Study the Attribute-based Perceptual Mapping using Discriminant Analysis in hotel Industry with special reference to budget hotels

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Introduction

Indian economy which was plunged into deep crisis in 1991 on account of its socialist economic system with foreign reserves less than 1 billion dollars underwent a sea change with the liberalization of Indian economy paving way to Indian reserves touching 10 billion dollars in 1993. Those economic reforms were watershed in the history of India, changing the economic graph of the country. It will not be incorrect to say that ever since then, Indian economy has been blessed with wheels of momentum and at the end of 2019, it inched closer to 3 trillion dollar economy surpassing the economic giants France and UK to occupy the rank of 6th largest world economy. The so called 'liberalization' of the Indian economy has brought about changes across various dimensions. An increase in per capita income along with rapid urbanization and much improved infrastructure has raised the aspirations of consumers to new heights. There is a significant improvement in the quality of life of an average Indian; especially middle class families who play their role in the growth and development of the country by joining organizations and offer their services. The materialistic consumers of 21st century are now willing to spend more if they see value in a product/service. The consumers of today seek marketers who understand their interests/ desires and can offer them what they need and deserve. With plentiful of money in the pocket, there is an increasing craving on the part of Indian families to explore new places. They find it exciting, invigorating, refreshing and different. No wonder, it is now tourism industry that makes an impressive contribution to the Indian economy. Hence, when prospective travellers plan to stir out to explore a new place, they prefer to first acquire an insight of different famous destinations which are straightforwardly in competition with one another. In this endeavour of scouting an appropriate place to visit, their perception of value plays a pivotal role. Another thing that may influence the choice of place to visit for travellers is positive word-of-mouth publicity. Unequivocally or expressly travellers intend to make correlations between offices, attractions and service norms of different destinations. While pondering over the probable destinations, the travellers have to draw similarities among the probable destinations as competitors. They also appreciate that some destinations can never ever be in direct competition on account of their diverse characteristics such as Rajasthan, Jammu and Kashmir and Kerala. Nevertheless, the travellers would toss up the extra benefits being offered to them by direct and indirect competitors to take

a final decision about the choice of destination to visit. It has been observed that many a times holiday destinations are being repurchased by the tourists. Some of the questions that need to be addressed are as follows:

Why does it happen? What prompts the tourists to prefer one destination at the cost of others that are similar or dissimilar?

It is pertinent to mention that a very limited research has been conducted so far on revisit intentions (RVI) on the part of tourists. It needs to be dig deeper. In other words, tt is imperative to understand the psyche of tourists as to what draws them towards one particular destination repeatedly.

Review of Literature:

It was Gunn (1972) who first communicated that vacationer's location image is recognized by two degrees. The first one is the organic image, which manages travellers' impression of a location without truly having visited the spot, and the second one induced image, which is produced through special promotional materials or genuine visitation. Fakeye and Crompton (1991), applied Gunn's hypothesis and expanded the order by posting three attributes namely, organic, induced, and complex. Thereafter, Echtner and Ritchie (1993) with an end goal to build up a more exact precise image build, propounded different portrayal credits in estimating sightseers' picture of abroad locations; their examination made a significant contribution to image scale growth. The next researchers in the same field, namely, Walmsley and Jenkins (1992), Baloglu and Brinberg(1997) and Walmsley & Young (1998) then utilized two arrangements of attributes taking into account designative and evaluative images to survey the elements of vacationers' image of spots (e.g., urban areas, states, and countries). Most image researches have used two sets of image attributes as descriptors to survey the general situation of specific lodgings or hotels hitherto. Earlier, Gartner and Hunt (1987) applied intellectual image into a position study for the territory of Utah; Walmsley and Jenkins (1992) included eight evaluative-image attributes into a market situating map. Furthermore, past the market positioning images, vacationer image attributes were coordinated into research focusing on the relationship between traveller image and different kinds of traveller practices. For instance, Chen and Hsu (2000) found out that the sightseers' destination image and intellectual picture of movement locations had a direct relationship with trip booking time span, planned travel cost, and number of days spent. The benefit of utilizing designative versus evaluative factors is that the designative ascribes, like well disposed individuals and good highways (Fakeye and Crompton, 1991), give all the more genuine, interpretive significance about uniqueness of a hotel or lodging, which assists hoteliers with creating noteworthy positioning strategies. Hunt (1971) and Mayo (1973) were initial researchers who focussed and talked about the significance and relationship of destination images to the travel industry advancement. Echtner and Ritchie (1991) extended a theoretical framework for destination image comprising three continuums: "(1) attributes-holistic, (2) tangible (functional)-intangible (psychological), and (3) common-unique".

Objectives of the study:

This aim of this research is to identify those attributes which are growth drivers for budget hotels in Jaipur, specifically focusing on tourist drivers. This study is intended to provide an overview of India's current economic standing, the tourist attributes which are acting as catalysts to bring about changes and finally analyze the demand for budget hotels in the Jaipur market.

Hypothesis

The primary objective of this study was to investigate the underlying dimensions of visitor choice of budget hotels in Jaipur city.

It is therefore hypothesized that:

H_o= No such differences in budget hotel visitation patterns exist across the various attributes in Jaipur city.

H_{a1}= Significant differences in budget hotel visitation patterns exist across the various attributes in Jaipur city.

H_o= Perceptual map does not help to investigate the perception of buyers.

H_{a2}= Perceptual map does help to investigate the perception of buyers.

In order to test this hypothesis, the data collected was subjected to analysis via discriminant analysis and perceptual mapping.

Research Methodology

The researcher selected 102 budget hotels out of 277 budget hotels spread across eight locations for the distribution of questionnaire. There were 702 questionnaires that were distributed to tourists to respond. Out of 702, 570 responded appropriately. However, due to incomplete information, only 510 were selected as valid for the study. Based on convenience sampling, there was a sample selection of 55 tourists in Jaipur city for the study from three budget hotels. Prior to that an extensive effort was put in to prepare a meaningful questionnaire, for which the experts and research colleagues were consulted to give it the final shape. The respondents were explained the purpose of filling up the questionnaire to avoid any ambiguity in their minds. The hypotheses were to be tested on three different budget hotels and the results were to be interpreted. It took four months to the complete the survey. There was no further follow-up. Every respondent's attribute ratings for the budget hotel were tabulated.

The ROI paved way to nine (9) attributes to be evaluated and they were: Promenade and comfort', 'Value', 'Security and Protection', 'Hotel Staff and their services', 'Cleanliness and

room comfort', 'Pleasure', 'Network Services', 'Business Services' and 'Promotion'. The questions were designed to recognize hotel's belonging to different consideration sets; to measure familiarity, structural constraints and involvement with these hotels; and to give outline of socio demographic character. To identify the number of attributes of the budget hotels for which tourists searched, travellers were presented with a list of destination attributes. The Five-point Likert-type scales were used to measure these variables. Following a reliability analysis using the sample data, no item was removed so parameter was measured by nine items. Cronbach's alphas confirmed the scale's reliability.

The research was structured into four key stages. Firstly, a thorough review of existing literature on perceptual mapping and its role in informing strategic marketing decisions was conducted. Secondly, data collection and empirical analysis were undertaken. Thirdly, discriminant analysis was employed to identify the primary perceptual dimensions utilized by tourists in evaluating competitive budget hotels. Fourthly, perceptual maps were constructed using the discriminant scores of hotels, illustrating their perceived competitive positions within the sample. Thus, this study utilized discriminant analysis and perceptual mapping to visually represent the competitive landscape using a market mapping analysis tool. Finally, the study's findings were summarized, and suggestions for further research were proposed.

Data Analysis:

Reliability Analysis - S C A L E (A L P H A)

		Mean	**Std Dev**	**Cases**
1.	PC	2.9333	.8634	45.0
2.	VA	2.9556	.8245	45.0
3.	SP	3.1556	.7674	45.0
4.	HS	2.4667	.9677	45.0
5.	CRC	2.8444	.7965	45.0
6.	PL	3.1556	.7965	45.0
7.	NS	3.2000	.9677	45.0
8.	BS	2.8444	1.0215	45.0
9.	PR	3.1778	.7163	45.0

		N of		
Statistics for	**Mean**	**Variance**	**Std Dev**	**Variables**
SCALE	26.7333	34.7455	5.8945	9

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
PC	23.8000	27.1182	.7653	.8914
VA	23.7778	28.2222	.6670	.8986
SP	23.5778	28.1586	.7365	.8943
HS	24.2667	30.6091	.2989	.9272
CRC	23.8889	27.4646	.7962	.8899
PL	23.5778	28.0677	.7161	.8954
NS	23.5333	25.8455	.8094	.8875
BS	23.8889	25.6465	.7786	.8902
PR	23.5556	28.7980	.7068	.8968

Reliability Coefficients

N of Cases = 45.0 N of Items = 9

Alpha = .9077

Cronbach's alpha is not a statistical test - it is a coefficient of reliability (or consistency). As the results in above table shows, overall alpha is .9077(acceptable), which is very high and indicates strong internal consistency among the nine items.

Analysis Case Processing Summary

Unweighted Cases		N	Percent
Valid		45	7.8
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	0	.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	532	92.2
	Total	532	92.2
Total		577	100.0

The minimum ratio of valid cases to independent variables for discriminant analysis is 5 to 1. In this analysis, there are 45 valid cases and 9 independent variables. The ratio of cases to independent variables is 5 to 1, which satisfies the minimum requirement.

Group Statistics

HOTELNA		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
HOTEL RAM VILAS	PC	2.6000	.73679	15	15.000
	VA	2.8667	.83381	15	15.000
	SP	3.1333	.74322	15	15.000
	HS	2.8667	.63994	15	15.000
	CRC	2.4667	.63994	15	15.000
	PL	2.7333	.79881	15	15.000
	NS	3.0667	1.09978	15	15.000
	BS	2.7333	1.09978	15	15.000
	PR	3.0667	.70373	15	15.000
HOTEL GLITZ	PC	3.0667	.88372	15	15.000
	VA	3.0000	.75593	15	15.000

	SP	3.1333	.83381	15	15.000
	HS	1.5333	.51640	15	15.000
	CRC	3.0000	.75593	15	15.000
	PL	3.3333	.61721	15	15.000
	NS	3.4000	.63246	15	15.000
	BS	3.1333	.63994	15	15.000
	PR	3.2667	.59362	15	15.000
HOTEL ROMA PALACE	PC	3.1333	.91548	15	15.000
	VA	3.0000	.92582	15	15.000
	SP	3.2000	.77460	15	15.000
	HS	3.0000	.92582	15	15.000
	CRC	3.0667	.88372	15	15.000
	PL	3.4000	.82808	15	15.000
	NS	3.1333	1.12546	15	15.000
	BS	2.6667	1.23443	15	15.000
	PR	3.2000	.86189	15	15.000
Total	PC	2.9333	.86340	45	45.000
	VA	2.9556	.82450	45	45.000
	SP	3.1556	.76739	45	45.000
	HS	2.4667	.96766	45	45.000
	CRC	2.8444	.79646	45	45.000
	PL	3.1556	.79646	45	45.000
	NS	3.2000	.96766	45	45.000
	BS	2.8444	1.02149	45	45.000
	PR	3.1778	.71633	45	45.000

This table displays the distribution of observations among three groups within the budget hotels category, indicating the number of observations attributed to each hotel. In this instance, the default weight of 1 is assigned to each observation in the dataset, resulting in the weighted number of observations being equivalent to the unweighted count for each hotel. Analysis of the means and standard deviations across various independent variables reveals significant variations in the performance of these brands across different attributes. While VA, BS, and PC hotels demonstrate average performance, they are perceived to underperform on other attributes. Specifically, the average number of PL for respondents considering Ram Vilas hotel (mean=2.733) was lower compared to respondents considering Glitz hotel (mean=3.3) and Roma Palace hotel (mean=3.4). This observation leads to the conclusion: "Respondents who considered PL at Ram Vilas and Glitz hotels were fewer in number than those considering PL at Roma Palace hotel."

Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
PC	.923	1.758	2	42	.185
VA	.994	.126	2	42	.882
SP	.998	.036	2	42	.965
HS	.521	19.304	2	42	.000
CRC	.884	2.762	2	42	.075
PL	.855	3.559	2	42	.037
NS	.977	.487	2	42	.618
BS	.958	.912	2	42	.409

PR	.986	.293	2	42	.747

The Univariate ANOVA test results from the above table indicate that the hotels vary significantly across the various attributes. The significance of the univariate F ratios indicates that when the predictors are considered individually, only HS and PL significantly differentiate among the hotels. So here aceept the first alternative hypothesis that Significant differences in budget hotel visitation patterns exist across the various attributes in jaipur city**.** However, in this case, the only low value of Wilks' Lambda are for HS and PL. But looking at the last column the importance of the attributes of VA, SP, BS,PR and NS in distinguishing between the hotels is found to be low.

Pooled Within-Groups Matrices

		PC	**VA**	**SP**	**HS**	**CRC**	**PL**	**NS**	**BS**	**PR**
Correlation	PC	1.000	.707	.760	.379	.756	.642	.594	.628	.413
	VA	.707	1.000	.623	.504	.588	.468	.524	.483	.433
	SP	.760	.623	1.000	.518	.707	.429	.671	.571	.447
	HS	.379	.504	.518	1.000	.432	.345	.576	.436	.366
	CRC	.756	.588	.707	.432	1.000	.679	.647	.704	.612
	PL	.642	.468	.429	.345	.679	1.000	.660	.749	.682
	NS	.594	.524	.671	.576	.647	.660	1.000	.811	.732
	BS	.628	.483	.571	.436	.704	.749	.811	1.000	.790
	PR	.413	.433	.447	.366	.612	.682	.732	.790	1.000

The Pooled within group matrix reveals a low correlation among the independent variables, suggesting that the selected attributes for analysis are distinct from each other. Additionally, noticeable differences in the means of HS and PR across different hotels within the budget category are observed. These variations indicate the potential utility of these predictors in distinguishing observations between hotels. Thus, we accept the second alternative hypothesis, affirming significant distinctions among all major attributes. Moving forward, examining the correlations between these nine predictors will provide insight into the unique information contributed by each predictor to the analysis.

Eigenvalues

Function	**Eigenvalue**	**% of Variance**	**Cumulative %**	**Canonical Correlation**
1	1.928(a)	78.7	78.7	.811
2	.521(a)	21.3	100.0	.585

a First 2 canonical discriminant functions were used in the analysis.

The column labeled 'percentage of variance' enables the assessment of which canonical variable explains the majority of the variance. In this case, the first eigenvalue accounts for 78.7% of the variance. The table suggests that the first two functions capture the bulk of the

variance in the input data, thus these two functions are chosen for further interpretation. The maximum number of discriminant functions possible is determined by the lesser value between one less than the number of groups defined by the dependent variable and the number of independent variables. In this analysis, there are three hotels defined by the budget category and nine independent variables, resulting in a maximum of two discriminant functions. Each function represents a projection of the data onto a dimension that optimally separates or discriminates between the groups.

Eigenvalue: These values represent the eigenvalues of the matrix product obtained from the inverse of the within-group sums-of-squares and cross-product matrix, and the between-groups sums-of-squares and cross-product matrix.

Percentage of Variance: In this analysis, the first function contributes to 78.7% of the discriminatory power of the independent variables, while the second function contributes to 21.3%. This can be confirmed by noting that the sum of the eigenvalues equals 1.928 + 0.521 = 2.449. Therefore, (1.928/2.449) = 0.787 and (.521/2.449) = 0.213.

Cumulative Percentage: This represents the cumulative proportion of discriminatory power. Across all analyses, these proportions sum to one. Hence, the final entry in the cumulative column will always be one.

Canonical Correlation - These are the canonical correlations of our predictor variables (**PC, VA, SP, HS, CRC, PL,NS, BS and PR**) and the hotels in budget category. From this analysis, we would arrive at these canonical correlations.

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.224	56.771	18	.000
2	.657	15.941	8	.043

This table is used to identify the function which is significant in explaining the differences among the groups. Here since both the Wilks'Lambda values are close to zero, they are able to explain the differences in the groups. Thus, initial statistics tell us that first the functions are significant (p= .000). The Wilks' lambda statistic for the test of function 1 (chi-square=56.77) had a probability of =0.000 which was less than or equal to the level of significance of 0.05. The significance of the maximum possible number of discriminant functions supports the interpretation of a solution using 1 discriminant function. After removing function 1, the Wilks' lambda statistic for the test of function 2 (chi-square=15.941) had a probability of 0.043 which was less than to the level of significance of 0.05. The

significance of the maximum possible number of discriminant functions supports the interpretation of a solution using 2 discriminant functions.

Test of Function(s) - These are the functions included in a given test with the null hypothesis that the canonical correlations associated with the functions are all equal to zero. In this example, we have two functions. Thus, the first test presented in this table tests both canonical correlations ("1 through 2") and the second test presented tests the second canonical correlation alone.

Wilks' Lambda - Wilks' Lambda is one of the multivariate statistic calculated by SPSS. It is the product of the values of (1-canonical correlation^2). In this example, our canonical correlations are 0.811 and 0.585, so the Wilks' Lambda testing both canonical correlations is (1- 0.811^2)*(1-0.585^2) = 0.225, and the Wilks' Lambda testing the second canonical correlation is (1-0.394^2) = 0.657.

Sig. - This is the p-value associated with the Chi-square statistic of a given test. For a given alpha level, such as 0.05, if the p-value is less than alpha, the null hypothesis is rejected. If not, then we fail to reject the null hypothesis.

Standardized Canonical Discriminant Function Coefficients

	Function	
	1	**2**
PC	.488	.557
VA	-.483	-.346
SP	-.060	-.487
HS	1.299	.009
CRC	-.238	.800
PL	-.019	.784
NS	-.767	.143
BS	-.336	-1.312
PR	.486	.160

When variables are measured in different units, the magnitude of an unstandardisd coefficient provides little indication of the relative contribution of the variable to the overall discriminant function. Standardising the coefficients for a particular attribute on a function indicates the higher loading of the same on that function.

Standardized Canonical Discriminant Function Coefficients - These coefficients can be used to calculate the discriminant score for a given case. For example, let **PC, VA, SP,HS, CRC, PL, NS, BS and PR** be the variables created by standardizing our discriminating

variables. Then, for each case, the function scores would be calculated using the following equations:

Score1 = .488*PC-0.483*VA-.06*SP+1.299*HS-.238*CRC-.019*PL-.767*NS-.336*BS+.486*PR

Score2 = .557*PC - 0.346*VA -.487*SP+.009*HS+.800*CRC+.784*PL+.143*NS-1.312*BS-.160*PR

we can see that the standardized coefficient for **HS** in the first function is greater in magnitude than the coefficients for the other two variables. Thus, **HS** will have the greatest impact of the three on the first discriminant score. We can now see that Dis 1 is contributed to positively by PC,HS and PR. Dis 2 is contributed to positively by PC,HS,CRC, PL,PR and NS and negatively by the other three.

Structure Matrix

	Function	
	1	**2**
HS	.690(*)	-.021
BS	-.150(*)	-.010
NS	-.105(*)	.060
PL	-.097	.539(*)
CRC	-.083	.476(*)
PC	-.064	.382(*)
PR	-.059	.119(*)
VA	-.023	.098(*)
SP	.017	.047(*)

With each function, these marked variables are then ordered by the size of the correlation. In this table, the largest correlation of HS exists with function 1 whereas for all other attributes, it exists with function 2. In this table, the largest correlation of PL exists with function 1 whereas for all other attributes, it exists with function 2. Based on the structure matrix, the predictor variables strongly associated with discriminant function 1 which distinguished between survey respondents who thought HS on hotels and survey respondents who thought BS on hotels were HS (r=0.690) and BS (r=-0.150). Based on the structure matrix, the predictor variable strongly associated with discriminant function 2 which distinguished between survey respondents who thought HS (0.405) on hotels and survey respondents who thought PR on hotels was (r=-0.220). So here we accept the third alternative hypothesis that **t**here are significant differences or distinct relationship within the group of all the predictor variable with canonical function i.e. all the attributes which research has selected for study have distinct influences or impact on the buying behavior of tourist. This is the canonical structure, also known as canonical loading or discriminant loading, of the discriminant functions. It represents the correlations between the observed variables (the nine continuous discriminating variables) and the dimensions created with the unobserved discriminant functions (dimensions).

Functions at Group Centroids

HOTELNA	Function	
	1	2
HOTEL RAM VILAS	.783	-.899
HOTEL GLITZ	-1.888	.097
HOTEL ROMA PALACE	1.106	.802

Unstandardized canonical discriminant functions evaluated at group means

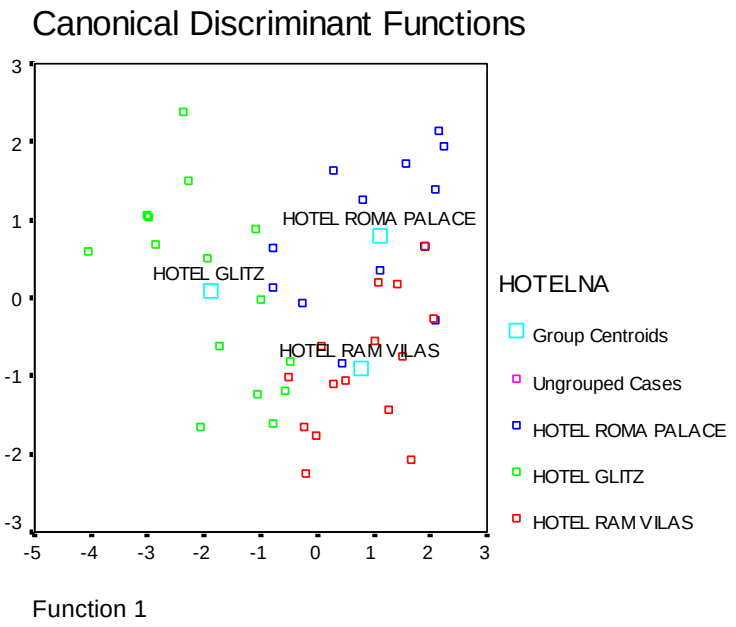
This table presents the means of the discriminant function scores by group, which are utilized to plot the brands on the attribute plot. These means represent the scores of the discriminant function for each group calculated. For example, if we calculated the scores of the first function for each case in our dataset, the mean scores by group would be as follows: Ram Vilas hotel group (.783), Glitz hotel group (-1.888), and Roma Palace hotel group (1.106). It's worth noting that the mean of function scores across all groups equals zero. This can be verified by summing the group means multiplied by the number of cases in each group: (15*.783) + (15*-1.888) + (15*1.106) = 0. Each function segregates the hotels into two subgroups, assigning negative values to one subgroup and positive values to the other. For instance, Function 1 distinguishes respondents who considered Ram Vilas hotel positively (.783) from those considering Glitz hotel negatively (-1.888) or Roma Palace hotel positively (1.106) within the budget category. Function 2 separates respondents who considered Roma Palace hotel negatively (-.899) from those considering it positively (0.802). The third group (.097) is disregarded/considered in this comparison as it was distinguished from the other two groups by Function 1.

Prior Probabilities for Groups

HOTELNA	Prior	Cases Used in Analysis	
		Unweighted	Weighted
HOTEL RAM VILAS	.333	15	15.000
HOTEL GLITZ	.333	15	15.000
HOTEL ROMA PALACE	.333	15	15.000
Total	1.000	45	45.000

The proportional by chance accuracy rate was determined by summing the squared proportions of cases in each group from the table of prior probabilities for groups (0.333^2 + 0.333^2 + 0.333^2 = 0.332). A 25% increase over this would necessitate a cross-validated accuracy rate of 41.5% (1.25 x 33.20% = 41.5%). With 15 cases in the smallest group, which exceeds the number of independent variables (9), the minimum requirement is satisfied. The independent variables could be considered valuable predictors of group membership if the cross-validated classification accuracy rate significantly surpassed the accuracy achievable by chance alone.

Prior Probabilities for Groups - This is the distribution of observations into the **hotel** groups used as a starting point in the analysis. The default prior distribution is an equal allocation into the groups, as seen in this example. SPSS allows users to specify different priors with the **priors** subcommand.



The centroids are simply the mean variate scores for each group. For interpretation we should look at the sign of the centroid (positive or negative). We can also use a combined groups plot. This graph plots the variate scores for each hotel, grouped according to the budget category and location to which that hotel belonged. In addition, the groups centroids from SPSS Output 16.1 are shown as blue squares. The above graph and the tabulated values of the centroids tell us that (look at the big squares labeled with the hotel initials) variate 1 discriminates the hotel Glitz from the hotel Roma Palace (look at the horizontal distance between these centroids). The second variate differentiates the hotel Ram Vilas from the two hotels (look at the vertical distances). We should be able to discern the 3 'cloud' groupings with hotel Glitz on the left, hotel Ram Vilas in the centre and hotel Roma Palace predominantly on the right. The chart also suggests that the hotel Roma Palace is the most homogenous group and the hotel Glitz is the most heterogeneous (disparate) group.

Classification Results(b,c)

		HOTELNA	**Predicted Group Membership**			**Total**
			HOTEL RAM VILAS	**HOTEL GLITZ**	**HOTEL ROMA PALACE**	
Original	Count	HOTEL RAM VILAS	12	0	3	15
		HOTEL GLITZ	3	12	0	15
		HOTEL ROMA PALACE	3	2	10	15
	%	HOTEL RAM VILAS	80.0	.0	20.0	100.0

		HOTEL GLITZ	20.0	80.0	.0	100.0
		HOTEL ROMA PALACE	20.0	13.3	66.7	100.0
Cross-validated(a)	Count	HOTEL RAM VILAS	9	1	5	15
		HOTEL GLITZ	4	10	1	15
		HOTEL ROMA PALACE	3	3	9	15
	%	HOTEL RAM VILAS	60.0	6.7	33.3	100.0
		HOTEL GLITZ	26.7	66.7	6.7	100.0
		HOTEL ROMA PALACE	20.0	20.0	60.0	100.0

The classification results based on the analysis sample indicate that (12+12+10)/45= 75.6% of the cases are correctly classified. Leave-one-out cross-validation correctly classifies only (9+10+9)/45=62.2% of the cases. the improvement over chance is greater than 33.3%, indicating at least satisfactory validity. SPSS reports the cross-validated accuracy rate in the footnotes to the table "Classification Results." The cross-validated accuracy rate computed by SPSS was 62.2% which was greater than or equal to the proportional by chance accuracy criteria of 41.5% (1.25 x 33.2% = 41.5%).

The criteria for classification accuracy is satisfied.

Predicted Group Membership - These are the predicted frequencies of groups from the analysis. For example, of the 15 cases that were predicted to be in the hotel Ram Vilas group, 12 were correctly predicted, and 3were incorrectly predicted (0 case was in the hotel Glitz group and three cases were in the hotel Roma Palace group).

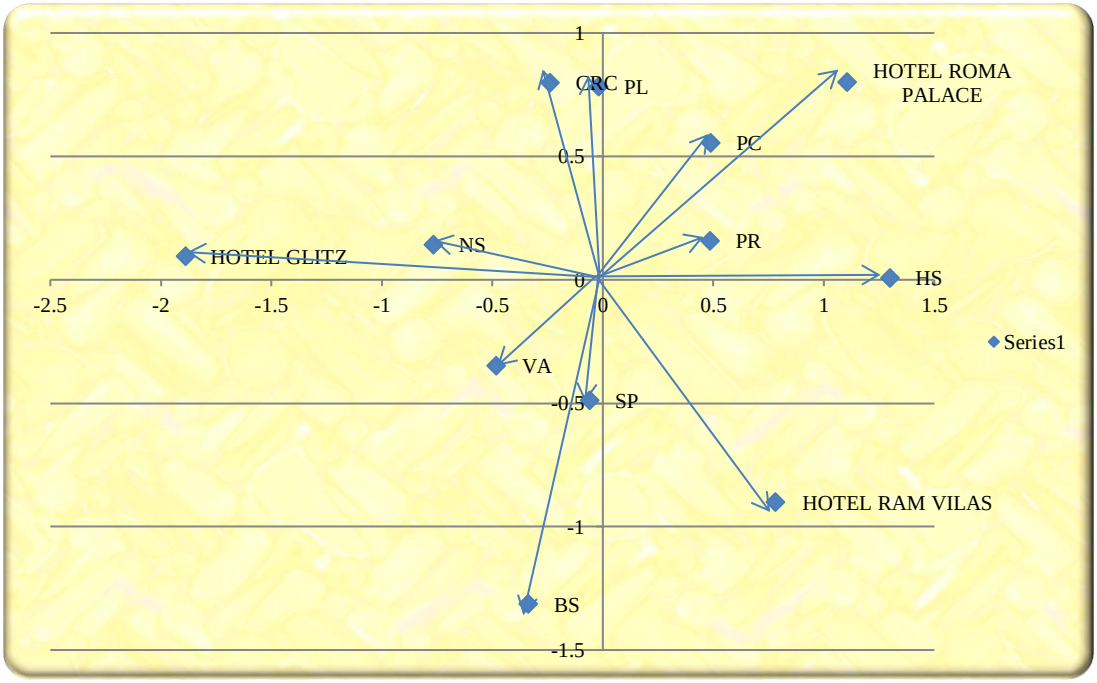
Original - These are the frequencies of groups found in the data. We can see from the row totals that 15 cases fall into the hotel Ram Vilas group, 15 fall into the Hotel Glitz, and 15 fall into the hotel Roma Palace. These match the results we saw earlier in the output for the frequencies command. Across each row, we see how many of the cases in the group are classified by our analysis into each of the different groups.

Count - This portion of the table presents the number of observations falling into the given intersection of original and predicted group membership. For example, we can see in this portion of the table that the number of observations originally in the hotel New Center Point, but predicted to fall into the Hotel Akashdeep group is 1. The row totals of these counts are presented, but column totals are not.

%- This portion of the table presents the percent of observations originally in a given group (listed in the rows) predicted to be in a given group (listed in the columns). we can see that the percent of observations in the Hotel Roma Palace group that were predicted to be in the hotel Glitz group is 20.0%. This is NOT the same as the percent of observations predicted to be in the hotel Glitz group that were in the hotel Roma Palace group. The latter is not presented in this table. The 'predominant hotel type' for the hotel Ram Vilas constitutes 80.0%

of that sample.The 'predominant hotel type' for the hotel Glitz constitutes 80.0% of that sample. The 'predominant hotel type' for the hotel Roma Palace constitutes 66.7% of that sample. We have seen that there are 3 tourists in the hotel Glitz that have been predicted as aligning themselves more closely to the hotel Ram Vilas based upon the discriminant scores achieved. None of the tourist in that sample align more closely with Hotel Roma Palace. In other words, the output indicates that our overall success rate for being able to correctly predict the profile / 'positioning' of the hotels based upon the 9 sets of attributes alone is 77.8%. So this percentage indicates the probability of accurately predicting the correct group membership for a new individual. So here we accept the fourth alternative hypothesis that all the cases are significantly classified correctly.

Perceptual Map



The figure above depicts vectors for each attribute - PC, VA, SP, HS, CRC, PL, NS, BS, PR. These vectors illustrate the impact of each attribute on the respective dimensions. Longer arrows pointing towards a specific group centroid signify variables strongly associated with that group. Conversely, vectors pointing away from a group centroid indicate lower association with that group. Variables with longer vectors in a given dimension, positioned closer to the axis representing that dimension, contribute more to the interpretation of that dimension.

By examining all variables contributing to a particular axis, the dimension can be labeled as a combination of those variables. Utilizing the standardized coefficients of the attributes on function 1 and 2, the plot for the different attributes has been generated as depicted in the figure.

From the distances of attribute vectors from the axis and their lengths, it can be inferred that HS, NS, and PR carry significant weight on dimension 1, while CRC and PL exhibit relatively lower weightage and point in the opposite direction compared to the other attributes. Dimension 1 is thus interpreted as service performance. However, due to the low and opposite weightage of CRC and PC, and the lack of a clear link to network properties, one may also consider this as a separate dimension 2.

The graph further suggests that CRC holds the strongest attribute weight, while provision for PL and PC are closely aligned. Consequently, dimension 2 is interpreted as sophistication performance. These observations are supported by the structural matrix indicating the loading of the different attributes on the two dimensions.

As seen from the graph , Hotel Ram Vilas, Glitz and Roma Palace, the three hotel brands, have their unique position on the map. In addition, on the same map, we have now plotted values of the attributes on the same two dimensions (each discriminant function represents a dimension). As we can see, Dimension 1 seems to be a combination of NS, PR and HS(closest to the x-axis). This is also evident from the standardized discriminant coefficient for NS (-0.105), PR(-.059) and HS (.690) on Dimension 1, from the earlier output table. Dimension 2 seems to comprise mainly CRC, PL and PC, the vector (arrow) that is closest to the vertical axis. This is also evident from the standardized coefficient for PC on dimension 2, from the earlier output table. VA and BS are not useful in defining any of the two dimensions as its arrow is not close to any of the two dimensions. Also the length of VA's arrow is small. VA is also between the two axes, and therefore not very useful in discriminating between the two dimensions. Hotel Glitz seems to be stronger on dimension 1(a combination of NS, HS and PR) and Hotel Roma Palace on dimension 2(CRC, PL and PC). However Hotel Ram Vilas seems to score low on both the dimensions compared to its competitors. So here we accept the fifth alternative hypothesis that **p**erceptual map does helpful to investigate the perception of buyers.

The positions of the brands under study with respect to these attributes are obtained from the graphs as shown in above figure:

- It appears that Hotel Glitz is strongly represented by the attribute of NS. The arrows of the other attributes point in the opposite direction and therefore do not have a significant influence on the perception of the hotel. Hence it can be concluded that Hotel Glitz is perceived to be mainly a Techno based hotel. But the short arrow for this attribute means that it is a less important attribute.
- Hotel Roma Palace is firmly identified by all attributes except those of VA, SP and BS abilities. However the attributes of PR and PC have a greater say in distinguishing the

hotel. Thus it can be concluded that the respondents do not perceive that Hotel Roma Palace offer VA or SP features.

- Only VA, SP and BS attributes vectors point towards Hotel Ram Vilas. Hence it can be concluded that only three of the attributes contributes to the differentiation of the hotel from the rest. The same is indicated by the fact that the group centroid for this brand is equally spaced with respect to both the axes. This indicates that Hotel Ram Vilas does not occupy a unique position with respect to each dimension.
- It can be concluded that Hotel Roma Palace occupies a strong position on PR attributes than others. But the PC distinguishes this hotel more than the other attributes.

In concluding remark of this research we can accept the main sixth hypothesis that there are Significant differences exist between budget hotels visitation segments with respect to the independent variables.

Findings:

A total of 45 out of 55s travellers completed the questionnaire in the one month survey period From (January 2021), representing a response rate of 81.81 per cent. A prime finding of this study is that different tourists estimate attributes of hotels differently. But is that dissimilarity due to cultural association or some other attributes? The findings of this study offer valuable insights into the divergence between actual buying behavior and factor-based or stated preferences. This disparity has implications for hoteliers' promotional strategies. It suggests a need for a re evaluation of the factors highlighted in advertising promotions and underscores the importance of investigating additional factors not addressed in this research in future studies.

Conclusions and Suggestions:

The results give several thoughts concerning to the fact that hotel firms need to give emphasis on gaining competitive advantage by prioritizing precise strategies, for example, hotel brand image. The results drawn from this study could help hotels balance their priorities and propose the finest areas on which importance should be placed. The analysis on the differences between high- and low- performing hotels clearly exhibit that it is essential for hotels to not only recognize the strategic choices they need to make, but also the challenges concerned in realizing them successfully. The research set out to validate the perceptions of tourists regarding various hotels of Jaipur city. A survey among tourists of different hotels was conducted in order to determine the above-mentioned behaviors. The findings of the research recommend that some other factors may help clarify actual choices made by the tourists and

relying on declared preference may not be enough. Therefore hotel owners should center their consideration in shaping that distinctiveness that tourists think in making their confirmed preference as well as real choice.

The travellers show loyalty for their preferred hotel brand. This may propose to hotel owners that they should emphasize on developing distinctive hotel brand personalities to promote their hotel brands rather than involving in price wars. This will necessitate emphasizing distinguishing personality traits most pertinent to their hotel brands and reorganize their price strategy. Even though results of this study are based on the budget hotel experience, the findings may be useful to researching or marketing other category hotels of Jaipur. First, travellers who have more experience with hotels are willing to bargain on tariff rates, consider a longer stay, and are likely to prefer hotels with different services. Second, those who hold civil servant positions and perceive time as a limitation are likely to travel with their family members to that hotels, which provide different tourism activities. Third, the maximum travellers prefer station budget hotels as ideal locations. This implies that visitors are likely to prefer ideal locations like bus stand, station, near Airport because of fast connectivity.

Limitations:

First, as the research was targeted at the Jaipur Budget hotel (Rs1000-1500) industry, this study did not investigate the impacts on the type of hotels (High-Tariff A, High-Tariff B and Medium-Tariff hotels) of tourists in their hotel stays, their general satisfaction levels and the likelihood of returning. As a result, bias may exist due to the fact that visitors could have different perceptions towards the different categories of budget hotels. Second, the hotel factors used in this study were limited to 61 identified attributes. As is distinctive for exploratory studies, a very specific ground was used to select Jaipur hotels. There could be some other relevant factors that may be supposed as important by tourists, but were by mistake excluded from the questionnaire. One of the limitations of the present research is related to its sample size, which contained 45(accepted) respondents. The questionnaire used a convenience sampling method, thus the sample could not be treated as representative of all Jaipur travellers from the hotel's major source markets.

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