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The influence of user-generated content on traveler behavior: An empirical investigation on the effects of e-word-of-mouth to hotel online bookings

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ABSTRACT

The increasing use of web 2.0 applications has generated numerous online user reviews. Prior studies have revealed the influence of user-generated reviews on the sales of products such as CDs, books, and movies. However, the influence of online user-generated reviews in the tourism industry is still largely unknown both to tourism researchers and practitioners. To bridge this knowledge gap in tourism management, we conducted an empirical study to identify the impact of online user-generated reviews on business performance using data extracted from a major online travel agency in China. The empirical findings show that traveler reviews have a significant impact on online sales, with a 10 percent increase in traveler review ratings boosting online bookings by more than five percent. Our results highlight the importance of online user-generated reviews to business performance in tourism.

1. Introduction

The rapid growth of web 2.0 applications, which empower Internet users and allow two-way information communications in travel and tourism, has generated an enormous number of online user-generated contents (UGC) on hotels, travel destinations, and travel services (Sigala, 2008). At the same time, an increasing number of travelers are using the Internet for travel planning (Litvin, Goldsmith, & Pan, 2008; Sigala, Lockwood, & Jones, 2001). Results of large-scale surveys have shown that searching for travel-related information is one of the most popular online activities (Pew Internet and American Life Project, 2006). In addition, Complete, Inc (2007) found one-third of travel purchasers visited a message board, forum, or online community before their online travel purchasing because they believed online reviews would be helpful to their purchase decision. Forrester Research (2006) estimated that 34.7 percent of total online spending is related to travel, and a recent survey indicated that more than 74 percent of travelers use the comments of other consumers as information sources when planning trips for pleasure (Gretzel & Yoo, 2008). In total, online reviews influence more than US$10 billion in online travel purchases every year (Compete, 2007), and it is thus important to assess their effect. A few recently conducted studies have demonstrated that online user-generated reviews have a significant influence on sales of consumer products (Chevlier & Mayzlin, 2006; Duan, Gu, & Whinston, 2008). A key insight deduced from previous studies is that the influence of user reviews is particularly significant for experience goods (Klein, 1998), as their quality is often unknown before consumption (Katz & Lazarsfeld, 1955; Nelson, 1970) and consumers have to rely on word-of-mouth and online reviews to make inferences about such goods. Most services and products offered by the hotel industry are experience goods – the quality of tour operations and hotels, for example, is only known after the service has been consumed (Litvin et al., 2008). However, there is a very limited number of prior studies in the existing tourism literature on the impact of online user-generated reviews on the performance of firms, despite the fact that studies on this topic would help tourism practitioners to better understand the importance of online user reviews for their businesses.

Using data extracted from major online travel agencies in China, we conducted an empirical study to bridge this research gap in tourism management. The data, which consisted of consumer-generated reviews, were retrieved from www.ctrip.com (NASDAQ: CTRP), a major online travel agency in China. One of the challenges in the study was that it is difficult, if not impossible, to obtain private booking data of online travelers. In previous studies, a variety of proxies have been used to infer product sales from observed data. Ghose and Ipeirotis (2006), as well as Chevlier and Mayzlin (2006), for example, used Amazon.com's sales rankings to infer product sales.

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In our study, a unique feature of ctrip.com that allows only travelers who book hotel rooms through its website to post reviews is leveraged. As such, the number of reviews is expected to be closely correlated to the number of room sales. We, therefore, use the number of reviews as a proxy for hotel room sales (Ghose and Ipeirotis (2006); Ye, Law, & Gu, 2009a, 2009b). To further investigate the applicability of the approach, empirical data with actual online sales were collected and analyzed to test the model robustness in this study.

The aim of the study was to identify the impact of online word-of-mouth on sales in the tourism and hotel industries. We tested the influence of the valence and variance of online consumer-generated reviews based on the number of online bookings for the hotels included in this study. Our work was designed to extend current research on the effect of online consumer-generated reviews to encompass experience goods in tourism. The study also makes a methodological contribution to tourism research by validating the proxy for the number of online bookings using empirical data.

The rest of this paper is organized as follows. In Section 2, we provide a review of previous studies and the proposed hypotheses. We then describe the research model and data in Section 3. The results are reported in Section 4. Section 5 assesses the robustness of the proxy for the number of online bookings. Theoretical and practical implications of the results are described in Section 6, and the last section offers some concluding comments.

2. Background and research hypotheses

Web 2.0 and UGC have been, and will likely be, increasingly changing the way that people search, find, read, gather, share, develop, and consume information. As such, they provide tremendous opportunities for E-commerce (Sigala, 2008). In E-commerce, UGC may serve as a new form of word-of-mouth for products/services or their providers. The importance of word-of-mouth on business has been widely discussed and researched, particularly since the worldwide adoption of Internet technologies, which have revolutionized the distribution and influence of word-of-mouth (Anderson, 1998; Goldenberg, Libai, & Muller, 2001; Stokes & Lomax, 2002; Zhu & Zhang, 2006). Through the Internet, individuals can make their ideas and opinions more easily accessible to other Internet users (Dellarocas, 2003). Up to 2004, 44 percent of U.S. Internet users had presented their thoughts on the Internet, and the majority of consumers reported that they trusted the opinions which were posted online by other consumers (Gretzel & Yoo, 2008).

Online user-generated reviews about travel destinations, hotels, and tourism services have become important sources of information for travelers (Pan, MacLaurin, & Crotts, 2007), with reports indicating that each year hundreds of millions of potential visitors consult online reviews (Tripadvisor.com., 2006). Among these potential visitors, 84 percent were affected by reviews when making their travel reservations (Travelindustrywire.com., 2007). Goldenberg et al. (2001) stressed that consumer decision-making processes are strongly influenced by word-of-mouth from other consumers. Gretzel and Yoo (2008) further found that reviews provided by other travelers are often perceived by readers to be more up-to-date, enjoyable, and reliable than information provided by travel service providers.

Additionally, Zhu and Zhang (2006), as well as Cheung, Shek, and Sia (2004) pointed out that online user-generated reviews are of use to both consumers and online retailers. Likewise, Dellarocas (2003) indicated that online word-of-mouth can have important implications for managers in terms of brand building, product development, and quality assurance. Findings of recent studies show different effects of online reviews on the product/service sales. For instance, using a difference-in-difference model, Chevlier and Mayzlin (2006) examined the effect of consumer reviews of book sales on Amazon.com and Barnesandnoble.com, and found that word-of-mouth significantly influence product sales. Duan et al. (2008) conducted a panel data analysis with movie box office revenue data, and findings show that the valence of online user reviews has no significant impact on movie box office revenues meanwhile box office sales are significantly influenced by the volume of online reviews. In the tourism industry, Vermeulen and Seegers (2009) revealed that positive online reviews improve the perception of hotels among potential consumers. Since online traveler reviews are an important source of information to both travelers and tourism firms, researchers have attempted to analyze and understand online traveler reviews by sophisticated technologies (Govers & Go, 2005; Ye et al., 2009a, 2009b).

Ghose and Ipeirotis (2006) studied the influence of online reviews on product sales for a variety of consumer products, and found that the subjectivity and polarity of the ratings in reviews had a significant influence on online sales of certain products. They explained their findings using the cognitive load theory, and argued that certain types of online reviews reduce the cognitive load of the reader, thereby generating higher sales. A study conducted by Dickinger and Mazanec (2008) showed that the recommendations of friends and online reviews are the most important factors that influence online hotel bookings. Despite the increasing importance of online user-generated content, a number of studies have reported that online user-generated reviews are perceived as being lower in credibility than traditional word-of-mouth due to the absence of source cues on the Internet (Dellarocas, 2003; Smith, Menon, & Sivakumar, 2005). As such, the influence of consumer reviews merits further investigation.

Previous studies have shown that online travel reviews may influence the decisions of travelers (Vermeulen & Seegers, 2009; Gretzel & Yoo, 2008). However, in the context of tourism the impact of online consumer-generated reviews on the performance of tourism firms remains largely unknown. Vermeulen and Seegers (2009) conducted an experimental study with 168 participants to determine the impact of online reviews on the attitudes of travelers to hotels, and revealed that exposure to online reviews enhanced hotel awareness, and that positive reviews improved the attitudes of travelers toward hotels. Based on survey data with 1480 respondents, Gretzel and Yoo (2008) examined the role of travel reviews in trip planning processes, and demonstrated the importance of online consumer reviews at an individual level. Nevertheless, to the best of our knowledge, only a few published articles have documented the role of online reviews on sales at the firm level. For instance, Ye et al. (2009a, 2009b) investigated the impacts of online user reviews on hotel room sales, but the small data set and the proxy variable without empirical tests rendered its inability to draw any generalized conclusions. An empirical study with a large dataset and robustness validation of the proxy variable should thus provide new insights to help tourism researchers and practitioners better understand the importance of online word-of-mouth in tourism.

This study makes an attempt to bridge the research gap by quantifying the effect of online user reviews on the number of online sales. Previous studies have indicated that the valence of online user-generated reviews may influence sales of books and digital products (Chevlier & Mayzlin, 2006; Ghose & Ipeirotis, 2006; Ye et al., 2009a, 2009b). We thus propose the following hypothesis on the basis of their findings.

Hypothesis 1: A higher valence of average review ratings of a hotel results in more online bookings for that hotel.

The variance of opinions among reviews is another concern in previous studies (Ghose & Ipeirotis, 2006; Ye et al., 2009a, 2009b). Specifically, the influences of variance on the sales are

not consistent in their findings. We then formulate the second hypothesis.

Hypothesis 2: A higher variance in the review ratings for a hotel results in fewer online bookings for that hotel.

3. Methodology

3.1. Research model

To identify the influence of online reviews, we developed the following log-linear regression model for the online room sales of hotel *i*.

$$\ln(e\_Sales_i) = \mu + \beta_1 mean\_review\_Rating_i + \beta_2 variance\_review\_Rating_i + \beta_3 \ln(price_i) + \Psi otherFactors_i + \varepsilon_i \quad (1)$$

In this model, $mean\_Rating_i$ and $variance\_Rating_i$ represent hotel *i*'s average rating and variance, respectively, in the online user reviews. $Price_i$ identifies the room rate of hotel *i*, and the variable $otherFactors_i$ includes all other factors that can influence online sales, including the star category of the hotel and the size of the city in which the hotel is located. In China, the developments of the economy and e-commerce are imbalance cross the country. More developed big cities, many of them are near the coast, have both higher levels of economic and e-commerce development than smaller and inner cities. So we include the size of the city in term of GDP ranking as a control variable.

As previously mentioned, a challenge in measuring the influence of hotel sales is that room sales data are not available to researchers. We could not observe actual hotel bookings from travel agent websites, as these are the private data of the individual hotels concerned. Previous studies have used a variety of proxies to infer product sales from other observed data. When selecting a proxy for this study, we noted the policy of Ctrip (the online travel agency from which we obtained the data) that only customers who have successfully made online bookings are allowed to post a review (one per transaction) after their stay. Therefore, the number of published reviews on a travel website might be taken as a proxy for sales of a hotel's rooms through the travel agent during the study period. Assuming customers have a constant probability of posting a review on the travel agent website, the number of online reviews for hotel *i* can be expressed as a linear function of room sales of the hotel, where $number\_Reviews = \phi * e\_sales$. Essentially, we can take the number of reviews as a proxy for the number of bookings for the hotel and use the following regression model for the analysis.

$$\ln(number\_Reviews_i) = \mu + \beta_1 mean\_review\_Rating_i + \beta_2 variance\_review\_Rating_i + \beta_3 \ln(price_i) + \beta_4 city\_GDP\_Rank + \beta_5 Stars + \varepsilon_i \quad (2)$$

In the model, *city_GDP_Rank* is the rank of the city, where the hotel is located, in terms of GDP. That represents the size of the host city. *Stars* represent the star category of the hotel, usually from one-star to five-star, or no-star. The objective of the analysis is to identify β_1 and β_2, i.e., the effects of online reviews on sales.

3.2. Empirical data

The data used in this study were retrieved from Ctrip.com (Ctrip International, Ltd., NASDAQ: CTRP), which is the largest online travel service provider for hotel accommodation, airline tickets, and package tours in China and had a net revenue in 2007 of RMB 1.12 billion (164.4 million in US$) (Crtip.com Intl Ltd., 2008). We developed a crawler using Ruby on Rails (http://www.rubyonrails.org) to automatically download web pages containing consumer reviews of hotels and other information of the hotels from Ctrip.com, and created another Ruby-based system to parse data from HTML and XML web pages into our database. The data collection process and pilot studies were carried out in mid-2008. We used the crawler to retrieve all available information about hotel bookings from Ctrip.com for ten randomly selected large cities in China, including Shanghai, Beijing, Guangzhou, Shenzhen, Chongqing, Chengdu, Harbin, Xi'an, Lanzhou, and Lhasa. Ctrip.com holds information on 2205 hotels in these cities (see Table 1 for details). Among these hotels, 566 are no longer available for online bookings, and we thus deleted these unavailable hotels from the dataset. Our final dataset contains 1639 hotels.

Table 1
The 10 selected cities.

City	Number of hotels on Ctrip.com	GDP rank in 2007
Shanghai	703	1
Beijing	678	2
Guangzhou	80	3
Shenzhen	231	4
Chongqing	103	5
Chengdu	151	6
Harbin	77	7
Xi'an	132	8
Lanzhou	20	9
Lhasa	30	10
Total	2205	–

For each hotel in our dataset, we collected two types of information, comprising (i) a detailed hotel description from Ctrip.com and (ii) any review information, including review text, author, publishing date, and customer rating. We collected all reviews for the hotels from the time they joined Ctrip.com until the day of our data collection, which gave a total of 40,424 user reviews. Table 2 provides a summary of the data.

We aggregated the customer review information to form average review ratings for analysis. Previous studies have suggested that very few customers ever view comments beyond the first two web pages (Pavlou & Dimoka, 2006). To control for limited consumer attention, we established a moving window of 20 reviews over the study period. On each day, we identified the 20 most recent reviews and calculated the average and standard deviations of the review ratings. We then averaged the average ratings and standard deviations over the study period to reflect the average consumer opinion of the hotel and the variability of the opinion.

Table 3 presents the variables for the hotels included in the analysis.

4. Statistical results

We checked the multi-collinearity of the model. No significant multi-collinearity problem existed. Table 4 presents the main

Table 2
Summary of the dataset.

Item	Value
Name of the travel agency	Ctrip.com
Number of selected cities	10
Total number of hotels in the dataset	2205
Number of hotels not available for online booking on Ctrip.com	566
Number of hotels after deleting the unavailable hotels	1639
Number of customer reviews	40,424

Table 3
Brief introduction of the variables in the dataset.

Variable	Description
Number_Reviews	The number of reviews published for a certain hotel between February 1, 2007 and January 31, 2008 on Ctrip.com. This represents the 12 months immediately before the data collection period (a proxy for the number of bookings made through Ctrip.com for a hotel)
Ave_20	For each review, we calculated the mean of the 20 reviews immediately preceding the review
Var_20	For each review, we calculated the variance of the 20 reviews immediately preceding the review
Mean_Rate	The average of Ave_20 for all reviews of a hotel between February 1, 2007 and January 31, 2008 on Ctrip.com
Variance_Rate	The average of Var_20 for all reviews of a hotel between February 1, 2007 and January 31, 2008 on Ctrip.com
Price	The lowest price of the hotel room listed on Ctrip.com
City_GDP_Rank	A discrete variable that denotes the rank of a city among the 10 cities studied according to its GDP in 2007
Stars	The star-rating category of a hotel given by an official organization according to the quality of the hotel

Table 4
Results of the analysis.

Model	Unstandardized coefficients		T	Sig.
	β	Std. error		
(Constant)	1.405	0.314	4.481	0.000***
Mean_Rate	0.529	0.024	21.640	0.000***
Variance_Rate	0.052	0.050	1.053	0.292
Ln(Price)	−0.102	0.056	−1.836	0.067*
Stars	−0.038	0.015	−2.538	0.011**
City_GDP_Rank	−0.199	0.011	−17.592	0.000***
Number of observations		1639		
R-square		36.9%		
Adjust R-square		36.7%		
Sig of model (p)		0.000		

Dependent variable: Ln(*Number_Reviews* + 1) as the proxy of Ln(*e_Sales*).
***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

results of the analysis, and shows that there is a significant relationship between the independent variables and the dependent variable at the 0.01 level, with an R-square of 36.9 percent. The results also show that Hypothesis 1 is supported at the 0.01 level, which implies that the positive sentiment of online reviews on the website of an online travel agency can significantly increase the number of online bookings made through the website. According to the cognitive theory, the cognitive load of online travelers should be dramatically reduced after reading positive reviews, which results in more sales (Ghose & Ipeirotis, 2006; Sweller, 1988). The $\beta_1 = 0.529$ suggests that a 10 percent improvement in the rating of online user reviews increases the index of room sales, *Ln(e_Sales)*, by more than five percent.

In terms of Hypothesis 2, the result of $p = 0.292$ shows that a higher variance in the opinion polarity among hotel reviews does not result in fewer online bookings for that hotel. This implies that travelers take into account the overall opinion, even when some reviews offer very different opinions.

Ln(Price) has a significantly negative impact on the number of online bookings at the 0.1 level ($p = 0.067$), which indicates that room rate has a negative impact on online room sales and that less expensive hotels tend to have more online bookings. *City_rank* has a significantly negative impact on the number of online bookings at the 0.01 level ($p = 0.000$), which shows that hotels in larger cities tend to have more online bookings. In terms of star-rating, $p = 0.011$ indicates that the star rating of hotels significantly influences room sales, and the negative sign of β_5 implies that higher star ratings are associated with fewer bookings online in China. A possible explanation for this is that most online customers of hotels in China are educated young travelers, who prefer comfortable rooms at a reasonable price to luxury five-star hotels.

5. Validation of the proxy variable

To validate our approach of using the number of online reviews as a proxy for hotel sales, we conducted two surveys with hotel managers in Harbin city in March 2008 and January 2009. With the assistance of the Bureau of Tourism, the government agency in charge of regulating hotels, we sent out a survey questionnaire to obtain data on actual hotel bookings made through Ctrip.com from all major hotels in the city. We received responses from 27 hotels that have contracts with Ctrip.com. These hotels represent more than 50% of all of the hotels in Harbin that have contracts with Ctrip. The survey collected data on monthly hotel bookings through Ctrip.com for each of the hotels. We then used a fixed effect log-linear regression to identify the relationship between the number of reviews and the number of hotel bookings. To avoid the problem of taking the log of 0, we added 1 to both the number of reviews and the number of online bookings.

$$Ln(Number\_Reviews_i + 1) = \eta + \alpha Ln(Number\_Online\_Bookings_i + 1) + \varepsilon_i \quad (3)$$

where $NumReviews_i$ represents the number of online reviews of hotel i posted onto online travel agent during the 1-year period from February 2007 to January 2008; and $NumOnlineBookings_i$ is the number of online bookings for hotel i during the same time period.

Statistical results in Table 5 show a significantly positive relationship between the number of reviews and the number of hotel bookings, with an R-square value of 44.1%. This indicates that the number of online reviews of a hotel on the website of a travel agent can be used as a proxy for the number of online bookings that the hotel receives from that agent.

6. Implications

The main theoretical implication of this research relates to filling in the knowledge gap of the influence of online user-generated reviews on business performance (online sales) in the tourism industry. The intangible nature of tourism products makes it difficult to evaluate before consumption, and it has long been recognized that interpersonal communications are an important information source among tourists (Litvin et al., 2008). With the spread of the Internet, virtual interactions among consumers have

Table 5
Statistical results for the validation of the proxy.

Model	Unstandardized coefficients		T	*p*-value (sig)
	B	Std. error		
(Constant)	−1.767	0.832	−2.125	0.044**
Ln(Number_Online_Bookings)	0.566	0.127	4.437	0.000***
R-square	0.441			
R	0.664			
Number of observations	27			
Sig of the whole model, p	0.000***			

Dependent variable: Ln(*Number_Reviews*).
-***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

become commonplace, which has led some tourism researchers to point out that online word-of-mouth plays an important role in the acquisition and retention of consumers in the e-commerce era (Litvin et al., 2008; Vermeulen & Seegers, 2009). In addition, Sigala (2009) pointed out that customer participation is a very important dimension for e-service evaluation. However, most previous studies in this area were conducted at an individual level or in experimental environments, and that the impacts of online user-generated reviews at the firm level in real business circumstance still need to be further tested. This study contributes to knowledge development in tourism by revealing the positive impact of review valence on the online room sales as well as validating a new approach to determine the relationship between online room sales and online reviews. The findings of this study open up numerous avenues for future research on this promising application of e-tourism.

This study has valuable managerial implications for tourism practitioners. As most tourism products are both seasonal and perishable, the effective marketing of these products requires efficiency. E-commerce has presented tourism managers with a new means to improve marketing efficiency. The emerging of web 2.0 and online user-generated content impact not only on the behavior and decision-making of Internet users, but also on the e-business models that organizations need to develop or adapt in order to conduct business via the Internet. Tourism managers thus need to be aware that an increasing number of travelers will make their purchases online, and that the purchase decisions of these travelers will be strongly influenced by online reviews. The results of this study demonstrate that online word-of-mouth has a significant impact on online room sales, while positive reviews can bring more line sales. This implies that if a hotel can provide more resources to improve the valence of its online consumer reviews, it is likely to receive more bookings. In their studies, Au, Buhalis, and Law (2009), as well as Au, Law, and Buhalis (2010) found the proliferation of review sites have enabled consumers to post their views online and make them transparently to the entire world. In other words, these review sites become an important source for international travelers to get travel-related advice, which in turn, leads to the ultimate online reservations. It also implies that the proactive use of online word-of-mouth information could prove to be an important competitive advantage for early adopters. Online reviews can pass on a strong sense of a hotel or destination to travelers, and, more importantly, contain valuable information about product improvement. The proper use of traveler reviews could, therefore, help a tourism business to improve their services and gain a competitive edge. There are multiple channels of available online communications, including online word-of-mouth, email, websites, blogs, information databases such as Wikipedia, chatrooms, virtual communities, and virtual worlds (such as "Second Life"), all of which could be cost-effective ways for hospitality and tourism firms to engage in customer relationship management.

Lastly, hotel practitioners should motivate consumers to write online reviews as Au et al. (2010) stated that posting reviews can lead to product/service quality improvement. Similarly, Yoo and Gretzel (2008), on the basis of their empirical findings, claimed that review writers are mostly motivated by helping a travel service supplier, concerns for other consumers instead of voicing out negative feelings as the primary reason for posting. Harrison-Walker (2001), however, stated that many tourism and hospitality businesses have not taken notice of the online e-complaint trend, and they thus fail to respond actively. Since the Internet will serve as a major communicate channel between hotels and consumers, hotel managers should setup an effective communication strategy and to simplify their electronic reviews. Rapid resolution of consumer online reviews can provide an opportunity for hotels to gain consumers' trust, leading to additional future businesses.

7. Conclusions

We have analyzed the user reviewing practices on Ctrip.com, a major online travel agency in China, and found that the valence of traveler reviews had a significant impact on the online sales of hotel rooms. Online reviews may serve to reduce the cognitive load of potential travelers, and thus increase their awareness, resulting in more sales. Our regression estimates suggest that, generally, a 10 percent increase in the ratings of user reviews can boost the dependent variable, index of online hotel bookings, by more than five percent. The results also indicate that the variance in the valence of rating scores across reviews does not significantly influence the number of online bookings. In terms of other influential factors for online sales, as the control variable in the research model, we find that room rate has a significantly negative effect on the average number of online bookings, and that hotels in larger cities tend to receive more online bookings.

This study contributes to the tourism literature by revealing the influence of online consumer-generated reviews on online sales of hotel rooms at the firm level. The results suggest that online user reviews have a significant impact on online hotel bookings, and confirm the importance of online word-of-mouth for tourism firm performance, as has been found in other industries like online retailing (Chevlier & Mayzlin, 2006) and movie industry (Duan et al., 2008) Hotel managers should therefore seriously consider the online reviews of their hotels that are posted on the websites of travel agents. Another contribution of this study is the validation of the new proxy to identify the number of online bookings made through travel agent websites, which could facilitate future studies based on online data.

There are some limitations in this study. These limitations relate to both methodology and data, which deserve more future research efforts. For instance, to introduce the proxy for hotel online sales, we assume that customers have a constant probability of posting a review on a travel agent website. Though the validity of this proxy was supported by empirical data, this assumption is still too strict from a theoretical perspective. Future studies can be carried out to investigate the possibility of loosing this assumption and re-test the validity of the proxy. As well, although this study shows that user-generated reviews have a significant impact on business performance, we cannot be sure whether all reviews have the same impact. Also, the authenticities of reviews are not considered either. It would thus be useful to analyze the different influence or perceived usefulness of different reviews. Furthermore, the effect of the content of reviews on the performance of hotels merits investigation using web-mining technologies to further understand the impacts of online reviews. Findings of this study were based on the data collected from a website in China. Therefore, the research findings may not be generalized. Still, this suggests directions for further research. Finally, the cross sectional analysis did not reveal time variance characteristics, a panel data analysis in the future would be beneficial to gain more insight into this topic.

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