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A Study on Customer Perceived Hierarchy of Factors Affecting the Selection of Airbnb by Analytical Hierarchy Process

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Abstract

Purpose: The purpose of this study entitled “A study on customer perceived hierarchy of factors affecting the selection of Airbnb by Analytical Hierarchy Process” is to understand the perception of the customers in selecting and booking Airbnb worldwide based on six factors and knowing the hierarchy of importance of these factors by using AHP method. These factors are Price; Location; Amenities, hygiene & services; Safety & security; Reviews & pic and Host interaction. **Approach:** The customers of Airbnb residing in Visakhapatnam City were considered for the study to understand their perception on the factors considered in the selection and booking of Airbnb worldwide. The respondents were selected at the convenience of the author hence convenient sampling method is used to select the respondents. Total of 219 respondents were considered for the study. Analytical Hierarchy Process (AHP) was used to analyze the collected data. The respondents were asked to compare each factor with other 5 factors pairwise. The critical weights calculated helped to decide which factor is given most importance and hence the hierarchy of importance of factors considered for the selection and booking of Airbnb is generated. **Findings:** The computed values of critical weights of each factor implies that the factor “Price” is perceived most important in the Airbnb selection, followed by “location”, “Amenities, hygiene & services”, “Safety & Security”, “Reviews & pic” and then “Host interaction”. **Conclusion:** The demands of the travellers have gone high expecting for all benefits served on a platter. The customers consider various factors before they select and book Airbnb worldwide. Most of the customers are opting for Airbnb as they get all the amenities in such accommodation with comparatively less price. Price and location are top two factors perceived by customers in selecting and booking Airbnb.

Keywords: Airbnb, Analytical hierarchy process, price, location, Amenities

1. Introduction

Hospitality is imbibed in the Indian culture with an immense feeling of “AthitiDevoBhava” (Sanskrit phrase) which means ‘treat guests like God’ (Banerjee, 2008). Such hospitality is extended to family, friends and relatives. But in a system of sharing economy like Airbnb, the home is shared for an exchange of price (Bucher et al., 2017).

Airbnb is an online platform or a market where people give their property or space or room or villas or apartment for rent. Airbnb was founded in 2008 which provide accommodation as against the conventional hotels, motels and inns. The guests can book the accommodations through Airbnb website from any corner of the world and for any corner of the world. The property owner gets paid for the space and the guests enjoy the space with relatively less price when compared to the hotels and also with multiple amenities (Hedberg, 2013). Airbnb has brought a revolution in the industry of hospitality where both the travellers and the host have multiple options with flexibility. Airbnb has profoundly impacted the hospitality industry. Their business model provides authentic experience. The acceptance of this model by the travellers is growing exponentially as more and more travellers opting for this local experience with better and multiple options of stays available economically (Guttentag, 2013).

2. Review of literature

With the increase of purchasing power of people in India (Beinhocker et al., 2007), the travel and stays have also increased (Brosius, 2012). This has led to the emergence of several types of accommodations like OYO and Airbnb (Bakker and Twinning-Ward, 2018).

The most important factor of purchase intention for choice of hospitality including Airbnb was investigated as Price. The facilities trust and friendly services are important factors considered by the guest in choosing the stay (Devlina Chatterjee et al., 2019).

Quality & Services followed by amenities, accessibility and safety are given importance in choosing Airbnb as studied by Modi, Jung & Suess (2023).

3. Conceptual framework

The articles which have considered the factors or motives of selecting Airbnb were reviewed and the frequently occurring factors were extracted to the study. All these articles studied the factors or motivations of selecting and booking Airbnb but none have given the hierarchy of importance of these factors.

Table 3.1:Authors of the Articles/ Papers reviewed

Authors of the Articles/ Papers reviewed	Insights of factors considered
Ghada et al., 2020	Price, benefits and reviews are motive for Airbnb users
Diva, 2020	Security, cleanliness, location, Review , price were identified as factors for choosing accommodation.
Angela, 2019	Price, Authenticity and household amenities are the key factors and motivation to elect Airbnb
Hyunkyu, 2022	Host profile photos influence guest ratings
Evelyn, Jason, Candy, 2020	Ease of use and security impact trust and intention to use Airbnb
Liang, Mingming, Ipkin, 2019	Factors affecting selecting and booking Airbnb are good communication, large space and information.
Phoey, Yeh, Pei, 2020	Factors affecting selecting and booking Airbnb include price, location, amenities and social interaction
Peter, Elena, 2018	Profile pictures increase trust and hence higher booking intentions
Shjie, Shengyue, Xingjian, 2021	Proximity to cultural attractions, public transport, influence of professional host are the factors affecting selecting and booking Airbnb
Daniel, 2016	Interaction, novelty, local authenticity and home benefits area considered for the booking of Airbnb
Makarand et al., 2022	Three tiers of importance identified are quality/ service, amenities and accessibility & safety.

After thorough analysis of the review of the above articles, the following factors were selected for the study which affects the selection of Airbnb:

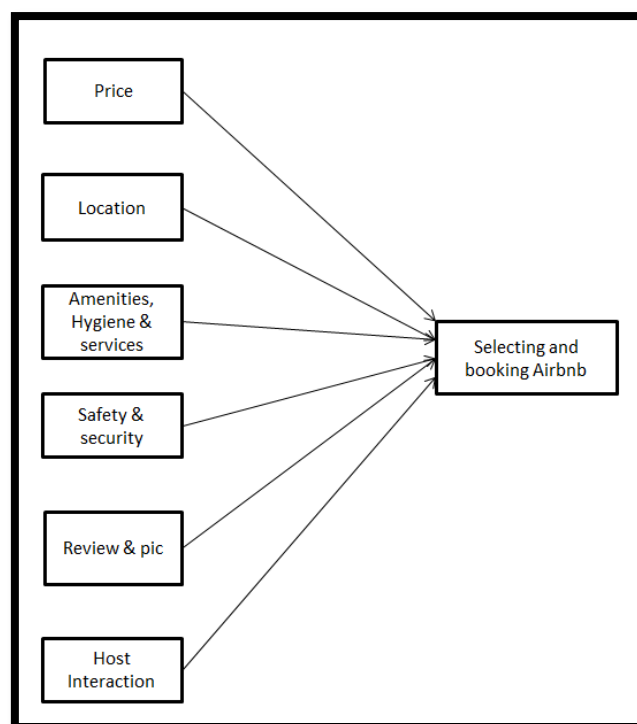


Figure 3.1: Conceptual framework of the study

4. Objectives of the study

The empirical research is done entitled “A study on customer perceived hierarchy of factors affecting the selection of Airbnb by Analytical Hierarchy Process”. This study is done on the customers of Visakhapatnam city, who book Airbnb across the world. The main objective of this study is to analyze the perceived hierarchy of the factors affecting the selection of Airbnb by Analytical hierarchy process.

5. Approach of the study

The data for the study is collected from both primary and secondary sources. Secondary sources like published journals, websites and books were used to collect secondary data. Primary data was collected directly from the respondents through structured questionnaire. The respondents were chosen by convenient sampling technique and only those respondents were included in the study who are located and residing in Visakhapatnam City and are the customers of Airbnb. The questionnaire administered had questions related to the factors affecting selection of Airbnb where the information was generated by asking the questions on their perception of factors affecting their selection and. Analytical hierarchy process was used to understand the hierarchy of the factors perceived by the customers. A total of 226 respondents filled the questionnaire, out of which 219 respondents were considered for the study as the balance 7 respondents didn't answer completely and hence their responses were discarded from the study.

6. Analytical Hierarchy process

Analytical hierarchy process is a structured tool to make complex decisions with multiple alternatives (Saaty, 1980). When it is not easy to get an exact answer, the criteria/ alternatives are evaluated to make the best decision. In this process, numerical critical weight is calculated for each element or factor which represents the relative ability of each alternative to achieve the goal. Ms Excel was used for the computation.

In this study the six factors considered for the study affecting the selection of Airbnb are namely, price; location; Amenities, hygiene & services; Safety & security; Review and pic and Host interactions. A survey was done with the customers of Airbnb from Visakhapatnam City who were chosen through convenient sampling method. The respondents were asked to make pair wise comparisons for all 6 factors with other 5 factors using Saaty scale. The scale ranges from 1 to 9 where one implies that both the factors are of equal importance and nine implies that one factor is extremely important than other in that respective pair wise comparison. The pairwise scale (Saaty, 1980) and the importance of scale is shown in the below table 6.1:

Table 6.1: Saaty scale

Scale	Definition of importance scale
1	Equal importance
2	Equal to moderate importance
3	Moderate importance
4	Moderate to strong importance
5	Strong importance
6	Strong to Very strong importance
7	Very Strong importance
8	Very strong to extremely importance
9	Extremely importance

AHP method was used to calculate the critical weights of the factors to determine the hierarchy of importance of the factors considered for the selection of Airbnb. Consistency check is done by calculating the consistency ratio to decide whether the inconsistency is in the acceptable level or not. The consistency ratio has to be less than 0.1 or 10% for the inconsistency to be acceptable. In case the consistency ratio is more than 0.1, then the judgment has to be revised.

In this study, the consistency ratio was computed to be 0.067836; hence the inconsistency is in the acceptable level.

7. Result and Discussion

The values of importance scale for six factors and their pairwise values with other 6 factors were collected through questionnaire method and the average response of all 219 respondents was calculated. The critical weights were computed for each of six factors by using AHP method. The highest critical weight value indicates that the factor is most acceptable and the least critical weight value indicates the least acceptable factor of Airbnb selection.

7.1 Critical Weight of factors of Airbnb selection

Table 7.1: Critical Weight of factors of Airbnb selection

	Price	Location	Amenities, hygiene & services	Safety & security	Reviews & pic	Host interaction	Row total	Critical weight (CW)
Price	0.399425	0.571519	0.368484	0.289214	0.260448	0.231725	2.120815	0.35347
Location	0.137581	0.196858	0.381648	0.287017	0.256418	0.209723	1.469244	0.244874
Amenities, hygiene & services	0.146659	0.069788	0.135298	0.262175	0.248422	0.221798	1.084139	0.18069
Safety & security	0.125902	0.062526	0.047045	0.091163	0.138301	0.174362	0.6393	0.10655
Reviews & pic	0.100179	0.05015	0.035577	0.043058	0.065323	0.11003	0.404316	0.067386
Host interaction	0.090257	0.049151	0.031942	0.027377	0.031087	0.052363	0.282176	0.047029

The critical weight (CW) for each factor (row-wise) is calculated by dividing row total for each factor by the Grand Row total. The Grand row total is computed to be 5.999991.

7.2 Factors and Critical Weights

The critical weight (row total) for factors Price; Location; Amenities, Hygiene & services; Safety & Security; Reviews & Pic and Host Interaction are given in the below table 7.2:

Table 7.2: Factors and their Critical Weights

Factors of Airbnb selection	Critical weights
Price	0.35347
Location	0.244874
Amenities, hygiene& services	0.18069
Safety & security	0.10655
Reviews & pic	0.067386
Host interaction	0.047029

7.2.1 Critical weight of Price:

The maximum critical weight (0.35347) was computed for the factor “Price”. The respondents have given more weightage to price aspect while booking Airbnb. Price is one of the important factors that is considered by every customer for booking Airbnb (Heo and Hyun, 2015). As the customers don’t compare the Airbnb stay to the high end star hotels, they expect the price of these Airbnb stays comparatively cheaper when compared to the other hotels. The same was stated by Möhlmann (2015) that cost-savings gives satisfaction to the customers and influences the intention to book Airbnb again in the future. Price was investigated as one among top two factors affecting customer satisfaction by Wang (2016).

7.2.2 Critical weight of Location:

The next highest critical weight (0.244874) was calculated for the factor “Location”. The customers are interested to book Airbnb in a location near to the city or in a place where they have easy accessibility to the visiting places in that city/ country. The location of Airbnb not only saves time and money in visiting the city Centre or any visiting place but also gives them a sense of safety. Also, it is convenient to stay in a place which has connectivity to other places through bus, cab, or metro services. Thus location of Airbnb affects customer satisfaction (Almeida & Pelissari 2019)

7.2.3 Critical weight of Amenities, hygiene & services:

The next higher critical weight (0.18069) is for the factor “Amenities, hygiene & services”. The customers expect this in return of what they have paid. They expect the place to be clean, tidy & spacious and expect the quality services. Ganapathi et al. (2020), said that quickness of services affects customer satisfaction.

7.2.4 Critical weight of Safety & security

The fourth important factor perceived by the Airbnb customers for selecting Airbnb is “safety & security” with the critical weight of 0.10655. The

customers want the booked accommodation to be safe and secure as they are in some other place and don't want to experience and unsecured feeling.

7.2.5 Critical weight of Reviews & pic:

The fifth factor perceived by the customers in booking Airbnb is "Reviews and pic". The customers go through the reviews and the posted and uploaded pic in the website to know how the experiences of the other customers are. The word of mouth is impactful when it comes to such services. The critical weight for this factor is computed to be 0.067386.

7.2.6 Critical weight of Host Interaction:

The customers are convinced and satisfied if they are able to interact and communicate with the host. The same is studied by Mangotara et al., (2022) that respondents have shown agreement on host reply on booking and providing complete details of the booking and accommodation. The critical weight for the factor "Host Interaction" is 0.047029. Though this is the least, it doesn't mean that it has no importance, it is the least factor considered among all six factors that are perceived by the customers in the selection and booking of Airbnb.

7.3 Ratio of weighted sum to critical weights

The ratio of weighted sum to critical weights for each factor is computed to find the value of λ_{\max} .

Table 7.3: Ratio of weighted sum to critical weights

	Price	Location	Amenities, hygiene & services	Safety & security	Reviews & pic	Host interaction	Weighted sum (WS)
Price	0.35347	0.7109182	0.492109215	0.33802988	0.26867472	0.20812214	2.37132414
Location	0.12175186	0.244874	0.509690352	0.33546202	0.264517	0.18836055	1.66465579
Amenities, hygiene & services	0.1297852	0.08681012	0.18069	0.30642715	0.25626896	0.19920544	1.15918683
Safety & security	0.11141686	0.07777728	0.062829027	0.10655	0.14266964	0.15660187	0.65784468
Reviews & pic	0.08865341	0.06238192	0.04751249	0.0503259	0.067386	0.09882204	0.41508170
Host interaction	0.07987301	0.06113902	0.042657821	0.03199796	0.03206872	0.047029	0.29476552

$$\lambda_{\max} = \frac{\sum (WS / CW)}{n}$$

WS = Weighted Sum for each factor

CW= Critical weight for each factor

n= Number of factors

$\sum (WS / CW)$ is the summation of WS/CW for all 6 factors

From the above table 7.3:

$$\sum (WS / CW) = 6.7087067 + 6.79799678 + 6.41532919 + 6.17403435 + 6.15975064 + 6.26768703 = 38.523504699$$

n= 6 (since 6 factors are considered for the study)

$$\lambda_{\max} = 38.523504699 / 6$$

$$= 6.420584$$

$$\text{Consistency Index (C.I.)} = \frac{(\lambda_{\max} - n)}{(n-1)}$$

$$= 6.420584 - 6/5$$

$$= 0.084117$$

7.4 Calculation of Consistency Ratio (CR):

The consistency ratio is calculated to check the consistency of the data. The CR should be below 0.1 for the data to be consistent which means only data with CR less than 0.1 is accepted. This means that even if there is inconsistency, it has to be less than 10% which is the acceptance level.

$$\text{Consistency Ratio (CR)} = \frac{\text{Consistency Index}}{\text{Random Index}}$$

Random Index value is taken from the table where the value for 6 factors is given to be 1.24

$$\text{Consistency Ratio} = 0.084117 / 1.24$$

$$= 0.067836$$

Since the value of consistency ratio is 0.067836 and it is below 0.1; this means that the data is consistent. Only 6% of the data is inconsistent which is within acceptable level.

8. Conclusion

The demands of the travellers have gone high expecting for all benefits served on a platter. The customers consider various factors before they select and book Airbnb worldwide. Most of the customers are opting for Airbnb as they get all the amenities in such accommodation with comparatively less price. Price and location are top two factors perceived by customers in selecting and booking Airbnb.

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