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Respond More to Good Targets: An Empirical Study of Managerial Response Strategy in Online Travel Websites

This paper focuses on the managerial response system which is prevalent in online travel websites like TripAdvisor and Booking.com. Hotel managers face a trade-off between the consumers' growing demands for high-quality response contents and the rising costs of review management. One aspect which has attracted little academic attention is how hotel managers reduce costs by targeting a small consumer group. The purpose of this study is to identify the consequences of responding to different consumer groups. Through constructing a panel regression model with hotel fixed effect, the authors find that responding more to consumers who have ever posted more lower ratings can boost the hotels' subsequent review volume and ratings. However, consumers' review posting experience and reputation in the community are not good criteria for hotel managers to select targets to give responses. The study provides implications for tourism literature and managerial insights for the hotels in the travel websites.

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Introduction

Most online travel communities (OCTs), such as TripAdvisor and Booking.com have applied managerial response system to allow hotel managers to deal with online service failures as well as to manage consumers' online reviews through a cost-saving method (Gu and Ye, 2014; Proserpio and Zervas, 2017). The main purpose of early literature around managerial response was to identify the effectiveness of applying such strategy thus promote hotel managers starting to respond their consumers. Through different perspectives, lots of prior studies have found that when hotels begin to use managerial responses, their subsequent performance will be improved (Chen et al., 2018; Xie, Zhang, and Zhang, 2014).

Given the importance of managerial response, after most hotel managers have started to use this strategy, another question is how to apply this strategy through an effective manner. Several studies have answered this question from different perspectives. For example, Levy, Duan, and Boo (2013) solved this question by directly observing the managerial response styles of those highly rated hotels. Among these studies, topics related to response style attracted most of the academic attention. Most of the findings noted that providing timely and informative responses can boost their effectiveness, however, replying repeated topics may hurt the performance (Xie, So, and Wang, 2017). Accordingly, on the one hand, tailoring the response content to different consumers and improving the response quality is a practical method to increase the hotel's performance (Li, Cui, and Peng, 2017). On the other hand, it means that for hotel managers, the costs and efforts to respond to their consumers should be increased.

A possible method to reduce such costs is to reply targeted consumer groups (Liang, Schuckert, and Law, 2017). That means hotel managers can save costs from a part of consumers then use these costs in improving the response quality of another part of consumers. Thus, in this study, the authors ask, how to respond consumer more effectively by

targeting consumers with specific characteristics? Answers to this question will offer not only implications for hotel managers in OCTs, but also important managerial insights for the platform.

TripAdvisor and data

TripAdvisor is one of the world largest online travel and restaurant website displaying hotel and restaurant reviews. Until October 2017, it covered approximately 7.5 million service providers including accommodations, airlines, and restaurants. It was also the world largest travel community with 455 million monthly visitors on average. Consumers can search hotel information in this website and book their satisfied hotels with the lowest price since that TripAdvisor will compare prices from more than 200 hotel booking sites. After bookings, consumers also can choose either to post textual reviews with numeric ratings. This information will help build the online reputation of hotels and help subsequent consumers perceive the hotels' quality. TripAdvisor also allows hotel managers to post responses to their consumers after receiving reviews or ratings from them.

On the other hand, TripAdvisor stipulated that all their consumers must register an account before booking hotels and posting reviews. Thus, the website can build a profile to document the traveling and reviewing posting records for each consumer or reviewer. Also, when subsequent consumers want to read reviews from prior reviewers or hotel managers choose targets to post responses, by clicking the reviewer's name beside the review content, they can directly observe the basic characteristics of each reviewer. Accordingly, this website provides a unique setting to study the research question of this study. The availability of hotel and reviewer-level allows the authors to pinpoint the different consequences of responding to consumers with different characteristics.

The authors collected data directly from TripAdvisor through a crawler based on Python. Luxury hotels in three big cities in the United States including Chicago, LA, and Hawaii, were selected as the context. The above samples were selected due to two reasons. First, compared with economy hotels, managers from luxury hotels may be more likely to respond consumers with more efforts due to their higher financial support, and thus the results of this study are more useful for this hotel group (Schuckert et al., 2018). Second, Chicago, LA, and Hawaii are famous travel cities in the United States attracting travelers all over the world for each year. Thus using samples from these cities may remove the influence of consumers' cultural background on our results due to the diverse selection of consumers. All hotel- and reviewer-level information that is public from January 2016 to December 2017 were documented in the database, including review contents, review time, response contents, and also the reviewers' characteristics when posting reviews. After the data collection process, there are 353,897 reviews (124,131 reviews were generated during the study period, and others are historical reviews) belonging to 201 luxury hotels in the final database. The authors then changed the data structure to panel data by calculating the hotels' responding behavior (such as the characteristics of consumers they choose to give responses) as well as some outcome variables (such as the review volume and valence) in each month. Thus, the sample used in the final data analysis is a monthly panel dataset with 201 hotels from January 2016 to December 2017 (24 months).

Empirical strategies

The main empirical strategy is a panel regression model with individual fixed effects. The dependent variables in this study include the review volume (number of reviews) and review valence (rating). According to the research questions, the independent variables are related to the characteristics of reviewers or consumers which hotel managers selected to give responses. In this study, the authors selected three of them named as contributions, helpful

votes as well as review distributions. The number of contributions means the number of reviews the reviewer has ever posted before the current review, and the number of helpful votes represents that the total helpful votes the reviewer has obtained before the current review. These two variables were selected mainly because they are closely associated with the reviewers' experience and reputation in the online community. Some studies also noted that these two reviewer characteristics are closely correlated with the perceived helpfulness of his/her reviews (Liang, Schuckert, and Law, 2018; Liu and Park, 2015). Review distribution represents the reviewer's rating posting habits and should also directly impact the perceived quality of reviews for subsequent consumers (Fang, Ye, and Law, 2016). The equation for this study is:

$$Y_{it} = \beta_0 + \beta_1 Reply\_Con_{it-1} + \beta_2 Reply\_Help_{it-1} + \beta_3 Reply\_Dis_{it-1} + \mu_i + v_t + \xi_{it}$$

(1)

Where i represents hotel, and t represents month. The dependent variable Y can be the number of reviews and the overall rating of hotel i at month t. *Reply_Con* and *Reply_Help* relatively refer to the average number of contributions and helpful votes for the consumers who have received the responses from hotel managers in the corresponding month. And for the review distribution, the authors estimated its effect by calculating the average ratings the reviewer has posted before the current reviews. Thus *Reply_Dis* means the average rating distributions for the consumers who have received the responses. The higher of this value means that hotel managers are more likely to respond to these consumers who are accustomed to posting higher ratings. Due to the lagging effect of managerial response strategy, the authors used the situation of response strategy at t-1 period to estimate the outcome variable at t period.

In model 1, although the authors have controlled time-invariant characteristics of hotels (such as hotel location) by including the hotel-level fixed effect, some time-varying

variables can also influence the results. For example, prior studies have noted that the style of response can influence the hotel performance. Thus, to control the influence of response characteristics, the authors further introduced two control variables *Reply_Length* and *Reply_Num*. *Reply_Length* denotes the average length of responses at the corresponding month, and *Reply_Num* is the number of responses. Finally, another concern is that hotel managers tend to post responses especially to consumers with specific characteristics can be decided by the proportion of such consumers the hotel has accommodated. For example, a hotel always posted responses to those experienced or reputational consumers may be because that they rarely accommodate new consumers. Thus, the authors further calculated the distribution of reviewer characteristic the hotel has accommodated before the target month as another set of control variable to address the above potential endogeneity concerns. Thus, equation 1 can be expanded as:

$$Y_{it} = \beta_0 + \beta_1 Reply\_Con_{it-1} + \beta_2 Reply\_Help_{it-1} + \beta_3 Reply\_Dis_{it-1} + \beta_4 Reply\_Length_{it-1}$$

$$+ \beta_5 Reply\_Num_{it-1} + \beta_6 Distribution\_Control_{it-1} + \mu_i + v_t + \xi_{it}$$

(2)

Distribution_Control is a matrix to control the distribution of reviewers according to different characteristics the hotel has accommodated before time *t*-1. The detail descriptions of all variables were reported in Table 1.

Findings

Results reported in Table 2 reported the effect of responses strategy on review volume. The authors reported the result of model 2 without hotel-level fixed effect in column 1 and results in column 2 displayed the results including hotel-level fixed effect. It showed that the meaning of *Reply_Con* changed after introducing the variables relating to reviewer distribution. The final results in column 2 also denoted that responding more to experienced consumers will boost the review volume, and the variable of *Reply_Help* displayed the

opposite effect which means paying more attention to reputational consumers may cause an adverse effect on review volume. However, the effects of the above two variables are insignificant. Furthermore, according to the results, responding more to those consumers who have ever posted more lower ratings significantly improve the subsequent review volume.

Columns 3 and 4 in Table 2 further reported the results related to the determinants of ratings. The meaning of each specification is the same as the first two columns. Thus, column 4 is based on the final model with hotel level fixed effect (model 2). It showed that, for the independent variables, the meaning and significance level of all variables in the first two columns of Table 2 is nearly the same with results using rating as dependent variable.

Table 1. The Descriptions of Variables

Variables	Descriptions
Dependent Variable	
Review_Num	The number of reviews
Rating	The overall rating
Independent Variable	
Reply_Con	The average number of contributions for the consumers that the hotel has given responses
Reply_Help	The average number of helpful votes for the consumers that the hotel has given responses
Reply_Dis	The average rating distribution for the consumers that the hotel has given responses
Control Variables	
Reply_Length	The average length of response content
Reply_Num	The number of responses
Contributions_Cum	The average number of contributions for the consumers that the hotel has accommodated
Helpful_Cum	The average number of helpful votes for the consumers that the hotel has accommodated
Distribution_Cum	The average rating distribution for the consumers that the hotel has accommodated

Although responding proportion to customers with different review posting experience and helpful votes still cannot significantly influence the subsequent ratings,

responding more to those captious consumers (consumers who have ever posted more lower ratings) definitely can improve the future reputation of hotels.

Table 2. Effect of Response Strategy on Review Volume and Rating

Dep. var.	Review_Num		Rating	
Constant	242.482***	67.189	-8.318***	6.390***
	(57.694)	(76.017)	(0.780)	(1.764)
Reply_Con	0.010	0.012	0.001	0.001
	(0.020)	(0.020)	(0.000)	(0.000)
Reply_Help	-0.029	-0.040	-0.001	-0.001
	(0.040)	(0.039)	(0.001)	(0.001)
Reply_Dis	-3.357***	-3.382***	-0.106***	-0.055***
	(0.799)	(0.788)	(0.018)	(0.018)
Reply_Length	-0.001	0.001	-0.001**	-0.001*
	(0.002)	(0.002)	(0.000)	(0.000)
Reply_Num	0.569***	0.484***	0.000	0.001
	(0.022)	(0.023)	(0.000)	(0.001)
Contributions_Cum	-0.407***	-0.589***	-0.007***	-0.006*
	(0.112)	(0.143)	(0.002)	(0.003)
Helpful_Cum	-0.063	0.276	0.018***	0.010*
	(0.169)	(0.232)	(0.002)	(0.005)
Distribution_Cum	-47.092***	-5.468	2.944***	-0.497
	(13.327)	(17.556)	(0.181)	(0.407)
Hotel fixed effects	N	Y	N	Y
Num. obs.	3,914	3,914	3,914	3,914

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Conclusion and implications

The results of this study provide both theoretical implications to the literature relating to managerial response as well as practical implications to hotel managers by expanding the research question from "how to respond" to "who is the good targets to receive responses." With more and more hotel managers have understood the importance of applying managerial responses, the consumers who receive the responses may also have a higher expectation for the response contents. It requests hotel managers continually improve response quality such as responding informative and readable contents as well as customizing different contents to different consumers. Thus, the hotel managers have a trade-off between improving the

response quality and the rise of costs. This study provides a lot of timely implications to hotel managers by telling them how to select the customer to give responses.

This study also has some limitations. First, the authors only targeted the specific groups of hotels. Future studies can further expand the samples to other hotel sectors (such as economy hotels) as well as other cities. Furthermore, although the model estimates the main effect of responding to specific customer group on review volume and rating, in the future, studies can further observe how response style (such as response length and readability) can moderate these effects.

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