of revenue management practice on hotel performance. A well develop survey questionnaire was mailed to the employees of the hotel in tri-cities in India, namely as Chandigarh, Mohali and Panchkula. The questionnaire was comprised of questions based on the revenue management practices and general questions of the revenue management system and what are the significance of it. A total of 145 valid responses were put to data analysis. Measurement and structural model was used for the analysis of the study. It has been observed the revenue management system provide wide range of assistance to the hotel and revenue management practices that are followed by the hotel also have higher value for the good performance of the hotel. On the side of implications, this study will provide the practical insights to the hotel managers in taking the decisions wisely in respect to the revenue management practices.

Keywords –Hotel, Hotel Performance, Revenue, Revenue Management,

1. Introduction

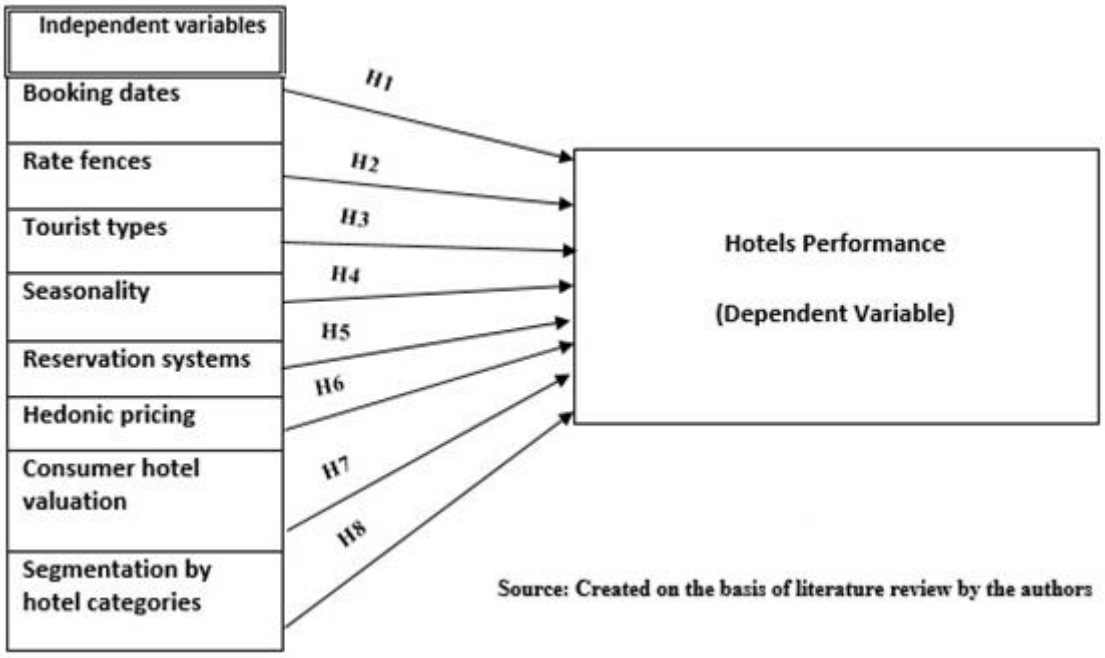
The contemporary operations of the hotels in manner of implementation in revenue management practices of the hotel industry is a unvarying focus of apprehensions over it potential conflicts with the tourist and guest it is highly customers and it is going to be very much alarming as there is a possibility that it damages this strategic importance of the key relationship in the development of hotel industry which necessitates the new insights for the research area which are really highly researched indicated by White and Mulligan (2002), and the concept of revenue management practice has been regarded one of the important area that is to be researched in the

research study for the hotel operations maintained by Yang, Mueller & Coes, (2016). The revenue management practice is a very dynamic aspect in terms of pricing aspect towards the perishable products of the hotel and selectively locating the capacity which is scarce across the demands and its place while taking into account the customer profitability and value (Abrate, Fraquelli, &Viglia, 2012). Moreover, the revenue management techniques and practice has provided the good state of repair to the aspects of individuals and the hotels the operation process that can have a fact to the hotels terms of demand (Cross et. al, 2011). The internet access allows the customer who are the guest or the tourist in obtaining the info about the room availability, prices information, while at the same time most of the tourist products can be advertised, can compete and can be directly sold in internet, this aspect of the transformation process has been especially relevant in the sun and beach destinations, particularly for the loss of power of tour operators, the traditional intermediaries which exerted a high control on tourists, in the origin market, and on the resort hotel segment, of many destinations" (Aguiló, Alegre & Sard, 2003).Under the revenue management practices of the hotel, the key factors in terms of determinants are perishability, staying limitations and seasons, of hotel, in the revenue maximization process place the demand management is a crucial factor .(Anderson, C.K. and Xie, 2010). So now it is the basic problem that is coming in for the hotel to satisfy the consumers with their revenue management practices. Revenue management practices is not a new concept it is traditionally concept which forecast the demand for future, in essence, RMP provides and adjusting situation in terms of the prices and the availability of the hotel rooms off season and on season. The aspect of revenue management practices was first used long back some six decades ago and it has been extended to several fields of studies such as tourism domain, hospitality domain, hotel and motel domain, small spas and clubs. So, the objective of the study is to study the impact of Revenue Management practices in front office on hotel performance in selected hotels of Tri-city .

2. Conceptual Framework

Under the conceptual framework presented in fig-1 below, the independent and the dependent variable used in the study were undertaken on the basis of extensive literature reviews.

Fig. 1 - Conceptual Framework



3. Literature Review and Hypothesis Development

The concept of the revenue management system and practices are widely used in the hotel industry for its operation and working. The usefulness of this RMP has increased upto an extent that the research are now been conducted in almost many part of the world and also in the academics. The revenue management practices that are now days followed by the hotel industry had been researched by many researchers, notably, such as, Ivanov and Zhechev, (2012), Ivanov, (2014). In this research study, the current study, the researcher undertaken the aspect which are critical on the consumer side, as the hotels always do well and formulate good strategies for the revenue generation and make the customers' feel good as the resultant output of the provided services by the hotels. The hotel aims at generating the revenue in any way by using the different revenues management tools and also the revenue for the long term. This research study attempts to fetch together the revenue practices as well as the satisfaction of the customers.

Different Booking Dates – Hotel Performance

Under the customer segmentation, the hotel is free to set variable pricing in accordance with the tourist categories maintained by the study of Schutze, (2008), and at some point in horizon of the booking, the hotel can go for short supply by making the room availability short in order to create the

demand profitable and it happens in the premature reservation stages and price tends to be changed in the positive direction reservation time comes nearer towards the visit date (Aziz et. al, 2011) and the horizon of booking depends on the different price strategies which comes out of the value and the patience of the customers (Lee and Jang, 2011). On the basis of above literature, following hypothesis was framed-

H1: Different booking dates affects the hotel performance

Rates Fence – Hotel Performance

Rates fence is the second dimension under the internal segmentation and it describes the justification and rules or R&R (rules and regulation) utilised for the demand and the segmentation of the demands with the justifiable pricing which is differential (Ivanov and Zhechev, 2012).The concept of rates fences described by the study of (Kim, Han and Hyun, 2004) which revealed that the customer must understood all the discriminatory pricing system of fences, it will help to reduce the tourist who do not understood them, the rate fences help to understand the customer need and demands in the market explained by the study of (Pan, 2007).

H2: Rates Fences affects the hotel performance

Type of Tourists – Hotel Performance

The tourist can be from the category of normal tourist and business purpose tourist. (Gallego and Van Ryzin, 1994) categorised the tourist as the "leisure and business travel tourists. Further, in respect to leisure and business travel tourists the study analysis of Ivanov, (2014) differentiates the categories of tourist in respect to the price sensitivity of the leisure and business travel tourists in the business segment, and indicated that the business travel touristy are more elastic to the price differentiation. Specifically describing the type of tourists, the weekend price heavily focused by luxuries segment customer and weekdays by the business segment customer, (Abrate et al., 2012). The strategies in respect to type of tourists added to the literature of hospitality management by (Guo, Yang and Liang, 2013),stated that the different strategies are needed for group parties staying at hotels, as opposed to individuals. The revenue management department are required to have a keen eagle eye on the type of customers while there are inflows of different tourist types, especially the business segment and more specifically the individual segment, as these affects the hotel performance.

H3: Type of Tourists affects the hotel performance

Seasonality – Hotel Performance

The collection of the seasons hinders the revenue for the hotels and that is why it managed according to the seasons in terms of segmentation of the customers and the travellers. The seasonality is one of the important factor under the internal segmentations. The study of Coenders, Espinet & Saez, (2003)states that the concept of "seasonality, taking it as a base for the segmentation, the resort and hotel prices are different in different seasons and room prices are double during the high demand season and very opposite to the low demand season. During the high demand period hotels offer always high prices. While there is low demand period they offer discount to boost the demand. In extension of the concept of season in respect of season towards the trend of high and low, the research study of (Pan, 2007) stated that "both the high and low demand seasons prices of rooms affected by the market fluctuation and always low prices are increase during the peak seasons and the result show there are difference between both seasons prices.

H4: Seasonality affects the hotel performance

Reservation Systems – Hotel Performance

Reservation systems given in the literature are classified in two broad categories as- a) reservation system via, using internet by the consumers. b) Reservation system by way of using traditional intermediaries by the consumers (Ivanov and Zhechev, 2012). Additionally the same study of the (Kim et., al, 2004) specifically identified and mentioned in the research study analysis that there is a positive relationship in the offline channel between price and hotel performance, while there is negative relationship in the online channel. Transparency and the regularity in price changes in online affect higher degree of price which relate to hotel performance".

H5: Reservation Systems affects the hotel performance

Hedonic Pricing – Hotel Performance

Hedonic pricing attributes are the aspects of the hotel valuable attributes which are not sold discretely and through this the hotel tries to capture heterogeneity (De Oliveira Santos, 2016), but "this attribute of the heterogeneity do not consent for the empathy of consumers' willingness to pay

the higher prices in case of the higher elasticity of the demand" indicated by the study of the Coenders et al., (2003). In line of the discussion for the hedonic pricing there are other aspects too, affecting the level of the pricing, such as online reviews and the rating of the consumers, location of the hotel, distance of the hotel, date of the booking, reservation efficiency, facilities, type.

H6: Hedonic Pricing affects the hotel performance

Consumer Hotel Valuation – Hotel Performance

Consumer hotel valuation is an important aspect which effects the customer satisfaction and behaviour, so assessments of hotel attributes is extremely important. In respect to this, contended by the study of Kang et al., (2004) that the "understanding customer assessments of hotel attributes is fundamental, since they affect customer satisfaction and behaviour". Further under the consumer segmentation model, (Chu and Choi, 2000) found that the segmentation of the business class and the segmentation of the leisure class, are having the same perception on the dimensions and the attributes such as, hotel quality, facility, the value of the room, quality of front desk, food quality and security value.

H7: Consumer Hotel Valuation affects the hotel performance

Segmentation by Hotel Categories – Hotel Performance

The segmentation of the customers is the perpetual process and understand them is also a basic and the important step in terms of the satisfaction of the customers. The study of Zhang and Bell (2012) states in terms of satisfaction and the segmentation part that the understand customer according to customer lead to satisfaction of customer. Moreover, according to Canina et. al, (2005), the segmentation of the customers can be effected by the external and the internal factors decided by the hotels for its revenue model. In accordance with the Maruffy (2019), there are three different types of discrimination in the price- Complete price discrimination (under the complete price discrimination, the seller knows the nature and the possible curves of the all individual guest). Direct and indirect segment discrimination (under the direct segment discrimination, the seller involves directly discriminating the buyer on the basis of the attributes and the indirect segment discrimination, the seller utilises attributes of the product.

H8: Segmentation by Hotel Categories affects the hotel performance

4. Research Methodology

The research methodology tells about the design for the research, size of the sample and its selection. Moreover, research methodology states the way that how to carry on the research activity and selecting the analysis of the data to extract the meaningful information from the data of the target population.

Pre-test and Participants

The pre-test implies the pilot study. The pre-test was conducted with the sample size of the 50 undertaken from the hotel staff. The data for the pilot study was collected by way of mail-questionnaire. The pre-test was conducted during the January 2020.

Initial Reliability of the Pre-test

The initial analysis for the reliability was conducted based on the sample size of with no list wise item deletion, the Cronbach's alpha value was found to be 0.874 for the 48 items which were undertaken on 5 point Likert scale and interval scale under the measurement scales. The value of cronbach Alpha of 0.887. It tells the consistency of the responses on the research questionnaire was 88.7 %. (Refer the table 1).

Table 1 - Case Processing Summary for hotel revenue management data

		N	%
Cases	Valid	50.	100.0
	Excluded	0	0
	Total	50.	100.0.

a. Listwise deletion based on all variables in the procedure.

Table 2 - Reliability Statistics of hotel revenue management data

Cronbach's Alpha	**N of Items**
0.887	48

S**ource: Primary Data**

Main Data Collection and Sampling Technique Used

The main data was collected after the exploration of the variables. Under the main data collection the aspects of the revenue management practices of the hotel was presented in the form validity check of the latent variable through the confirmatory factor analysis. Moreover the causal relationship was also measured via, the structural model to draw the inferences from the sample data. The snowball sampling technique was used in the collection of data from the hotel by administering the self-administered questionnaire.

Participants of Main Data Collection

A total of 209questionnaire were distributed during the December 2020 –January 2021 to the hotels staff and out of 209 only 145 questionnaires were received and all were valid. The hotels staff were the participants of the survey from tri-cities of India (Chandigarh, Panchkula, and Mohali). The sample size of 145 was put to analysis for the measurement of the study outcome.

Measurement of Responses

The measurement of the responses was carried on by using the five point Likert scale ranging from strongly agree to strongly disagree interval scale. The usage of the interval scale in the primary data based research provides an opportunity to have proper set of statistical tools in drawing the inferences from the target population by way of selecting the sample units.

5. Results and Analysis

Under the results and analysis, the preliminary analysis of the main study was presented in the form of reliability analysis, confirmatory factor analysis, measurement model fit, convergent and discriminant validity, structural model fit and the causal relationship between the revenue management practices and the hotel performance. (Refer the table 3 to 9 for the quantitative inference).

Demographicdata

The demographic data information is given below (Refer the table 3).

Table 3 - Demographic profile of hotel data		
Gender	Female	30
	`Male	115
Age	20-30 Years	10
	30-40 Years	82
	40-50 Years	47
	Above 50 Years	06
Marital status	Married	66
	Unmarried	79
Star of the hotel	2 star	20
	3 star	37
	4 star	58
	5 star	30
Location of hotel	Mohali	30
	Chandigarh	61
	Panchkula	54
Working in hotels since	1-3 Years	42
	3-5 Years	46
	5 Years and Above	57
Source: Primary Data		

Reliability Analysis of Main Data

The reliability analysis for the measurement of the consistency was analysed and the results indicated that under the case processing summary for the revenue management data indicated no list wise item deletion, with the value of cronbach as 0.912, which explains the consistency of 91.2%. (Refer the table 4)

Table 4 - Case Processing Summary for revenue management data			
		N	%
Cases	Valid	145	145
	Excluded	0	0
	Total	145	145
a. Listwise deletion based on all variables in the procedure.			

Table 5 - Reliability Statistics of hotel revenue management data	
Cronbach's Alpha	**N of Items**
0.912	48
S**ource: Primary Data**	

Measurement model of RMP Variables

The measurement model undertakes the model fit summary and the constructs validity (convergent and the discriminant validity).

Model Fit Summary of Measurement Model

As the confirmatory factor analysis is also called the measurement model it takes into consideration initially the model fit and a later stage takes into consideration the convergent and discriminant validity. In the calculation of the model fit, the model fit summary indicated that the model was found to be good fit on the following indicators as - CMIN/ DF = 2.333, Chi-Square = 3121.7, GFI = 0.952, CFI= 0.932, NFI = 0.961, RMSEA = 0.060, P-value = 0.000. After that the construct validity was analysed as a requirement under the measurement model. The standard theory states that the indicators of convergent validity should be equal or more than 50% in the category of average variance extracted and the constructive liability should be more than or equal to 70%. The results of this study indicated that both the threshold limits for achieved and further the discriminant validity was analysed in accordance with the (Hair, Black and Anderson, 2006). All the discriminant validity constructs satisfied all the threshold limits with squared inter-constructs correlation less than the average variance extracted (SIcCor < AVE) and hence it can be stated by the results that the convergent and discriminant validity exists and the measurement model. (See the table 6and 7).

Table 6 - Measurement Model Fit Summary		
Fit Indices for the measurement of goodness of fit	**Parsimonious Model Run**	**Improved Model Run**
CMIN/DF	2.966	2.333
Chi-square	2802.9	3121.7
p- value	0.000	0.000
GFI	0.770	0.952
NFI	0.722	0.961
CFI	0.845	0.932
RMSEA	0.000	0.000
Source: Primary Data		

Table 7 - Convergent and discriminant Validity for the Revenue management practice variables					
Observed variables	**Latent variables**	**Average Variance extracted (AVE)**	**Construct Reliability (CR)**	**Square of Interconstruct correlation (SIcCor)**	**AVE is greater or less than SIcCor**
BD_1	**Dates of Booking**	60.24	0.80	0.242	AVE is greater than SIC
BD_2				0.303	AVE is greater than SIC
BD_3				0.096	AVE is greater than SIC
BD_4				0.040	AVE is greater than SIC
BD_5				0.023	AVE is greater than SIC
RF_1	**Fences of Rates**	60.34	0.80	0.010	AVE is greater than SIC
RF_2				0.043	AVE is greater than SIC
RF_3				0.040	AVE is greater than SIC
RF_4				0.040	AVE is greater than SIC
RF_5				0.047	AVE is greater than SIC
TT_1	**Tourist differentiation**	61.25	0.79	0.014	AVE is greater than SIC
TT_2				0.014	AVE is greater than SIC
TT_3				0.014	AVE is greater than SIC
TT_4				0.012	AVE is greater than SIC
TT_5				0.012	AVE is greater than SIC
SN_1	**Different**	50.24	0.77	0.023	AVE is greater than SIC
SN_2				0.019	AVE is greater than SIC

SN_3	**Seasons**			0.035	AVE is greater than SIC
SN_4				0.018	AVE is greater than SIC
HDPK_1	**Hedonic Pricing followed Consumer hotel valuations**	50.29	0.77	0.014	AVE is greater than SIC
HDPK_2				0.175	AVE is greater than SIC
HDPK_3				0.018	AVE is greater than SIC
HDPK_4				0.022	AVE is greater than SIC
CNHV_1	**Consumer Hotel Valuation**	62.35	0.82	0.014	AVE is greater than SIC
CNHV_2				0.016	AVE is greater than SIC
CNHV_3				0.013	AVE is greater than SIC
CNHV_4				0.014	AVE is greater than SIC
SBHC_1	**Segmentation by hotel categories**	54.32	0.76	0.042	AVE is greater than SIC
SBHC_2				0.013	AVE is greater than SIC
SBHC_3				0.102	AVE is greater than SIC
SBHC_4				0.185	AVE is greater than SIC
DPM_1	**Dynamic pricing of hotels**	56.32	0.77	0.207	AVE is greater than SIC
DPM_2				0.195	AVE is greater than SIC
DPM_3				0.240	AVE is greater than SIC
DPM_4				0.194	AVE is greater than SIC
Source: Primary Data					

6. Structural Equation Model

Structural Fit Indices

In the measurement of the model fit for the structural causal relationship, the model indicated a good fit model in two runs. The results stated by the indicators are- CMIN/DF = (2.109, Chi square = 5060.9, GFI = 0.923, NFI = 0.984, CFI =0.920, RMSEA = 0.051, P-Value = 0.086). (Refer the table 8 for structural model fit summary).

Impact of Revenue Management Practices on Hotel Performance

The causal relationship was measured after conducting all the preliminary test. In the measurement of the impact of revenue management practices on hotel performance, the constructs of the RMP were measured individually by way of structural equation model. The multiple cause and effect relationship was highlighted in relation to the conjectural statement, whether it exist or not in terms of supported or not supported by the study results. On the basis of study results (indicated in the table 9) the interpretations were undertaken in the form of standardised beta value and the *p*- value.The results of the study indicated that the booking dates, rates fences, tourist differentiation in multiple terms,seasonality, hedonic pricing, consumer hotel valuation, segmentation by hotel categories and dynamic pricing are explaining the variances of 20.1%, 24.8%, 14.0%, 28.1%, 17.6%, 30.6%, 6.2%, 18.2% respectively with standardised beta values as-booking dates = 0.201, rates fences = 0.248, tourist differentiation in multiple terms = 0.140, seasonality = 0.281, hedonic pricing = .0176, consumer hotel valuation = 0.306, segmentation by hotel categories = 0.062 and dynamic pricing = 0.182. Taking the inferences from the study results, it can be stated that the in all the cases the hypothesis were found to be supported except the segmentation by hotel categories at 95% confidence level. Hence, H1, H2, H3, H4, H5, H6 and H8 were accepted and H7 was rejected. (See the table 9 for the reference).

Table 8 - Structural Model Fit Summary

Fit Indices for the measurement of goodness of fit	Parsimonious Model Run	Improved Model Run
CMIN/DF	3.219	2.109
Chi-square	1042.0	901.9
p- value	0.000	0.000
GFI	0.901	0.945
NFI	0.910	0.954
CFI	0.897	0.920
RMSEA	0.045	0.034

Table 9 - Structural model for Causal relationships RMP on Hotel performance					
Paths of Causal relationships RMP on Hotel Performance			**Estimate**	**P**	**Hypothesis Decision**
Hotel Performance	←	Dates of Booking	0.201	0.000	Supported
Hotel Performance	←	Fences of Rates	0.248	0.000	Supported
Hotel Performance	←	Tourist differentiation in multiple terms	0.140	0.034	Supported
Hotel Performance	←	Different Seasons	0.281	0.009	Supported
Hotel Performance	←	Hedonic Pricing followed	0.176	0.000	Supported
Hotel Performance	←	Consumer hotel valuations	0.306	0.000	Supported
Hotel Performance	←	Segmentation by hotel categories	0.062	0.324	Not Supported
Hotel Performance	←	Dynamic pricing of hotels	0.182	0.021	Supported
Source: Primary Data					

7. Findings and Discussion

Establishment of the revenue model is an important and essential aspect of the hotels and in order to have the operative instrument for the generation of proper revenue, several revenue management practices are employed in different time period. The same aspect of RMP was analysed by the researcher on the basis of hypothesised model of the previously conducted research. The findings of the study provided evidence that the revenue practices of the hotel has a positive impact towards the hotel performance. The same causal relationship has been indicated by the previous researchers. The current study research seek out to provide a proper base for a future research in the area of RMP. For this piece of research, the tri-cities aspect was undertaken for the place of data collection of celebrity with the object to measure the RMP as the independent variable to measure the response variable in the form of hotel performance. This study highlighted that the RMP that are being followed by the hotels in the tri-cities has the ability to effect the hotel performance in the positive way. The principal fine-tuning of the current research was to draw the inferences across the total latent variables of RMP towards the measurement of causal relationship towards hotel performance. Among the eight latent variable, all were found to be positively significant except one

latent variable, i.e. segmentation by hotel categories. These aspects indicates that the revenue management practices has an important place in the performance of the hotel in relative terms in the study area. This study provides an empirical substance to the managers to have a consideration towards the aspects of revenue management practices implementations in the hotels of different areas.

8. Conclusion

The current research study explores the hotel performance at tri-cities as the outcome of from the revenue management among the different categories of the hotels. As the matter of fact, the creation of revenue for the good hotel performance is the main aim of every hotel in totality operating anywhere, especially the tri-cities in the current study. Therefore, the hotels apply several strategies to attain such goal line, and for this specific matter, the hotels use the mechanism of RMP for generation of the revenue in short and long term. Therefore, the hotel performance strategist should analyse the revenue management practices followed in different period of time and in different situations so that the effective hotel performance may be given the relevant direction or a move towards the image creation along with the performance in terms of revenue creation in short and long term.

9. Limitations of the Study

Every research study normally contains limitations. So, this study has many limitations. Firstly, this study was conducted with the tourist of tri-cities only, this is the specific area research. Therefore, in order to overcome cultural disparities, it would be interesting to expand the study area wise and implement it in other cities, especially, the metro cities and compare the findings. Secondly, the sample size undertaken is also small. Thus, it is recommended that effort is required to do the study further with the larger sample size. Lastly, the respondent's responses can't be guaranteed fully, but the special caution was under taken in the collection of data in order to get the meaningful information from the data of the target population.

Conflict of interest statement

There is no conflict of interest among the authors of this manuscript.

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Appendix-1

Research Measurable items

Revenue Management Practices Latent and observed variables	
Booking Dates	
1	We set different prices in different booking dates
2	We have different types of booking according to the tourist behaviour
3	We have different types of booking based on time horizon
4	We have different types of booking across the booking horizon
5	We have different types of booking by limiting the number of rooms
Rate Fences	
6	We have different rate fences based on consumption characteristics
7	We have different rate fences based on room location
8	We have different rate fences based on stay length
9	We have different rate fences based on size of the group
Tourist types in hotels	
10	Normal tourist have normal rates
11	Business tourist have different type of rates
12	Leisure tourist have different type of rates
13	Individual tourist has different facilities in terms of rates
14	Parties have different type of facility with different types
Different Seasons	
15	We charge different prices in different seasons
16	We charge differential prices in peak seasons
17	Sometime we give heavy discount to increase more demand
Hedonic Pricing	
18	Sometime little discount to maintain the demand pattern
19	By hedonic pricing we capture the heterogeneity
20	Sometime the heterogeneity attributes helps in taking premium price from guest when demand is high
21	During Low demand it do not help much in charging the premium prices
22	The customer reviews effects the hedonic pricing
Consumer Hotel Valuation	
23	CHV affects the hotel performance
24	Self-assessment is necessary because of CHV
25	CHV affects the value of the hotel
Segmentation by hotel categories	
26	Segmentation hits the hotel performance
27	Customer opts the best available prices in the hotel categories
28	Categories of the discounted rates of different hotels hits the hotel categories.
Consumer Choice model	
29	CCM effects the hotel performance
30	Customer choices in prices affects the hotel performance
31	Different consumers choices affects the hotel performance