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Exploring Asymmetric Impacts of Service Attributes on Guest Satisfaction in Senegalese Hospitality Sector: Integrating Three-Factor Theory with Penalty-Reward Contrast and Asymmetric Impact-Performance Analysis

Analyse des Effets Asymétriques des Attributs Hôteliers sur la Satisfaction Client au Sénégal : Une Approche intégrée par la Théorie des Trois Facteurs, l'Analyse du contraste pénalité-récompense et l'Analyse de l'impact asymétrique sur la performance

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Abstract
This research examines the relationship between service attributes and guest satisfaction in Senegalese tourism and hospitality context. The study is grounded in the three-factor theory, which provides a framework to analyze the mechanisms by which different attributes influence customer satisfaction. Additionally, we employ Penalty-Reward Contrast Analysis (PRCA) and Asymmetric Impact-Performance Analysis (AIPA) to identify the asymmetric relationships between service attributes and guest satisfaction. These methods offer a refined perspective on the extent to which certain attributes contribute to or detract from overall customer satisfaction. The primary objective of this research is to quantify the asymmetric impact of different service attributes on guest satisfaction and identify which attributes should be prioritized for improvement. To this end, we collected 349 user ratings posted on TripAdvisor by guests who had stayed at one of seven prominent hotels in Dakar. This analysis utilized convenience sampling, a non-probabilistic sampling method. Our results show asymmetric effects of attribute performance on satisfaction, with "Location", "Cleanliness", "Sleep Quality", "Service", and "Value" classified as Basic Attributes, and "Rooms," as an Excitement Factor. Notably, no attribute was found in the Performance category. By leveraging the three-factor theory along with PRCA and AIPA, this study may provide actionable recommendations for hospitality managers seeking to rationalize their resources while optimizing their service offerings and enhancing guest experiences.
Keywords: Asymmetric Impact-Performance Analysis; Hotels; Kano model; Penalty-Reward Contrast Analysis; Satisfaction

Résumé
Cette recherche examine la relation entre les attributs de service et la satisfaction des clients dans le contexte du tourisme et de l'hôtellerie sénégalaise. L'étude s'appuie sur la théorie des trois facteurs, qui fournit un cadre pour analyser les mécanismes d'influence des différents attributs sur la satisfaction des clients. De plus, nous employons l'Analyse du contraste pénalité-récompense (ACPR) et l'Analyse de l'impact asymétrique sur la performance (AIPA) pour identifier les relations asymétriques entre les attributs de service et la satisfaction des clients. Ces méthodes offrent une perspective affinée sur la mesure dans laquelle certains attributs améliorent ou détériorent la satisfaction du client. L'objectif principal de cette recherche est de quantifier l'impact asymétrique des différents attributs de service sur la satisfaction des clients et d'identifier les attributs à prioriser pour l'amélioration de l'offre. A cet effet, nous avons recueilli 349 avis d'utilisateurs publiés sur TripAdvisor par des clients ayant séjourné dans l'un de sept hôtels de renommée de Dakar. Cette analyse a utilisé l'échantillonnage de commodité, une méthode d'échantillonnage non probabiliste. Nos résultats montrent des effets asymétriques de l'impact des attributs sur la satisfaction, avec « Emplacement », « Propreté », « Qualité du sommeil », « Service » et « Valeur » classés comme Attributs de Base, et « Chambres » comme Facteur d'Excitation. Il est à noter qu'aucun attribut n'a été trouvé dans la catégorie Performance. En s'appuyant sur la théorie des trois facteurs ainsi que sur l'ACPR et l'AIPA, la présente étude peut fournir des recommandations aux gestionnaires hôteliers qui cherchent à rationaliser leurs ressources tout en optimisant leurs offres de service et en améliorant l'expérience des clients.
Mots clés : Analyse de l'impact asymétrique sur la performance ; Hôtels ; Modèle de Kano ; Analyse du contraste pénalité-récompense ; Satisfaction

Introduction

Tourism is vital for the global economy and a major contributor to GDP in many countries, including Senegal, where it is the second most productive sector. The COVID-19 pandemic severely affected Senegal's hospitality and catering sectors in 2020, with revenue plummeting by up to 71.9%. However, 2021 saw a robust recovery, with revenue increasing by 281% in the third quarter, compared to the previous year, driven by a rebound in both catering and hospitality (ANSD, 2021). Despite a slight decline in 2022, the sector continued to grow in 2023, with a 69.8% revenue increase in the third quarter compared to 2022 (ANSD, 2023). European tourists, especially from France, are the primary visitors to Senegal, which has been actively enhancing its tourism appeal and expanding into new markets like the U.S. and Canada (Fall, 2016). Senegal aims to leverage its unique cultural and natural attractions to boost tourism further (Senegalese Ministry of Tourism, 2023). This study focuses on analyzing traveler reviews in Dakar, the capital city of Senegal, to understand guest satisfaction and dissatisfaction better, addressing a gap in research on service attributes impacting experiences in Sub-Saharan Africa.

Understanding the intricate dynamics of customer satisfaction in the tourism and hospitality industry is crucial for enhancing service quality and maintaining a competitive edge. This research paper seeks to address this need by integrating established theoretical frameworks and analytical methods to explore the relationship between service attributes and guest satisfaction in the context of African hospitality services.

At the core of this study is the three-factor theory, which provides a foundational understanding of how different attributes influence customer satisfaction. Complementing this theory, we employ the Penalty-Reward Contrast Analysis (PRCA) and Asymmetric Impact-Performance Analysis (AIPA) methods to analyze the asymmetric relationships between various service attributes and guest satisfaction. These methods offer a refined view of how certain attributes contribute to or detract from overall satisfaction, thereby enabling a more detailed and actionable understanding of service performance.

Despite the extensive research on service attributes and customer satisfaction in the hotel industry, there remains a significant research gap in analyzing the extent to which attribute performance affects guest satisfaction specifically within the context of hotels in Africa. Most existing studies have predominantly focused on European and Asian markets, leaving a void in knowledge regarding the unique influence of regional factors and cultural contexts on guest perceptions in African hotels. The use of Penalty-Reward Contrast Analysis (PRCA) is

particularly needed in this context, as it provides a detailed approach to examining the extent to which variations in service attributes impact customer satisfaction and dissatisfaction asymmetrically.

The primary objective of this research is to quantify how different service attributes impact guest satisfaction asymmetrically and to identify which attributes should be prioritized by managers for improvement. By leveraging the three-factor theory alongside PRCA and AIPA, this study aims to provide valuable insights for hospitality managers seeking to optimize their service offerings and enhance guest experiences in the Senegalese hospitality field.

This paper is organized as follows: initially, a review of the literature is presented. Secondly, the methodology employed in the study is detailed. The third section presents the results of the analysis. This is followed by a discussion of the findings in the fourth and final section. In the conclusion of this paper, we pinpoint theoretical and managerial implications, outline limitations, and provide recommendations for future research.

1. Literature review

1.1. Customer satisfaction and its attributes

Customer satisfaction is a multifaceted construct that significantly influences business success, especially in service-oriented industries such as hospitality. Recent research has utilized various analytical approaches to understand the factors impacting customer satisfaction and to develop strategies for improving service quality. In tourism, satisfaction is generally understood as the cumulative satisfaction with the attributes that customers deem important (Meneses et al, 2023, cited by Carvalho, 2024). Bartikowski and Llosa (2004) define customer satisfaction as the general customer assessment of various attributes of products or services. The scholarly discussion on how service attributes affect customer satisfaction encompasses both symmetric and asymmetric perspectives. Proponents of the symmetric view argue that all service attributes, irrespective of their nature, have a uniform effect on overall satisfaction, suggesting a linear relationship between improvements or deteriorations in attributes and corresponding levels of satisfaction. This perspective is supported by scholars such as Grönroos (1982) with his Service Quality Model, Oliver (1980) with the Expectation-Disconfirmation Model, and Parasuraman, Zeithaml, and Berry (1991) with the SERVQUAL Model, who assert that different service attributes exert an equal and consistent impact on customer satisfaction.

In contrast, the asymmetric viewpoint posits that certain service attributes may disproportionately influence overall customer satisfaction, either positively or negatively.

Advocates of this perspective underscore the importance of different service attributes and their varying impact on satisfaction.

Additional conceptual frameworks provide further insights into customer satisfaction within the service industry. Prospect Theory, developed by Kahneman and Tversky (1979), focuses on the asymmetric perceptions of losses and gains in decision-making processes. Herzberg's Two-Factor Theory (1968) differentiates between factors that influence satisfaction and those that lead to dissatisfaction, categorizing them as motivators and hygiene factors, respectively. Kano's Three-Factor Theory (1984) classifies service attributes into satisfiers, dissatisfiers, and hybrids, offering an intricate approach to understanding their impact on customer satisfaction and dissatisfaction.

Together, the debate between symmetric and asymmetric perspectives, along with various conceptual frameworks, enriches the understanding of the impact of different service attributes influencing customer satisfaction or dissatisfaction at various levels in the service industry. For instance, Athanasopoulou, Giovanis & Ioakimidis (2023) used online reviews to assess whether various hotel service attributes impact customer satisfaction in an asymmetric or symmetric manner and how these effects vary among different customer segments. They employed three-factor theory and penalty-reward contrast analysis to evaluate both positive and negative feedback on hotels, finding that location and personnel quality are critical, while attributes like cleanliness and food quality vary in their impact based on customer segments and market contexts.

In addition to tourism and hospitality, recent research has applied the concept of asymmetric effects to other domains, such as higher education and the airline industry. Chun, Leem, & Lee (2024) explored the asymmetric effects of service quality attributes on student satisfaction in Korean higher education. Their study classifies attributes into basic, one-dimensional, and attractive factors, finding that basic factors are crucial for satisfaction while attractive factors offer opportunities for further enhancement. Han & Bi (2024) investigate the asymmetric relationships between various satisfaction factors and overall employee satisfaction in the airline industry. Their analysis identifies key factors such as work/life balance and career opportunities as fundamental to employee satisfaction, with varying impacts depending on employment status and geographical location. Yao et al. (2024) further explore the dynamic nature of asymmetric relationships in employee satisfaction within the airline sector. Their study highlights how the influence of satisfaction factors evolves with employees' tenure and geographic region, offering insights into how satisfaction strategies should be adapted over time

and across different contexts. To assess customer satisfaction across different sectors, several approaches have been utilized. In effect, the Kano Model remains a popular framework for categorizing customer needs into basic, performance, and excitement factors (Reichenbach et al., 2022; Digpasari, Irawan, & Ghina 2021). In academic research, several approaches have been implemented to identify these three types of factors, including the critical incident technique (Flanagan, 1954), the importance grid method, and penalty-reward contrast analysis (Brandt, 1987). Notably, the latter has achieved considerable prominence in its application (Albayrak & Caber, 2013; Athanasopoulou et al, 2023; Bi et al, 2024; Mariani & Borghi, 2024; Davras & Caber, 2019; Digpasari et al, 2021, Matzler & Sauerwein, 2002; Slevitch, 2024; Tontini et al, 2022).

1.2. Penalty-Reward Contrast Analysis (PRCA) and Asymmetric Impact-Performance Analysis (AIPA)

Penalty-Reward Contrast Analysis (PRCA) is particularly noted for identifying asymmetric influences where certain attributes can significantly affect customer satisfaction depending on their presence or absence. Albayrak & Caber (2013) review the application of PRCA in customer satisfaction research, pointing out variations in the methodology and outcomes of different studies. They propose a standardized process for PRCA, aiming to enhance the consistency and reliability of results. Rahman (2019) focuses on Airbnb properties, using PRCA to assess quality attributes' impact on overall satisfaction. The study finds high ratings for most attributes but identifies significant differences in how these attributes influence satisfaction based on property type. Ji et al. (2023) utilized reviews to classify attributes affecting satisfaction in island tourism, demonstrating the effectiveness of PRCA in analyzing customer feedback. Zhang et al. (2022) applied PRCA to analyze hotel reviews from different geographic and cultural backgrounds, revealing how service attributes impact satisfaction across diverse contexts. Their study highlights that while attributes like cleanliness and location are universally important, their effects can vary based on cultural and geographic factors.

Expanding upon this analytical approach, Mikulic and Prebežac (2008) introduced two key concepts for analyzing customer satisfaction: Impact Range-Performance Analysis and Impact-Asymmetry Analysis (IAA). The former technique helps understand how different factors affect customer satisfaction, while the latter (IAA) further classifies these factors into five groups: frustrators, dissatisfiers, hybrids, satisfiers, and delighters (Ji et al, 2024). Frustrators and dissatisfiers negatively impact satisfaction, with frustrators having a more significant effect.

Hybrids can influence satisfaction both positively and negatively, satisfiers increase satisfaction moderately, and delighters greatly enhance satisfaction.

Building on these concepts, Caber, Albayrak, and Loiacono (2013) developed the Asymmetric Impact-Performance Analysis (AIPA), which simplifies and visualizes the IAA framework for better usability. Compared to the original Impact-Performance Analysis (IPA), AIPA is found to be more reliable and effective in pinpointing areas for improvement (Albayrak & Caber, 2015; Ji et al, 2024).

Asymmetric Impact-Performance Analysis (AIPA) is a tool used to understand customer satisfaction (CS) and to formulate improvement strategies for products or services, by categorizing factors into specific groups and offering a clear visual representation, making it valuable for managerial decision-making across multiple service industries. AIPA is usually used to complement PRCA analysis (Bi et al, 2020; Digpasari et al, 2021; Ji et al, 2023; Wang et al, 2024). In this study, we will use AIPA to complement PRCA analysis, as it provides a detailed understanding of how various attributes influence customer satisfaction. By integrating these techniques with Kano's three-factor theory of customer satisfaction, we aim to gain a more comprehensive view of the factors affecting hotel guest experiences in Dakar, Senegal. Specifically, PRCA will help identify the asymmetric influence of service attributes on satisfaction, while AIPA will help prioritize attributes that significantly impact customer satisfaction and prevent dissatisfaction.

2. Methodology

2.1. Data collection process

To collect data for this study, TripAdvisor – a leading tourism platform renowned for its extensive repository of user-generated reviews and ratings for hotels – was selected as the primary data source. Using a Python-based program, we systematically extracted information from 1,623 user ratings pertaining to eight prominent hotels in Dakar, Senegal. Convenience sampling, a non-probabilistic method, was used. Each dataset entry included essential details such as the hotel's name, the number of contributions by the reviewer, the number of helpful votes received by the reviewer, the overall satisfaction rating, and satisfaction ratings for six specific hotel attributes: "Location," "Cleanliness," "Rooms," "Service," "Sleep Quality," and "Value." These attributes were evaluated on a 5-point Likert scale, ranging from 1 ("terrible") to 5 ("excellent"). To preserve the integrity of the analysis, instances of missing data – resulting from the non-mandatory nature of the satisfaction ratings for these attributes – were excluded. Consequently, as can be seen in Table 1, the final dataset comprised 349 valid entries

Table 1: Number of reviews by hotel name

Hotel name	Number of reviews from the initial sample	Number of reviews remaining after removing missing data
Ibis	93	27
La Madrague	72	10
Le Djoloff	90	7
Novotel	325	104
RadissonBluSeaPlazza	770	177
Terrou Bi	140	6
Yaas Hotel	133	18
Total reviews	1,623	349

Source: The author's creation

2.2. Data analysis technique

2.2.1. Penalty-Reward Contrast Analysis (PRCA)

The analysis of the data in this study utilizes the penalty-reward contrast analysis technique, drawing inspiration from the methodologies adopted in previous studies (Albayrak & Caber, 2015; Athanasopoulou et al, 2023; Bi et al, 2020; Mikulić & Prebežac, 2008).

Penalty-Reward Contrast Analysis (PRCA), is a specialized form of regression analysis utilizing dummy variables to categorize attributes according to the Kano Model. This technique was introduced by Brandt (1987) to assess the non-linear effects of attributes on overall customer satisfaction. The PRCA is designed to identify both linear and non-linear relationships between satisfaction with specific attributes and the overall evaluation of the service (Tontini et al, 2017). Penalty–Reward Contrast Analysis is a method that helps identify whether certain hotel features have a stronger impact on customer satisfaction or dissatisfaction. For each attribute, two dummy variables are created. The first dummy variable represents the feature's lowest rating (e.g., a score of 1 out of 5), indicating poor performance. This variable (let's call it d_{lp}^{i} for low performance) is set to 1 if the attribute has the lowest satisfaction rating (e.g., 1 out of 5) and 0 for all other ratings (2, 3, 4, 5). The second dummy variable represents the feature's highest rating (e.g., a score of 5 out of 5), indicating excellent performance. This variable (let's call it d_{hp}^{i} for high performance) is set to 1 if the attribute has the highest satisfaction rating (e.g., 5 out of 5) and 0 for all other ratings (1, 2, 3, 4).

These dummy variables are used as explanatory variables in a multiple regression analysis to measure how changes in the attributes' performance impact overall customer satisfaction (OCS), which is the dependent variable in Equation 1.

$$OCS = \beta_0 + \sum_{i=1}^{n}\left(\beta_{lp}^{i} d_{lp}^{i} + \beta_{hp}^{i} d_{hp}^{i}\right) + \varepsilon \qquad \text{(Equation 1)}$$

Once the regression is performed, two coefficients are calculated for each of the six attributes ($n = 6$): the penalty coefficient and the reward coefficient. Following the recommendation by Mikulić, Šerić & Krešić (2024) and Mikulić & Prebežac (2012), the values of the penalty coefficient and the reward coefficient are unstandardized[1] regression coefficients from the multiple regression. The penalty coefficient (β_{lp}^{i}) for attribute i, shows how much dissatisfaction is generated when the attribute performs poorly (and is rated poorly), while the reward coefficient (β_{hp}^{i}) indicates how much satisfaction is generated when an attribute performs well (and is rated highly).

Then, the impact asymmetry index (IA) for each attribute i, is calculated using the formula in equation 2:

$$IA_i = \frac{\left|\beta_{hp}^{i}\right| - \left|\beta_{lp}^{i}\right|}{\left|\beta_{hp}^{i}\right| + \left|\beta_{lp}^{i}\right|} \qquad \text{(Equation 2)}$$

This formula takes the difference between the absolute values of the reward and penalty coefficients and divides it by the sum of their absolute values. The result, IA_i ranges from -1 to 1. The value of the impact asymmetry index (IA) is interpreted as follows:

- If $IA_i = -1$ (i.e., $\beta_{hp}^{i} = 0$), then it indicates that the attribute solely has the potential to cause dissatisfaction and does not contribute to generating satisfaction.
- If $IA_i = 0$ (i.e., $\beta_{hp}^{i} = \beta_{lp}^{i}$), then it indicates that the attribute has an equal potential to generate either dissatisfaction or satisfaction.
- If $IA_i = 1$ (i.e., $\beta_{lp}^{i} = 0$), then it signifies that the attribute has the capacity to produce satisfaction exclusively, with no ability to foster dissatisfaction.

[1] According to Mikulić & Prebežac (2012), statistical mechanisms cause unstandardized and standardized weights to provide significantly different implications in dummy regressions. Moreover, in contrast to traditional regressions, standardized weights in dummy regressions lack a direct interpretative meaning and may instead present a risk of generating misleading conclusions, both in theoretical development and in guiding managerial decision-making.

Then the value of the IA is compared to a cut-off point θ, in order to classify attributes into different categories. In line with previous studies (Albayrak 2019; Bi et al. 2020; Mikulić and Prebežac 2008; Pan et al, 2022), θ is set to 0.1. Based on this, attributes are classified as:

- Dissatisfiers or Basic attributes: If $-1 < IA_i < -0.1$, these attributes have a high potential to cause dissatisfaction if they perform poorly but little potential to create satisfaction if they perform well.
- Hybrids or Performance attributes: if $-0.1 < IA_i < 0.1$, these attributes can generate both satisfaction and dissatisfaction in proportion to their performance.
- Satisfiers or Excitement attributes: if $0.1 < IA_i \leq 1$, these attributes have a high potential to create satisfaction if they perform well but little potential to cause dissatisfaction if they perform poorly.

Mikulić and Prebežac (2011) go even further in the classification, categorizing the attribute as either is a frustrator or a delighter, if its impact asymmetry index (AI) is respectively less than -0.6 or greater than 0.6.

2.2.2. Asymmetric Impact-performance analysis (AIPA)

Asymmetric Impact-Performance Analysis (AIPA) is widely used to determine attribute priority (Albayrak and Caber 2015; Caber et al. 2013; Pan et al, 2022; Wang et al, 2024). The attribute performance score, calculated as the mean of the ratings with respect to each attribute, is taken on the horizontal axis and the IA index is plotted along the vertical axis to form a two-dimensional matrix for visualizing the AIPA (Liu et al, 2021). Two horizontal auxiliary lines are then drawn to represent the cut-off lines at $IA = -0.1$ and $IA = 0.1$ as the dividing lines of the three types of attributes, namely basic attributes, performance attributes and excitement attributes (Pan et al, 2022).

The position of the auxiliary vertical axis is determined by calculating the average value of the performance of all (6) attributes (Bi et al, 2020). If the performance of an attribute i is less than the average performance of all attributes, then attribute i is classified as a low-performance attribute; otherwise, attribute i is categorized as a high-performance attribute.

As a result, the AIPA technique furthers the classification of attributes into six categories: high-performance excitement (HE) attributes, high-performance hybrid (HP) attributes, high-performance basic attributes (HB), low-performance basic (LB) attributes, low-performance hybrid (LP) attributes and low-performance excitement (LE) attributes (Bi et al, 2020).

According to the three-factor theory (Kano et al, 1984), basic attributes have great potential to generate dissatisfaction if their performance is low, but little potential to generate satisfaction if their performance is high; hybrid attributes have equal potential to generate dissatisfaction or satisfaction if their performance is respectively low or high; excitement attributes have great potential to generate satisfaction if their performance is high, but little potential to generate dissatisfaction if their performance is low. Drawing on that theoretical framework, when prioritizing resource investment, low-performance attributes should be met before high-performance attributes. For attributes at the same performance level, the first attribute that should be promoted is the basic attribute (dissatisfier), followed by the (hybrid) attribute and finally the excitement attribute (satisfier). Basic attributes have a greater potential to make consumers dissatisfied at low performance; thus, the focus should be on low-performance basic attributes (Pan et al, 2022). Therefore, the attribute priority order of resource allocation suggested (Bi et al, 2020) is: Basic Attributes > Performance (or Hybrid) Attributes > Excitement Attributes. Combining the above two aspects, the attribute priority order of allocation resources in AIPA is: $LB > LP > LE > HB > HP > HE$.

3. Results

In this study, we assessed hotel attribute performance using the Penalty-Reward-Contrast Analysis (PRCA) method, crucial for aligning with guest preferences to enhance service quality and gain a competitive edge. Table 2 shows the results of the multiple regression and penalty and reward coefficients. The table reports an R^2 value of 0.679, indicating that 67.9% of the variance in overall guest satisfaction is explained by the hotel's six attributes, with the remaining variance attributed to other factors not covered in this study.

Table 2: The results of PRCA

Attribute	Regression coefficients		VIF
Location	β_{lp}^{i}	-.579	1.005
	β_{hp}^{i}	.121	1.321
Cleanliness	β_{lp}^{i}	-.364	1.541
	β_{hp}^{i}	.151	1.890
Rooms	β_{lp}^{i}	-.152	1.842
	β_{hp}^{i}	.302	1.813
Service	β_{lp}^{i}	-1.155	1.322

	β_{hp}^{i}	.446	1.751
Sleep quality	β_{lp}^{i}	-.693	1.214
	β_{hp}^{i}	.249	1.951
Value	β_{lp}^{i}	-1.192	1.712
	β_{hp}^{i}	.229	1.704
(constant)		3.579	
R^2	.679		
F	59.268		

Source: The author's creation

Table 3 details the PRCA and Impact-Asymmetry (IA) analysis, categorizing service attributes into three groups according to Bi et al. (2020): Basic Attributes (Dissatisfiers), Performance Attributes (Hybrids), and Excitement Attributes (Satisfiers). The results show asymmetric effects of attribute performance on satisfaction, with "Location", "Cleanliness", "Sleep Quality", "Service", and "Value" as Basic Attributes. Notably, no attribute is categorized as a Performance (or hybrid) Attribute, and only one attribute, namely "Rooms," is found to be an Excitement Attribute, as is evident in Figure 1.

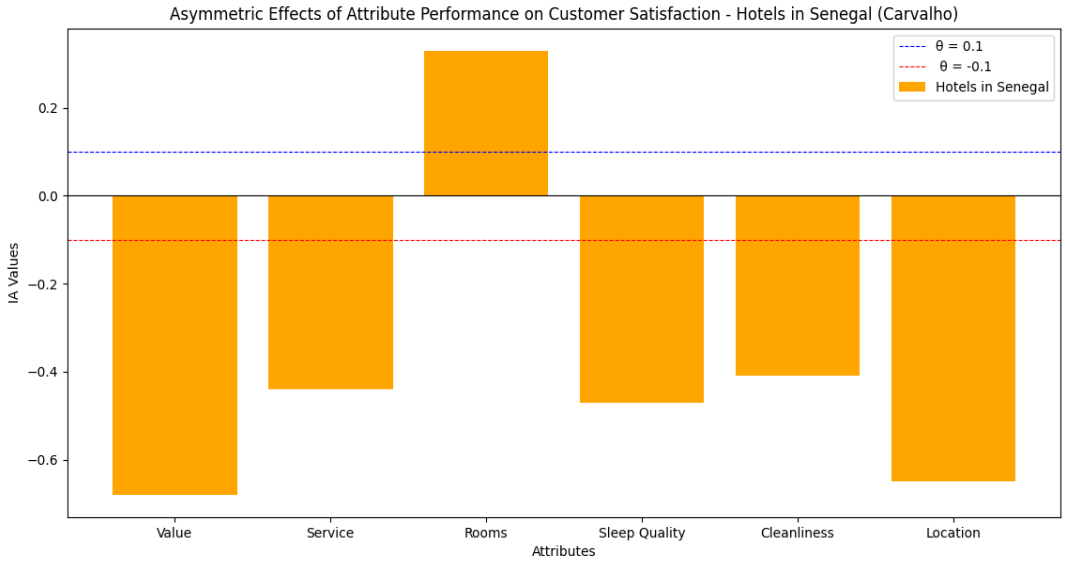
Table 3 : Descriptive statistics and categories of the six attributes

Attribute	Location	Cleanliness	Sleep Quality	Service	Rooms	Value	Overall Satisfaction	Average performance of attributes
Mean	4.29	4.21	4.07	3.93	3.89	3.66	3.97	4.01
Variance	0.63	0.79	0.87	1.32	0.91	1.21	1.01	
Performance of attribute	High	High	High	Low	Low	Low	-	-
IA index	-0.65	-0.41	-0.47	-0.44	0.33	-0.68	-	-
Attribute Category	Basic	Basic	Basic	Basic	Excitement	Basic	-	-

Source: The author's creation

By comparing individual attribute performance values to the average performance of 4.01, attributes are categorized as high-performance if they exceed this score, and low-performance if they fall below it.

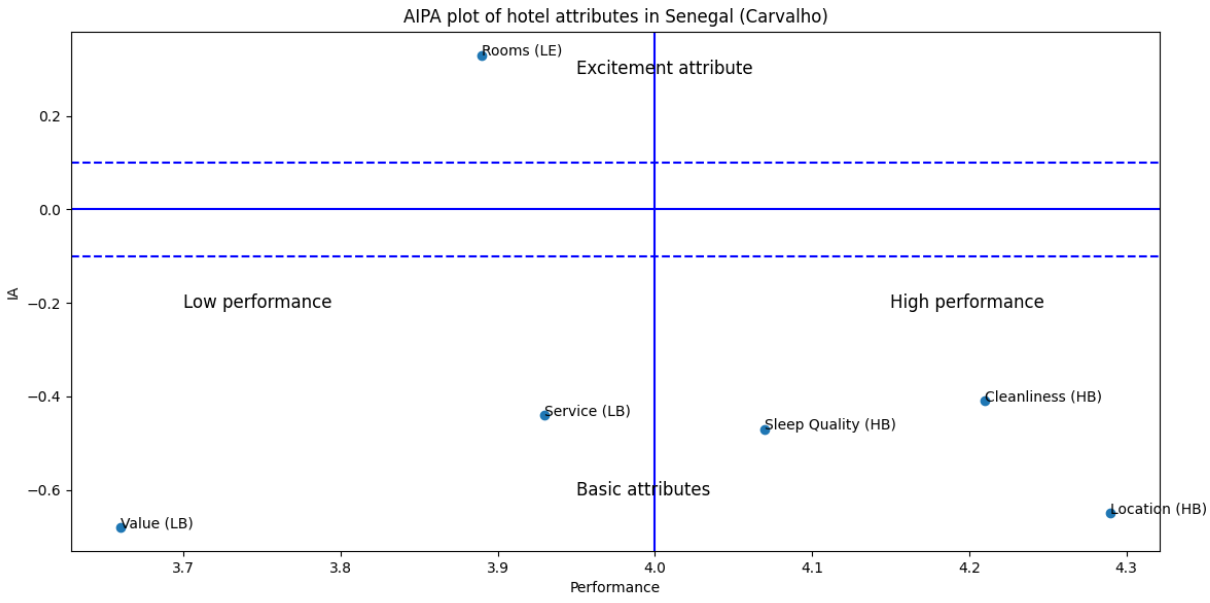
Figure 1: Asymmetric effects of Attribute Performance on Guest satisfaction



Source: The author's creation

As shown above in Table 3, high-performance attributes include "Location", "Cleanliness", and "Sleep Quality", while "Service", "Rooms", and "Value" are identified as low-performance attributes. The AIPA plot in Figure 2 allows for a visualization of the priority sequence for resource allocation based on those findings.

Figure 2: Asymmetric Impact Performance Analysis (AIPA) plot of attributes



Source: The author's creation

4. Discussion

The findings suggest that hotel managers should prioritize attributes with strong penalty effects to avoid significant declines in customer satisfaction. The priority assessment of attributes for resource allocation, as depicted in Table 4 below, is determined by the mean ratings and impact asymmetry index (IA) values presented above in Figure 1 and Figure 2. The resulting AIPA plot indicates that the attributes should be prioritized in the following order: Value (LB), Service (LB), Rooms (LE), Sleep Quality (HB), Cleanliness (HB), and Location (HB). Among the attributes, "Value" is deemed the most critical, while "Location" is considered the least important in the current context. This assessment underscores the need for a strategic allocation of resources to address the performance gaps in the most impactful attributes first.

Table 4: The attribute priority order of resources allocation for hotels in Senegal

Attribute priority order of resources allocation ($LB > LP > LE > HB > HP > HE$)					
1	2	3	4	5	6
Value (LB)	Service (LB)	Rooms (LE)	Sleep Quality (HB)	Cleanliness (HB)	Location (HB)

Source: The author's creation

The attributes "Value" and "Service," classified as low-performance basic attributes, are of utmost urgency due to their potential to cause significant dissatisfaction. These attributes are considered dissatisfiers and are below-average in performance, necessitating immediate attention. Following "Value" and "Service," the attribute "Rooms" is next in priority. Although "Rooms" is also a low-performance attribute, it is identified as an excitement factor. This distinction makes its improvement less critical than that of "Value" and "Service" but more urgent than "Sleep Quality," "Cleanliness," and "Location," which are all high-performance basic attributes. The significance of enhancing or maintaining the quality of the "Rooms" attribute lies in its role as an excitement factor, which can enhance guest satisfaction when well-executed. However, a low-performance excitement attribute may not directly cause dissatisfaction, but its improvement could amplify satisfaction. The high-performance basic attributes – "Sleep Quality," "Cleanliness," and "Location" – are ranked lower in priority because they are currently performing well and are less likely to cause dissatisfaction. Despite their importance, their adequate performance places them below the more critical areas that require immediate improvement.

Conclusion

The findings from this study underscore the importance of adopting a multifaceted approach to analyzing and improving customer satisfaction. Our findings align with previous research (Albayrak & Caber, 2013; Athanasopoulou et al, 2023; Bi et al, 2024; Bi et al, 2020; Digpasari et al, 2021; Ji et al, 2023; Mariani & Borghi, 2024; Davras & caber, 2019; Matzler & Sauerwein, 2002; Slevitch, 2024; Tontini et al, 2022 ; Wang et al, 2024 ; Zhang et al, 2022), confirming that guest satisfaction exhibits a non-linear effect on the performance of hotel attributes. This corroborates the significance of applying Kano's Three-Factor Theory of customer satisfaction, the Penalty-Reward Contrast Analysis (PRCA), and the Asymmetric Impact-Performance Analysis in the tourism and hospitality fields of research on customer satisfaction.

Beyond their theoretical significance, the findings of this study have substantial practical implications for hotel management. In particular, hotels in Senegal can use these results to tailor their services based on the attributes most valued by customers. Given that resources are limited, hotels should prioritize addressing attributes that are likely to cause customer dissatisfaction. Subsequently, they can focus on enhancing the attributes that have the potential to boost satisfaction and delight guests.

This study has several limitations that may impact the generalizability and depth of its findings. Firstly, the sample size used in the research was relatively small, which may restrict the applicability of the results to a broader population. Increasing the sample size could enhance the generalizability of the conclusions drawn. Additionally, the research focused on a specific region in Senegal, and extending the sample to include other regions within Senegal and across different African countries could provide a more comprehensive understanding of regional variations in guest satisfaction. Furthermore, the study relied solely on a list of six attributes readily available from TripAdvisor, which may not encompass all relevant factors influencing guest experiences. To reveal and analyze relevant service attributes, employing more advanced text mining techniques such as topic modeling, sentiment analysis, and natural language processing could reveal additional service attributes and offer deeper insights into guest preferences and satisfaction. Addressing these limitations in future research could significantly enrich the analysis and applicability of this study's findings.

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