

Does TripAdvisor Makes Hotels Better?*

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Abstract

It seems reasonable to expect that the emergence of opinion sites such as TripAdvisor should result in significant behavior changes among service providers. They might be expected to improve their service because disgruntled customers have the facility to share their impressions with a wider audience. There are two aspects to this, service providers are *motivated* to improve their services in order to avoid negative comment that can reach a wide audience and they are *informed* about what should be changed in order to improve their service. We report on an analysis of reviews relating to the hotel sector in Ireland that demonstrates this “TripAdvisor effect”. We compare these results with an analysis on Las Vegas hotels over a similar time period, where the effect is absent, presumably because sensitivity to reputation on TripAdvisor is already well-established there.

Keywords Service quality; Hotel service; Electronic word-of-mouth, TripAdvisor

1 Introduction

When we talk of the benefits of living in the Information Age, there can be few more iconic examples of these benefits than the impact of the Internet on tourism and travel. With the huge amount of information available through the Internet on travel destinations and accommodation options, personal travel planning has become a major pastime in its own right. This increase in the availability of information results in travelers being better informed, which in turn leads to a more efficient market (Fernandez-Barcala et al., 2010). Some of this online information comes from official sources such as tourist offices and service providers, but the most interesting information is often to be found in *social media*.

While reviews from consumers on sites such as TripAdvisor (TA) are invaluable for getting the ‘low down’ on hotels and holiday destinations, that aspect of the service is not

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the subject of this paper. Instead we are interested in whether the improved dissemination of opinion information leads to improved service levels in hotels. The hypothesis we explore is that electronic word-of-mouth (eWOM) is much more efficient than old fashioned word-of-mouth, so positive and negative comments on TripAdvisor have a much greater impact. In particular, negative reviews can be very damaging so hotels are motivated to improve their service levels to avoid future negative comment. The situation with hotel reviews is different to that of book or album reviews in that the hotel can take immediate reactive steps to improve their service. The extent to which hotel service is malleable in this sense is not unlimited however: hotels may be able to make immediate improvements in their level of service, for example, but more costly and time-consuming renovations will naturally be considerably more challenging. So the “TripAdvisor effect” we expect to see entails an appreciable increase in service levels as hotels become aware of their image on TA, followed by a leveling off once the ‘easy wins’ have been achieved.

Our analysis is based on almost 30,000 reviews of Irish hotels posted on TA between September 2007 and September 2009. These data are compared with a similar analysis on over 50,000 reviews from Las Vegas hotels posted between April 2007 and April 2009. The analysis shows that, while the average rating for Las Vegas hotels stays constant at around 3.8, the average rating on Irish hotels increases from 3.6 to 3.8 on a scale of 1 to 5. While the magnitude of this change appears small, it is worth noting that 64% of hotels with a previous average rating between 2 and 3 had increased to a rating above 3, while 38% with a rating between 3 and 4 had increased to a rating above 4. We believe that the steady-state of Las Vegas hotels arises because the TA effect has already taken effect for these hotels, whereas TripAdvisor’s influence in the Irish hotel sector is a more recent phenomenon.

It is important to state that the TA effect is not the only mechanism at play here. It is clear from the data that there is also a strong “value for money” effect, as prices dropped significantly during the period of the analysis. Nevertheless we have found evidence that the TA effect is also having an influence. It should also be acknowledged that at least part of the TA effect could be accounted for by “shilling”, where hotels directly or indirectly place reviews that enhance their reputation and rating (Jurca and Faltings, 2009; O’Connor, 2008). This has been euphemistically termed “Internet reputation management” and a number of companies have emerged that claim to offer hotels an online reputation enhancement service through the use of “insiders” on social media sites.

2 Social Media in Tourism

It has long been recognized in the tourism and hospitality industry that influence by word-of-mouth has a big impact on bookings. This effect is magnified for eWOM, where the impact of online dissemination of opinion is more far-reaching (Calveras and Orfila, 2009; Fernandez-Barcala et al., 2010; Litvin et al., 2008) and more rapid. The influence of social media in tourism and travel is now the subject of extensive research, where some interesting findings have been reported. For instance, it has been established that online reviews have a bigger impact on smaller, less well-known hotels (Vermeulen and Seegers,

2009). This is not surprising as it has been argued that, in the past, small hotels could afford to provide poor service because the customer was unlikely to revisit anyway (Briggs et al., 2007). This was less true for larger hotel chains, where the brand reputation had to be preserved (Calveras and Orfila, 2009).

Much of the research in this area has focused on the impact of the review polarity (positive or negative). Clearly positive reviews are good and negative reviews are bad, but the full picture is more complicated. Ye et al. (2009) present a quantitative analysis that shows how a 10% improvement in reviewers' rating can increase sales figures by 4.4%. They also show that the *variance* in reviewers' ratings has a negative impact on sales – that is, disagreement among reviewers is bad for bookings – a 10% increase in review variance can decrease sales by 2.8%.

The differential impact of positive and negative reviews has been the subject of some study (Clemons and Gao, 2008; Sen and Lerman, 2007). Clemons & Gao argue that many customers exhibit a “satisficing” rather than an optimizing behavior when selecting a hotel. These customers are interested in identifying a reasonably priced hotel that meets a quality threshold. For these customers, strongly negative reviews will have a bigger impact than strongly positive reviews. This is because the customer is satisficing rather than optimizing on quality and the negative review suggests that the quality threshold will not be met. These two pieces of research taken together show that negative reviews are very bad news for hotels. They have a bigger impact on bookings than positive reviews, and they cannot be effectively offset by new positive reviews since this will add disagreement to the review set, which is itself bad for bookings.

Another relevant finding concerns the prominence of social media sites in search results. Xiang and Gretzel (2010) present a study that shows that social media sites feature prominently in travel search results. They found that tripadvisor.com was the most prominent site in this regard. This shows that search engines link travelers directly to social media sites, thus increasing the impact of these sites. In our study we found that, for hotels that exhibited a strong TA effect, TA reviews also featured prominently in the set of search results for the hotel name.

While the impact of reviews on consumers has received a lot of research attention, there has been less research on the reaction from the hotel industry. An exception is the paper by Briggs et al. (2007) that explores the hypothesis that “demanding and informed customers are creating an environment of improvement leading to excellence in all segments of the hotel sector”. Interestingly, they found that this hypothesis was not supported by a study they carried out on Scottish hotels in 2005. In particular, they found that there was very little awareness of the TA website among hotel staff at the time of the study. We believe that the situation is very different now as we shall demonstrate through our analysis of the hotel sector in Ireland.

This hypothesis by Briggs et al. relates to the wider discussion about internet commerce as a *market for lemons* (Akerlof, 1970). In 2002 Huston and Spencer (2002) demonstrated that the trading of coins on the internet was something of a market for lemons as asymmetric information gives rise to suspicion of dishonest behaviour and thus pushes down prices. In 2003 Dellarocas (2003) identified online reputation systems as a key mech-

anism to address this information asymmetry and produce a more efficient market. More recently Pavlou and Dimoka (2006) have argued that the emergence of customer feedback mechanisms play a key role in preventing a market for lemons because the availability of customer comments address the information asymmetry.

In section 5.1 we discuss the possibility that at least some of the improvement in ratings that we observe could be due to fraud. It is recognised that feedback and reputation systems are very susceptible to manipulation by the interested parties. Jurca and Faltings (2009) and Wu et al. (2010) point to a number of anecdotal references to the placement of false reviews on opinion sites such as TA. O'Connor (2008) analyses 500 TA reviews on 100 London hotels but finds very little evidence of the characteristics of false reviews that are reported in the media, i.e. strongly negative or positive reviews from reviewers who post just one review or strongly positive reviews that 'react' to negative reviews. He concludes that fears about the extensive posting of false reviews on TA is unfounded.

Finally, it is interesting to examine the research on management responses posted on hotel reviews. TA give hotel managers a right-of-reply on reviews (see Figure 3) and in our analysis we consider these management responses to be evidence that management is aware of their reputation on TA. Briggs et al. (2007) and O'Connor (2008) find that at the time of their studies this right-of-reply facility was very little used. It was used by just one of 71 hotels in the Scottish study and on just two of the 500 reviews in the London study. We found a significant increase in the use of management responses during the period covered by our study – by late 2009 about 10% of reviews were receiving management responses. This increasing interest in using the management response facility should not be surprising as Ye et al. (2008) show in an analysis of online Chinese travel agencies that management responses have a significant positive impact on online bookings.

3 Rating Shift

The first finding from our analysis is that the average hotel rating for Irish hotels improved significantly over the two year period of the study, whereas the Las Vegas ratings stay roughly constant. The details on the review data on which this is based are shown in Table 1. The volume of reviews and average ratings for Las Vegas is surprisingly constant. In contrast, the number of reviews for Irish hotels increases by about 50% and the average rating increases from 3.60 to 3.81.

This situation can be seen in the two scatter plots in Figure 1. The scatter plots show recent average ratings against old average ratings. The black lines shows the trend and the red line show what this trend should be in a steady-state situation. Even though the Las Vegas reviews are in steady-state, the red trend line is not achieved, this is because bad hotels cannot get much worse and the best hotels cannot get better. Nevertheless, the difference between the two cases is clear – the trend line shows that the Irish hotels are increasing their ratings over time. For instance, a previous rating of 3 is likely to increase to 3.5.

The scatter plots in Figure 1 show the shift in opinion on Irish hotels while that for Las Vegas hotels remains constant. This drift can also be seen in Figure 2 which shows

Table 1: The data used in the analysis is summarized in this table. The Irish data covers the period September '07 to September '09, and the Las Vegas data is from April '07 to April '09. Both sets of data are divided into two 12 month “Early” and “Recent” sets. The Las Vegas data appears to be in steady-state, while the Irish data is increasing both in terms of volume and average rating.

	Early		Recent	
	Volume	Rating	Volume	Rating
Ireland	12,102	3.60	17,697	3.81
Las Vegas	27,276	3.85	27,579	3.86

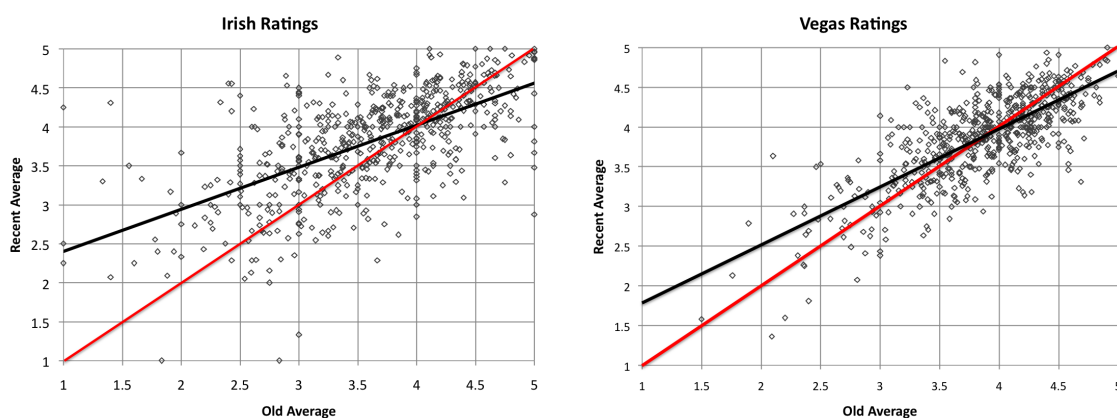


Figure 1: Scatter plots of old and recent rating averages.

the increase in review volume as take-up of TripAdvisor increases. At the same time, an increase in average rating is also evident in the graph. There are a few possible explanations for this improvement in opinion, and more than one of these effects may contribute to our observations:

1. A shift in the TripAdvisor user-base from early adopters to more mainstream users has resulted in a rating inflation because mainstream users may be less critical than the early adopters.
2. Hotel managers are sensitive to their reputation in TripAdvisor, and so have taken steps to improve the quality of service.
3. The improvement in ratings is accounted for by other factors, e.g. increased competitiveness in the hotels market.
4. A significant portion of the new improved reviews are not genuine. Hotel staff or affiliates are inserting flattering reviews into TripAdvisor.

It is clear that the global economic recession has resulted in better value-for-money within the European hospitality sector, and this is likely to have contributed to the rating increase.

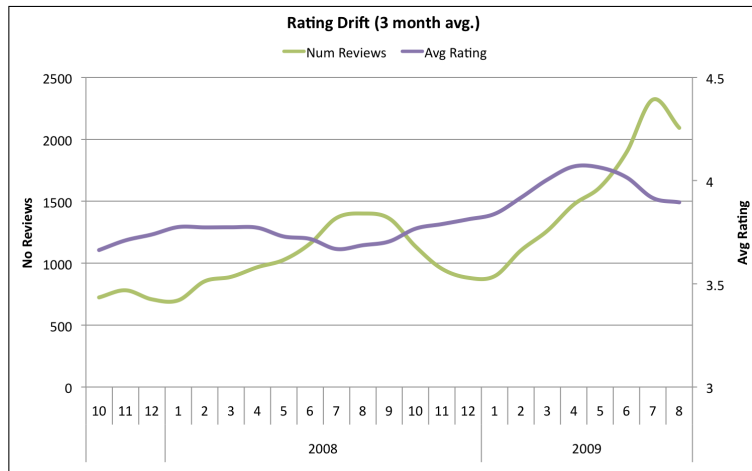


Figure 2: This graph tracks the number of reviews and the average rating for all hotels over a two year period. Volume is increasing over time and the average rating is drifting upward. There is a seasonal cycle with review volume peaking in July/August which coincides with a dip in average rating.

4 The Mainstreaming Effect

It is possible that the upward drift in average review scores is explained by a demographic shift in the reviewer population. It may be that early adopters had a stronger influence in the first year and this influence was diminished in the second year as the user-base shifted to more mainstream users – the implication being that mainstream users are more generous in their reviews and ratings than early adopters.

We can assess the extent to which this is true by considering only reviewers who posted reviews in both time periods. There are 9212 unique members who wrote reviews in the first time period, and 13038 unique members in second. The intersection of these two sets contains just 810 members who posted reviews on Irish hotels in both years. Based on the 2634 reviews posted by these 810 members, the average rating for the first year is 3.69 while the second year’s average rating is 3.87, an increment of 0.18. This suggests that any “Mainstreaming Effect” accounts for little if any of the upward drift.

5 The TripAdvisor Effect

We now focus on evidence indicating that sensitivity to TA reviews is contributing to the improvement in hotel approval. For this, we use the management response facility on TA as evidence of a hotel’s awareness of their reputation on TA. A typical TA review that includes a management response (MR) is shown in Figure 3. TA allows identified hotel management to append responses to reviews. Some hotels are very active in using this facility and others do not avail of it at all. We propose that this is a noisy indicator of awareness of TA reputation. It is noisy because some hotels will track their ratings on TA

but not use the MR facility, while others will use the MR facility to argue their case and take no other action to rectify the situation.



Figure 3: A TA review in short format and a management response.

The interesting thing to note about the distribution of MRs in the Irish hotel dataset is the dramatic increase over the period of the study. A total of 462 management responses were posted on reviews covering Irish hotels in the first year of the study, while 1,505 were posted in the second year. This is a three-fold increase in a situation where review volume grew by about 50% – so the MR rate has grown steadily as can be seen in Figure 4. Clearly this indicates a growing awareness of the value of TA by Irish hotels. This graph suggests that the increase in rating tracks an increase in the proportion of reviews receiving management responses. If there is a causal relationship here then the hotels that use MRs should be improving more than those that do not. This is in fact the case, with the 211 hotels that use MRs improving by an average of 0.24 while those that do not only improve by 0.2. Furthermore, if we look at the hotels that started to use MRs only in the second year of the study and focus on the hotels that use MRs frequently (more than five times), we see an average improvement in the ratings of 0.29.

It is worth looking at the review and response patterns on some of these hotels that exhibit large improvements. Two such hotels are shown in Figure 5. Both of these hotels have shown dramatic improvements in their ratings, with the increases coinciding with the commencement of management response activity in TA (shown as green rectangles). Indeed, the MR shown in Figure 3 is the first MR for the Northern Hotel and seems to mark the start of a campaign to improve their image on TA.

It is not surprising that these particular hotels might be sensitive to their performance on TA, since their image on TA is a large part of their reputation on the web. A search for the names of these hotels on Google, Yahoo and Bing typically returns the TA reviews for these hotels as the second item after the official web page for the hotel. This reinforces

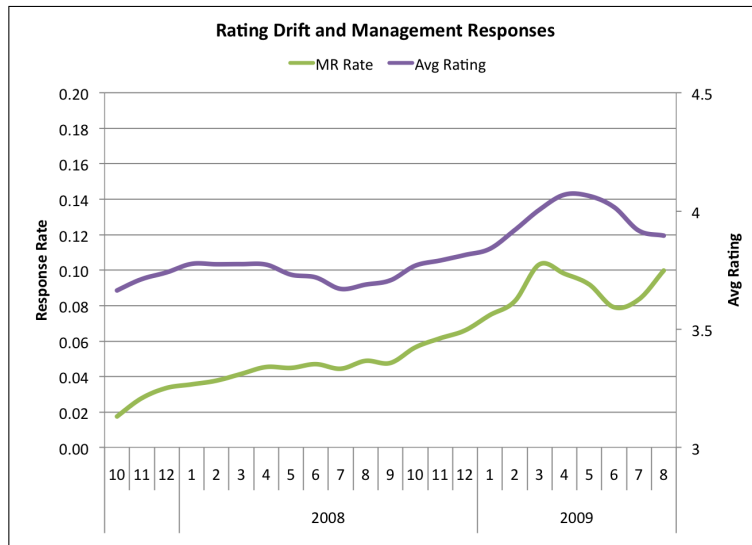


Figure 4: This graph tracks the management response rate and the average rating for all hotels over a two year period. The average rating dips in July/August which is the busy period. However, there is a clear upward trend, particularly from mid 2008 onward. At the same time the rate of management responses on reviews increases from below 4% to reach a peak of 10% in April 2009.

the point about the prominence of social media sites in search results made by Xiang and Gretzel (2010) and it is not uncommon for smaller hotels to rely heavily on the search engine optimization and marketing power (SEO & SEM) of destination sites like TripAdvisor.

We suggest that there is sufficient evidence to support the original hypothesis explored by Briggs et al. (2007): “Demanding and informed customers are creating an environment of improvement leading to excellence in all segments of the hotel sector.”.

5.1 What about Fraudulent Reviews?

It must be remembered that an easy way to improve a hotel’s reputation on TA is for the hotel staff to write or solicit positive reviews. The temptation to do this must be strong, particularly when hit with negative reviews that the staff believe are unfair or misleading. TA do what they can to weed out fraudulent reviews, but the emergence of so-called Internet reputation management companies as mentioned in the introduction suggests that this type of shilling is becoming quite organized.

Because of the above, it is worth exploring the hypothesis that the increase in average rating for the Irish hotels from 3.60 to 3.81 on a set of 17,697 reviews is as a result of shilling, i.e. the mean of legitimate reviews stays constant at 3.60 and the increase to 3.81 is due to the injection of shill reviews. If we accept that all these shills carry the top rating of 5, then it would require 2,654 shill reviews to bring up the average to 3.81 – this would account for 15% of the total review set. While there are likely to be some shill reviews in

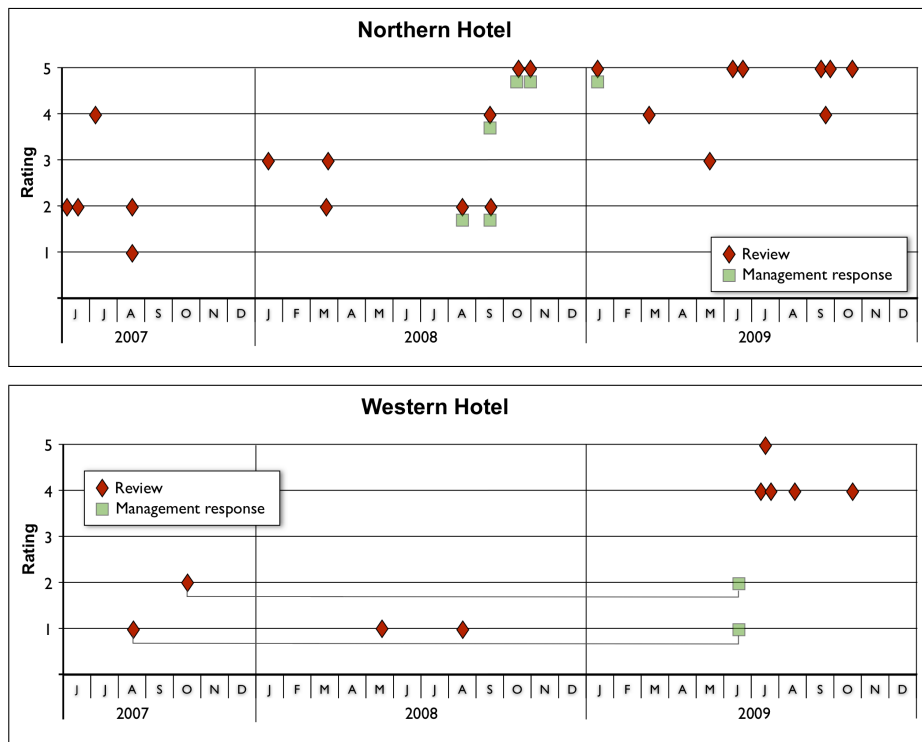


Figure 5: Two examples of the TripAdvisor effect. These plots show the sequence of reviews for two hotels over the two year period of the study. The change in average rating is evident and the coincidence with management responses on TripAdvisor is clear. For the Western Hotel the management responses lag the associated reviews by almost two years.

the system (Jurca and Faltings, 2009; Wu et al., 2010), the status of TripAdvisor would be completely undermined if the incidence of shills was anything approaching this level. Furthermore the analysis carried out by O'Connor (2008) suggests that the incidence of shill reviews in TA is closer to 1% than 15%.

6 Conclusions

It is to be expected that the improved information efficiency arising from sites such as TripAdvisor will result in an increase in standards of service because the views and opinions of customers will rapidly reach a wide audience. We also expect that this will be a once-off phenomenon that will occur in a region as TA usage ramps-up, and awareness of the potential impact of TA on sales becomes widespread in the hospitality industry in that region.

When we went to examine whether the above hypothesis holds true, we found that there was an appreciable improvement in TA ratings for Irish hotels over a two year period

between 2007 and 2009 as review volume was seen to grow. A similar improvement was not evident in Las Vegas hotels, where a critical mass of reviews already existed, resulting in an apparent steady-state in average ratings.

Some of the improvement in the Irish hotel sector may be attributed to better value resulting from increased price competitiveness in the overall European hotel market. The improvement may also be due in part to an increase in fraudulent reviews designed to artificially boost hotels ratings and reputations. However, it seems that at least some of the improvement correlates with an increased awareness of TripAdvisor among hotel managers leading to a genuine improvement in product quality.

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