

Kim, J., Jhang, J., Kim, S., & Styliadis, D. (2023). The impact of Price preciseness, Price reduction, and lay rationalism on travelers' perceptions of deal attractiveness, purchase intention, and choice. *Journal of Travel Research*, 62(7), 1550-1568.

The Impact of Price Preciseness, Price Reduction, and Lay Rationalism on Travelers' Perceptions of Deal Attractiveness, Purchase Intention, and Choice

Abstract

This research investigated the role of price preciseness (rounded vs. precise) in perceiving deal attractiveness, purchase intention, and choice in travel decision-making. Two competing hypotheses (price association vs. fluency) were proposed. Across five empirical studies, we found that the perceived attractiveness of a price promotion deal, the purchase intention, and the relative preference were higher when the original price was presented in a rounded (vs. precise) format (Studies 1A, 1B, and 3). This finding supports the price association-based explanation rather than the fluency-based explanation. In addition, the results were replicated in a consequential choice setting (Study 2). Finally, we further demonstrated that the effect of the price rounding is stronger for those with high (vs. low) lay rationalism, suggesting its moderating role (Study 4). The empirical findings of the current research have theoretical implications for various fields, including the behavioral pricing of travel and tourism, and practical implications for practitioners.

Keywords: price; price preciseness; price discount; lay rationalism; promotion; deal attractiveness

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Introduction

Price promotion is a major sales tools in the travel industry. Typically, customers in travel settings are exposed to both a regular (or original) price and a discounted price. Regardless of whether they are regular or discounted prices, in most cases, marketers or travel service providers use the practice of precise pricing, such as a price ending in 9 (e.g., \$99 or \$79.99). Using a 9-ending price induces the perception of a low cost for a travel option, resulting in higher purchase intention or actual purchase (e.g., Anderson and Simester, 2003; Schindler and Kibarian, 1996). Previous studies on price display methods identified the effectiveness of promotional framings involving price discounts on consumers' decision making (e.g., Chen, Monroe, & Lou, 1998; Choi & Mattila, 2014; Choi, Choi, & Mattila, 2019). The results of these studies showed a general consensus that a consumer's perceived price depends on how the prices are presented or displayed.

Due to its significance, the effect of price presentation/framing on tourist decision-making has gained attention from researchers in the tourism and hospitality field (e.g., Jeong and Crompton, 2017, 2018; Choi et al., 2019; Yang and Mattila, 2020a, 2020b; Zou and Petrick, 2020; Wen et al., 2021; see Table 1).

However, compared to long-established research exploring the psychology of pricing in consumer behaviour journals, a thorough review of the previous literature on the effects of price presentation in the tourism and hospitality field indicated a lack of empirical studies addressing customers' psychological mechanisms of price perception as connected to influential determinants such as their past experience, psychological factors, socio-demographic features or situational factors. Specifically, very little research has so far investigated whether (and why) subtle variations in price presentation format (such as rounded vs. precise) influence the

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effectiveness of a price promotion deal. Hence, this study attempted to explore the impact of price preciseness in the original and final/reduced prices on consumers' evaluation of the perceived deal and purchase intention for travel-related products. A series of five experimental studies examined whether the perceived attractiveness of and purchase intention for a discounted travel option were significantly higher when both the original and discounted price were presented in a rounded (vs. precise) format. The prediction was that the original rounded [precise] price information is associated with high [low] quality of the target products, resulting in a positive [negative] evaluation of the price promotional deal. In addition, this study investigated whether price preciseness in a discounted price generated a significant difference in perceived attractiveness and purchase intention. We also examined the boundary conditions for the prediction stated above, in terms of whether this effect is stronger for travelers with high (vs. low) lay rationalism – a decision style depending on logic and reasonable information rather than emotional and affective information.

This study had the following objectives, which can shed significant theoretical and practical implications. First, this study aimed to identify the role of the precision of price information on product judgment and evaluation in a typical price promotion situation. This study theorized and provided empirical evidence from five experimental studies that price preciseness influences the perceived attractiveness of a price promotion deal. Second, this study was designed to test the effect of price preciseness on evaluation and purchase intention in a tourism business context. The results of this study can be compared to those of previous research, which advocated a price association-based explanation (i.e., a rounded price is associated with high quality (Schindler et al., 2011; Kim et al., 2020; Wadhwa & Zhang, 2015) and a precise price is associated with low quality (Kim et al., 2020; Schindler et al., 2011), rather

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than fluency-based prediction. This suggests that an easy-to-calculate price will generate a positive evaluation (Coulter & Roggeveen, 2014; Thomas & Morwitz, 2009). Third, this research was designed to provide further evidence on whether the moderating role of lay rationalism is significant in perceiving a price. Fourth, it also attempted to conduct a consequential choice study (Study 4) in order to increase the external validity of our findings. The results of this study are expected to provide optimal pricing tactics for travel providers and marketers using price discounting or price presentation methods.

Theoretical Framework

The following sections review the existing literature on the price promotion framing effect and the price preciseness effect.

Price Promotion Framing Effect

Diverse framing manipulations of price messages or information influence price reduction effects. Earlier studies in consumer behaviour examined the effectiveness of methods to present price reduction information; for example, percentage-off and dollars-off information (Chen, Monroe, & Lou, 1998; DelVecchio, Krishnan, & Smith, 2007; Morwitz, Greenleaf, & Johnson, 1998). In perceiving the level of price reduction, consumers have a reference price, which they retain in their memory and compare against the current price in their decision making (Gabor & Granger, 1969). Since the reference price is not an actual price but an average price of similar products (Monroe & Lee, 1999), the consumer's perception of the reference price determines their response to the magnitude of a price reduction. If the reduction level is too high, consumers will exhibit a low level of intention to purchase because they feel dubious about the

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quality of the product due to their recall of the reference price. This means that price discounts that take the price far below the consumer's reference value can have negative effects on purchase decision making. Consumers' comparison of their reference price and the current price determines their perception of the quality of the product and their purchase intention (Monroe & Lee, 1999; Choi, Choi, & Mattila, 2019).

The effectiveness of price reductions will differ with the reduction amount or percentage because consumers perceive value for money regarding price reductions differently (Lichtenstein et al., 1990; Lichtenstein, Ridgway, & Netemeyer, 1993; Zeithaml, 1988; Zhang, Kim, & Goodsir, 2019). Since a tourism package product also contains diverse intangible attributes such as location, scenic views, service quality, taste, comfort, accessibility, and ambience, which can determine hedonic value, it is hard to judge price fairness. However, if consumers perceive value for money, it will positively influence their purchase intentions (e.g., Lichtenstein et al., 1993; McDougall & Levesque, 2000).

Choi and Mattila (2014) assessed the role of consumers' sense of power in evaluating two types of promotional framings (percentage-off vs dollars-off) in a hotel room booking situation. They found that respondents with a low sense of power preferred a dollars-off promotional message to a percentage-off offering in terms of enhancing buying intention because a dollars-off promotion is more persuasive with regard to price fairness. Kim et al. (2020) found that the preciseness of price information significantly influenced the final choice in travel options, which was mainly mediated by different precision levels: precise prices led consumers to perceive price fairness. Therefore, price framings such as price reduction affect the perception of price fairness in which a consumer considers the price to be reasonable, acceptable and justifiable (Homburg, Lauer, & Vomberg, 2019; Xia, Monroe & Cox, 2004). Price fairness has a

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positive impact on consumers' perceived quality (Bei & Chigo, 2001), perceived value (Oh, 2003; Xia et al., 2004), and purchase intention in direct and indirect ways (e.g., Campbell, 1999; Homburg et al., 2019; Xia, Monroe, & Cox, 2004).

In a similar vein, Wang and Lynn (2017) identified a perceptual gap in differences in surcharge framing (i.e., service-included prices vs. automatic percentage service gratuity) due to perceived price reduction effects. The results were supported by Tanford, Cho, and Sung (2019), who found that hotel customers showed a higher level of willingness to pay a given room price when they were exposed to a high (vs. low) anchor or an average price (vs a range of prices), because consumers perceive price reduction effects differently across different conditions.

In summary, price reduction effects will be influenced by multiple factors including framing effects, the amount of revealed information, perceptions of price fairness, reference price, and the characteristics of a product such as its expensiveness, quality, and value (Choi & Mattila, 2018; Choi, Choi, & Mattila, 2019; Dodds, Monroe, & Grewal, 1991). In addition, price reduction effects can fluctuate according to personal subjective judgement, due to characteristics such as lay rationalism (Hsee et al., 2003), or economic status (Ryu, 2020). Since these issues have not been widely empirically tested, this study attempts to extend existing knowledge by investigating consumers' perceptions of price reduction and price preciseness by testing the moderating effect of lay rationalism.

Price Preciseness Effect

How to present numerical information on price is very important in marketing strategy because this information can influence consumers' decision making through comparing prices. Price preciseness influences consumers' perceptions of distinctiveness between the regular price and the promotional price via price discounts, cash rebates, premium value, coupon redemption,

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bundle packages, and the display (vs concealment) of price. Digital pricing tactics can be effective in the case of lower-priced products in promotions because there is relatively low risk involved in purchasing such products (Lin & Wang, 2017; Monroe, 1973). This topic has been actively studied in the field of consumer behaviour to analyze the efficacy of various price endings, including odd-number ending prices, even-number ending prices and 9-ending prices (e.g., Stiving & Winer, 1997).

The price preciseness effect has been researched in the hospitality and tourism field (Cui et al., 2021; Guéguen et al., 2009; Jeong & Crompton, 2017; 2018; Kim et al., 2020; Lin & Wang, 2017; Wadhwa & Zhang, 2015). Cui et al. (2021) found that those in a high lay rationalism group showed a significant difference in their preference for precise and rounded price, while people with low lay rationalism did not exhibit a significant difference between the two price information types. In Cui et al.'s (2021) study, those subject to high (vs low) time pressure showed a preference for precise price options to rounded price options in a decoy price effect set, while they showed the opposite trend in a compromise effect set. The results established that price information determines the trade-off between choice options.

One price research stream aims to empirically identify the efficacy of using different final digits in adjusting consumers' perceptions of price: options include prices ending in 9 or 8; prices ending with odd numbers; and prices ending with even numbers (Guéguen et al., 2009; Jeong & Crompton, 2017; 2018; Lin & Wang, 2017; Ngan et al., 2018). Guéguen et al. (2009) discovered the sales volume of pizza was increased by adopting 9-ending prices (e.g., € 7.99) compared to 0-ending prices (e.g., € 8.00). According to Crompton (2016), a 9-ending pricing message is a gain-framed tactic rather than a loss-framed one because it helps customers to perceive price fairness through illusive interpretation as a low price. Jeong and Crompton (2017),

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who explored the effect of culture on perception of price level in a 9- or 8- ending context, discovered a cross-cultural difference. An 8-ending price was appealing to Chinese visitors to New York City, while a 9-ending price was attractive to US visitors. In contrast, Jeong and Crompton (2018) found that a discount ending in 9 for a hotel room was effective for customers in the US, Korea and China, compared to prices with an even-number ending that lacked various possible interpretations of symbolic meanings. In a similar vein, Ngan et al. (2018) found that Chinese customers believed an 8-ending to be lucky, and that it created a prestige value image, was appealing, and was traditional market practice.

However, Wadhwa and Zhang (2015) ascertained that consumers who were exposed to rounded-ending prices (i.e., 0-ending prices) reported a higher level of quality of vacation-related products because they perceived the rounded prices to be more trustworthy and reliable. Likewise, Kim et al. (2020) found that consumers showed a preference for rounded prices (vs non-rounded prices) when assuming that they would stay at an expensive resort in the near future, and the results were similar when assuming the stay would be in the distant future. The relevant literature review is summarized in Table 1.

**** Table 1 about here ****

Main Predictions

Previous research suggests that price preciseness may influence the effectiveness of price promotions in two ways. On one hand, the price association-based account (Naipaul & Parsa, 2001; Schindler et al., 2011) predicts that price promotions will be more effective when the original price is shown in a rounded (vs. precise) format. On the other hand, the processing fluency theory (Schwartz, 2004; Graf et al., 2018) predicts that price promotions will be more

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effective when both the original and discounted prices are presented in the same format. Thus, we formulate these opposing predictions into two competing hypotheses in the following sections.

Prediction 1: Price Association-based Explanation

As already mentioned, the extant literature supports the idea that different price-endings (e.g., 9-ending, odd vs. even-number ending) have differential impacts on consumers (e.g., Stiving & Winer, 1997; Jeong & Crompton, 2018). Thus, using different price-endings, firms attempt to manage customers' service expectations (Mitra & Fay, 2010) or signal the quality of their products (Kirmani & Rao, 2000). Consumers also infer product characteristics such as quality from different price levels or formats (Kardes et al., 2004). One thing to note here is that the effects of price-endings and their directions are dependent upon what associations are linked with price information, including the level (high vs. low) and formats (round, precise, 9-ending). For example, consumers who have been repeatedly exposed to low-quality products with 9-ending prices may develop such associations, and later, they may unconsciously expect low quality when seeing an item with a 9-ending price. Consistent with this idea, Jeong and Crompton (2018) showed that people from different cultures infer different meanings from the same 9-ending prices because of different associations linked to the format. In summary, the prior literature suggests that if there are specific associations between different price formats and quality, such price formats influence consumers' quality inferences and subsequently, consumer responses. Indeed, the pricing literature in travel decisions suggests that, regardless of the absolute price level, its format can trigger specific associations for a travel product or service (Schindler et al., 2011; Kim et al., 2020). For example, prices ending in 9 induce the concept of a

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price discount, regardless of the actual price promotion (Naipaul & Parsa, 2001; Schindler et al., 2011). Moreover, Kim et al. (2020) found that when the price of a travel option is presented in a rounded (vs. precise) format, travelers tend to focus more on quality than cost, and thus prefer high (vs. low) quality/price travel options.

Using this association-based account, we make separate predictions for the original and discounted prices. For the original price, we argue that travelers will evaluate a price promotion more positively when they perceive the original service as a higher quality/price rather than a low quality/price option. For example, when the discounted price is \$80, we predict that travelers will evaluate the price promotion much more positively when the original price is \$100 (vs. \$99.99 or \$100.01). In addition, the value of a price promotion may be much more diagnostic (or apparent) for a high- rather than low-quality/price option since the low-quality/price option inherently connotes a price discount, either explicitly or implicitly. Thus, the attractiveness of a price promotion will be higher when the original price is presented in a rounded rather than precise format.

For a discounted price, however, the association-based account suggests that price preciseness may have the opposite effects. When the discounted price is presented in a precise format, it may enhance the effectiveness of a price promotion by increasing the gap between the original and the discounted price. When the discounted price is presented in a rounded format, it may also enhance the effectiveness of a price promotion by increasing the perceived quality of the target option, since the rounded price is associated with higher quality (Kim et al., 2020). Therefore, we did not generate a formal hypothesis about the effect of price preciseness on the discounted price. Based on this logic, we hypothesized as follows:

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H1a: *The perceived attractiveness of a price promotion deal will be higher when the original price is presented in a rounded (vs. precise) format, regardless of the discounted price format.*

H1b: *The purchase intention for a price promotion deal will be higher when the original price is presented in a rounded (vs. precise) format, regardless of the discounted price format.*

H1c: *The preference for the option will be higher when the original price of the option is presented in a rounded (vs. precise) format, regardless of the discounted price format.*

Prediction 2: Alternative Predictions – Fluency-based Explanation

Examining travel options involving a price promotion requires extensive information processing. Consumers not only evaluate the attributes of an option but also compare its discounted price with the original price. According to the processing fluency theory (Schwartz, 2004), a consumer's subjective feeling of ease associated with mental processing positively influences a broad array of human judgments (Alter & Oppenheimer, 2009). For example, greater processing fluency leads to more positive product and brand attitudes (Janiszewski and Meyvis, 2001; Novemsky et al., 2007), increased sales (Landwehr et al., 2011), and satisfaction (Mosteller et al., 2014). This suggests that the attractiveness of price promotion deals is influenced not only by the perceived value of the deals but also by how smoothly the decision-making process runs.

Furthermore, processing fluency can be triggered by certain characteristics of the decision contexts, such as visual clarity (Reber et al., 1998), readability (Novemsky et al., 2007), or pronounceability (Alter & Oppenheimer, 2009). Therefore, we propose that travelers will

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evaluate a price promotion more positively when the two prices (i.e., original and reduced) are presented in a consistent rather than an inconsistent format. This is because the consistent (vs. inconsistent) price format results in greater processing fluency. Based on this logic, we formulated competing hypotheses as follows:

H2a: *The perceived attractiveness of a price promotion deal will be higher when the original and discounted prices are presented in a consistent (vs. inconsistent) format.*

H2b: *The purchase intention for a price promotion deal will be higher when the original and discounted prices are presented in a consistent (vs. inconsistent) format.*

H2c: *The preference for the option will be higher when the original and discounted prices of the option are presented in a consistent (vs. inconsistent) format.*

The Moderating Role of Lay Rationalism

Lay rationalism refers to a consumer's "tendency to resist affective influence, and to rely on rationalistic attributes to make their [decision-maker] decisions" (Hsee et al., 2003, p. 258). This individual difference captures "the relative weights a person places on reasons versus feelings in decisions" (Hsee et al., 2015, p.135). For example, Hsee et al. (2003) found that people high on the lay rationalism scale prefer choice options with high reason-based attributes (such as focusing on the actual value of the option) rather than options with high affect-based attributes (such as focusing on the perceived attractiveness of meaningless attributes).

Our competing hypotheses differ from each other in their reliance on reasons (H1) versus feelings (H2). Specifically, the price association-based account assumes that people base their judgments on reason and logic, such as pre-existing beliefs (i.e., associations) while the fluency-based account assumes that people base their judgments on their subjective feelings at the time

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(i.e., processing fluency). Of course, our judgments and decisions are influenced by both reasons and feelings, but people often switch between the two, relying more on one than the other (e.g., Shiv & Fedorikhin, 1999; Hsee et al., 2003; Hong & Chang, 2015). Thus, an individual's propensity for relying on reason versus feelings (i.e., lay rationalism) would moderate our proposed effects of price preciseness (H1 or H2), no matter which hypothesis is the viable one. Specifically, if the association-based account is the viable underlying mechanism of the price preciseness effect, the predicted patterns will be stronger for those with high lay rationalism. However, if the fluency-based account is the viable one, the predicted patterns will be attenuated for those with high lay rationalism. Cui et al.'s (2021) study, which applied lay rationalism to the hotel price presentation setting, identified that high lay rationalism affected preference for rounded (vs precise) price in compromise and decoy sets, while low lay rationalism did not determine respondents' preference. Based on this logic, we propose that our competing hypotheses will be moderated by the degree of lay rationalism. These predictions are formally hypothesized as follows (see also Figure 1 for the theoretical framework and predictions):

H3a: *[Based on a price association-based explanation] Lay Rationalism will moderate H1a and H1b. Specifically, the perceived attractiveness of and the purchase intention for the price promotion deal using a rounded (vs. precise) original price will be higher only for those with high lay rationalism.*

H3b: *[Based on a fluency-based explanation] Lay Rationalism will moderate H2a and H2b. Specifically, the perceived attractiveness of and the purchase intention for the price promotion deal from consistent price formats of the original and discounted prices will be attenuated only for those with high lay rationalism.*

**** Figure 1 about here ****

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Empirical Study Plan

We tested our hypotheses in a series of experimental studies. In Studies 1A and 1B, we manipulated the price preciseness (precise vs. rounded) for both the original and discounted prices to examine H1 and H2. In Study 2, we replicated the previous study, using more realistic consequential choice data. In Study 3, we replicated the findings of Studies 1A and 1B while ruling out an alternative explanation of the income effect. Finally, in Study 4, we investigated the moderating role of lay rationalism to test H3. In all studies, a realism check was implemented to identify whether the scenarios could be applied to actual situations by asking about the acceptability of the price and situations in purchasing actual travel products. The summarized results for all studies are presented in Table 2.

**** Table 2 about here ****

Study 1A and 1B: Testing Competing Hypotheses of H1 and H2

The purpose of Studies 1A and 1B was to provide initial empirical evidence for our H1 and H2. We manipulated the price preciseness for both the original and discounted prices to examine its impacts on the effectiveness of the price promotion. In Study 1A, we measured the perceived attractiveness of the price promotion and purchase intention to test H1a/H1b and H2a/H2b. We also measured the relative preference for two price promotion to test H1c and H2c in Study 1B.

Study 1A - Method: Subjects, Design, and Procedure

The participants in Study 1A were 300 US adults (n = 145 female, average age = 36.62 years, SD = 12.40) from an online panel recruited from Amazon MTurk. Participants were

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randomly assigned to one of the 2 (price preciseness of the original price: precise vs. rounded price) X 2 (price preciseness of the discounted price: precise vs. rounded price) between-subjects conditions.

Participants were first asked to imagine that they planned a five-day vacation to a destination. Then they were asked to further imagine that they were browsing a number of online travel agents to search for a flight and hotel package deal. They were also informed that they found one best deal. Participants were then provided with the price information. The original price was either \$1,800 in the rounded price condition or \$1,790 in the precise price condition, while the discounted price was either \$1,500 in the rounded price condition or \$1,490 in the precise price condition (see Figure 2 for stimuli example). The price discounting rate was set to 16.7%, which is considered a moderate level of discounting (e.g., Marshall & Leng, 2002).

**** Figure 2 about here ****

Next, participants were asked to rate their perceived attractiveness of the price promotion deal using 7-point, 3-item scales adopted from previous research (1 = bad buy for the money/ no saving at all/ not a good value for the money, 7 = excellent buy for the money/ extremely large saving / extremely good value for the money, Biswas et al., 2002; Burman & Biswas, 2007, Cronbach's $\alpha = .840$). Participants also responded about their purchase intention for the travel package on a 7-point scale (1= definitely unwilling to buy, 7 = definitely willing to buy, Dutta, 2012). Finally, participants were asked to provide demographic information such as gender and age.

If the price association account holds, we would expect both the perceived attractiveness (H1a) and purchase intention (H1b) of the price promotion deal to be higher when the original

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price is presented in a rounded rather than a precise format, as illustrated in Figure 1. If the fluency account holds, we would expect the perceived attractiveness (H2a) and purchase intention (H2b) of the price promotion deal to be higher when the original and discounted prices are presented in a consistent format (e.g., rounded – rounded, precise – precise) rather than an inconsistent format (e.g., rounded – precise, precise – rounded). In other words, a rounded original price will be perceived as more attractive than a precise original price when the discounted price is presented in a rounded format. In contrast, a precise original price will be perceived as more attractive than a rounded original price when the discounted price is presented in a precise format.

Study 1A - Results and Discussion

We conducted a 2 X 2 ANOVA. First, for the perceived attractiveness of the price promotion deal, the main effect of price preciseness of the original price was significant ($F(1, 296) = 4.26, p = .040, \eta^2 = .014$). Specifically, the deal attractiveness was higher when the original price was presented in a rounded ($M = 5.24, SD = .92$) rather than a precise format ($M = 5.00, SD = 1.07$), supporting H1a. However, the main effect of price preciseness of the discounted price was not significant ($F(1, 296) = .36, p = .551, \eta^2 = .001$). In addition, since the interaction effect was not significant ($F(1, 296) = 1.10, p = .296, \eta^2 = .004$), H2a was not supported. The detailed results are presented in Figure 3.

Second, for purchase intention, the main effect of preciseness of the original price was significant ($F(1, 296) = 4.01, p = .046, \eta^2 = .013$). Specifically, the purchase intention for a price promotion deal was higher when the original price was rounded ($M = 5.30, SD = 1.23$) compared to when the original price was precise ($M = 5.00, SD = 1.37$), supporting H1b. We also found that

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the main effect of price preciseness of a discounted price was significant ($F(1, 296) = 5.65, p = .018, \eta^2 = .019$). In detail, the purchase intention for a deal was higher when the reduced price was rounded ($M = 5.32, SD = 1.20$) compared to when the reduced price was precise ($M = 4.97, SD = 1.39$). Lastly, the interaction effect was not significant ($F(1, 296) = .05, p = .817, \eta^2 = .001$); H2b was therefore not supported.

Finally, we conducted a mediation test (i.e., price preciseness of the original price $\rightarrow$ deal attractiveness $\rightarrow$ purchase intention) with Hayes macro, using model #4 with 5,000 bootstrapping. The results indicated that the indirect effect was significant ($a \times b = -.222, se = .11, 95\% \text{ Confidence level } [CI] = [-.432, -.010]$). However, the direct effect was not significant ($c = -.079, se = .11, 95\% \text{ CI} = [-.289, .131]$).

In summary, this study provided initial evidence to support our argument that evaluations of a similar deal may differ, depending on the preciseness of the original price. It further supported the price association-based explanation rather than the fluency-based explanation.

**** Figure 3 about here ****

Study 1B - Testing H1c and H2c

In this Study 1B, we mainly tested H1c and H2c to examine the relative preference for two different price promotion types. The participants in this study were 304 US adults ($n = 169$ female, average age = 41.16 years, $SD = 13.70$) from an online panel recruited from Amazon MTurk. Participants were randomly assigned to one of the 2 (price preciseness of the discounted price: precise vs. rounded price) between-subjects conditions. The procedure for this additional study was quite similar to that used in the main study 1. As in the main Study 1, participants were firstly asked to imagine that they planned a five-day vacation to a destination. Then they

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were asked to further imagine that they were considering two options for a flight and hotel package deal. Participants in the rounded price condition were then provided with two options (i.e., Package A: original price = \$1,790 & discounted price = \$1,500 vs. Package B: original price = \$1,800 & discounted price = \$1,500). Participants in the precise price condition were also offered two options (i.e., Package C: original price = \$1,790 & discounted price = \$1,490 vs. Package D: original price = \$1,800 & discounted price = \$1,490). Participants were asked to choose one option out from the two alternatives provided to them.

To reiterate, if H1c is right, we predict that the preference pattern should be as follows: Preference_{package A} < Preference_{package B} & Preference_{package C} < Preference_{package D}). In contrast, if H2c is right, we predict that the preference pattern should be: Preference_{package A} < Preference_{package B} & Preference_{package C} > Preference_{package D}).

The results replicated Study 1A in that the proportion choosing the rounded original price option was not different between the two experimental conditions ($\chi^2(1) = .28, p = .600, \phi = .03$). Specifically, the \$1,800 original price option was chosen by 85.6% of participants [=131/153] in the rounded discounted price condition. This share was significantly different from a random choice (i.e., 50%, $\chi^2(1) = 44.47, p < .001, \phi = .38$). Similarly, the proportion choosing the \$1,800 original price option was also high, at 83.4% [=126/151], in the precise discounted price condition (vs. 50%; $\chi^2(1) = 38.02, p < .001, \phi = .36$). To summarise, the results of this study supported H1c rather than H2c.

Study 2: Consequential Study

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Two previous studies 1A and 1B were based on hypothetical choice and selection. In order to provide more realistic choice data, we used consequential choice with an actual choice option in this study.

Method: Subjects, Design, and Procedure

The participants were 281 US adults (172 females, average age = 41.80 years, SD = 13.36) from an online panel produced by Amazon MTurk. Participants were randomly assigned to one of the 2 (price preciseness of the original price of Option B: precise vs. rounded price) between-subjects conditions.

Participants were first asked to imagine that they were planning to buy a travel bag for an upcoming trip and that they found two best options after browsing several options. The two options were the 'Canway Travel Duffel Bag [option A]' and the 'Wohlbege Travel Duffel Bag [option B]'. The information given for the two options was a product picture, three attribute descriptions, and price information. The final price of the two options was the same, at \$33.99. However, the original price of the two options was different: for participants in the precise price option B condition, the original price for the Wohlbege bag was \$40.00 and the original price for the Canway bag was \$39.99. In contrast, for participants in the rounded price option B condition, the original price for the Wohlbege bag was \$39.99 and the original price for the Canway bag was \$40.00¹, as shown in Figure 4.

¹ In order to check the manipulation of the price preciseness, we conducted a pre-test (163 US Amazon MTurkers, 76 females, average age = 41.91 years, SD = 13.52). Participants were exposed to one of three price conditions (\$40.00 vs. \$39.99 vs. \$33.99) and asked to evaluate the price information with 3 item using 7-point scale (1 = not at all precise/ specific / detailed, 7 = very precise/ specific / detailed, Cronbach's $\alpha = .829$). The results confirmed our prediction ($F(2,160) = 11.65, p < .001, \eta^2 = .127$). Specifically, the precise information of the rounded price of \$40 ($M = 4.84, SD = 1.48$) was much perceived as less precise compared to that of precise price of \$39.99 ($M = 5.74, SD = 1.24$, post hoc Tukey test's $p < .001$) and that of \$33.99 ($M = 5.95, SD = 1.05$, post hoc Tukey test's $p < .001$). The authors appreciate the suggestion of using this method from a reviewer of this paper.

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Before the final choice, participants were informed that two winners would receive the bag based on their actual choice². Participants then made their choice.

**** Figure 4 about here ****

Results and Discussion

The results confirmed our prediction in that the percentage choosing the Wohlbege Travel Duffel Bag [option B] was much higher when the price of the Wohlbege bag was rounded (53.3% [=73/137]) rather than precise (41.0% [=59/144], $\chi^2(1) = 4.27$, $p = .039$, $\phi = .12$). To summarize, the main hypothesis H1c was replicated in an actual choice setting with a consequential choice situation.

Study 3: Replicating the Previous Study with Different Discounting Rates

In Study 3, we aimed to replicate the previous studies 1A and 1B with a few modifications. First, the initial findings may have been driven by the specific discounting rate applied (i.e., 16.7% discounting, Marshall & Leng, 2002). For example, the discounting rate may influence the perception of the discounted amount (e.g., Alford & Biswas, 2002; Gupta & Cooper, 1992). In order to extend the external validity, we systematically varied the price discounting rates between relatively large and small (i.e., 40% & 10% discounting). Second, we used a different travel setting to increase the external validity. Finally, price perception may be heavily influenced by the participant's current income or wealth level. To control for this factor, we measured participants' household incomes.

² After study, we randomly chose two participants and gave them money to buy these bags from Amazon Store.

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Method: Subjects, Design, and Procedure

The participants in this study were 317 US adults (130 females, average age = 39.34 years, SD = 10.57) from an online panel produced by Amazon MTurk. Participants were randomly assigned to one of the 2 (price preciseness of the original price: precise vs. rounded price) X 2 (price preciseness of the discounted price: precise vs. rounded price) X 2 (price discount rate: large vs. small) between-subjects conditions.

Participants in this study were first asked to assume that they were planning a four-day vacation and were searching for a hotel and rent-a-car travel package. They were further informed that they were offered only one option, which they were asked to rate for attractiveness. The original price was either \$1,000 in the rounded price condition or \$999 in the precise price condition. The discounted prices, however, varied across the experimental conditions. In the large discount rate condition (around 40%), the discounted price was either \$600 in the rounded price condition or \$599 in the precise price condition. In the small discount rate condition (around 10%), the discounted price was either \$900 in the rounded price condition or \$899 in the precise price condition (see Figure 2 for stimuli examples).

Participants were then asked to rate the perceived attractiveness of the price promotion deal using the same 3-item scale used in Study 1 (Cronbach's $\alpha = .847$) and the same purchase intention. Finally, participants were asked to provide demographic information including age, gender and household income (1 = \$0 ~ \$10,000, 2 = \$10,001 ~ \$20,000, ..., 15 = \$140,000 or above).

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In order to control for the effect of income on the perception of the discounted price, we conducted a 2 X 2 X 2 ANCOVA with household income as a covariate³. First, for the perceived attractiveness of the price promotion deal, the covariate of household income was not significant ($F(1, 308) = .09, p = .765, \eta^2 = .0003$). The main effect of the price discount rate was significant ($F(1, 308) = 38.78, p < .001, \eta^2 = .112$) in that the deal attractiveness was higher when the price discount rate was large ($M = 5.80, SD = .87$) compared to small ($M = 5.07, SD = 1.20$).

More importantly, the main effect of price preciseness of the original price was significant ($F(1, 308) = 3.92, p = .049, \eta^2 = .013$), as predicted. Specifically, the deal attractiveness was higher when the original price was presented in a rounded ($M = 5.54, SD = 1.16$) rather than a precise format ($M = 5.32, SD = 1.05$), supporting H1a. However, the main effect of price preciseness of the discounted price was marginally significant ($F(1, 308) = 3.18, p = .076, \eta^2 = .010$). The deal attractiveness was higher when the discounted price was presented in a rounded ($M = 5.55, SD = 1.09$) rather than a precise format ($M = 5.32, SD = 1.11$). Lastly, no interaction effects were significant (all $F(1, 308) < .25$, all $ps > .617$), which did not support H2a. The detailed results are provided in Figure 5.

Second, for the purchase intention, the covariate of household income was significant ($F(1, 308) = 5.31, p = .022, \eta^2 = .017$). The main effect of price discount rate was significant ($F(1, 308) = 25.56, p < .001, \eta^2 = .079$) in that the deal attractiveness was higher when the price discount rate was large ($M = 5.82, SD = 1.14$) compared to small ($M = 5.06, SD = 1.54$).

More importantly, the main effect of price preciseness of the original price was significant ($F(1, 308) = 5.11, p = .024, \eta^2 = .016$), as predicted. Specifically, the purchase

³ We checked the assumptions of ANCOVA and found the key assumption was satisfied, in that the covariate was linearly related to the dependent variables for eight experimental conditions and the homogeneity of regression slopes was not statistically significant (all $ps > .05$). Detailed results are available from the corresponding author.

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intention for the deal was higher when the original price was presented in a rounded ($M = 5.60$, $SD = 1.45$) rather than a precise format ($M = 5.28$, $SD = 1.35$), supporting H1b. However, the main effect of price preciseness of the discounted price was marginally significant ($F(1, 308) = 2.82$, $p = .094$, $\eta^2 = .009$). The deal attractiveness was higher when the discounted price was presented in a rounded ($M = 5.58$, $SD = 1.34$) rather than a precise format ($M = 5.30$, $SD = 1.45$). Lastly, no interaction effects were significant (all $F(1, 308) < .17$, all p -values $> .680$), meaning that H2b was not supported. The detailed results are provided in Figure 5.

Finally, we conducted a mediation test (i.e., price preciseness of the original price $\rightarrow$ deal attractiveness $\rightarrow$ purchase intention with covariate of income and price discount rates) with Hayes (2017) macro, using model #4 with 5,000 bootstrapping. The results indicated that the indirect effect was significant ($a \times b = -.225$, $se = .11$, 95% CI = $[-.438, -.007]$). However, the direct effect was not significant ($c = -.117$, $se = .10$, 95% CI = $[-.314, .080]$).

In summary, this study replicated the previous results and supported H1a and H1b. It further excluded the alternative explanation for the results of Study 1 - the income effect.

**** Figure 5 about here ****

Study 4: Testing Moderating Hypotheses of H3.

The main purpose of this study was to obtain empirical evidence of the moderating effect of lay rationalism on the impact of price preciseness on deal perception and purchase intention. We further tested different price discounting framing, including explicit original price displays for the bundled products.

Method: Subjects, Design, and Procedure

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The participants in this study were 205 US adults ($n = 96$ female, average age = 35.22 years, $SD = 10.17$) from the online panel Amazon MTurk. Participants were randomly assigned to one of the 2 (price preciseness of the original price: precise vs. rounded price) X 2 (price preciseness of the discounted package price: precise vs. rounded price) between-subjects conditions.

Participants in this study were first asked to imagine that they were planning a vacation and searching for a travel package including hotel accommodation and car rental service. They were further informed that they were offered only the best deal available. Participants were then provided with the price information. The original prices for the hotel and rental car were either (i) \$200 (hotel price per day) and \$100 (car rental price per day) in the rounded price condition or (ii) \$199.99 hotel price per day) and \$99.99 (car rental price per day) in the precise price condition. The discounted price for the combined package was either (i) \$240 in the rounded price condition or (ii) \$239.99 in the precise price condition. The price discount rate was 20% (see Figure 2 for stimulus example).

Participants were then asked to rate their perceived attractiveness of the price promotion deal using the same 3-item measure used in Studies 1 and 3 (Cronbach's $\alpha = .921$) and the same purchase intention. Finally, participants were asked to respond to a 6-item lay rationalism measure (e.g., *When making decisions, I like to analyze financial costs and benefits and resist the influence of my feelings*. See the Appendix for the complete list of items) on a 7-point scale (1 = strongly disagree, 7 = strongly agree, Hsee et al., 2003; 2015; Cronbach's $\alpha = .706$).

Results and Discussion

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In order to test the moderating effect of the measured lay rationalism, we used Hayes' macro model #3 with 5,000 bootstrapping (IV = price preciseness of the original price [-1: precise, 1: rounded], moderator #1 = price preciseness of the discounted package price [-1: precise, 1: rounded], moderator #2 = lay rationalism, & DV = deal attractiveness / purchase intention).

First, for the perceived attractiveness of the price promotion deal, the 3-way interaction effect was significant (effect = -.33, se = .10, $t = -3.25$, $p = .001$, 95% CI = [-.535, -.131]). The detailed analysis indicated that the main effect of the price preciseness of the original price was significant ($p = .003$, 95% CI = [.194, .899]) only when the discounted price was presented in a precise format and for participants with relatively high lay rationalism scores. Specifically, the deal attractiveness was higher when the original price was presented in a rounded (estimated $M = 5.86$) rather than a precise format ($M = 4.77$) for this specific condition⁴. The detailed results are shown in Figure 6.

**** Figure 6 about here ****

Second, for the purchase intention for the price discounted deal, we also found a significant 3-way interaction effect (effect = -.26, se = .13, $t = -2.04$, $p = .043$, 95% CI = [-.501, -.009]). The detailed analysis indicated that the main effect of the price preciseness of the original price was significant ($p = .027$, 95% CI = [.057, .915]) only when the discounted price was presented in a precise format and for participants with relatively high lay rationalism scores, supporting H3a rather than H3b. Specifically, the purchase intention was higher when the

⁴ When we ignored the price preciseness of the discounted package price level, the results supported H3a in that the positive effect from the rounded (vs. precise) original price was found only for participants with relatively high lay rationalism scores (overall moderation effect: $p = .073$; $M_{\text{rounded original price}} = 5.41$ vs. $M_{\text{precise original price}} = 4.95$; $p = .083$). This effect disappeared for participants with relatively low lay rationalism scores ($M_{\text{rounded original price}} = 5.14$ vs. $M_{\text{precise original price}} = 5.36$; $p = .415$).

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original price was presented in a rounded (estimated $M = 5.85$) rather than a precise format ($M = 4.88$) for this specific condition⁵. The detailed results are presented in Figure 7.

**** Figure 7 about here ****

In summary, this study demonstrated the moderating role of lay rationalism, in that the positive effect of the original rounded (vs. precise) price was higher only for participants with relatively high (vs. low) lay rationalism. This effect was much stronger when the discounted price was presented in a precise format.

General Discussion

Summary of Empirical Studies

Across five empirical studies, we demonstrated the proposed price preciseness effect. In Studies 1A and 1B, we found that the attractiveness of and purchase intention for a discounted travel option were significantly higher when both the original and discounted price were presented in a rounded (vs. precise) format. This result shows that the effectiveness of a price promotion deal is influenced by subtle variations of price preciseness and that this effect is driven by specific associations with a price format rather than perceived fluency. In Study 2, using more realistic choice data, we replicated Study 1A, which enhanced the external validity of our research. In Study 3, we replicated Studies 1A and 1B with varying price discounting rates while ruling out an alternative explanation of the income effect. Finally, in Study 4, we found

⁵ When we ignored the price preciseness of the discounted package price level, the results supported H3a in that the positive effect of purchase intention at the rounded (vs. precise) original price was found only for participants with relatively high lay rationalism scores (overall moderation effect: $p = .040$; $M_{\text{rounded original price}} = 5.53$ vs. $M_{\text{precise original price}} = 5.12$; $p = .193$). The opposite effect was found for participants with relatively low lay rationalism scores ($M_{\text{rounded original price}} = 4.95$ vs. $M_{\text{precise original price}} = 5.46$; $p = .102$).

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that the price preciseness effect was evident only for travelers with high (vs. low) lay rationalism. This result establishes the moderating role of lay rationalism and also reinforces support for a price association-based explanation as the viable underlying mechanism.

Theoretical Implications

As discussed in the literature review, price reduction effects occur in different price messages or information, such as percentage-off and dollars-off information, surcharge framing, digital pricing, and concealing or revealing prices. These tactics are associated with price preciseness effects. This study attempted to identify the effect of rounded (vs precise) prices on enhancing deal attractiveness and purchase intention. The results indicated that a rounded price format was more effective in increasing deal attractiveness and purchase intention. The findings are consistent with previous research, which identified the efficacy of rounded pricing as it signals high quality (Kim et al., 2020; Wadhwa & Zhang, 2015). More precisely, rounded pricing is more fluently processed, thereby encouraging reliance on feelings, in contrast to non-rounded prices, which sustain reliance on cognition. This is particularly relevant in the context of vacations, for which purchase decisions are primarily driven by feelings, and fluency facilitates feelings-based processing (Wadhwa & Zhang, 2015). Another tenable explanation is that rounded prices are more prototypical of numbers, commonly used as points of reference for numeric estimations (Rosch, 1975).

In contrast, the use of precise pricing is likely to be encoded by potential customers as exactness of the price or trustworthiness. Moreover, since the vacation package's price was high (US\$1,800), precise pricing may be seen to indicate low product/experience quality (Anderson & Simester, 2003; Kim et al., 2020; Kim, Jhang et al., 2020; Schindler et al., 2011). This is

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different from the results of conventional pricing studies, which found a positive relationship between a low cost for a travel option and a higher purchase intention or actual purchase. Now that travel is involved with safety or hedonic values, a small price difference attributed to rounding will not lead to a negative impact on price fairness or price justice.

This study reported that a price association-based explanation was prevalent regardless of the price discount option (40% off vs 10% off). This result paralleled that of previous studies (Kim et al., 2020; Schindler et al., 2011; Wadhwa & Zhang, 2015), finding that consumers who are exposed to a rounded price perceive the product to have high quality and trustworthiness, without considering a discount level. Therefore, this study may contribute to the existing literature on the impact of price discount levels on the evaluation of a discounted price.

Investigating the moderating role of lay rationalism indicated that the price roundness effect was observed only in the high but not in the low lay rationalism group. Specifically, for a discounted deal whose reduced price was presented in a precise format, those with high lay rationalism perceived the deal as more attractive and indicated higher purchase intention when the original price was presented in a rounded rather than precise format. In contrast, low lay rationalists did not exhibit any differences relating to price preciseness. By demonstrating a novel moderating effect of lay rationalism in travel decision making, this study calls for adopting this concept in the tourism literature, in contrast to the fact that there is currently little effort to apply lay rationalism to the tourism industry.

Managerial Implications

This research has several practical and managerial implications. First, the way the original price of a discounted travel product/service is presented seems to send a signal to

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potential customers about its practical value, because it determines perceived attractiveness and influences decision making in choosing a travel option. The results of this study, in particular, suggest that consumers' evaluations of a similar deal differ according to the preciseness (rounded vs. precise) of the original price. Considering the fierce competition experienced in online and offline market environments between tourism service providers, the results indicate that high-end travel operators and intermediaries, hotels and other tourist-related businesses can enhance their products' attractiveness by setting original prices using a rounded format.

Second, an array of rounded original prices and rounded reduced prices resulted in a higher level of deal attractiveness and purchase intention, compared to an array of precise original prices and rounded reduced prices. The findings of this study offer managerial insights into consumers' purchase intentions for a discounted travel option. Tourism businesses can invest in such subliminal (pricing) messages to increase customers' purchase intention, convincing them to buy a product/service at the promoted price. In an era where travelers are predominantly using price comparison platforms and tools, those businesses that strategically select a rounded original price format have a higher likelihood of being selected by potential consumers.

Third, regarding the results of price reduction effects when comparing 10% reduction and 40% reduction options, consumers responded more favorably in revealing deal attractiveness and purchase intention in the case of 40% reduction rather than 10% reduction regardless of rounded or precise price treatments. The results correspond to the conventional wisdom that consumers prefer a higher level of price reduction when choosing vacation destination and travel packages. However, consumers tend to shun a low-priced product because they are suspicious of the

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quality, whereas they tend to show resistance to a highly priced product because it lies outside their boundaries of acceptance.

Fourth, consumers with low lay rationalism showed no significant differences in preference for precise original price or rounded original price in both perception of deal attractiveness and intention to purchase. Price preciseness framing before and after discount did not produce a meaningful distinctiveness in the segment. Therefore, hotels or travel agencies need to devise different strategies to persuade customers with low lay rationalism, such as focusing on offering diverse memorable customer experiences. For example, tactics like the provision of services such as photo-taking; free consultations for a tour package; recommendation of unique restaurants; and caring services for customers, such as nail trims or sports lessons, can appeal to this segment by meaningfully enhancing emotional value despite the imposition of a small cost.

Lastly, the study findings did not provide any support for the proposition that price promotions are more effective when both the original and the discounted price are presented in the same format. Considering the previously recommended tactic of presenting the original price of the tourist product/service in a rounded format, another implication for tourism and hospitality marketers is to present the discounted price in a precise format. This seems to increase the effectiveness of the price promotion in consumers' minds by increasing the distinctiveness and distance between the original and the reduced price, thereby offering greater value to consumers. Overall, the use of rounded original prices, followed by precise discounted prices in promotional material, appears to lead to enhanced perceived attractiveness of the tourist product/services and greater purchase intentions, especially for consumers with high lay rationalism.

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Limitations and Future Studies

Even though our theorizing about price preciseness was about the price format, we consistently used a relatively lower price for the price preciseness manipulation. Even though previous studies (e.g., Kim et al., 2020) suggest a similar effect on price judgment when using different price preciseness, future research needs to compare the manipulation of two different precise prices (e.g., \$99.99 vs. \$100.01) in comparison with a rounded one (\$100).

Second, the original average daily cost for the deal was similar, at around \$200-300 across most studies. Considering that travelers' price sensitivity varies with price levels (Choi et al., 2018; Giroux et al., 2022), future research could examine whether consumers' preference for the rounded (vs precise) price format changes according to price level.

Third, previous research suggests that the preference for different pricing formats is influenced by travelers' cultural backgrounds (Crompton, 2016; Jeong & Crompton, 2017; 2018). Therefore, it may be an interesting future study to explore whether our observed price preciseness effect would hold across different cultural contexts.

Fourth, even though we theorized that the perceived quality, resulting from a different price preciseness, was the underlying mechanism for our findings, there was no empirical study to demonstrate the sequential relationship among price preciseness, perceived quality, and overall evaluation. Therefore, a future study needs to investigate this issue.

Fifth, one limitation of the current paper is the pool of participants. All the empirical studies were conducted using an Amazon MTurk sample. Even though using Amazon MTurk is popular method in tourism and travel research, especially during the COVID-19 pandemic (Lu et al., 2021), a further study needs to be conducted with a divergent sample in order to increase the quality of empirical studies and the internal and external validity of our findings. Also, since the

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findings of this research are based on experiments and not observations of actual behaviours, it might be useful for future studies to draw conclusions based on actual decision making.

Sixth, even though this research contained a consequential choice study, a future study needs to extend this theory into real purchases using methods such as secondary data analysis or field experiments.

Next, further research is required to understand consumers' behaviour in cases where prices adjust dynamically (e.g., Roper, 2011), with limited transparency about the original prices, and individuals can compare simultaneously different "deals".

Lastly, we conducted our studies both before (Studies 1A, 3, and 4) and after (Studies 1B and 2) the onset of the COVID-19 pandemic. The consistent pattern of results suggests that our effect is robust and unlikely to be affected by COVID-19. Nevertheless, given the recent literature demonstrating the impact of the threat of COVID-19 on travel decisions and judgment (Irimiás & Mitev, 2021; Jang et al., 2021; Kim et al., 2021), future research could address and rigorously test how COVID-19 influences the price preciseness effect.

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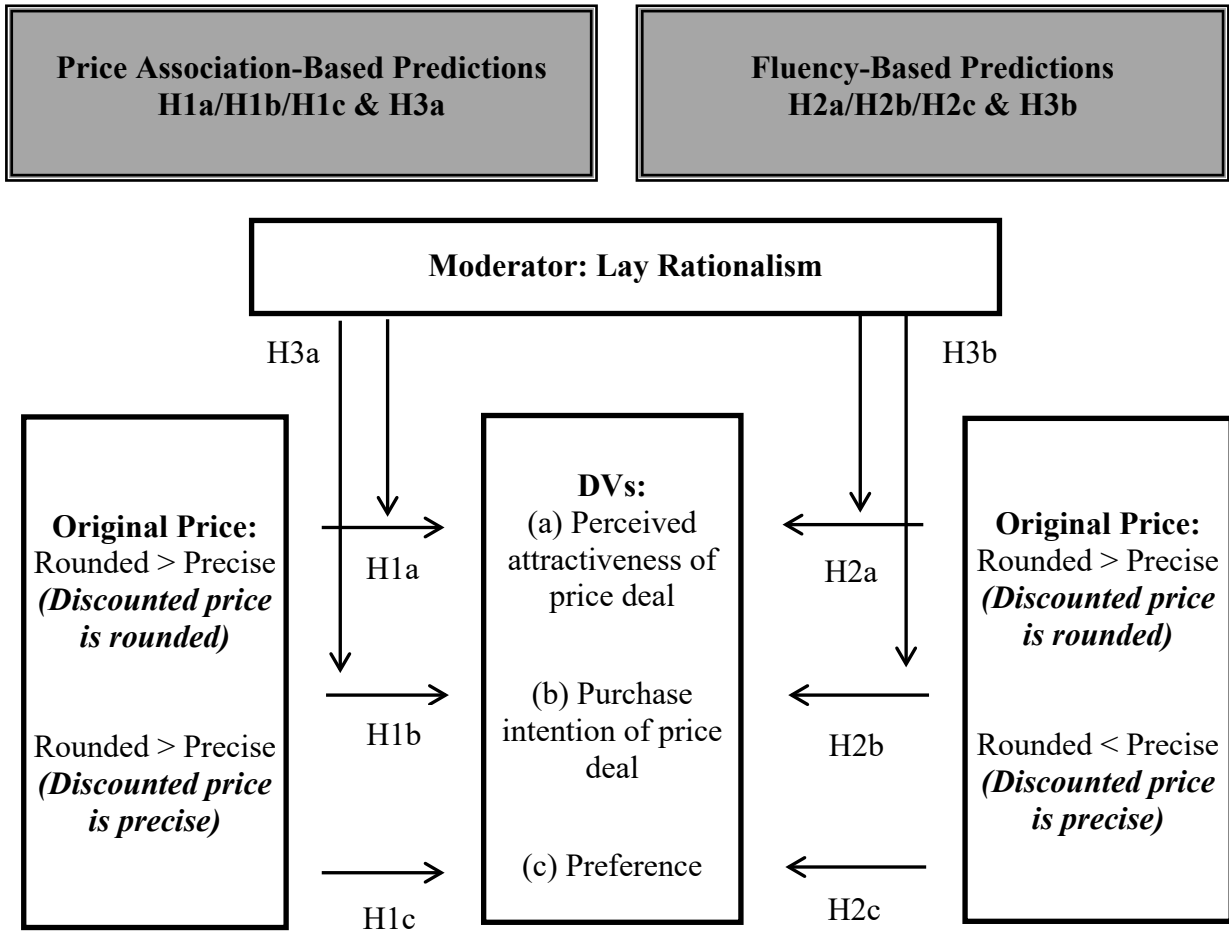
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Figure 1
Theoretical Framework and Predictions



Kim, J., Jhang, J., Kim, S., & Styliadis, D. (2023). The impact of Price preciseness, Price reduction, and lay rationalism on travelers' perceptions of deal attractiveness, purchase intention, and choice. *Journal of Travel Research*, 62(7), 1550-1568.

Figure 2

Example Stimuli for Empirical Studies

Studies 1A and 1B – Original price – Rounded & Reduced price – Rounded condition

Vacation Decision

Imagine that you are planning a five-day vacation to a destination. While browsing a number of online travel agents, you find that "Online Travel" provides a discount for the product that you want to purchase (i.e., flight + hotel package). Including all features, you conclude that the following products are the best deal at the moment.

Original price = \$1,800
Discounted price = \$1,500

Study 3 – Original price – Rounded & Reduced price – Precise & 40% discount condition

Vacation Decision

Imagine that you are planning a four-day vacation to a destination. While browsing a number of online travel agents, you find that "Online Travel" provides a discount for the product that you want to purchase (i.e., hotel + car rental service package).

Original price = \$ 1,000
Discounted price = \$ 599

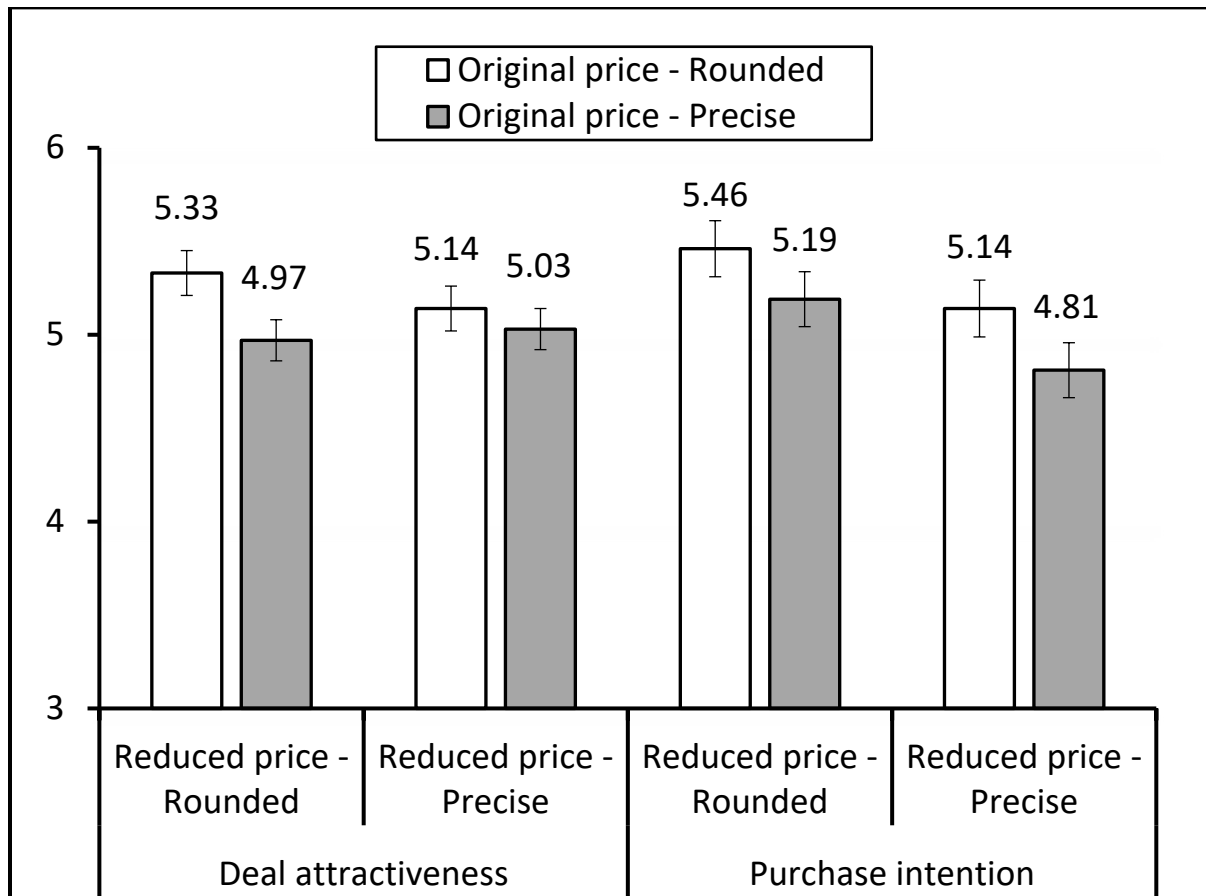
Study 4 – Original price – Precise & Discounted package price – Precise condition

Online Travel Package Decision

Imagine that you are planning a vacation to a destination. While browsing a number of online travel agents, you find that "Online Travel" provides a discount for the product that you want to purchase (i.e., hotel + car rental service package). Including all features, you conclude that the following products are the best deal at the moment.

Regular Hotel Price (per day) = \$199.99
Regular Car Rental Price (per day) = \$99.99
Hotel + Car Rental Package Price = \$239.99

Figure 3
Results of Study 1A



* The error bar represents standard error.

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Figure 4

Stimuli of Study 2

Rounded price of Option B [Wohlbege bag] Condition

Travel Bag Choice

Imagine that you want to buy a travel bag for an upcoming trip. While browsing several options within your price range, you find the following two options.

Which option would you like to choose?

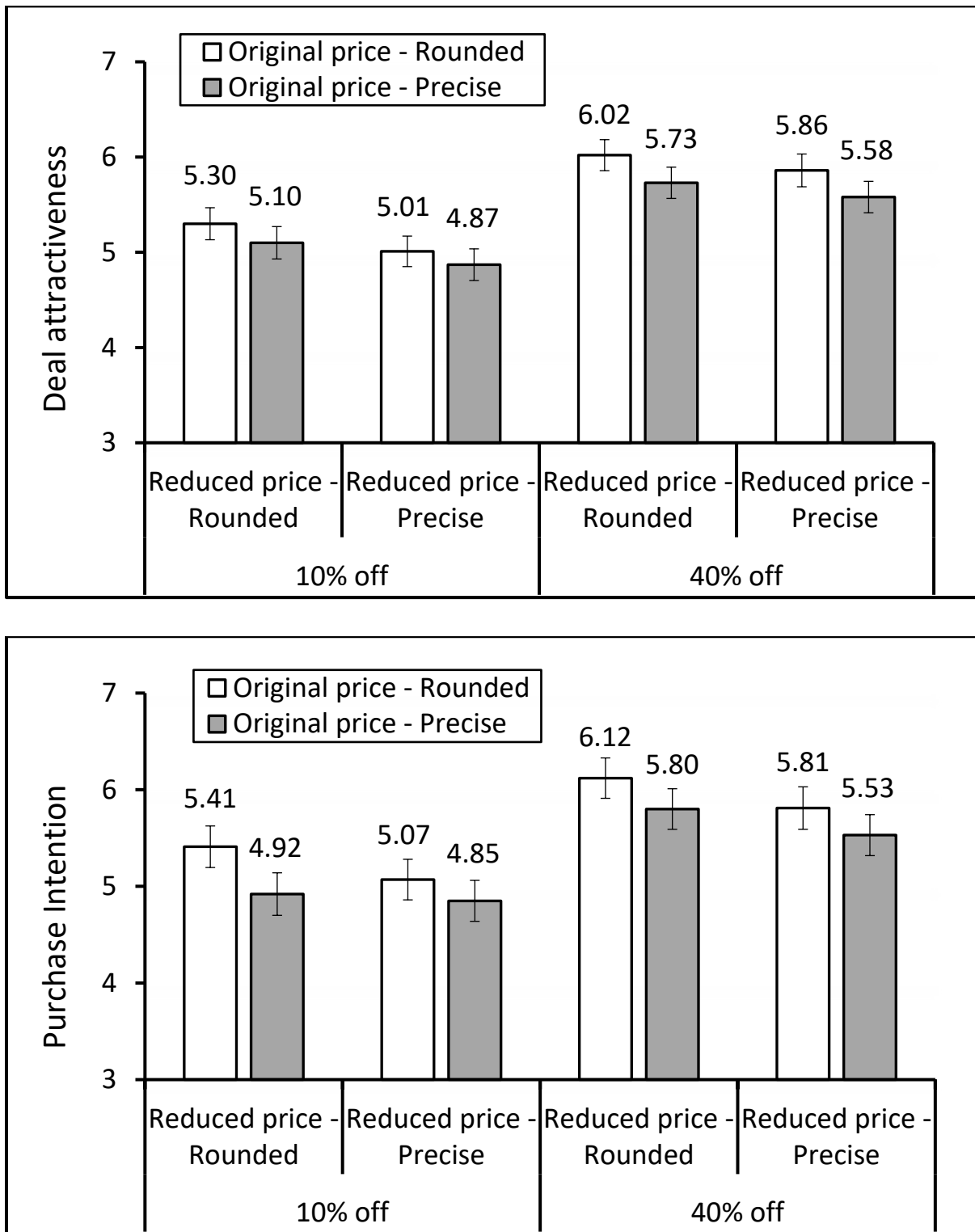
*** Remember that we will randomly choose 2 winners and give them the product they choose. Please choose one carefully. ***

Canway Travel Duffel Bag	Wohlbege Travel Duffel Bag
 - Waterproof & tear-resistant fabric - Premium metal SBS zippers - Padded shoulder strap buckle Original price: \$39.99 Discounted price: \$33.99	 - Comfortable back cushion - Anti-wear bottom cushion - Safe internal design Original price: \$40.00 Discounted price: \$33.99
Canway Travel Duffel Bag ☐	Wohlbege Travel Duffel Bag ☐

Precise price of Option B [Wohlbege bag] Condition

Canway Travel Duffel Bag	Wohlbege Travel Duffel Bag
 - Waterproof & tear-resistant fabric - Premium metal SBS zippers - Padded shoulder strap buckle Original price: \$40.00 Discounted price: \$33.99	 - Comfortable back cushion - Anti-wear bottom cushion - Safe internal design Original price: \$39.99 Discounted price: \$33.99

Figure 5
Results of Study 3



* The error bar represents standard error.

Figure 6
Results of Study 4 – Deal Attractiveness

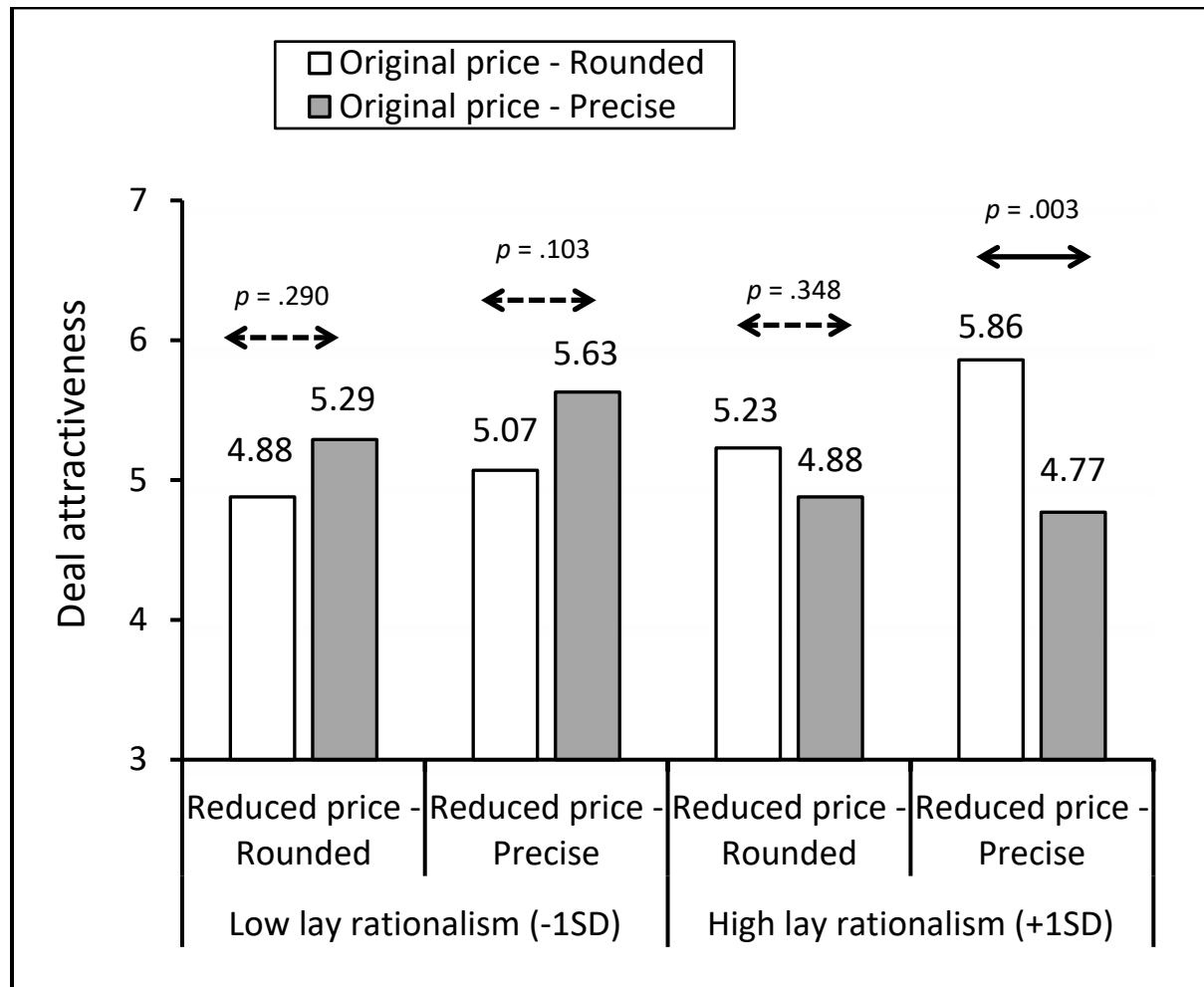
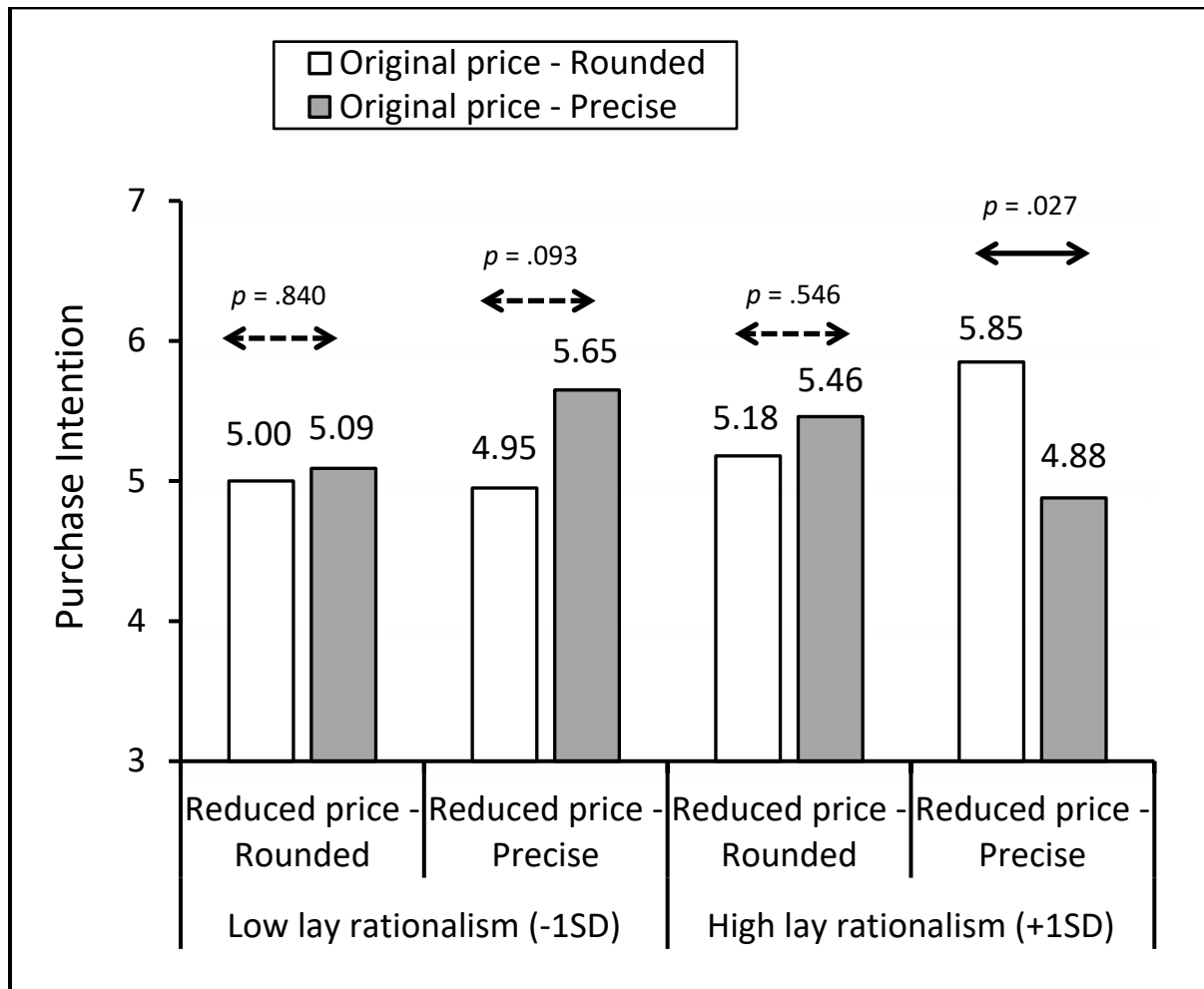


Figure 7
Results of Study 4 – Purchase Intention



Kim, J., Jhang, J., Kim, S., & Styliadis, D. (2023). The impact of Price preciseness, Price reduction, and lay rationalism on travelers' perceptions of deal attractiveness, purchase intention, and choice. *Journal of Travel Research*, 62(7), 1550-1568.

Table 1

Previous Studies on Price Reduction Framing and Preciseness Information in Tourism and Hospitality

Sources	Main topics	Main Findings
Choi and Mattila (2014)	Moderating role of sense of power between the promotion framing manipulation and perceived savings/ willingness to book.	The promotion framing more effectively affected low (vs high) power customers and showed a high intention to book in the case of dollar-off framing (vs percentage-off framing).
Choi et al. (2018)	Effects of gender on perceptions of hotel room reference price	Male customers are more sensitive to internal reference price than to external reference price, while female customers are only affected by external reference price.
Choi and Mattila (2018)	Sensitivity to hotel room reference price	Customers are sensitive to external reference price compared to internal reference price. Information accessibility and perceived diagnosticity facilitated the effect of IRP versus ERP on their price evaluations.
Choi and Mattila (2019)	Factors affecting perceptions of hotel room reference price	Internal reference price affects powerful respondent, while external reference price affects powerless respondents.
Cui et al. (2021)	Effects of preciseness of hotel room price presentation, lay rationalism, and time pressure on compromise and decoy set	Rounded price presentation was more effective in the compromise set for high lay rationalism customers, whereas precise price presentation showed more effectiveness in the decoy set for high lay rationalism customers. However, the two price presentations were not effective in both sets to low lay rationalism customers.
Guéguen et al. (2009)	Effects of nine-ending price and round 00-ending price on pizza choice	Customers in a Pizza restaurant preferred a menu item with a 9-ending price to 0-ending price. However, there was no difference in selecting the target pizza when all the items had the same type of ending (0 or 9).
Jeong and Crompton (2017)	Effects of odd-ending price on five leisure and tourism products in three different cultural cities	The 0 and 5 price endings were accepted across customers in three different cities. The effect of culture was not shown in lower-priced products.
Jeong and Crompton (2018)	Effects of culture and symbolic meaning on 9 price ending	Culture and symbolic meaning did not influence intention to buy tourism services with 9-ending prices.
Kim et al. (2020)	Effects of rounded or precise price ending on hotel customers' preference	Hotel customers preferred rounded (vs precise) price presentation in their near future travel decision. The finding was not confirmed in the far future travel decision.
Kwon and Jang (2011)	Effects of bundled vs. de-bundled price presentation and the role of quality certainty in food products	When consumers are less confident about the quality of bundled food products, their willingness to order bundled products is higher when price discount information is segregated (i.e., de-bundled price presentation) rather than aggregated (i.e., bundled price presentation)
Ngan et al. (2018)	Meanings of 8-ending price presentation to Chinese customers	Eight digit in pricing information represents luck, fortune, prestige, is appealing, and is a reflection of market norms
Schindler et al. (2011)	Usefulness of "just-below" pricing strategy	Just-below endings negatively affected perceived quality and brand image, trustworthiness, and inconvenience.

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Table 1 (Cont'd)

Previous Studies on Price Reduction Framing and Preciseness Information in Tourism and Hospitality

Sources	Main topics	Main Findings
Tanford et al. (2019)	Effects of price anchors, framing, and metric compatibility on willingness to pay (WTP) for a vacation	A high anchor increases WTP. When an average price versus a range was presented, WTP increased. The effect of anchoring was diminished where the budget was satisfied with a high anchor.
Wang and Lynn (2017)	Effects of service charges (vs service-included menu pricing) on perceived deal value	Surcharge levels and surcharge format (percentage vs. dollar service gratuity) influence perceived deal value.
Wen et al. (2021)	Effects of additive (vs. subtractive) framing on travelers' purchase decisions for customized travel packages	Purchase intention and willingness to pay were higher when subtractive (vs. additive) framing was used. However, if the decision is for the distant rather than near future, additive framing leads to higher purchase intention.
Yang and Mattila (2020a)	Joint effects of savings message framing and weather conditions on consumer response	A gain-framed message (e.g., get \$X off) is more effective than a non-loss-framed message (e.g., save \$X) in rainy weather, but its superiority disappears 1) in sunny weather and 2) when the message is presented in percentage terms (e.g., get X% off, save X%).
Yang and Mattila (2020b)	Effects of different sales promotion types and rational thinking style	Consumers low on the rational thinking scale tend to exhibit higher purchase intention toward 'buy one get one free' promotions than to 'multi-unit price' promotions. This tendency is attenuated for those high on the rational thinking scale.
Zou and Petrick (2020)	The moderating role of the magnitude of hotel room rates and the size of prior investment in other travel components in the effect of left-digit pricing	Left-digit pricing was effective (in changing tourists' purchase intentions) only when the price level was low and the composite price was high.

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Table 2
Summary of Empirical Results

Study 1A: Testing Competing Hypotheses (n = 300 U.S. Mturkers, M _{age} = 36.62, 48.3% Female)					Hypotheses supported (vs. rejected)	
IV	2 (PP of OP)	\$1,800 (Rounded)		\$1,790 (Precise)		
	2 (PP of DP)	\$1,500 (Rounded)	\$1,490 (Precise)	\$1,500 (Rounded)	\$1,490 (Precise)	
DV's & Results	Deal Attractiveness	M _{OP_rouned} = 5.24 > M _{OP_precise} = 5.00; <i>F</i> (1,296) = 4.26, <i>p</i> = .040 2-way interaction: <i>F</i> (1,296) = 1.10, <i>n.s.</i>				H1a (vs. H2a)
	Purchase Intention	M _{OP_rouned} = 5.30 > M _{OP_precise} = 5.00; <i>F</i> (1,296) = 4.01, <i>p</i> = .046 2-way interaction: <i>F</i> (1,296) = .05, <i>n.s.</i>				H1b (vs. H2b)
Mediation Analysis (Hayes Model #4 with 5000 bootstrap sample)		PP of OG → Deal Attractiveness → Purchase Intention Indirect effect = -.222, 95% CI = [-.432, -.010] Direct effect = -.079, 95% CI = [-.289, .131]				Full mediation
Study 1B: Testing Competing Hypotheses (n = 304 U.S. Mturkers, M _{age} = 41.16, 55.6% Female)						Hypotheses supported (vs. rejected)
IV	2 (PP of DP)	Rounded		Precise		
		Package A vs. Package B (\$1,790 → \$1,500) (\$1,800 → \$1,500)	Package C vs. Package D (\$1,790 → \$1,500) (\$1,800 → \$1,500)			
DV & Results	Relative preference	Package A (14.4%) < Package B (85.6%) $\chi^2(1) = 44.47, p < .001$		Package C (16.6%) < Package D (83.4%) $\chi^2(1) = 38.02, p < .001$		H1c (vs. H2c)
Study 2: Consequential study (n = 281 U.S. Mturkers, M _{age} = 41.80, 61.2% Female)						Hypotheses supported (vs. rejected)
IV	2 (PP of OP of Option B)	Rounded		Precise		
		Option A vs. Option B (\$40.00 → \$33.99) (\$39.99 → \$33.99)	Option A vs. Option B (\$40.00 → \$33.99) (\$39.99 → \$33.99)			
DV & Results	Choice share of Option B	P _{rouned} = 53.3% (73/137) > P _{precise} = 41% (59/144) $\chi^2(1) = 4.27, p = .039$				H1c (vs. H2c)

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Table 2 (Cont'd)

Summary of Empirical Results

Study 3: Replication with different discounting rates (n = 317 U.S. Mturkers, M _{age} = 39.34, 41.0% Female)									Hypotheses supported (vs. rejected)	
IV	2 (Discount rate)	Large				Small				
	2 (PP of OP)	\$1,000		\$999		\$1,000		\$999		
	2 (PP of DP)	\$600	\$599	\$600	\$599	\$600	\$599	\$600	\$599	
DV _s & Results	Deal Attractiveness	M _{OP_rouned} = 5.54 > M _{OP_precise} = 5.32; <i>F</i> (1,308) = 3.92, <i>p</i> = .049 No higher-order interaction effects were significant: all <i>F</i> 's < .25							H1a (vs. H2a)	
	Purchase Intention	M _{OP_rouned} = 5.60 > M _{OP_precise} = 5.28; <i>F</i> (1,308) = 5.11, <i>p</i> = .024 No higher-order interaction effects were significant: all <i>F</i> 's < .17							H1b (vs. H2b)	
Mediation Analysis (Hayes Model #4 with 5000 bootstrap sample)		PP of OG → Deal Attractiveness → Purchase Intention Indirect effect = -.225, 95% CI = [-.438, -.007] Direct effect = -.117, 95% CI = [-.314, .080]							Full mediation	
Study 4: Testing moderating role of lay rationalism (n = 205 U.S. Mturkers, M _{age} = 35.22, 46.8% Female)									Hypotheses supported (vs. rejected)	
IV	2 (PP of OP)	\$200 (hotel) & \$100 (car rental)			\$199.99 (hotel) & \$99.99 (car rental)					
	2 (PP of DP)	\$240		\$239.99		\$240		\$239.99		
Moderator	LR	6-item continuous scale (Hsee et al. 2003, 2015)								
DV _s & Results	Deal Attractiveness	Hayes #3 with 5000 bootstrap sample; 3-way interaction was significant. (effect = -.33, <i>t</i> = -3.23, <i>p</i> = .001, 95% CI = [-.535, -.131])							H3a (vs. H3b)	
		H1a (M _{OP_rouned} = 5.86 > M _{OP_precise} = 4.77) holds only for high LR								
	Purchase Intention	Hayes #3 with 5000 bootstrap sample; 3-way interaction was significant. (effect = -.26, <i>t</i> = -2.04, <i>p</i> = .043, 95% CI = [-.501, -.009])							H3a (vs. H3b)	
		H1b (M _{OP_rouned} = 5.85 > M _{OP_precise} = 4.88) holds only for high LR								

Note: PP – Price Preciseness, OP – Original Price, DP – Discounted Price, LR – Lay Rationalism

Kim, J., Jhang, J., Kim, S., & Stylidis, D. (2023). The impact of Price preciseness, Price reduction, and lay rationalism on travelers' perceptions of deal attractiveness, purchase intention, and choice. *Journal of Travel Research*, 62(7), 1550-1568.

Appendix

Lay Rationalism Scale (Hsee et al., 2003; 2015)

Thinking about yourself, how much do you agree with the following statements?
(1 = strongly disagree, 7 = strongly agree)

- When making decisions, I like to analyze financial costs and benefits and resist the influence of my feelings.
- When choosing between two options, one of which makes me feel better and the other better serves the goal I want to achieve, I choose the one that makes me feel better.(R)
- When making decisions, I think about what I want to achieve rather than how I feel.
- When choosing between two options, one of which is financially superior and the other “feels” better to me, I choose the one that is financially better.
- When choosing between products, I rely on my gut feelings rather than on product specifications (numbers and objective descriptions).(R)
- When making decisions, I focus on objective facts rather than subjective feelings.

Here, (R) represents a reversely coded item