



Analysis of the perceived value of online tourism reviews: Influence of readability and reviewer characteristics



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HIGHLIGHTS

- A novel econometric model is introduced for data analysis.
- A dataset comprising reviewer historical information is built.
- The effects of reviewers' historical rating distributions are explored.
- The effect of text readability is confirmed in attraction reviews.
- The study results benefit attraction management.

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ABSTRACT

Online reviews provide additional product information to reduce uncertainty. Hence, consumers often rely on online reviews to form purchase decisions. However, an explosion of online reviews brings the problem of information overload to individuals. Identifying reviews containing valuable information from large numbers of reviews becomes increasingly important to both consumers and companies, especially for experience products, such as attractions. Several online review platforms provide a function for readers to rate a review as “helpful” when it contains valuable information. Different from consumers, companies want to detect potential valuable reviews before they are rated to avoid or promote their negative or positive influence, respectively. Using online attraction review data retrieved from TripAdvisor, we conduct a two-level empirical analysis to explore factors that affect the value of reviews. We introduce a negative binomial regression model at a review level to explore the effects of the actual reviews. Subsequently, we apply a Tobit regression model at the reviewer level to investigate the effects of reviewer characteristics inferred from properties of historical rating distribution. The empirical analysis results indicate that both text readability and reviewer characteristics affect the perceived value of reviews. These findings have direct implications for attraction managers in their improved identification of potential valuable reviews.

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1. Introduction

As a form of user-generated content, online reviews are important information sources of consumer experience towards products. Online reviews do not only appear on product-selling websites, such as Amazon.com, but also on travel websites, such as Expedia and TripAdvisor. Research has been conducted to

demonstrate the significant influence of reviews on consumer decision-making process for both search products and experience products in product-selling websites (Chevalier & Mayzlin, 2006; Duan, Gu, & Whinston, 2008; Forman, Ghose, & Wiesenfeld, 2008; Gu, Park, & Konana, 2012). As a typical experience product, performance of tourism-related products could also be influenced by online reviews. According to Collie (2014), 65% of leisure travelers will search online before deciding on a travel destination, and 69% of their plans are determined by online travel reviews. Prior research also claimed that travelers consider the reviews of past tourists in deciding on their trips (Gretzel & Yoo, 2008; Liu & Park, 2015; Vermeulen & Seegers, 2009; Ye, Law, & Gu, 2009). Most

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reviews focus on hotels or restaurants, and pay little attention to attractions. Although they are all tourism-related experience products, they are not exactly the same. The overall quality of hotels can be inferred from their stars that are assessed by an official organization according to a unified standard, whereas attractions do not have a similar evaluation system. When comparing restaurants with attractions, consumers will face smaller losses if they choose a terrible restaurant compared with a disappointing attraction. Choosing a restaurant merely means a meal, whereas choosing an attraction needs an entire travelling plan including traffic, time, etc. Hence, consumer decision-making process in attraction selection would not be the same as in hotel and restaurant selection. Therefore, exploring the effect of online reviews on attraction decision is important.

Although online reviews provide convenience to consumers to have a comprehensive understanding of attractions and make decisions, the availability of hundreds of reviews creates a problem in information overload. For example, La Jolla Cove in California is a famous attraction, but potential travelers do not know whether its reputation makes it worth the visit. Hence, to be certain, potential travelers look at reviews on tourism websites, such as TripAdvisor (<http://www.tripadvisor.com/>). However, TripAdvisor has more than 1300 reviews about La Jolla Cove and reading all the reviews seems impossible. Therefore, TripAdvisor has designed a feature called “Was this review helpful?” to help travelers quickly identify the most helpful ones among the whole bunch of reviews. A “yes” button can be clicked by readers to rate the review. Through this function, travelers easily find the reviews voted most helpful by other travelers. This function is also meaningful to attraction managers because reviews serve as a tool not only for consumers to decide, but also for managers to improve their service quality. These reviews have significant influence and are considered the most valuable reviews. Therefore, site managers should identify reviews that will potentially be voted most helpful and should fix the problems revealed in reviews before they could influence the decisions of potential customers.

The content is the most important factor that contributes to the value of a review, especially for attracting visitors, because information quality is critical in reducing uncertainty (Mudambi & Schuff, 2010). Although hotels and restaurants are both tourism-related experience products, their review contents do not play the same important role for decision making regarding attractions. Review content is less important for hotel reviews because hotel quality could be assessed mostly by its star and review scores for different aspects like cleaning, surroundings, etc. Review content in hotel reviews is more likely to provide details and support the review ratings. Restaurant reviews are also not substantially important because describing the exact taste of food is too difficult. Nevertheless, review content plays an important role in attraction reviews for two reasons. First, as attractions cannot be rated by some standard aspects like hotels, reviewers rely on review content more to state their experience. Moreover, potential travelers will also read review contents carefully for them to be acquainted with the attractions and to decide whether to go or not. Hence, the written style (readability) of a review, which represents how easily a review can be understood, would probably influence its value. Several studies have been conducted to explore the effect of review linguistic characteristics on review value (Ghose & Ipeirotis, 2011; Hao, Li, & Zou, 2009; Jeon, Croft, Lee, & Park, 2006; Kusumasondjaja, Shanka, & Marchegiani, 2012; Liu, Cao, Lin, Huang, & Zhou, 2007; Liu & Park, 2015; Weimer & Gurevych, 2007), whether readability will affect perceived value of attraction reviews remains an open question.

Moreover, how reviewer characteristics are inferred from his historical rating distribution influence as based on the perceived

value of his review has not been answered. On TripAdvisor, readers could easily access the historical rating distribution of reviewers. Fig. 1 is an example of a review on TripAdvisor. Historical rating distribution can reflect the personal preferences of the author such as rating criteria. According to the personal preferences inferred from historical rating distribution, readers can understand the meaning of the review more precisely. Hence, exploring the influence of historical rating distribution to perceived value of reviews would be an interesting undertaking.

This study explores the factors that influence the perceived value of reviews. Using a dataset retrieved from TripAdvisor, we identified two sets of factors influencing review value, namely, review- and reviewer-related factors. Review-related factors are mainly about review text readability and rating, whereas the set of reviewer-related factors in this study includes whether the reviewer is positive and whether his mode rating is lower than mean rating.

Our empirical analysis yields three interesting findings. First, text readability exerts significant influence on the perceived helpfulness of reviews. Second, reviews would be perceived as more valuable when they express extreme sentiment. Third, the personal preference of reviewers is found to play an important role in influencing their perceived trustworthiness, and thereby affects the perceived value of their reviews. Specifically, readers are more likely to trust reviewers with higher mean historical ratings because such reviewers seem to be more positive. Although both positive and negative extreme sentiment will make reviews more valuable, reviews written by reviewers whose mode rating is lower than mean rating (positive skewness index) are more likely to gain more helpfulness votes.

The rest of the study is organized as follows. Section 2 presents related literature and hypothesis development. Section 3 includes econometric model specification and variable descriptions. Empirical results are presented in Section 4. Contributions and implications are discussed in Section 5. We conclude this study and present findings and limitations in Section 6.

2. Literature review

In this study, we defined the value of a review as the helpfulness votes received or its perceived helpfulness. Hence, helpfulness and valuable are used interchangeably in the study. Two main components influence the value of reviews. The first component is the review itself. A review includes review content and rating. Many studies have been conducted to assess the value of a review by analyzing review content through natural language processing. Review length will influence perceived helpfulness significantly by exploring the effect of length according to machine learning approaches such as support vector machine, review length is found to influence perceived helpfulness significantly (Jeon et al., 2006; Kim, Pantel, Chklovski, & Pennacchiotti, 2006; Liu et al., 2007; Weimer & Gurevych, 2007). Hao et al. (2009) explored the effect of review linguistic characteristics (length and subjective) on helpfulness in the movie industry. In the product review context, the extremity and depth of reviews affect perceived helpfulness (Mudambi & Schuff, 2010), especially when reviewers disclosed their identity (most reviewers do so). A negative review is deemed more credible than a positive review (Kusumasondjaja et al., 2012). Moreover, although both anxiety and anger are negative emotions, anxiety has more influence power than anger (Yin, Bond, & Zhang, 2014).

Besides the sentiment of the review, text readability is important to readers. Ghose, Ipeirotis, and Li (2012) proposed a new ranking system for hotel search engines by mining consumer reviews and by considering the readability of the review as one major factor in their system. In crowdfunding market, Burtch, Ghose, and

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