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Exploring the Dynamics of Airline Service Attribute Quality: Identifying Satisfiers and Dissatisfiers

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Abstract

This study seeks to explore the link between the attributes of airline service quality and overall satisfaction. While previous research has suggested a direct connection, this work proposes that attribute quality can have varying effects on satisfaction or dissatisfaction. The analysis involved consumer data from online reviews and aligns with Herzberg, Mausner, and Snyderman's two-factor theory. It found that certain service attributes such as cleanliness, food and beverages, and in-flight entertainment impact positive ratings as satisfying factors. On the other hand, customer service and check-in/boarding affect negative ratings as dissatisfying factors. Additionally, the study also considered individual features and types of airline products to enhance understanding of these relationships within the airline industry marketplace.

Keywords: Airline industry, Asymmetric effects, Service quality, Airline attributes And service satisfaction

1. INTRODUCTION

The aviation market's growth and technological advancements have led to increased competition within the airline industry (Spincer, 2018). Recent individuals who have traveled in the recent past have profited from a competitive setting where there is a diverse range of airline options and reasonably priced fares. Cost has been seen as the main advantage that can influence consumers' preferences for airline services, alongside the fundamental idea of yield management offering customers the most favorable airfares in the aviation sector (Kimes, 1988), Most airline companies have embraced a dynamic pricing model, showing that competitiveness and sustainable advantages can no longer be achieved through price alone(Tsaur et al., 2002). In a strategy of marketing that focuses on the needs and preferences of customers (Gurău, 2003), an airline's competitive edge stems from the level of service quality perceived by its customers (Cheng et al., 2008). Various research has shown that the quality of service plays a crucial role in influencing travelers' choice of airlines. Consistently providing high-quality service not only attracts new customers but also fosters loyalty among existing ones ((Dolničar et al., 2011). The latter successfully establishes a strong presence in the minds of customers ((Gürsoy et al., 2005). Therefore, it is essential for airline managers to grasp the intricacies of delivering high-quality airline services. Many previous research efforts have explored the aspects that influence travelers' decisions when choosing an airline ((Espino et al., 2008); (Hess et al., 2007), quality of airline websites (Elkhani et al., 2014), Service recuperation (Cheng et al., 2008), passenger anticipation (Gilbert & Wong, 2003), airline brand positioning (Gürsoy et al., 2005), comprising characteristics and elements of airline service quality (Park, 2007). Previous

research has primarily concentrated on examining the linear (or symmetric) correlation between the characteristics of airline services and the overall satisfaction or quality of service. Enhanced performance of service attributes leads to an increase in the overall satisfaction and/or quality of airlines. However, unlike high-tech products, airline services are not physically complex; instead, they represent a sophisticated blend of intangible services (Liou et al., 2011). Airline services consist of a series of interactions between the service providers and customers, including airport ground services such as check-in and boarding, as well as in-flight services like entertainment and catering ((Bogicevic et al., 2013); (Chen & Chang, 2005)). In this context, the various elements and functionalities of airline services do not uniformly result in customer satisfaction. Improving the performance of certain airline service components can lead to satisfaction, while the absence of others may cause dissatisfaction. This concept aligns with Herzberg's dual-factor theory, which differentiates between motivator factors (associated with satisfaction) and hygiene factors (linked to dissatisfaction) (Chan & Baum, 2007). This research aims to explore the connection between airline service quality and satisfaction from an asymmetrical perspective. It analyzes over 157,000 online consumer reviews to examine how different attributes of airline services impact positive or negative ratings, serving as a proxy for overall satisfaction. The findings reveal varying effects of individual features and airline service attributes on both positive and negative ratings, challenging the traditional view of a straightforward relationship between service quality and satisfaction. The study contributes valuable insights for the tourism industry in general and provides implications for developing customer-centric marketing strategies for airlines.

2. LITERATURE REVIEW

2.1. Airline service quality attributes

In early airline literature, researchers identified service quality attributes in different ways. advocated for three key factors: airfare, safety, and punctuality. In comparison (Elliott & Roach, 1993) The author suggested six standards for evaluating airline service quality based on the connections between different service attributes: food and beverage quality, punctuality, baggage handling, seat comfort, airline check-in process, and in-flight service. Later on, the literature on airline service quality was divided into five SERVQUAL dimensions: tangibility,,reliability,responsiveness , assurance,and empathy (Parasuraman, 1988); (Tsaur et al., 2002) The fuzzy set theory was applied to evaluate the attributes of airline service quality, which are divided into five SERVQUAL dimensions. These include tangibility (such as seat comfort and cleanliness, food and beverage quality, in-flight entertainment, and crew appearance), reliability (including crew professionalism, timeliness, and safety), responsiveness (covering courtesy and responsiveness of the crew), assurance (involving on-time departure and arrival, foreign language proficiency of the crew, and active service offering), an empathy (encompassing customer complaint handling, convenient ticketing service,and extended in-flight services). Additionally, the development of Air Service Quality scale was reviewed while acknowledging its limitations., (Alotaibi, 2015) developed a combination of research methods and improved the AIRQUAL scale within the five SERVQUAL dimensions, which were shown to have a positive impact on customer satisfaction, attitudinal loyalty, word of mouth, and intentions to repurchase.

(Gilbert & Wong, 2003) The authors analyzed the characteristics that passengers find important. They expanded the five aspects of airline service quality to seven factors by breaking down tangibility into three sub-categories: facilities, employees, and flight pattern. They also replaced empathy with customization to better reflect tangible elements such as interior and seating, neatness and politeness of staff, and flight

schedule. This adjustment aimed to highlight specific tangible aspects like flight schedule while identifying customized service delivery attributes like individual attention and bundled travel options. Passengers in their study rated Assurance, including safety and professionalism of service employees, as a crucial factor.

Service quality can be conceptualized by considering the various phases of the service delivery process (Grönroos, 1984) proposed a framework for service quality that emphasizes two main aspects: technical and functional qualities. Technical quality pertains to the outcome of service production processes linked to the operational performance of a service, reflecting what consumers receive from their interactions with a service provider. Functional quality assesses the experiential aspect of a service and centers on the actual delivery process. In essence, it evaluates how customers perceive and experience the results of a service offering (Liou et al., 2011). This debate highlights two aspects that represent the various phases of providing services as discussed in the literature on airline operations. For instance, airline service is commonly categorized into ground and in-flight services. Attributes of ground service include reservation, ticketing, check-in, baggage delivery, and handling complaints ((Chen & Chang, 2005); (Park, 2007). In contrast, inflight services primarily involve employee performance and the physical surroundings and F&B (Han & Hyun, 2017). In the literature on hospitality and tourism ((Han & Hyun, 2017); (Ryu et al., 2012)), Understanding service performance relies heavily on the ideas of service encounter, environment, and F&B. Quality attributes in these areas are crucial for assessing in-flight service performance as well. Passengers engage in interactions with flight attendants that involve extra attention, perceived authenticity, and competency ((Ali et al., 2016); (Han et al., 2019) in the course of air travel. The physical environment during air travel can be characterized by visible elements (such as electronic facilities, seat configuration, and TV screens) and intangible aspects (like temperature, noise levels, and air quality). (Ali et al., 2016); (Han, 2013) (Oyewole, 2001). In-flight food and beverage service is a crucial aspect that sets one airline apart from its rivals (Ronalds, 2013). For instance, Korean Air offers bibimbap, a popular Korean dish, to appeal to its target audience. Airlines from Muslim-majority countries provide Halal meals in order to attract Muslim passengers. Malaysia Airlines is known for serving authentic Halal food that meets strict Halal standards and is considered one of the top airlines in this regard (Halal, 2011).

The quality of food and beverages has a notable impact on the performance of in-flight service as perceived by passengers ((Han & Hyun, 2017) Airline management needs a comprehensive understanding of the quality characteristics of food and beverage. These characteristics can be grouped into two main categories: sensory and nutritional aspects (such as appearance, diversity, temperature, nutrition content, ingredients, and freshness) and service delivery (like speed, timing, cleanliness of utensils, tidiness, and attentiveness of servers)(Agarwal & Gowda, 2021). The airline industry is becoming more competitive, with customers choosing an airline based on the value they perceive in each quality attribute. This shift is due to the rise of low-cost carriers. To stay ahead of their competitors, airlines need to effectively manage service quality attributes so that passengers feel they are getting value for their money (Liu & Park, 2015).

2.2. Asymmetrical impact of quality attributes on satisfaction

Quality characteristics have a positive impact on overall happiness (Anderson & Mittal, 2000). The literature on hospitality and tourism typically emphasizes linear, symmetrical effects in the exploration of relationships between quality attributes and satisfaction (Lee et al., 2017). High-quality attributes of airline service contribute to overall satisfaction, ultimately fostering customer loyalty (Elkhani et al., 2014). Although understanding linear and symmetric effects is important in analyzing relationships, neglecting the asymmetric effects of quality attributes on satisfaction can limit insight into which attributes are more

sensitive to satisfaction or dissatisfaction. For example, having agreeable in-flight temperature may not necessarily lead to passenger satisfaction because it might be taken for granted. However, passengers can become very dissatisfied if the air-conditioning fails during a flight. This demonstrates that certain attributes may have a greater impact on dissatisfaction than on satisfaction, while other attributes generate more satisfaction than dissatisfaction. Therefore, interpreting the asymmetrical impact of quality attributes on satisfaction involves considering the differential effects of these attributes on (dis)satisfaction since (dis)satisfaction responds differently to various types of attributes ((Anderson & Mittal, 2000); (Mittal et al., 1998); (Oliver, 2014); (Streukens & Ruyter, 2004).

The unequal effect of characteristics on satisfaction is apparent when a service provider improves a specific characteristic but does not see a corresponding increase in customer satisfaction. On the other hand, another characteristic results in greater customer satisfaction after an equal investment is made in that area. The original proponents have advocated for asymmetrical relationships between characteristics and satisfaction by The two-factor theory categorizes attributes as motivators and hygiene factors. Motivators, like challenging work, increase job satisfaction when met. On the other hand, hygiene factors, such as job security, do not directly impact satisfaction but can lead to dissatisfaction if not fulfilled. This concept was later expanded to a three-factor theory in marketing literature: dissatisfiers, hybrids, and satisfiers ((Anderson & Mittal, 2000)(Sellappan & Shanmugam, 2021); (Huang, 2017); (Oliver, 2014); (Streukens & Ruyter, 2004).

Customer satisfaction and dissatisfaction are influenced by customer expectations, which can vary based on different types of attributes. The three-factor theory aims to recognize how attributes impact satisfaction in asymmetric ways. Customer expectations also change over time as individuals become more familiar with specific attributes, leading to adjustments in their expectations. This suggests that the dynamic impact of attributes on satisfaction can shift over time. Furthermore, service product class also affects expectation levels; passengers in economy or business class and those using full-service or low-cost carriers may perceive passenger satisfaction and dissatisfaction differently (Sezgen et al., 2019).

The three-factor theory is derived from the attractive quality theory, which includes five dimensions of quality (Huang, 2017) stated that the five dimensions of quality have varying impacts on satisfaction and are classified as “attractive,” “must-have,” “one-dimensional,” “indifferent,” and “reverse” qualities. "Attractive" attributes, such as satisfiers, denote value-added features not usually anticipated by travelers ((Huang, 2017); (Oliver, 2014)).Therefore, when these qualities are present, travelers feel content and happy. Because these qualities are not anticipated, travelers do not feel let down or dissatisfied if they are absent. So, appealing characteristics are seen as positive uneven attributes. On the other hand, essential qualities like dissatisfiers are considered fundamental features in contrast to appealing ones ((Huang, 2017); (Oliver, 2014)). Travelers may feel discontent if these features are not available or do not meet their standards. Nonetheless, they might still feel dissatisfied even if these qualities meet their expectations because they simply expect them to be present. Therefore, essential qualities are viewed as negative asymmetrical attributes. On the other hand, one-dimensional qualities like hybrids represent symmetrical characteristics ((Huang, 2017); (Oliver, 2014)). Travelers feel content (unhappy) when these features are (not) provided. Neutral characteristics are qualities that do not affect satisfaction or dissatisfaction, regardless of their availability (Huang, 2017).The opposite is true for attributes, as their presence leads to dissatisfaction and their absence brings satisfaction (Huang, 2017). Ignoring the unequal links between attributes and satisfaction could lead to "model misspecification and limited predictive capability." (Streukens & Ruyter, 2004). The hospitality and tourism literature has seen numerous studies investigating

the unequal impacts of different attributes on satisfaction across various sectors, such as incentive travel (Lee et al., 2011), ski resorts (Faullant et al., 2008), restaurants (Back, 2012), gaming establishments (Lee et al., 2015). Understanding the dynamic nature of airline service quality attributes and their asymmetrical relationship with satisfaction or dissatisfaction could be valuable.

3. METHODOLOGY

3.1. Data

We utilized a prominent consumer review platform, TripAdvisor, to gather airline reviews from consumers. Unlike traditional survey data commonly used in previous airline studies, online review data offer a more representative sample in the tourism context and capture actual experiences of airline services. This indicates that online consumer review data may be more objective and less influenced by the "laboratory effect." (Yong et al., 2017). To gather analytical data, we utilized Python for creating an automated web crawling program to extract online reviews from social media platforms. As a result, the total number of reviews collected and analyzed in this study was 157,035. This quantity is sufficient for testing statistical models as it helps mitigate overfitting issues (Park et al., 2019). These data include the online evaluations and/or scores of 20 U.S. airlines, such as Air Choice One Airlines, Alaska Airlines, Allegiant Airlines, American Airlines, Boutique Airlines, Cape Airlines, Elite Airlines, Frontier Airlines, Jetblue Airways , Jet Suite X Airline , Hawaiian Avrialines Mokulele Aviation Spirit Airways United South West Delta Silver Southern Sun Country Tradewind.

3.2. Variables

Dependent variables: this research utilized two dependent factors.

“negative deviations” (NDi) and “positive deviations” (PDi). The variables were created based on the contrast between an individual's rating for a particular trip and the most frequent rating for the same airline and route. The "rating" was assessed using a scale from 1 to 5. Similarly, the "most frequent overall rating" also fell within this range. It is important to note that we categorize service outcomes rather than customers themselves; therefore, one customer may yield differing service outcomes with conflicting results. Control variables: The control variables that indicate various social media actions and categories of purchased airline services were categorized into two groups, representing individual traits and trip features in the model. Prior research has shown a connection between individuals' social media interactions and their evaluations as well as experiences with travel services (Fang et al., 2016).

Distribution of reviews varies based on the kinds of travel products used by tourists, such as budget-friendly versus high-end services or local versus global trips (Blal & Sturman, 2014). Previous researchers exploring online review contexts have proposed that the usefulness of reviews can be assessed based on individual features (Park & Nicolau, 2015),reviewers' knowledge or dedication to online review platforms (Ngo-Ye & Sinha, 2014) influence how customers evaluate the online ratings. Moreover, a research study conducted by (Lee et al., 2015) The study revealed the existence of information cascades on online review platforms, indicating that previous ratings have an impact on current rating scores. Therefore, it is crucial to take into account factors such as the number of helpful counts and level of commitment from content contributors (e.g., uploading images), as well as the distribution of past ratings when creating the predictive model.

When it comes to operationalizing the measurement, "Helpful count" refers to the total number of helpful votes received by a reviewer divided by the total number of reviews written. "Photos" indicates the quantity of photos posted by a reviewer. The "Distribution of ratings" displays the proportion of ratings

(out of their total contributions) that a reviewer has designated as "Excellent," "Very good," "Average," "Poor," and "Terrible."

3.3. Model development

The approach employed to examine the factors influencing variations in ratings (satisfaction) was based on the Tobit model. Since the two outcome variables, specifically negative and positive deviations, are censored on both ends, the Tobit model is suitable as it enables us to account for this characteristic (Park & Nicolau, 2015). The practical span of the variable PDi, representing positive differences for individual i, is [0, 4), while the range of negative differences is. We consider zero difference to be part of the positive range assuming that a zero value indicates satisfaction and fulfillment of expectations for the individual (i.e., expectation = experience). Consequently, the Tobit models for PDi and NDi are specified as follows:

$$PD_i = \alpha_{PD} + \sum_{k=1}^{K} \beta_{PD,k} x_{ki} + \sum_{j=1}^{J} \gamma_{PD,j} z_{ji} + \varepsilon_{PD,i}, \quad (1)$$

$$ND_i = \alpha_{ND} + \sum_{k=1}^{K} \beta_{ND,k} x_{ki} + \sum_{j=1}^{J} \gamma_{ND,j} z_{ji} + \varepsilon_{ND,i}, \quad (2)$$

where α represents a constant term, βk is the coefficient linked to the k-th individual characteristic xki for each individual i, γj is the coefficient related to the j-th trip attribute zji for each individual i, and εi denotes an error term that follows a normal distribution. The parameters α, βk, and γj are assumed to be distinct in each model denoted by subscripts PD and ND. It should be noted that individual characteristics (xk) encompass helpful count, number of photos uploaded, previous ratings distribution as well as types of products purchased by consumers such as domestic vs international flights and travel class. Trip attributes (zj) comprise value for money aspect during flight(s), in-flight amenities including seat comfort, customer service quality,cleanliness,F&B legroom,and in-flight entertainment along with ground services e.g., check-in/boarding procedures. Henceforth, differences are examined through empirical application.

4. RESULTS

This study first checked for collinearity and heteroskedasticity before conducting the analysis. The variance inflation factors of the former were calculated, and all of them were found to be less than 10. This finding aligns with (Ngo-Ye & Sinha, 2014). The Breusch–Pagan test was conducted to identify the presence of heteroskedasticity for the latter ($F = 683.7$; $p < 0.001$). The White heteroscedasticity-consistent standard errors were utilized to display the parameter estimates.

Model 1 in reveals the results for positive deviations, and significant and positive impacts are produced by certain variables that depict individual characteristics (such as number of cities visited by a reviewer, quantity of posted photos, and the percentage of products categorized as "Excellent" in a reviewer's posts) as well as variables reflecting attributes related to airline services (seat comfort, customer service, cleanliness, value for money, check-in procedures and boarding). Conversely,"Very good", "Average", and "Poor" categorizations of reviewed products in a reviewer's posts are considered individual characteristics with negative effects. Attributes like F&B offerings and in-flight entertainment within airline services along with domestic flight travel and economy class type show determinant factors with adverse effects.

Model 2 in displays the outcomes for adverse differences, while variables pertaining to individual traits (such as the number of posted photos and the percentages of "Excellent," "Very good," and "Average" categorizations of products reviewed in a reviewer's posts) and airline service attributes (including seat comfort, customer service, value for money, and check-in and boarding) demonstrate notable positive

impacts. When it comes to unfavorable effects related to individual characteristics observed at levels 3, 4, 5, and 6; helpful count; as well as the percentages of “Poor” and “Terrible” categorizations of products reviewed by reviewers are noteworthy. For trip attributes with negative influences identified were domestic flight and economy class. Even though these individual effects hold significance, it is crucial to observe how these same variables impact "positive deviations" versus "negative deviations." The levels reflecting individual characteristics exclusively display significant negative results within negative deviations whereby Levels 0 and 1 serve as baseline standards. Higher levels result in more pronounced negativity compared to lower ones when services are perceived poorly.

Reviewers with high levels of expectations often impose strict penalties on low-quality services. The helpfulness of a review is only significant in the context of negative deviations, indicating that a reviewer's past posts guide them to give a negative rating for services perceived as low quality. Visiting multiple cities has a positive effect on positive deviations, suggesting that it enhances the perception of higher-than-expected quality. However, this variable shows no effect otherwise. The number of photos posted has both significant and negative impacts in positive and negative deviations respectively; however, there is an asymmetric difference between these parameters.The parameter for positive deviations is greater than that for negative ones, indicating an asymmetrical impact depending on whether the deviation is positive or negative.

The ratings distribution ("Excellent," "Very good," "Average," "Poor," and "Terrible") shows significant variations in their effects. While the impact of “Excellent” is notably positive, it has a greater effect on negative deviations than on positive ones (Wald test 1⁄4 28.05; $p < 0.001$). The categories “Very good” and “Average” have opposing influences; they negatively affect positive deviations but positively influence negative ones. The category “Poor” has equal significance and impact for both (Wald test 1⁄4 0.681; p 1⁄4). Lastly, the category “Terrible,” with significant and negative parameters, does not show significance in the model for positive deviation.

For the attributes of airline service, seat comfort shows a significant and positive relationship with similar parameters in both models (Wald test = 0.896; $p < 0.343$). Despite customer service displaying positive and significant parameters in both models, its impact on the negative deviation model is significantly greater than its effect on the positive deviation model (Wald test = 586.3; $p < 0.001$). Cleanliness has a positive and significant association with the positive deviation model but lacks significance in the negative one. F&B and in-flight entertainment have statistically significant negative effects only in the positive deviation model. The factor of value for money is significant in both models, with a significantly higher impact in the negative deviation model (Wald test 1⁄4 792.1; $p < 0.001$). The "check-in and boarding" category shows positive and significant impacts on both models, but its influence is stronger on the positive deviations than on the negative ones (Wald test 1⁄4 89.3; $p < 0.001$). Domestic flights display negative and significant effects on both types of deviations, yet their impact is greater on the positive deviations than on the negative ones (Wald test1⁄4 58.04; $p < 0.001$). Economy class has a statistically significant negative effect only in the context of positive deviations.

5. CONCLUSION

In a mature and competitive aviation market, it's essential for airline companies to devise sustainable strategies. While price has traditionally been a major factor in consumers' choice of airlines, this research emphasizes the significance of comprehending service quality mechanisms in the airline indstry (Chen & Chang, 2005) customer-focused marketing approach (Gurău, 2003).

This goal is established because exceptional service quality has the potential to impact satisfaction and encourage repeat purchasing (Pike, Bianchi, Kerr, & Patti, 2010), and possibly enhance efficiency in service enterprises (Parasuraman, 1988). This study examines various stages of service delivery, including ground and in-flight services, and their respective roles and functions. It aims to assess the connection between airline service quality attributes and customer satisfaction by analyzing extensive data from an online consumer review platform. The relationship is found to be asymmetric, indicating that the impact of quality attributes on airline service satisfaction varies.

This research holds significant theoretical and practical consequences. In terms of academic impact, several tourism scholars have examined a direct correlation (or a balanced impact) between the two ideas while exploring service quality and/or satisfaction in airline services ((Liou et al., 2011); (Pakdil & Aydın, 2007).

Overall satisfaction is more likely to improve when consumers have a positive perception of service attributes. This study, however, reveals that the quality of airline service attributes has asymmetrical effects on customer satisfaction. Certain airline attributes such as cleanliness, food and beverage options, and in-flight entertainment act as satisfiers, while others like customer service and check-in and boarding procedures function as dissatisfiers.

In particular, food and beverage (i.e., catering service) and in-flight entertainment are key factors that impact the changes in positive ratings (satisfaction), but they have little effect on explaining the variations of negative ratings (dissatisfaction). The economy class product type is more responsive to changes in positive ratings than to deviations in negative ratings. Travel experience level plays a significant role in affecting positive rating variations. On the other hand, expertise level, social media contributions, customer service, and value for money are identified as important attributes leading to variations of negative ratings rather than those of positive ones.

This finding demonstrates that the current research validated the relevance of Herzberg's dual-factor theory in the airline industry overall, as well as in online consumer reviews specifically. In addition to the three-factor theory (Huang, 2017)),This study identified airline characteristics that can be classified as a combination of factors, including seat comfort and legroom. The presence and quality of these attributes do not impact rating deviations or show symmetrical effects. In terms of methodology, the research analyzed over 157,000 customer data from online reviews obtained from a tourism social media website. Previous studies using online consumer reviews have aimed to comprehend the factors influencing the votes for "helpfulness" and/or "usefulness" of the reviews themselves (Park & Nicolau, 2015); (Lee et al., 2011). This research utilized large-scale tourism data to validate consumer behavior theory and gain a deeper insight into airline service quality, previously evaluated primarily through survey techniques. As such, this study serves as a valuable reference for upcoming researchers keen on exploring the realm of tourism big data.

The research findings have practical significance for airline managers seeking to create customer-focused marketing plans. Since airline service involves a series of interactions, it is recommended that managers pay attention to every aspect from ground services to in-flight experiences (Chen & Chang, 2005) and identify which characteristics provided to clients serve as satisfiers, dissatisfiers, or a combination of both. Airline managers are encouraged to prioritize specific features such as customer service, price (value for money), and check-in and boarding in order to deliver high-quality service to consumers. Failure to perform these attributes satisfactorily may easily lead airline passengers to dissatisfaction. For instance, providing training programs for frontline customer services staff (e.g., ticket reservation personnel, check-

in and gate agents, and cabin crew) is crucial in equipping them with valuable knowledge, skills,and the right attitude towards servicing customers. The study also emphasizes the significance of yield management by implementing dynamic pricing based on an understanding of customer values(Kimes, 1994). Even though these three factors (customer service, value for money, and check-in and boarding) have been identified as both sources of satisfaction and dissatisfaction, it is essential for airline service providers to implement operational strategies to enhance the quality of service for these aspects. For example, since cleanliness has been revealed as a significant source of satisfaction, airlines should emphasize the importance of hygiene. Therefore, establishing strategic standards in cleanliness by regularly assessing seating areas,tables, carpets, cabin panels and aircraft washrooms is highly recommended for effective management.

Considering specific traits, airline managers should differentiate between the varying levels of customer experience based on social media usage and frequency of travel. Travelers who are active on social media tend to be more responsive in expressing negative experiences, whereas those who have traveled extensively are more likely to share positive experiences. This suggests that it would be beneficial for airline managers to create tailored marketing strategies for these two groups of travelers. Given the ongoing pandemic, although the fundamental findings of this study are anticipated to remain valid, there are two important considerations to bear in mind. in-air and ground services. Initially, the study found that cleanliness had a positive and significant impact in the favorable deviation model but was not significant in the unfavorable one. This indicates that this characteristic is viewed as something that meets expectations, motivates, and attracts customers. However, given that cleanliness has been identified as a key measure for protection against Covid-19, it is likely to shift to being an element of dissatisfaction (rather than satisfaction), a hygiene necessity (instead of a motivator) and an essential requirement (as opposed to simply an attractive feature). As a result, passengers will anticipate high levels of cleanliness during their flight. Therefore, as a pertinent managerial step,,airlines should not only focus on enhancing and maintaining high standards they need to convey that they are committed to improving this service and meeting the high expectations of passengers.

Secondly, the analysis revealed that check-in and boarding had a significant positive impact on both models. This effect was more pronounced for positive deviations than for negative ones. It is well-known that check-in and boarding, including the time spent on these ground services, have always been seen as crucial factors in customer satisfaction. Typically, the time passengers spend waiting in line is considered a non-monetary cost from a marketing perspective due to potential "physical effort" and emotional stress involved before boarding (Ahmadi, 2019). In unusual circumstances such as the current situation, this "emotional strain" can be even more intense. This would validate our findings that the check-in and boarding process are likely to have a greater impact on negative variations compared to what we observed in our practical application. Once again, effectively managing waiting lines should be a critical managerial focus. It is crucial to remember that for airline companies, keeping planes grounded means missing out on potential revenue—therefore, they strive to minimize their time spent at the airport as much as possible (according to (Notomista et al., 2016), During turnarounds, the projected expense is $30 per minute. This necessitates airlines to develop fresh approaches for expediting boarding in a scenario where social distancing is mandatory, due to financial impact, and alleviating passengers' safety worries.

This study has its constraints. The data under analysis pertains solely to U.S. airlines. Subsequent researchers should investigate a wider range of international markets in order to improve the general applicability of the results. Existing literature on service quality emphasizes the significance of situational

factors that mirror service attributes (Ennew & Binks, 1996). Future studies should take into account different types of services, including international and domestic routes as well as full-service and low-cost airlines. This study mainly focused on quantifying consumer ratings from online reviews. It is important for future researchers to explore textual review data, which could provide in-depth and valuable insights (Park et al., 2019). In the context of the Covid-19 pandemic, there are potential areas for future research to explore. These include analyzing reviews and ratings to identify changes in the perceived importance of in-flight and ground attributes before and after Covid-19. Additionally, examining new airline systems such as High-efficiency Particulate Air filters for aircraft cabins and understanding passenger perceptions of these new features could be valuable avenues for investigation.

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