

## TOWARD UNDERSTANDING THE IMPACT OF ATTRIBUTES ON SATISFACTION IN DIFFERENT PRICE TIERS

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### ABSTRACT

This exploratory study analyzes online ratings of cruises to identify the drivers of consumer satisfaction and dissatisfaction. The goal is to highlight that attributes vary in impact across price tiers. This research involved using Impact Range Performance Analysis and Impact Asymmetry Analysis on data from online consumer reviews across four price tiers (budget, premium, deluxe, and luxury). These techniques allowed for the classification of cruise attributes into five types based on their ability to satisfy or dissatisfy consumers. Using this directional information, importance levels, and perceived performance, the authors show that the order in which cruise lines should dedicate their resources varies across price tiers.

The contribution of this article addresses the need for managers to understand not only which attributes their passengers care about most (i.e., importance weight), but also the potential of each attribute to cause either satisfaction, or dissatisfaction. This will allow strategic allocation of resources depending on whether the cruise line needs to reduce dissatisfaction, or increase satisfaction. Consequently, this research should interest academicians – as an application of creative research methodology, and managers – as a prescriptive tool for resource allocation.

**Keywords:** *Price Tiers, Attribute Classification, Satisfaction, Dissatisfaction*

### INTRODUCTION

Marketing research has long recognized that product (and service) attributes play a significant role in attracting consumers to their brands, shaping overall evaluations, and ultimately determining brand choice (Bolton and Drew 1991; Hauser and Clausing 1988; Mukherjee and Hoyer 2001; Sujan 1985). Decades of research have concentrated on two key issues regarding attributes: firstly, to simulate how consumers tradeoff attributes in their evaluations (Chitturi, Raghunathan, and Mahajan 2007; Green and Srinivasan 1990; Khan, Zhu, and Kalra 2011; Netzer and Srinivasan 2011; Ostrom and Iacobucci 1995), and secondly, to understand the impact of various attributes on 1) satisfaction when present or high in level; and 2) dissatisfaction if they are absent or low in level (Arbore and Busacca 2009; Kano et al. 1984; Matzler et al. 2004; Mittal, Ross, and Baldasare 1998; Oliver 1993). Though these two literature streams are extensive, an important element seldom incorporated in the study of attributes is that consumers who shop in different product classes, or “price tiers”, may value a particular attribute differently.

For example, consider a married couple where the husband wants to purchase a sports car and the wife wants to purchase a minivan. Attributes such as safety and performance are common to both classes of automobiles. However, a five-star safety rating would have more appeal for the minivan purchase than it would for the sports car, despite the potential for greater

speeding (and crashes) in the sports-car. Indeed, not having a five-star rating may cause the wife to drop the minivan brand from further consideration – regardless of its performance – whereas, the husband may compromise on safety rating in order to get the promised performance of the sports-car.

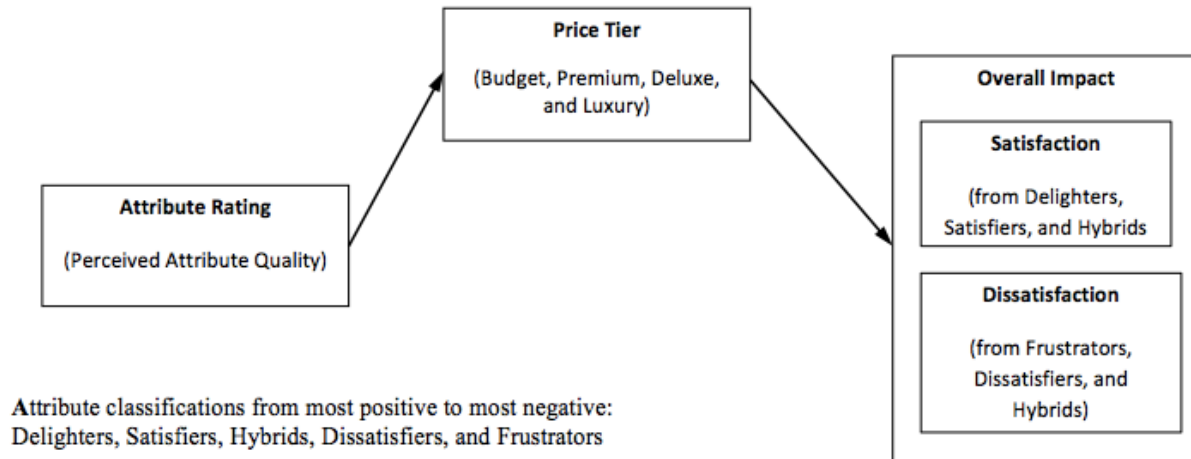
In other words, in addition to trading off attributes, each one has its own potential to cause satisfaction or dissatisfaction, exclusively – or even both, depending on the level. In the example above, a lack of safety would cause dissatisfaction for the wife, but its presence may not increase her satisfaction level, since it is one of her primary expectations. A lack of performance (or just average) would not necessarily make her dissatisfied, but having more performance may cause her to feel more satisfied. On the other hand, for the husband – a lack of performance would definitely cause dissatisfaction, *and* a high level of performance is likely to give him greater satisfaction. A lack of five-star safety rating might not dissatisfy him, but having the five-star safety rating may be a deciding factor when choosing between two alternatives, all else being equal.

The focus of this research as illustrated in this example highlights the need to evaluate consumers' taste for attributes within price tiers (distinct ranges of prices available in the market), rather than as one homogeneous mass-market. In marketing, it is well understood that price tiers emerge because segments of consumers vary in their willingness to pay for quality, which consumers infer based on brands' combinations of attribute levels. Classic multi-attribute models and conjoint analyses are able to measure the relative importance consumers place on attributes. However, researchers now acknowledge that 1) attribute importance and potential impact on satisfaction (or dissatisfaction) are two separate constructs, and 2) combining those

ideas should lead to more informative conclusions (Anderson and Mittal 2000; Lin et al. 2010; Mikulić and Prebežak 2008; Tan and Pawitra 2001).

This research contributes to this area, as one of the first to demonstrate that resource allocation to attribute improvements requires analysis at the price tier level. Extant literature on price tiers does not offer advice on how attributes might differ in their effect on satisfaction or dissatisfaction. For the most part, the price tier literature subsumes concrete product attributes as a function of the more abstract concept of product quality. Product quality is a convenient summary variable for parsimonious study of pricing effects, which can be intricate. While these issues regarding competition based on product quality differences relative to price differences are important, extant price tier research is limited in actionable insight for allocating resources among attributes. The goal of the current research is to expose and fill this gap in the cruise line industry, and suggest this methodology as a model for analyzing other industries structured in price tiers.

The recreational cruise line industry serves as the context for this research, in that it is a classic example of a product category that is differentiated into price tiers based on perceived (and perhaps, delivered) level of quality. Some companies maintain separate brands to appeal to the different segments of customers who are willing to pay at the respective price points. According to [www.galaxsea.com](http://www.galaxsea.com) (an industry website), there are five tiers of cruises. In increasing price order, they are: budget, premium, river, deluxe, and luxury. Furthermore, the website maintains that consumers should expect different levels of particular attributes on various cruise lines, and within each price tier.

**FIGURE 1: CONCEPTUAL MODEL**

If these differences exist in the delivery of attribute quality, and consumers differ in the importance they place on various attributes, managers need to understand how consumers interact with cruise attributes (Anderson and Mittal 2000; Herrmann, Huber, and Braunstein 2000; Kuo 2004; Kuo, Chen, and Deng 2012; Lin et al. 2010; Matzler and Hinterhuber 1998), particularly as it relates to price tiers. Specifically, this paper aims to address the following questions across four (of the five) cruise levels: 1) how do consumers perceive the quality of the attribute delivery; 2) what is the relative importance consumers place on each attribute; and 3) what is the potential for the attributes to cause satisfaction or dissatisfaction? See Figure 1 above for the Conceptual Model. Answering these questions should provide the insights managers of cruise lines need in order to make strategic decisions regarding allocating resources across cruise attributes. Ultimately, the goal of this article is to apply two classification methods as presented by Mikulić and Prebežak (2008), to generate prescriptive insights for managing attributes at different price tiers in the cruise industry.

## BACKGROUND AND CONTEXT

The recreational cruise ship experience is growing worldwide. According to Cruise Lines International Association (CLIA), the cruise industry in the United States alone has generated more than \$42 billion in total economic activity, involving over 356,000 jobs. Similarly, in Europe the cruise sector generated economic activity involving over 315,000 jobs. In addition, approximately 24 million people worldwide are expected to cruise in 2016, with a total investment of more than \$6.5 Billion in New Ocean Vessels alone (CLIA 2016). Similar to other product and service providers, managers in the industry are constantly monitoring and making updates and changes to cruise offerings in efforts to create the most satisfying vacation experiences and to motivate travelers to choose cruising as their preferred vacation out of the myriad of options available.

Zbucea (2015) reports that academic literature on cruise tourism is meager, although researchers agree that it is one of the most dynamic and growing forms of tourism. Existing research has focused on motivational perspectives, types of

passengers, and perceived value (Jones 2011; Teye and Leclerc 2003; Yi, Day, and Cai 2014); however, given the recent occurrences of cruise mishaps and disasters (Mileski, Wang, and Beacham 2014) onboard various vessels, exploration of dissatisfying cruise experiences may prove insightful for cruise customer experience management.

In addition to furthering insight into the dissatisfying cruise experience as compared to the satisfying cruise experience, another emergent issue is how the internet has changed the way tourism information is distributed because online travel information represents a significant source of customer feedback used in purchase decisions. Not only are cruise lines using online communications to provide potential and experienced cruisers travel information, cruise critics and cruise customers post reviews and rankings of cruises. The number of cruise rating websites (CRW's) is rising and they provide massive amounts of information and access to personal experiences with the cruise lines. Hence, interested potential and experienced cruise planners can use web-based sources of information in addition to other forms of public and word-of-mouth communications about cruise amenities and service quality. Consequently, many cruise lines view electronic word-of-mouth as an effective communication tool that companies must make serious efforts to understand, address, and leverage.

A cruise review refers to written comments about a cruise experience by a traveler or cruise critic. Expert reviewer usually refers to comments written by someone who has tested several peer products or services to identify which offers the best value for money or the best set of features. A myriad of "objective" expert cruise reviews exists such as Frommer's, Fodors, Cruise Diva, and CruiseMates.

However, many travelers look to "subjective" consumer reviews and ratings that are available via the Internet, also called 'electronic-word-of-mouth' (eWOM), in addition to traditional cruise line marketing materials (Lu and Stepchenkova 2015; Ong 2012; Otterbacher 2009). Indeed, the relative impact of consumer word-of-mouth versus expert word-of-mouth depends on the valence of the review. For example, negative consumer reviews have a stronger impact on decreasing purchase intent compared to expert reviews (Plotkina and Munzel 2016).

Nowadays with the growth of social media and the Internet, communication between consumers is instant and pervasive. These forms of communication serve as a platform for consumers to express their opinions about products and brands, including attribute ratings and their level of overall satisfaction (Trusov, Bucklin, and Pauwels 2009). Researchers have identified several consumer motivations for providing online reviews (Higie, Feick, and Price 1987; Walsh, Gwinner, and Swanson 2004; Wetzer, Zeelenberg, and Pieters 2007; Yoo and Gretzel 2008). A few of these motivations include personal benefits (e.g., to gain a reputation as an expert), altruistic benefits (e.g., to help others shop, or help the retailer/service provider), and cathartic benefits (e.g., to punish a company for delivering poor service). These online reviews are particularly crucial to companies in product categories where consumers are likely to seek the opinions of fellow-consumers before making a relatively expensive purchase, or one that has experience attributes. Experience attributes are aspects of a product or service that are difficult to assess prior to consumption (Nelson 1974). Studies have shown that these opinions of reviewers have a significant impact on sales (Chevalier and Mayzlin 2006; Liu 2006), product evaluations (Bone 1995), and purchase

intent (Lee and Lee 2009; Price, Feick, and Higie 1987). If this contagion effect is so strong, it would seem that a closer look at how consumers view attributes in customer reviews, which are public and known to affect consumer decision-making, would be a superior source of data than soliciting individual responses, which often remain private.

### *Cruise Attributes*

Anecdotal reports suggest that three different complementary contexts cover the aspects of cruiser satisfaction or lack thereof: (1) cruiser satisfaction/dissatisfaction (onboard) with tangible aspects of the cruise experience – the ship’s facilities, (2) cruiser satisfaction/dissatisfaction (on board) with the service aspects of the cruise experience – the amenities, and (3) cruiser satisfaction/dissatisfaction (in a port of call) with the on-shore destinations and/or travel route. For example, in terms of the ship’s facilities (tangible aspect of the cruise experience), (Kwortnik 2006, 2008) coined the term “shipscape” to denote the impact of the leisure cruise service environment that affects the cruisers onboard experience and its necessary positive condition for customer satisfaction.

According to Kwortnik (2008, p.3), “A shipscape is a context-specific type of servicescape that includes both the man-made physical and social environment in which the cruise service is delivered (the ship), as well as the natural environment (the ocean) that provides a broader experiential context. Modern cruise ships simultaneously direct attention to and away from the sea. For example, new ships offer many outside cabins with private balconies, once a luxury available only to passengers who booked expensive suites. Balconied cabins enhance a unique aspect of cruising: the experience of being at sea. However, cruise ships also

focus passengers’ attention inward through the use of shipscape elements, such as million-dollar art collections that adorn public spaces and the grandiose – some would say, outrageous – “entertainment architecture” designed to be utterly unlike most anything passengers might experience at home.”

Similarly, Yarnal and Kerstetter (2005) explored how “playful” ship space designs for social interaction impacts cruisers experience and satisfaction. Thus, these research findings indicate that the facilities are fundamental for the onboard satisfaction of customers. In fact, the cruise ship has become an important part of the cruise experience since it also represents a destination in itself.

In addition to the ship facilities, an increasing amount of amenities are being offered both on the ship (services) and at the ports of call (shore experiences). Cruise lines are challenged to intertwine a high-quality onboard stay and alluring shore-based experience and activities. For example, most cruise lines have a logistics office to supply food (a core amenity). In addition, other departments coordinate enrichment activities including onboard entertainment and activities, and destination excursions that involve a variety of cultural sites and experiences with easy transfers to/from the vessel.

Petrick and colleagues showed that service quality factors are related to passengers’ post-cruise cognitive assessments of perceived value, satisfaction and intentions to repurchase (Li and Petrick 2006; Petrick 2003, 2004a, b, 2005). Likewise, tourist satisfaction with the port of call experience at the cruise destination may influence not only the likelihood of a repeat cruise but also the likelihood of a return visit to the destination. Thus, a study of onshore satisfaction and/or dissatisfaction is necessary to fully understand the cruise

experience and is a catalyst for this study of the ship, service, and destination factors that may influence cruise experience outcomes.

### *Price Tiers*

This research explores how price tiers influence perceptions of product attributes. Consumers have been trained through observation to recognize price as a signal of quality (Milgrom and Roberts 1986; Wolinsky 1983). The reason that consumers even need this cue is that often, it is impractical for consumers to have perfect information on the match between all price-quality matches in the market. Therefore, to reduce feelings of doubt about the purchase, they use price as a guideline (Dodds, Monroe, and Grewal 1991). However, a strong sentiment among consumers is that if a product does not live up to the quality that the price signals, low demand will force the firm to drop the price to an appropriate level. In other words, the market is self-correcting (Rao and Monroe 1989). Market forces tend to determine the range for each price tier and the gaps between price tiers. Therefore, consumers have to determine how much they are willing to pay for the product and shop among those price tiers at, or below, that chosen price point.

Given that consumers can choose to shop in any price tier within their budget, brands compete both within their price tiers, and with brands in adjacent price tiers (Sivakumar 2003). Researchers have found that competition between price tiers tends to be asymmetric because consumers place more value on incrementally higher quality, than on the savings they would receive from stepping down in quality. Therefore, higher price tiers tend to have an advantage. When lower priced tier products give discounts; they struggle to attract consumers who normally buy from higher priced tiers. However, when higher priced tiers give discounts, researchers have found that these

firms attract consumers from within that price tier and the ones below (Allenby and Rossi 1991; Blattberg and Wisniewski 1989; Hardie, Johnson, and Fader 1993).

Other scholars find that there are factors that moderate this asymmetry in competition between price tiers (Bronnenberg and Wathieu 1996; Sivakumar 2003; Sivakumar and Raj 1997). For example, as the difference in quality becomes larger between price tier, for a corresponding price difference, the asymmetry becomes more pronounced in favor of the higher price tier brand (Sivakumar 2003). The main point that emerges from these papers is that: as price tiers separate in quality (and prices), consumers tend to stick within their price tiers. Accordingly, the likelihood that consumers will shop within a price tier may be predicted by the tier's share of the market (Romaniuk and Dawes 2005). In turn, having a stable cohort in each price tier encourages consensus within the price tier regarding the potential for attributes to rouse satisfaction or dissatisfaction. These beliefs regarding attributes should be slow to change.

The implication of extant research is that in markets segmented by price tiers, competition within price tiers may be different from competition between price tiers (Sivakumar 2003). Just as past research recognizes asymmetries in price tier competition – primarily due to the desire for higher attribute levels – this research explores the asymmetries in how attributes affect consumer satisfaction or dissatisfaction across price tiers. This insight will help managers allocate resources across attributes in a strategic manner. A firm that has suffered from numerous consumer complaints or negative word-of-mouth may want to invest in those attributes that tend to cause dissatisfaction for customers within that price tier. Conversely, firms that are

average or better in consumer reviews may want to focus on the attributes that can enhance satisfaction.

The next section gives a brief review of the more popular ways of classifying attributes based on their effect on satisfaction and dissatisfaction. In particular, we apply two techniques as presented by (Mikulić and Prebežak 2008) to a dataset we assembled from a cruise review website, [www.cruise critic.com](http://www.cruise critic.com). Our analysis ends with recommendations for four cruise price tiers.

## ATTRIBUTE CLASSIFICATION MODELS

### *Herzberg Model*

In his theory of motivation, Herzberg identified two classifications of internal dispositions that drive behaviors – satisfaction and dissatisfaction. Satisfaction is rendered through perceptions of environmental conditions that are not necessarily required but when present result in a positive emotional response. He labeled the factors that induce a positive emotional response are “motivators.” Dissatisfaction is rendered through perceptions of environmental conditions that when absent result in a negative emotional response. Herzberg called these “hygiene” factors. Although this theory was developed in the context of job motivation (Herzberg, Mausner, and Snyderman 2011), it has been found applicable to the context of customer satisfaction and dissatisfaction behavior (e.g., Füller and Matzler 2008).

Researchers in the leisure services industry have used Herzberg’s theory of motivation (Balmer and Baum 1993; Crompton 2003) and confirm that hygiene factors are expected to be present and could cause dissatisfaction if they are not appropriately in place, but would not create satisfaction like motivator factors. Motivator factors are linked directly to satisfaction.

Applying Herzberg’s theory, the factors of the cruise experience would be considered either hygiene factors (dissatisfiers/maintenance factors) or motivators (satisfiers) that attract individuals to cruising, and ultimately create satisfaction. The underlying premise is that while the motivators (satisfiers) that attract people to cruise vacations are extremely important, adequate focus on hygiene factors is also necessary to avoid dissatisfaction.

### *Kano Model*

While the Herzberg classification is applicable when attributes cause satisfaction exclusively or dissatisfaction exclusively, it does not account for attributes that have the flexibility to cause both satisfaction and dissatisfaction. Filling this gap, the Kano Model (Kano et al. 1984) proposed five-factors, classifying attributes as 1) dissatisfiers (basic/must-be attributes); 2) hybrids (performance attributes); and 3) satisfiers (excitement attributes); 4) indifference attributes (presence has no effect), and 5) reverse attributes (presence decreases satisfaction). The first three types are the most common, which is a reason that studies sometimes refer to the first three attribute types in the Kano model, and built on those factors (e.g., Matzler and Sauerwein 2002).

The Kano Model proposed a non-linear relationship between attribute performance and satisfaction (for satisfiers), or dissatisfaction (for dissatisfiers). However, as (Lin et al. 2010) report, researchers have commented that the model was difficult to implement without making it too complex for respondents. Refinements of the Kano model adopted a dummy variable regression approach, which coded high performance and low performance on an attribute in separate variables. Unlike attributes that exclusively impact satisfaction or dissatisfaction, hybrids can

impact both satisfaction and dissatisfaction. (Lin et al. 2010) illustrated that this dummy variable approach takes away some of the usefulness of the data to plot Kano et al.'s (1984) proposed non-linear effect. However, the dummy variable approach is more practical as a means to identify how the attribute operates, directionally. The following techniques emerged from this dummy variable approach.

#### *Attribute Performance Models*

Mikulić and Prebežak (2008) raised the issue that using attribute's ratings directly to determine the effect on overall satisfaction may be misleading because the relative importance weighting for attributes can vary widely across consumers. Therefore, if attribute ratings are regressed on overall customer satisfaction, the regression weights can be confounded because they would include both the attribute rating and the individual's weighting of that attribute. In order to correct for this issue, commonly seen in Importance-Performance Analysis (IPA)(Martilla and James 1977), Mikulić and Prebežak (2008) Petrick, Tonner, and Quinn 2006 proposed that the range of impact of an attribute, that is, its potential to cause satisfaction or dissatisfaction, could serve as a proxy for the overall importance of the attribute. They called this method Impact Range-Performance Analysis (IRPA).

In addition, they proposed that the potential for attributes to cause satisfaction or dissatisfaction might be a measure that can help to classify attributes. For example, if an attribute demonstrates stronger potential for overall dissatisfaction compared to satisfaction, there is negative asymmetry in its effect. Traditionally, researchers would label such an attribute as a dissatisfier or hygiene attribute. However, the effect is not binary in nature (either positive or negative), but exists along a

continuum. Therefore, using the level of asymmetry in its effect can identify the nature of the attribute in a more detailed manner – a technique that Mikulić and Prebežak call Impact Asymmetry Analysis (IAA).

Five categories of attributes emerge based on the Range of Impact on Customer Satisfaction (RIOCS). Listed from negative to positive, the categories are 1) frustrators, 2) dissatisfiers, 3) hybrids, 4) satisfiers, and 5) delighters. On the extremes, frustrators and delighters cause almost exclusively negative or positive reactions, respectively. Research on customer satisfaction distinguishes between satisfaction and delight. Though both relate to the positive affect consumers feel in response to good quality – researchers have proposed that satisfaction occurs with disconfirmation of expectations, while delight requires additional arousal from the element of surprise (see Arnold et al. 2005 for a review; Oliver, Rust, and Varki 1997). On the other extreme, the literature seldom refers to the term “frustration”; however, there is some coverage of “customer outrage” (which we consider related to frustrator attributes). Customer outrage (Schneider and Bowen 1999; Verma 2003) is an extremely negative affective reaction to some failure in service delivery. These are the types of events that would prompt the consumer to spread negative word-of-mouth and refrain from repurchasing the brand.

Using attribute performance models, this exploratory study analyzes online ratings of cruises to identify the drivers of consumer satisfaction and dissatisfaction. The goal is to highlight that attributes vary in impact across price tiers. Impact Range Performance Analysis and Impact Asymmetry Analysis (Mikulić and Prebežak 2008) are applied on data from online consumer reviews across four price tiers (budget, premium, deluxe, and luxury). The



research questions to be answered are as follows:

1. How do consumers perceive the quality of the attribute delivery?
2. What is the relative importance consumers place on each attribute?
3. What is the potential for the attributes to cause satisfaction or dissatisfaction?

The sections that follow include the methodology used, findings, discussion, managerial recommendations, limitations and future research, and conclusion.

## METHOD

### *Data Collection*

The data source for this study was an independent cruise review site, [www.cruise critic.com](http://www.cruise critic.com), where consumers are able to provide both comments and numeric scores regarding their experiences, on a particular cruise. The numeric scores on the website are Likert type scales ranging from one to five. After gathering preliminary information about the cruise line, ship, destination, and date of embarkation, the website invites consumers to first provide an overall [judgment] rating of the cruise and ratings for eleven attributes. These attributes include cabin, public spaces, fitness center, dining, service, enrichment activities, entertainment, shore excursions, family activities, rates, and value for money.

The initial sample included 906 reviews of 13 cruise lines, spanning 37 destinations, dated between years 2011 and 2015. To select the reviews to record in the dataset, we skipped reviews that had missing ratings on three or more attributes, and those that had no variance (e.g., all fives). An industry website, [www.galaxsea.com](http://www.galaxsea.com), categorizes cruises into five levels in ascending order of price-point: budget, premium, river, deluxe, and luxury. Although the website preassigned most of the cruise lines (e.g. budget – Carnival;

premium – Cunard; luxury – Regent of the Seas) to the five levels, we verified these levels by searching for a week long cruise for similar destinations to compare the prices on [www.orbitz.com](http://www.orbitz.com). River cruises seem to be the most dissimilar based on the sizes of the ships, amenities, and shore excursions. Therefore, 703 reviews (budget, n = 266; premium, n = 148; deluxe, n = 141; and luxury, n = 148) remained after removing river cruises from the data.

### *Impact Range Performance Analysis (IRPA)*

Applying the procedure used by (Mikulić and Prebežak 2008), a preliminary step for both IRPA and IAA was to run a Punishment Reward Comparative Analysis (Brandt 1987). This required creating two dummy variables for each attribute, where the reward dummy would have a one for all ratings of five (the extreme high) on that attribute. All other ratings (1, 2, 3, and 4) would be a zero on that dummy variable. Similarly, the punishment dummy would have a one for all ratings of one (the extreme low) on that attribute. All other ratings (2, 3, 4, and 5) would have a zero for that dummy variable. Using overall star-rating as a proxy for satisfaction, the next step was to perform a regression analysis on overall star-rating (min = 1, max =5) as the dependent variable, with all reward and punishment dummy variables as independent variables. The standardized regression weights represent the [maximum] potential for each attribute to affect overall satisfaction (see Table 1A through 1D).

**TABLE 1A**  
**PUNISHMENT AND REWARD COEFFICIENTS - BUDGET CRUISES**

Attribute	Reward	Punish	RIOCS	SGP	DGP	IAI
Cabin	0.155 ***	-0.103 **	0.258	0.601	-0.399	0.202
Dining	0.168 ***	-0.161 ***	0.329	0.511	-0.489	0.021
Embark	0.047	-0.082 *	0.129	0.364	-0.636	-0.271
Enrich	0.004	-0.030	0.034	0.118	-0.882	-0.765
Entertainment	0.016	-0.113 **	0.129	0.124	-0.876	-0.752
Fitness	0.034	-0.066	0.100	0.340	-0.660	-0.320
Public	0.070	0.017	0.053	1.321	0.321	1.000
Service	0.294 ***	-0.091 *	0.385	0.764	-0.236	0.527
Shore	0.052	-0.124 **	0.176	0.295	-0.705	-0.409

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Abbreviations: RIOCS (range of impact on overall customer satisfaction), SGP (satisfaction generating potential), DGP (dissatisfaction generating potential), IAI (impact asymmetry index)

**TABLE 1B**  
**PUNISHMENT AND REWARD COEFFICIENTS – PREMIUM CRUISES**

Attribute	Reward	Punish	RIOCS	SGP	DGP	IAI
Cabin	0.185 **	-0.094	0.279	0.663	-0.337	0.326
Dining	0.128	0	0.128	1.000	0.000	1.000
Embark	0.215 **	-0.129 *	0.344	0.625	-0.375	0.250
Enrich	0.044	-0.005	0.049	0.898	-0.102	0.796
Entertainment	0.001	0.047	0.046	0.022	1.022	1.000
Fitness	-0.023	-0.165 **	0.142	-0.162	-1.162	-1.000
Public	0.175 *	0	0.175	1.000	0.000	1.000
Service	0.129	-0.242 ***	0.371	0.348	-0.652	-0.305
Shore	0.059	-0.1	0.159	0.371	-0.629	-0.258

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Abbreviations: RIOCS (range of impact on overall customer satisfaction), SGP (satisfaction generating potential), DGP (dissatisfaction generating potential), IAI (impact asymmetry index)

**TABLE 1C**  
**PUNISHMENT AND REWARD COEFFICIENTS – DELUXE CRUISES**

Attribute	Reward	Punish	RIOCS	SGP	DGP	IAI
Cabin	0.038	-0.111	0.149	0.255	-0.745	-0.490
Dining	0.157 *	-0.023	0.180	0.872	-0.128	0.744
Embark	0.137 *	-0.211 **	0.348	0.394	-0.606	-0.213
Enrich	0.039	-0.104	0.143	0.273	-0.727	-0.455
Entertainment	0.013	-0.015	0.028	0.464	-0.536	-0.071
Fitness	-0.029	-0.044	0.015	-1.933	-2.933	-1.000
Public	0.193 **	0.041	0.152	1.270	0.270	1.000
Service	0.322 ***	-0.152 *	0.474	0.679	-0.321	0.359
Shore	-0.02	-0.111	0.091	-0.220	-1.220	-1.000

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Abbreviations: RIOCS (range of impact on overall customer satisfaction), SGP (satisfaction generating potential), DGP (dissatisfaction generating potential), IAI (impact asymmetry index)

**TABLE 1D**  
**PUNISHMENT AND REWARD COEFFICIENTS – LUXURY CRUISES**

Attribute	Reward	Punish	RIOCS	SGP	DGP	IAI
Cabin	0.022	-0.206 **	0.228	0.096	-0.904	-0.807
Dining	0.155 *	-0.129	0.284	0.546	-0.454	0.092
Embark	0.298 ***	-0.084	0.382	0.780	-0.220	0.560
Enrich	0.067	-0.08	0.147	0.456	-0.544	-0.088
Entertainment	-0.034	-0.194 *	0.160	-0.213	-1.213	-1.000
Fitness	-0.147 *	-0.044	0.191	-0.770	-0.230	-1.000
Public	-0.085	0.132	0.217	-0.392	0.608	0.217
Service	0.006	-0.157 *	0.163	0.037	-0.963	-0.926
Shore	0.221 **	-0.076	0.297	0.744	-0.256	0.488

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Abbreviations: RIOCS (range of impact on overall customer satisfaction), SGP (satisfaction generating potential), DGP (dissatisfaction generating potential), IAI (impact asymmetry index)

In the premium price tier, there were two attributes, cabin and public, with no reviews with a one out of five, which means that all punishment dummies on those attributes were zero. In other words, the data suggest that there was no punishment effect; resulting in zeros for punishment regression weight for cabin and public in Table 1B.

The range of impact on overall customer satisfaction (RIOCS) was calculated by finding the difference between these regression weights. In other words, if these regression weights were plotted on a line, the RIOCS would represent the distance between these points. For the IRPA, the means of the attribute ratings represent the performance dimension (vertical axis) and the RIOCS represents the impact potential of the attribute (horizontal axis). The grand means determined the position of the axes for the IRPA graphs (see Figures 2A through 2D).

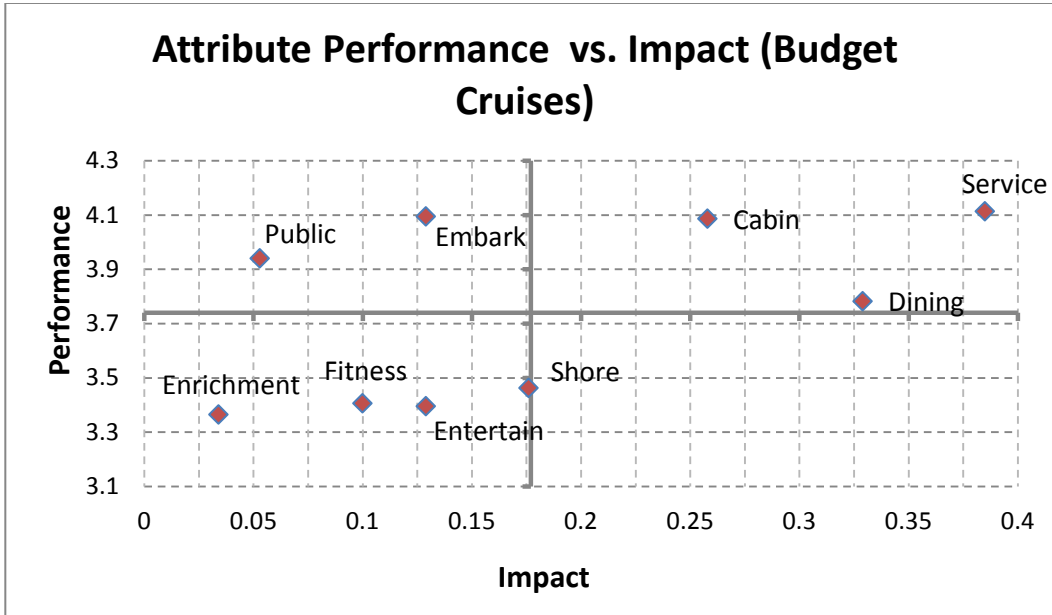
Each IRPA graph shows the potential for each attribute to affect satisfaction, and compares how consumers, viewed cruise line performance on the respective attribute within that price tier. Although IRPA shows a range of impact (RIOCS) for each attribute (akin to importance weight); IRPA does not indicate directionally how the attribute affects satisfaction (i.e., one-sided – as a satisfier or

dissatisfier; or two-sided – as a hybrid attribute). The Impact Asymmetry Analysis (IAA) fills this gap.

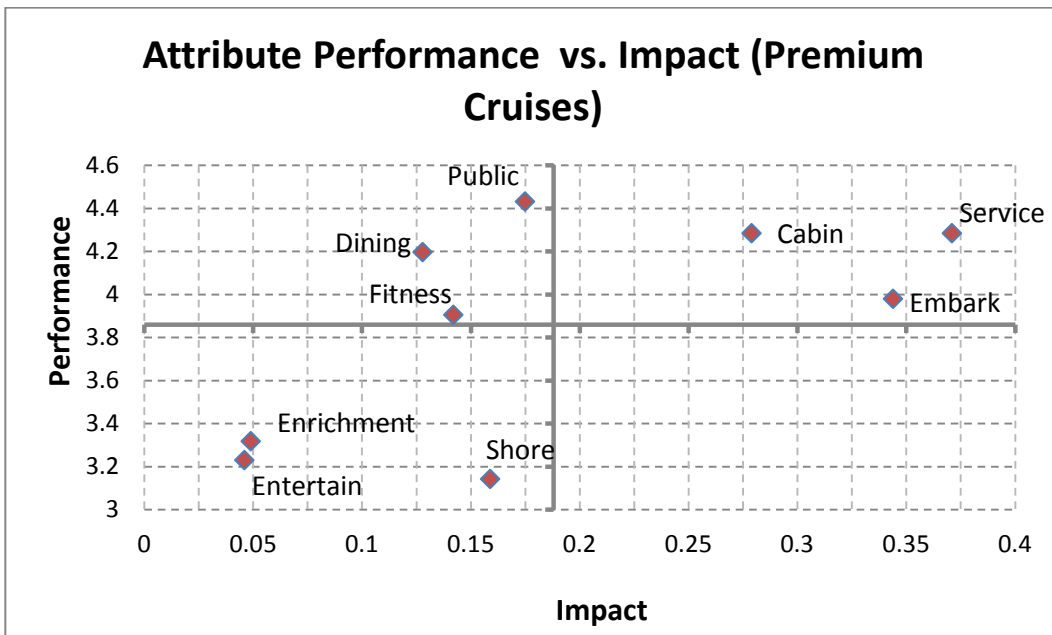
#### *Impact Asymmetry Analysis*

For the IAA, the impact asymmetry index needs to be calculated. The satisfaction generating potential (SGP) was calculated by dividing the reward coefficient by the RIOCS. Likewise, the dissatisfaction generating potential (DGP) was calculated by dividing the punishment coefficient by the RIOCS. Adding the SGP (usually positive) and DGP (usually negative) results in an impact asymmetry index (IAI), indicating the degree of one-sidedness (or balance) each attribute displayed. The four graphs were plotted with IAI on the vertical axis, which was divided into five regions – representing the classification of the attribute. Attributes that fell in the middle band (0.4 wide) were hybrid attributes. Those that fell in the band (0.4 wide) above hybrids were satisfiers, and those in the band below were dissatisfiers. The remaining (0.2 wide) bands at the top and bottom were delighters and frustrators, respectively. Impact range (RIOCS) was on the horizontal axis, just as it was on the IRPA graphs. This axis was divided equally into low (less than 0.17), medium (0.17-0.333) and high (greater than 0.333) impact.

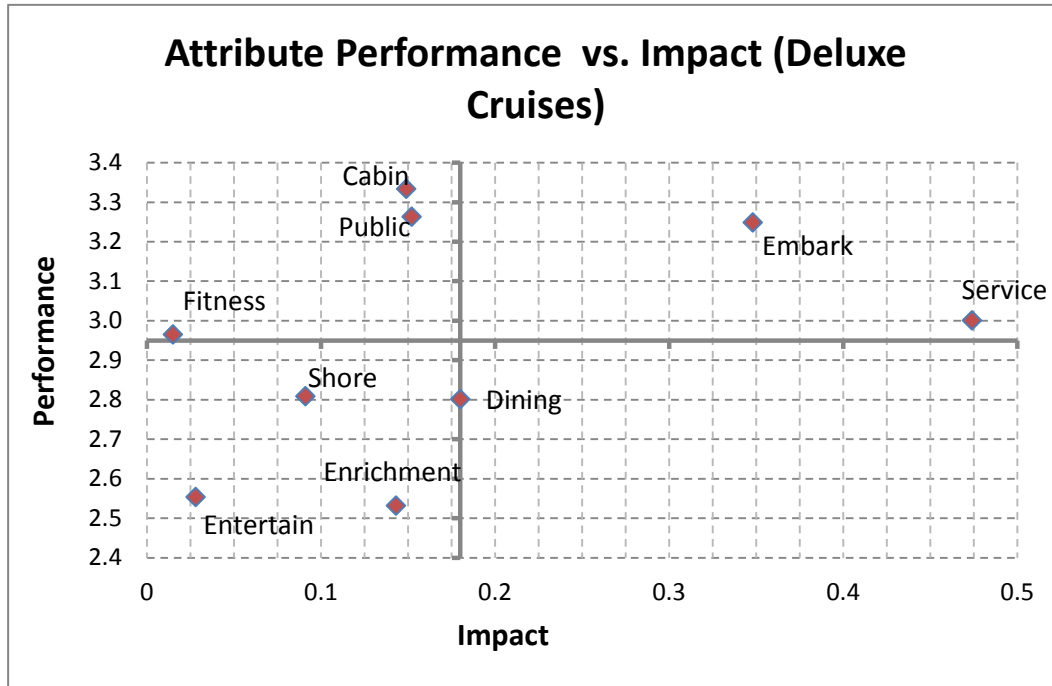
**FIGURE 2A: IRPA**  
**IMPACT RANGE PERFORMANCE ANALYSIS (BUDGET CRUISES)**



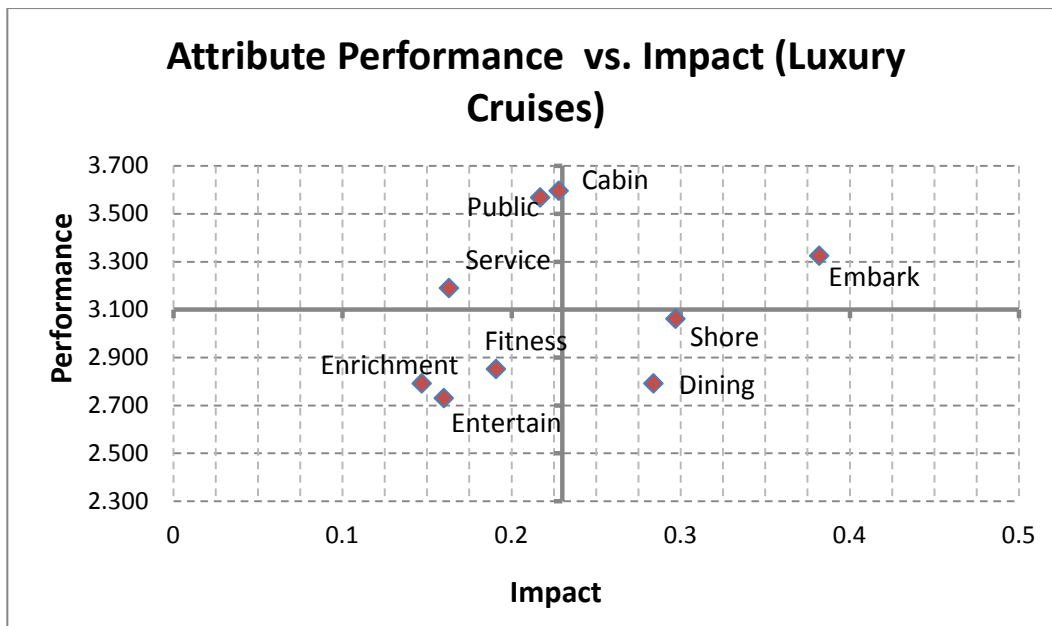
**FIGURE 2B: IRPA**  
**IMPACT RANGE PERFORMANCE ANALYSIS (PREMIUM CRUISES)**



**FIGURE 2C: IRPA**  
**IMPACT RANGE PERFORMANCE ANALYSIS (DELUXE CRUISES)**



**FIGURE 2D: IRPA**  
**IMPACT RANGE PERFORMANCE ANALYSIS (LUXURY CRUISES)**



## FINDINGS

In each price tier, the results indicated varying numbers of significant attributes based on reward and punishment coefficients. In the budget tier, the following six attributes were significant: service, dining, cabin, shore, entertainment, and embarkation. Attribute performance in the budget tier had a mean of 3.74 out of 5. Consumers rated the following attributes at, or above average: service (4.11), embark (4.09), cabin (4.09), public (3.94), and dining (3.78). The following attributes were rated below average: shore (3.48), fitness (3.41), entertainment (3.40), and enrichment (3.7). Based on impact asymmetry, the public attribute was found to be the only delighter, and the service attribute was the only satisfier. Cabin and dining were both hybrids. The remaining five attributes (fitness, embark, shore, enrichment, and entertainment) were dissatisfiers. There were no frustrator attributes identified in the budget tier.

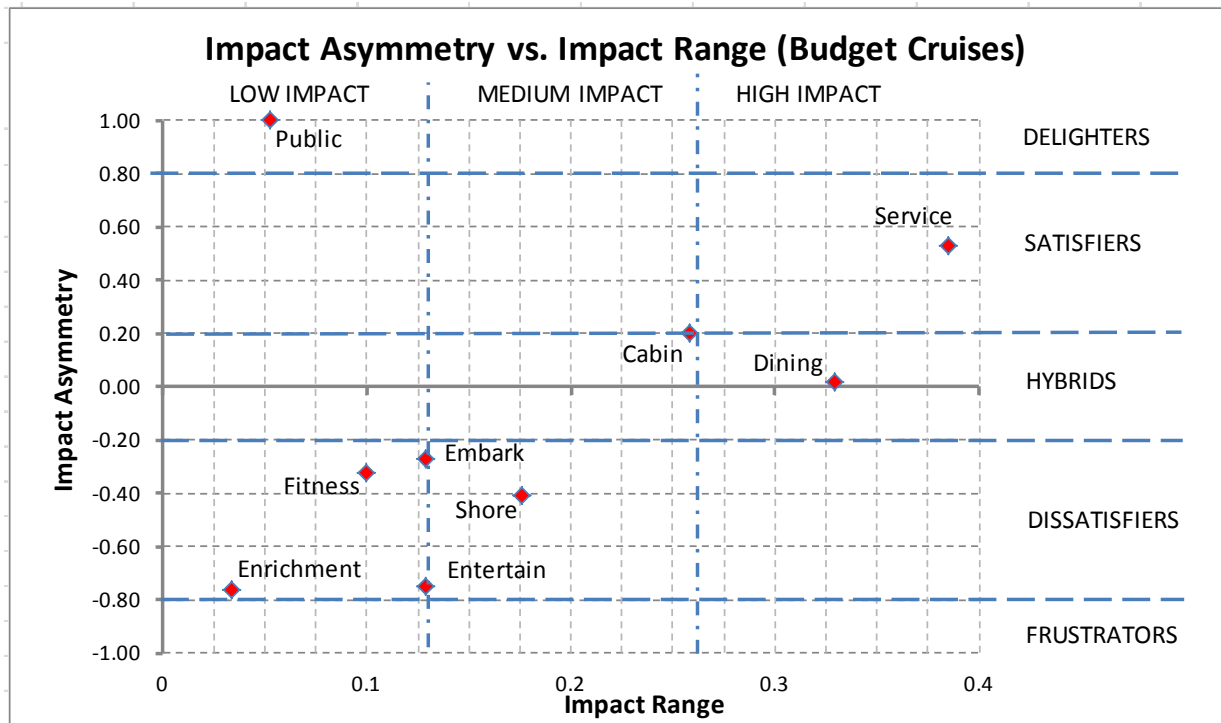
In the premium tier, the following five attributes were significant: service, embarkation, cabin, public, and fitness. Attribute performance in the premium tier had a mean of 3.86 out of 5. Consumers rated the following attributes at, or above average: public (4.43), cabin (4.28), service (4.28), dining (4.20), embark (3.98), and fitness (3.91). The following attributes were rated below average: enrichment (3.32), entertainment (3.23), and shore (3.14). There were three delighters in the premium tier (entertainment, dining, and public). There were also three satisfier attributes for

premium cruisers (enrichment, cabin, and embark). There were no hybrids. However, there were two dissatisfiers (shore and service), and one frustrator (fitness).

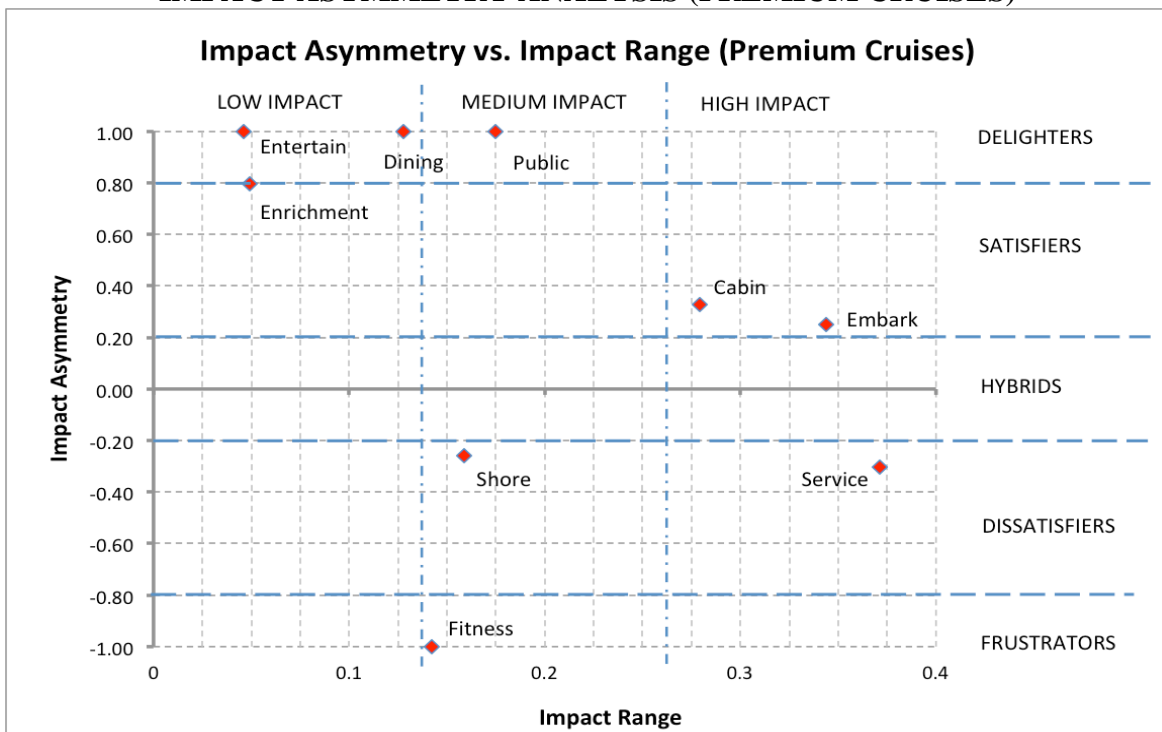
In the deluxe tier, the following four attributes were significant: service, embarkation, public, and dining. Attribute performance in the deluxe tier had a mean of 2.95 out of 5. Consumers rated the following attributes at, or above average: cabin (3.33), public (3.26), embark (3.25), service (3.00), and fitness (2.97). The following attributes were rated below average: shore (2.81), dining (2.80), entertainment (2.55), and enrichment (2.53). For deluxe cruisers, there was one delighter attribute (public), two satisfiers (dining and service), one hybrid (entertainment), three dissatisfiers (embark, enrichment, and cabin), and two frustrators (fitness and shore).

Finally, in the luxury tier, the following seven attributes were significant: embarkation, shore, dining, cabin, entertainment, service, and fitness. Attribute performance in the luxury tier had a mean of 3.10 out of 5. Consumers rated the following attributes at, or above average: cabin (3.60), public (3.57), embark (3.32), and service (3.19). The following attributes were rated below average: shore (3.06), fitness (2.85), enrichment (2.79), dining (2.79), and entertainment (2.73). The luxury tier did not have any delighters, but had three satisfiers (embark, shore, and public), two hybrids (dining and enrichment), no dissatisfiers, and four frustrators (cabin, service, fitness, and entertainment).

**FIGURE 3A: IAA**  
**IMPACT ASYMMETRY ANALYSIS (BUDGET CRUISES)**

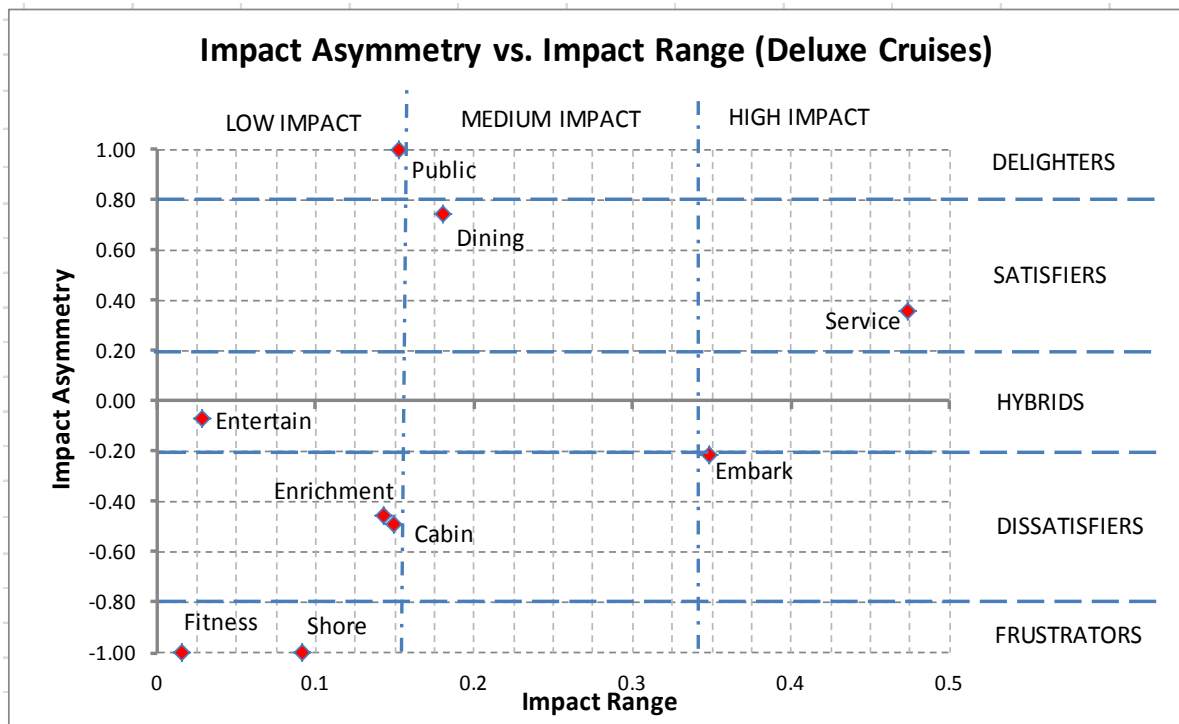


**FIGURE 3B: IAA**  
**IMPACT ASYMMETRY ANALYSIS (PREMIUM CRUISES)**

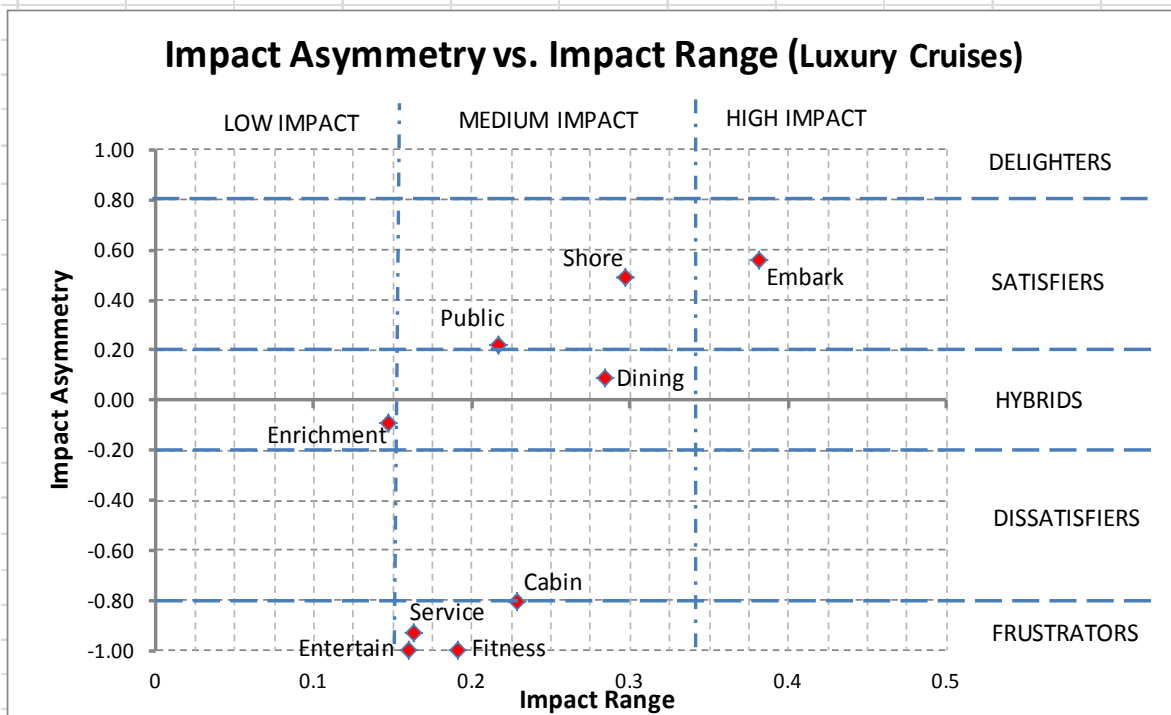




**FIGURE 3C: IAA**  
**IMPACT ASYMMETRY ANALYSIS (DELUXE CRUISES)**



**FIGURE 3D: IAA**  
**IMPACT ASYMMETRY ANALYSIS (LUXURY CRUISES)**



## DISCUSSION

Given the cost of renovations and restructuring in the cruise industry, the strategic decisions made on resource allocation are critical. The following discussion outlines a recommended direction for resource allocation based on the valence of the reviews. The results show that attribute scores affect overall satisfaction ratings differently across price tiers. For example, cruise lines that operate ships in multiple price tiers may have received different reviews regarding particular attributes, despite standardized quality across all ships. Another possibility is that ships in different price tiers earned the same consumer rating for a particular attribute, but the effect on overall satisfaction is different, because of the nature of that attribute for that particular price tier (e.g., service was a satisfier for budget cruisers, but was a dissatisfier for premium cruisers). Therefore, understanding the classification of the attribute by price tier is important for strategic allocation of resources.

To lessen the likelihood of dissatisfaction, cruise lines should focus on the negative reviews first. This focus is more pertinent for cruises that are lagging in customer satisfaction ratings, than for those who have maintained high ratings. Those with higher ratings have more flexibility to invest in attributes that drive satisfaction versus those that potentially cause dissatisfaction in instances of failure. Strategic investment in attributes should help improve the overall brand image. Table 2 provides an at-a-glance visual of the prioritized recommendations. The first column represents the priorities for cruise lines that need improvement in overall ratings, while the second column provides priorities for cruise lines that have good ratings and are aiming to maintain or build on a strong position.

### *Budget Cruises*

As shown on the IAA graph (Figure 3A), service quality (a satisfier) had the highest impact range. Though, it would seem like this would be a valuable investment area, the perceived level of performance on the attribute is also high on average (4.11 out of 5), relative to the other attributes (see Figure 2A). Recall that for satisfiers, if the level is not as high as possible, the level of potential dissatisfaction is less than the potential for satisfaction. Therefore, allocating resources toward other attributes may be a better decision. In order to decrease dissatisfaction events, the data suggest that cruise lines in this price tier should invest in improving the dining experience, cabin, shore excursions, and entertainment (in that order).

The authors argue that improvements in dining and cabin are critical for cruises that suffer from low overall ratings, because they both are quite important attributes in this tier. Also, as hybrid attributes (see Figure 3A), they can help to both decrease some of the negative impact, and at the same time, win some satisfied consumers. Consumers gave poor marks for shore excursions and entertainment, which were both dissatisfiers. If a budget cruise line has been struggling with an unfavorable brand image or consumer rating, then the managers should focus efforts to address these two attributes (shore excursions and entertainment) even more than dining.

On the other hand, if the cruise performs well in terms of consumer reviews, then the cruise line may decide to solidify its position as a service leader and then follow the same sequence described above. If there is money left to spend, then investing in the fitness facility (dissatisfier) is the next area that budget cruises should look for opportunities for improvement.

### ***Premium Cruises***

Just as in the budget tier, service quality had the highest impact range among attributes in the premium price tier. However, unlike the budget tier, service was a dissatisfier in the premium tier. This shows that premium cruisers have higher expectations regarding service quality. In the premium price tier, cruise lines that are low in overall reviews should give service quality higher priority – compared to budget cruises – because these consumers will punish bad service severely. A cruise line that suffers from a poor brand image should put more focus on trying to address the reasons for dissatisfaction, rather than on the things that can cause satisfaction. In this case, other attributes to prioritize include shore excursions and fitness facilities. The average rating for shore excursions was lowest among all attributes, and although it was a dissatisfier, it was not very far from being a hybrid attribute. The fitness facility was a frustrator, which suggests that it is unlikely to ever deliver satisfaction. After addressing those problem areas that cause dissatisfaction, these lower rated cruise lines may look into embarkation and cabin improvements.

Cruises that have good overall ratings may consider embarkation as a priority. The embarkation experience was second in impact range and was a satisfier. Consumers rated embarkation just above average across all attributes, which means cruisers think there is room for improvement on that attribute. These cruises that are doing well may also consider public spaces since it had a very positive impact on satisfaction.

### ***Deluxe Cruises***

The authors noted that for the deluxe price tier the overall mean performance for all attributes is significantly lower than for the budget and premium price tiers. Service quality is the attribute with, by far, the

highest impact range. Considering that deluxe cruises are more expensive, one would assume that the quality of all attributes should be higher than the lower tiers. Therefore, it may be more a matter of expectation (and disconfirmation) than truly lower quality. Service quality operates as a satisfier for these consumers, just as it does for budget tier consumers. However, the mean rating of service for budget cruisers (4.11) was higher than for deluxe cruisers (3.0). Given an investment in service, the difference in the mean scores suggests that there is much more room for improvement on this attribute in the deluxe tier than in the budget tier.

The embarkation experience also ranked second in impact range in this tier, similar to the premium tier, however, instead of being a satisfier, it was a dissatisfier for deluxe cruisers. This suggests that it would be essential for cruise lines that are trying to reduce negative word-of-mouth to invest in improving the embarkation experience. Not only is it a high impact attribute, but it is almost a hybrid attribute with room for improvement since the performance rating was approximately 3.2 out of 5 (see Figure 2C). Dining was a medium impact satisfier (see Figure 3C) in this price tier, but consumers rated it at below average performance among the attributes (see Figure 2C).

The next three attributes (cabin, public, and enrichment) had about the same impact range, but cabin and enrichment were dissatisfiers, while public was a delighter. Cabin quality was the highest rated attribute (in performance), while enrichment was the lowest rated attribute in this price tier. This suggests that deluxe cruises ought to prioritize improving enrichment activities over improvements in the cabins or public spaces. If money were left in the budget, then investments in improving shore excursions (frustrator) and

entertainment (hybrid) would be worthwhile. Improvements in fitness facilities would be a waste of resources because consumers in this price tier placed low importance on that attribute.

### *Luxury Cruises*

A notable difference in the luxury price tier is that service quality is not a high impact attribute (see Figure 3D). For these cruisers, attributes with an impact range score over 0.333 are considered high impact, those with scores between 0.17 and 0.333 are considered medium impact, and those with less than 0.17 impact range are low impact. The service for luxury cruisers was borderline low-medium with a 0.36 impact range. In fact, luxury cruisers rated seven out of the nine attributes as having higher impact than service – unlike in the other price tiers, where it was one of the most impactful attributes.

Embarkation (a satisfier) was the most important attribute. However, performance is strong enough compared to the other attributes, such that resources could be dedicated to lower performing attributes. Shore (satisfier) and dining (hybrid) have about the same impact. Although shore has a slightly higher impact range, cruise lines in this tier should focus on dining over shore excursions because as a hybrid attribute, dining can provide some satisfaction to cruisers, and at the same time, decrease the frequency of negative reviews. The lower performance rating of dining – compared to shore – confirms the validity of this recommendation (see Figure 2D). Although, cabin was a dissatisfier/frustrator of medium importance, luxury cruisers rated cabin as one of the best attributes. Therefore, prioritizing the other attributes mentioned above is a better decision for luxury cruise lines.

## **MANAGERIAL RECOMMENDATIONS**

This exploratory study analyzes online ratings of cruises to identify the drivers of consumer satisfaction and dissatisfaction. The findings of this research provide insight for cruise operators regarding 1) how consumers perceive the quality of the attribute delivery; 2) the relative importance consumers place on each attribute; and 3) the potential for the attributes to cause satisfaction or dissatisfaction. Insights from this research reveal general recommendations that apply to each price tier based on the reviews, and are intended to complement, rather than substitute, cruise line self-evaluation.

Cruise operators should also consider the likelihood that their investment will result in a high rating on the attribute. As with many economic decisions, there may be diminishing marginal returns for allocating resources toward any attribute. However, a few rules of thumb are evident from our findings:

- Cruise lines should focus on those attributes that significantly affected satisfaction or dissatisfaction (see Tables 1A-1D – Reward and Punishment Columns).
- Priority should generally follow impact potential (horizontal axis on both Figures 2A-2D and Figures 3A-3D).
- If the performance level on an attribute in the price tier is among the highest across all attributes, then that attribute can fall lower in priority (Figures 2A-2D). If the performance average is four or higher, it suggests that all cruise lines are either delivering on those attributes, or meeting the expectations of consumers within that tier.

- Cruise lines within each tier should prioritize attributes in the low performance, high impact quadrant of the IRPA graphs (Figure 2A-2D).
  - Cruise lines with overall negative reviews cannot follow the same resource allocation remedies as cruise lines with overall positive reviews.
  - In each price tier, the order in which cruise lines that have had negative reviews need to prioritize attributes may be different from those that have had positive reviews. Those that have had negative reviews ought to focus on hybrid attributes and those that cause dissatisfaction.
  - Cruise lines that have had relatively positive reviews have more flexibility to invest in hybrids and those attributes geared toward satisfaction.
- Table 2 provides a snapshot of the top five attribute priorities recommended for each price tier.

**TABLE 2**  
**ATTRIBUTE PRIORITIZATION RECOMMENDATIONS**

		Recommended Attribute Priority	
Price Tier	Priority Level	Cruise lines with Low Average Satisfaction Ratings	Cruise lines with High Average Satisfaction Ratings
Budget	1	Dining (H)	Service (S)
	2	Cabin (H)	Dining (H)
	3	Shore (DS)	Cabin (H)
	4	Entertainment (DS)	Shore (DS)
	5	Service (S)	Entertainment (DS)
Premium	1	Service (DS)	Embark (S)
	2	Shore (DS)	Service (DS)
	3	Fitness (F)	Cabin (S)
	4	Embark (S)	Public (DE)
	5	Cabin (S)	Shore (DS)
Deluxe	1	Service (S)	Service (S)
	2	Embark (D)	Embark (D)
	3	Enrichment (DS)	Dining (S)
	4	Dining (S)	Enrichment (DS)
	5	Public (DE)	Public (DE)
Luxury	1	Embark (S)	Embark (S)
	2	Dining (H)	Shore (S)
	3	Shore (S)	Dining (H)
	4	Cabin (DS)	Cabin (DS)
	5	Entertainment (F)	Entertainment (F)

## LIMITATIONS AND FUTURE RESEARCH

The first limitation of the study was the sample size. Though, the data included 703 reviews, having more may have made an impact on the significance levels of the regression results. The authors pulled these data points, one at a time from the website, while screening for extremely biased reviews. The data that were used for the dummy variable coding of punishment and rewards happened to be the extreme points on those attributes. This means that some data are lost in this elimination process. Future research may look into acquiring larger pools of data directly from the website, and perhaps other websites to add statistical power to the results.

Secondly, written reviews may provide additional insight into how consumers truly feel about attributes. As the use of reviews has escalated, star-ratings in combination with written reviews are becoming more accessible. The overall star-rating gives the reader a summary judgment of the product/service, but is limited. Future research could investigate how frequently reviewers mention the different types of attributes, and the valence of their emotional tone can be used in categorization of attributes.

Another area for future research is to investigate how resource allocation, affects perceived performance on the attributes, and improvements in overall judgment. If these data are available, then in the future, researchers may test the recommendations of this paper by replicating the methodology specifically for the brand – before, and sometime after reallocating resources.

## CONCLUSION

In summary, this article examined how consumers viewed attributes of cruises across four price tiers, and the impact of

these attributes on overall satisfaction. The results indicated consumers in the lower tiers (budget and premium) rated the attributes higher on average compared to consumer in the higher tiers (deluxe and premium). This outcome is reasonable because consumers who pay more are likely to expect more from the experience.

The results also supported our initial argument that research recommendations regarding product attributes ought to be price-tier-specific. The data showed that attributes that were high impact in one price tier might have been medium or low impact in another. Moreover, a particular attribute may have operated on satisfaction differently in each price tier (e.g., service was a satisfier, dissatisfier, and frustrator), despite having similar importance in two tiers. Using both Impact Range Performance Analysis (IRPA) and Impact Asymmetry Analysis (IAA), the authors provided a prescription for resource allocation in each price tier with advice for cruise lines that have had overall positive reviews and those that have had overall negative reviews. The essence of the advice is that cruises that are doing well can afford to focus more investments in attributes that are hybrids, satisfiers, and delighters; whereas cruises that are struggling need to invest in hybrids, dissatisfiers, and frustrators. If there are attributes close in importance, then as per the managerial recommendations outlined above, price tier, performance, and overall valence of the cruise line reviews will dictate which attribute should be prioritized.

The authors hope that this article piqued the interest of researchers since it applies a novel classification methodology derived from academic research. We also hope that practitioners in the cruise industry find the insights useful and apply the findings to improve the quality of the attributes of their cruise lines. Although this

research context was the cruise industry, the managerial implications that price tiers matter to attribute evaluations extend to other product/service categories where the market is structured into price tiers.

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