

A First Approach to Measuring the Impact of Changes in Online Reviews on Hotel Room Prices

Igor Ibarguren, Ibai Roman, Jon Kepa Gerrikagoitia, and Aurkene Alzua-Sorzabal

CICtourGUNE

Cooperative Research Centre in Tourism, Spain

{igoribarguren, ibairoman, jonkepagerrikagoitia, aurkenealzua}@tourgune.org

Abstract

Third party experiences are one of the main deciding factors to pick a hotel. With the growth of the Internet and online reviewing sites word-of-mouth has been extended to electronic word-of-mouth. The effect of online customer ratings on hotel performance has not been studied extensively. Hedonic prices allow estimating the value of attributes that form a product, when only the price of the product as a whole is known. If hotel rating is considered a hotel's attribute hedonic functions may offer insight on the implicit price. A review of the literature shows that such an effect exists, however, the changes of these variables and the impact with each other in time has not been studied. This research note proposes a set of experiments to carry out such research.

Keywords: accommodation prices; online hotel ratings; hedonic prices.

1 Introduction

Customers choose a destination and then select accommodation based on price and available rooms (Wu, Zhang, & Fujiwara, 2011), hotel location, category, services, facilities and, most notably, third party experiences (Dickinger & Mazanec, 2008).

Not long ago, it was quite usual to get information about a destination through friends or relatives. Travel agencies used to recommend a hotel depending on previous experiences. It was a decision made upon a few opinions from previous years. This word-of-mouth communication created some expectations that sometimes were not met.

Meanwhile, the Internet was evolving allowing users to share information. Web 2.0 was born. The user generated content (UGC) changed the information flow to an electronic word-of-mouth paradigm. There are many types of UGC, from status updates in social networks to shared videos and photographs. For example, user-generated reviews are increasing in accommodation related websites. Moreover, recent promotions to encourage posting of online reviews by travel websites have provided websites with better representation of traveller opinion (Ye, Law, Gu, & Chen, 2011).

According to Milan (2007) 84% of online review sites' visitors have their hotel choice affected by reviews and a survey by Gretzel & Yoo (2008) shows that comments of other consumers are used by the 74% of travellers to plan their pleasure trips. Putting the influence of online reviews in economic figures online reviews influence \$10 billion a year in online travel purchases (Ye, Law, Gu, & Chen, 2011).

There are several studies analysing the influence of online reviews on sales of products such as books (Chevalier & Mayzlin, 2006) and CDs (Ghose & Ipeiritis, 2006) but according to Klein (1998) the influence of online reviews is more pronounced on experience goods as they require consumption before knowing their quality. Vermeulen & Seegers (2009) carried out a survey to measure the effect of online reviews on customer consideration of hotels and concluded that positive reviews improved the overall consideration for hotels, while negative reviews had a neutral effect.

The Internet has also changed the global business scene. With electronic commerce, business can be conducted anywhere, at any time, especially in the field of tourism (Buhalis & Law, 2008; Gretzel, 2011). In spite of first concerns (Van den Poel & Leunis, 1999), the development of Internet Distribution Systems (IDS) has brought new opportunities to hoteliers and tourists.

Specialised worldwide online hotel reservation agencies cover most of the top level category hotels and tourists use them surpassing other purchasing channels including travel agencies and telephone contacts (Magnini & Karande, 2011; Wong & Law, 2005).

The fact that prices of accommodation establishments vary a lot from one to another is known. A possible explanation of these differences is attributing them to differences in the features of the establishments (Pastor, 1999). Most hotel room attributes such as locational and non-locational attributes cannot change in time, or require a conscious effort, and possibly an economic investment, of the hotelier. A hotel's location cannot change once built and renovating the rooms takes time and costs money. Customer rating, however, is not under the hotelier's direct control and can change rapidly within a short time span, requiring hoteliers to quickly adjust prices since online rating can be a deciding factor among similar hotels with similar prices.

The study proposed in this research note attempts to measure the effect of online rating on hotel room price in the Spanish market. Several periodic data collections might allow observing the reaction the hotelier has over changes on their online rating. The rest of this document is structured as follows. Section 2 reviews the related work in the quantification of the effect of online reviews and other attributes in a hotel room's price, section 3 gives an overview of the methodology that will be used during the study and section 4 will describe the results that are expected from the study.

2 Related work

In tourism research, the impact online customer ratings have on accommodation establishments has been mostly overlooked until recently. Ye, Law, & Gu (2009) studied the effect online reviews had on hotel room sales on the biggest Chinese IDS. Given the difficulty of obtaining actual sales information from the industry, they used the amount of online reviews as a proxy for hotel room sales and revealed that a 10% of improvement in reviewers' rating can increase sales by 4.4%. A later study proved

the validity of the amount of online reviews as a proxy for room sales (Ye et al., 2011).

Zhang, Ye, & Law (2011) used the hedonic price model to quantify the effect the quality of hotel attributes have on room price based on online reviews. They used data extracted from Tripadvisor.com regarding different hotel aspects (star category, location, cleanliness, service and room quality) and concluded that while room quality always has an effect on price, service only generates an increase on price on higher class hotels.

The hedonic method has been extensively used in the accommodation sector to assess the effect of hotel attributes on hotel room prices. The hedonic model (Rosen, 1974) establishes that the value of a good or service can be expressed as the sum of the values of the attributes it is composed of. Using the accommodation sector as an example, this means that the price of a hotel room can be expressed as the sum of values of the hotel and room's attributes, such as location or facilities.

Pastor (1999) focused on the hotel sector, measuring the relationship between star categories and the services published on hotel guides, and their effect on price. He concluded that the star system worked well, with both complementary services and price going up with category, also finding price differences within categories, which were attributed to a different amount of services, which hotels used to differentiate from the competition.

Several studies have focused on locational attributes as price determinants. Espinet, Saez, Coenders, & Fluvia (2003) and Alegre, Cladera, & Sard (2013) focused on sun and beach destinations in different parts of Spain and both concluded that proximity to the beach is a determining factor on room price. Distance to other places, such as the city centre, was only found to affect prices on some destinations, while the polarity of the effect varied between customer nationalities. A view of the sea was also found to increase the value of the room in Mediterranean locations (Fleischer, 2012).

Other studies concentrated on room specific attributes and identified hot-tub, private bath and a larger room to be determinant for bed-and-breakfasts (Monty & Skidmore, 2003), and hairdryer and mini-bar for hotels in Oslo (Thrane, 2007). However, as of yet, no study has analysed the relationship of online ratings and room price over time. The work presented here attempts to fill that gap.

3 Methodology

This research note proposes a study to measure the effect of online ratings on hotel room prices. In order to obtain primary information for the domain model a source of information with both price and review information shown in the same place was necessary. With more than 345,000 hotels Booking.com is arguably the largest Internet Distribution System. Moreover, this IDS also has its own reviewing platform, making it suitable as the information source of this study.

In previous work, a methodology to measure the hotel Average Daily Rate (ADR) was developed (Roman, Iburguren, Gerrikagoitia, & Torres-Manzanera, 2013). This methodology uses offered prices on several booking dates to estimate ADR.

In addition, a new information gathering system has been developed to obtain review information (text comments and numerical rating disaggregated by customer type and hotel aspects such as cleanliness and comfort) along with, policies, services, star category, location and types of rooms. In the literature, several different hedonic price functions (linear, log-linear, etc.) have been used (Pastor, 1999; Zhang et al., 2011). This study will assess the usefulness of those functions for this case.

4 Expected results

The first part of the study will be to validate the effects found in the literature within the scope proposed in this work. If statistically significant results are found a second phase will follow. Within this second phase a data gathering process will be launched periodically and changes in online rating and hotel room prices will be analysed, looking for causal relationships.

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