

Unpacking the Gendered Impact of Scarcity Cues and Customer Ratings on Online Hotel Bookings and Recommendations

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Abstract—To drive conversions, e-commerce and m-commerce platforms often employ various scarcity cues within their booking interfaces. These fall into two categories: limited-quantity (e.g., "Last room available!") and limited-time (e.g., "Offer ends in 3 hours!"). The utility of such cues extends to hotels, regardless of their overall customer ratings. Meanwhile, although gender serves as one of the primary factors for market segmentation, the differential reactions of men and women to various marketing cues within the online marketplace have not been thoroughly investigated. Hence, this paper investigates how gender influences consumers' booking and recommendation intentions in response to scarcity cues for hotels with varying customer ratings. An online experiment ($N = 385$, 181 men and 204 women) was conducted. It manipulated scarcity cue type (limited-quantity and limited-time) and customer ratings (high and low) as between-participants factors. Booking intention was generally higher among men. This was particularly true under conditions of limited-quantity scarcity and high customer ratings. Moreover, men exhibited a higher intention to recommend compared with women when facing limited-quantity scarcity. The findings deepen the scholarly understanding of the gendered impact of scarcity cues and customer ratings on online hotel bookings and recommendations.

Keywords—gender, hotel booking intention, impulse buying, impulsive purchase, intention to recommend, online rating, online scarcity, purchase intention, scarcity cue, scarcity message

I. INTRODUCTION

To drive conversions, e-commerce and m-commerce platforms often employ various scarcity cues within their booking interfaces [1-6]. These primarily fall into two categories: limited-quantity (e.g., "Just 2 rooms left at this discounted rate!" or "Last room available") and limited-time (e.g., "Offer ends in 3 hours!" or "Deal expires tonight"). Limited-quantity cues highlight dwindling inventory. This prompts immediate action to secure the desired deal [5]. In contrast, limited-time cues create a sense of urgency by imposing a booking deadline. This encourages impulsive decisions before the opportunity disappears [6]. Importantly, the utility of these scarcity cues extends to hotels, regardless of their overall customer ratings—benefiting both highly-regarded properties (e.g., "4.5 out of 5") as well as those with more ordinary scores (e.g., "3 out of 5") [2].

Meanwhile, although gender serves as one of the primary factors for market segmentation [7-10], the differential reactions of men and women to various marketing cues within the online marketplace have not been thoroughly investigated. This is an important gap to fill in the e-commerce/m-commerce literature because gender is known to influence online decision-making [10-13]. More pertinently, recent

literature continues to highlight the value of studying travel-related online decision-making through a gender-based lens [10, 14, 15]. In fact, several tourism and hospitality studies have urged for further investigation into how gender plays a part [15, 16]. Therefore, as part of a larger project, this paper investigates how gender influences consumers' booking and recommendation intentions in response to scarcity cues for hotels with varying customer ratings.

II. LITERATURE REVIEW

Gender remains a crucial market segmentation criterion in tourism and hospitality [10, 14-16]. Early research on gender often attributed behavioral differences between men and women to the typical social roles they were assumed to hold [17]. However, as societies move away from rigid gender stereotypes [18], it is essential to better understand how gender influences individuals' responses to online cues in the modern-day digital era [19].

Within tourism and hospitality, women constitute a discrete market segment that exhibits a faster growth rate than men. They not only represent more than 60% of all travelers worldwide but also make 80% of hotel reservations [20]. Consequently, understanding how they differ from men in response to online scarcity cues and customer ratings holds significant value for both theory and practice.

The literature on the relationship between gender and online decision-making presents three competing views. One view expects men to be more open to online cues. Men have often been shown to embrace technology and online shopping more readily than women [21, 22]. While men tend to rely more on online reviews and report greater satisfaction with their digital purchases, women often lean toward traditional advertisements and exhibit lower satisfaction with online shopping [22, 23]. Moreover, willingness to create electronic word-of-mouth (eWOM) is usually lower among women [24]. In the context of tourism and hospitality, [25] found the influence of eWOM on trust perceptions and behavioral intentions to be greater among men than women.

The second view is that individuals' responses to online cues is independent of gender. For example, in a study of online flash sales, gender did not significantly predict purchase intention [26]. According to [9], men and women have similar levels of algorithmic shopping literacy. In a study of how scarcity cues affect booking intention in tourism and hospitality, the effect of gender was also nonsignificant [27]. These suggest a gradual narrowing of gender differences in response to online cues.

The third view expects women to be more receptive to online cues. To this end, [28] found the effect of eWOM on

purchase intention to be stronger among women. Moreover, women were found to search more than men for product information on social media [29]. Compared with men, women have also been shown to perceive eWOM as being more trustworthy [30, 31].

Given the equivocal nature of the literature, this paper seeks to clarify the relationship through an empirical study. It addresses the following research question: How does gender affect online consumer response to scarcity cues for hotels with varying customer ratings? Scarcity cues are a brand-controlled marketing tool [4], directly managed by hotels. These are commonly categorized as limited-quantity and limited-time [2], both of which are considered in this paper. In contrast, online hotel ratings are uncontrollable cues, as they are derived organically from the collective opinions of previous guests [4]. This paper considers high ("4.5 out of 5") as well as low ("3 out of 5") ratings.

III. METHODS

A 2 (gender: men vs. women) \times 2 (scarcity cue type: limited-quantity vs. limited-time) \times 2 (customer ratings: high vs. low) between-participants online experiment was conducted. In other words, the three independent variables are gender (a naturally occurring factor), scarcity cue type (a brand-controlled marketing tool), and customer ratings (an uncontrollable cue). A web-based simulation of a hotel booking platform was developed to manipulate scarcity cue type and customer ratings. Following its development, the simulation was refined through a series of pretests. Fig. 1 and Fig. 2 show examples of the final experimental stimuli.

A total of 385 online shoppers (181 men and 204 women) from Amazon Mechanical Turk took part in the study. They were randomly and uniformly assigned to the conditions of scarcity cue type and customer ratings, while gender was a naturally occurring factor.

The participants imagined planning a trip to Paris for the following month and then finding an affordable mid-scale (3-star) hotel. After exposure to the experimental stimulus of the hotel (e.g., Fig. 1, Fig. 2), they were required to complete a questionnaire. It measured their booking intention, recommendation intention, and perceived realism of the experiment. The scales were obtained from [32], [33], and [34], respectively. Composite indices were created by averaging the responses for each construct. The values of Cronbach's Alpha for booking intention, recommendation intention, and perceived realism were 0.98, 0.97, and 0.94, respectively.



Fig. 1. Scarcity cue type: limited-quantity, customer rating: high.



Fig. 2. Scarcity cue type: limited-time, customer rating: low.

IV. ANALYSIS AND RESULTS

The analytical procedure involved a 2 (gender: men vs. women) \times 2 (scarcity cue type: limited-quantity vs. limited-time) \times 2 (customer ratings: high vs. low) between-participants ANCOVA, with perceived realism as a covariate. The two dependent variables include booking intention and recommendation intention.

A. Gendered Impact on Booking Intention

Three main findings emerged. First, gender had a statistically significant effect, $F(1, 376) = 7.10$, $p = 0.01$, $\eta_p^2 = 0.019$. Booking intention was higher among men (4.83 ± 1.82) than women (4.29 ± 1.91).

Second, the gender \times scarcity cue type interaction was marginally significant, $F(1, 376) = 3.21$, $p = 0.07$, $\eta_p^2 = 0.008$ (Fig. 3). Booking intention was at its peak when men were exposed to limited-quantity scarcity cues (5.31 ± 1.29). It was the lowest when women came across limited-time scarcity cues (4.05 ± 1.96).

To better understand the interaction, follow-up independent samples t-tests were conducted. The aim was to detect if gender made a significant difference to booking intention for both scarcity cue types. In the limited-quantity scarcity condition, the gender difference was significant, $t(169.56) = -3.228$, $p < 0.001$, Cohen's $d = -0.468$. Booking intention was higher among men (5.31 ± 1.29) than women (4.57 ± 1.82). In the presence of limited-time scarcity, the difference was nonsignificant. Booking intention was comparable between men (4.29 ± 2.16) and women (4.05 ± 1.96).

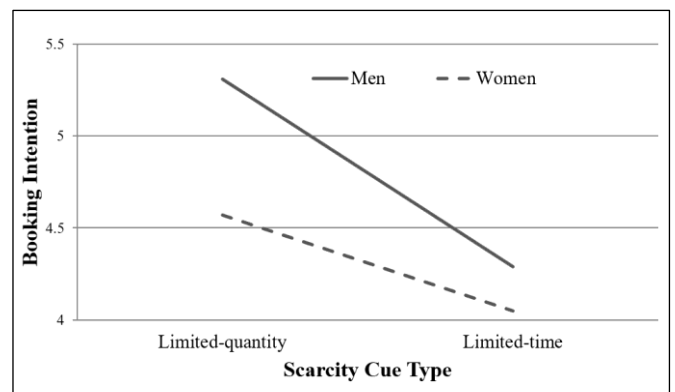


Fig. 3. Gender \times scarcity cue type interaction effect on booking.

The third finding is that the gender \times customer ratings interaction was marginally significant, $F(1, 376) = 2.814$, $p = 0.09$, $\eta_p^2 = 0.007$ (Fig. 4). Booking intention was at its peak when men were exposed to hotels with high customer ratings (5.78 ± 1.08). It was the lowest when women came across low customer ratings (3.54 ± 1.95).

To delve deeper, independent samples t-tests were used to detect if gender made a significant difference to booking intention for both high and low customer ratings. In the high customer rating condition, the role of gender was significant, $t(178.44) = -3.725$, $p < 0.001$, Cohen's $d = -0.531$. Booking intention was higher among men (5.78 ± 1.08) than women (5.07 ± 1.52). In the low customer rating condition, the difference was nonsignificant. Booking intention was comparable between men (3.85 ± 1.92) and women (3.54 ± 1.95).



Fig. 4. Gender \times customer ratings interaction effect on booking.

B. Gendered Impact on Recommendation Intention

Gender did not make a significant difference to recommendation intention. The gender \times customer ratings interaction effect was also nonsignificant.

Nonetheless, the gender \times scarcity cue type interaction effect was significant, $F(1, 376) = 7.63$, $p = 0.01$, $\eta_p^2 = 0.02$ (Fig. 5). Recommendation intention was at its peak when men were exposed to limited-quantity scarcity cues (5.14 ± 1.56). It was the lowest when men were exposed to limited-time scarcity cues (3.95 ± 2.23).

To better understand the interaction, follow-up independent samples t-tests were conducted. In the limited-quantity scarcity condition, the role of gender was significant, $t(178.92) = -3.003$, $p = 0.003$, Cohen's $d = -0.435$. Recommendation intention was higher among men (5.14 ± 1.56) than women (4.36 ± 1.96). In the presence of limited-time scarcity, the difference became nonsignificant. Recommendation intention was comparable between men (3.95 ± 2.23) and women (4.05 ± 2.03).

V. DISCUSSION AND CONCLUSION

This paper has addressed the research question: How does gender affect online consumer response to scarcity cues for hotels with varying customer ratings? Booking intention was generally higher among men. This was particularly true under conditions of limited-quantity scarcity and high customer ratings. In addition, men exhibited a higher intention to recommend compared with women when facing limited-quantity scarcity.

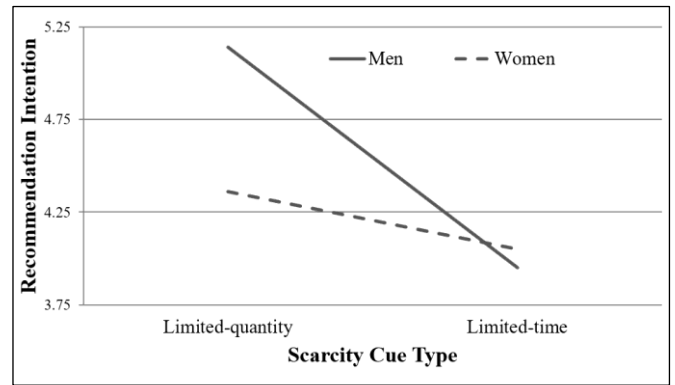


Fig. 5. Gender \times scarcity cue type interaction effect on recommendation.

These findings should be viewed in light of the limitation that the paper only compared men and women without delving into the nuances of masculinity and femininity [35]. How individuals from masculine and feminine cultures respond to online cues differently is worth investigating. Moving forward, examining gender beyond the men/women binary is also important for a more comprehensive understanding in e-commerce/m-commerce studies.

A. Theoretical Implications

As indicated earlier, the existing literature offers three competing views on the influence of gender on online decision-making. One holds men to be more open to online cues [21-25]. The second holds individuals' response to online cues to be independent of gender [9, 26, 27]. The third holds women to be more open to online cues [28-31]. This paper finds strong support for the first of these three views.

Booking intention was higher among men. Scarcity cues create a sense of competition by implying limited availability [1-6], and this competitive aspect might resonate more with men, nudging them toward impulsive purchases. This aligns with prior research characterizing men as more assertive and decisive [17, 21]. As men are more inclined to be deal seekers or bargain hunters [36], they might have been more attracted to promotions that emphasize scarcity.

Regarding the gender \times scarcity cue type interaction effect, men exhibited the highest booking and recommendation intentions when exposed to the limited-quantity scarcity cue. Men might perceive limited-quantity promotions as a better or more exclusive value proposition, making the deal seem more worthwhile. Conversely, in the presence of limited-time scarcity, behavioral intentions were largely comparable between men and women. This implies that men and women might perceive limited-time scarcity cues as being equally compelling.

With respect to the gender \times customer ratings interaction effect, booking intention was the highest when men were exposed to hotels with high customer ratings. Although the interaction effect on recommendation intention was nonsignificant, the finding is generally consistent with the literature that depicts men to be more sensitive to online cues compared with women [21-23].

Overall, the findings deepen the scholarly understanding of the gendered impact of scarcity cues and customer ratings on online hotel bookings and recommendations. By unpacking these nuances, the paper has advanced the exploration of the influence of gender on online behaviors within tourism and hospitality research. This is consistent with

the Sex and Gender Equity in Research guidelines, which recommend integrating gender into research design [19].

B. Managerial Implications

The paper offers three key managerial implications. First, it suggests that e-commerce and m-commerce applications should not implement scarcity cues with a one-size-fits-all approach in their booking interfaces. This is because the paper shows gender to be an important indicator of the type of scarcity cue that should be adopted. For midscale hotels, the context of the study, limited-quantity cues were more effective—particularly among men. Therefore, when booking platforms have access to consumer demographics, they should leverage this information for personalized scarcity cue displays.

Second, hotel booking platforms should enable individuals to share/recommend deals with others. Men's high propensity to recommend hotels with limited-quantity scarcity cues highlights the value of such a functionality, which is currently not always conspicuous on platforms like Expedia.

Finally, while the findings indicate that women were not swayed by online cues as readily as men, this observation presents a critical practical implication for the tourism and hospitality sector. It is particularly concerning given the rapidly expanding economic influence of women globally [20]. Women's purchasing power is not only increasing, but their consumer segment is also growing at an accelerated rate [18, 20, 37, 38]. For hoteliers, this means a substantial portion of a highly valuable and expanding market segment remains largely uninfluenced by current online marketing efforts. This represents a significant missed opportunity. To effectively capture this growing market and ensure long-term profitability, hoteliers must urgently re-evaluate and enhance their digital marketing strategies to resonate more powerfully with women consumers.

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