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Strategic and tactical price decisions in hotel revenue management

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HIGHLIGHTS

- The study proposes and empirically validates a dynamic pricing framework.
- Three groups of factors are identified in their strategic and tactic dimensions.
- The Shapley-Owen decomposition of R-squared is applied to price regression models.
- Results allow measuring the relative weight of pricing determinants.
- Contextual variables have a relevant role in short-run price variations.

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ABSTRACT

Dynamic pricing techniques allow using a number of variables in a tactical way compared to standard catalogue prices. This study merges in a conceptual model the relevance of the tactical and the strategic dimension of these variables, classified according to their tangible, reputational or contextual nature.

To empirically validate the hypotheses, a database of 21.596 price observations was retrieved from booking.com. The study presents a hedonic price function, using the Shapley-Owen decomposition of the R-squared to elicit the importance of each group of factors. Further, a hierarchical cluster analysis measures the presence of heterogeneity across operators.

The results show that online reputation is gaining importance over the traditional star rating. Despite the tangible variables remain of paramount importance, the findings suggest the relevant role of contextual variables in short-run price variations. The players operating in the tourism and hospitality industries should integrate these findings when designing pricing strategies.

1. Introduction

During the last decade, the tourism and hospitality industries have evolved significantly, pushing the bar higher for operators trying to get a competitive advantage in the arena. The widespread use of new technologies and the highly competitive environment of the industry have in fact forced operators to look for ways to improve their long-term strategies as well as their short-term tactical approaches.

One of the main dramatic changes has occurred in the area of pricing, with the implementation of new ways to easily adjust prices in real time over the internet. According to GBTA (2014), different forms of pricing intelligence software have already been used by 22% of operators in the tourism and hospitality arena, allowing them to boost their profits and gross margins by 25% and 10%, respectively.

After initial skepticism, dynamic pricing strategies are now accepted, although customers often think that these strategies are used only to increase firms' profit (Dixit, Braunsberger, Zinkhan, & Pan, 2005; Garbarino & Maxwell, 2010). Under certain boundary conditions the use of these techniques gives benefits both to managers and customers (Dixit, Whipple, Zinkhan, & Gailey, 2008). If implemented appropriately, dynamic pricing allows patient customers to get convenient deals and companies to increase their revenues much more than fixed prices or heuristic methods (Ingold, Yeoman, & Leask, 2000; Peterson, 2005). Without an appropriate implementation of these strategies, prices tend to be too high when there is scarce demand and too low when demand exceeds expectations (Sanjay, 2009). Some possible threats when adopting these strategies are brand image, long-term profits and

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the reactions of customers who can try to strategically avoid high rates (Kannan & Kopalle, 2001).

While different famous intermediaries, such as Ebay and Amazon, adapted innovative dynamic pricing mechanisms based on segmentation of clients, fidelity, and past consumption behavior, with the goal of maximizing profits, here the focus is on a type of price optimization based on the fluctuation of demand. This technique, called revenue management (Cross, 1997), is mainly applied in context such as tourism, travel and lodging industries where if the service is not sold it is lost, i.e., the product is perishable and demand is uncertain (Netessine & Shumsky, 2002). An analytical discussion of the different theoretical models of revenue management can be found in Talluri and Van Ryzin (2004), while Kimes and Wirtz (2003) focus their attention on the need to protect the "valuable" segments. Managing prices through revenue management also helps operators to allocate a higher amount of existing resources, and increases the value for customers (Grönroos & Ojasalo, 2004). In these recent years, due to the advances in new technology and the growing prevalence of online travel agencies, we are assisting at the development of new revenue models to dynamically manage prices. The tourism and hospitality industries are peculiar, as they have to constantly cope with segments with different elasticity of demand, product characteristics of intangibility and perishability, and often fixed capacity constraints (Bull, 2006). In this uncertain scenario, the role of pricing is to maximize sellers' profits by capturing consumer's product valuations (Kim, Natter, & Spann, 2009).

The current study proposes a conceptual framework of the main determinants of dynamic pricing, by jointly examining strategic and tactical dimensions. To validate the proposed framework, the study supplements the theory with an empirical validation in the hotel industry. Specifically, to accommodate the need to measure the price evolution depending on the ongoing market conditions, the current study makes use of a hedonic pricing approach. As for the strategic dimension, the findings support the relevance of reputational factors, with an increasing importance of online customer reviews over traditional star rating. As for the tactical dimension, despite the tangible variables remain of paramount importance, the findings of the paper indicate the significant premium price that one hotel can obtain by exploiting different booking times and by considering its own market power in real time. By analyzing prices dynamically and investigating its strategic and tactic dimensions, the findings have rich implication for industrial agencies and enrich the extant hedonic pricing literature on hospitality services (Abrate, Capriello, & Fraquelli, 2011; Espinet, Saez, Coenders, & Fluvià, 2003; Monty & Skidmore, 2003; Rigall-I-Torrent & Fluvià, 2011; Thrane, 2007; Zhang, Ye, & Law, 2011).

The rest of the paper is structured as follows. First, we present the conceptual framework considering the previous literature and formulating the hypotheses of this study. Subsequently, we introduce the empirical model and present the results and a discussion of the findings. Finally, the implications for the tourism and hospitality industries conclude this paper.

2. Conceptual framework

Many variables and service attributes can influence the price level. With the goal of a better understanding of the range of factors that have the potential to influence prices and their evolution, this study develops a conceptual model that isolates three main types of variables: (i) tangible variables in the form of physical objective characteristics of the service sold; (ii) reputational variables, in the form of ratings/reviews provided by third parties; and (iii) contextual variables, such as the characteristics of the location and the competitive environment faced by the tourist operator. These three groups of variables consist both of a strategic (long-term) and a tactic (short-term) dimension, as illustrated in Fig. 1. Thus, the price can be seen as the result of the combined interplay of these factors, whose relative importance might differ depending on what is more decisive for the consumer.

In this framework, we pay particular attention to the tactical dimension, as it is the one that is more volatile over time and where the single operator has the opportunity to rapidly react to other competitors' moves. To face this complexity, we analyze how dynamic pricing techniques can help to adjust prices in real-time depending on the ongoing market conditions.

2.1. Tangible attributes

Tangible attributes are strategic in nature but they can also be used in a tactical dimension when the tourism service presents heterogeneous characteristics. In the travel industry, operators may offer free class upgrading depending on the availability of seats of the different classes. In the area of hospitality, a hotel with different types of rooms can tactically allocate them depending on the booking time or the target client. When looking at the specific contribution of tangible attributes, the number of rooms (Coenders, Espinet, & Saez, 2003; Roubi & Litteljohn, 2004), the room size (Monty & Skidmore, 2003) and the presence of a spa and wellbeing center (White & Mulligan, 2002) were generally considered to have an effect on hotel price. There are then other attributes that are used depending on the destination, such as the presence of congress facilities for more business-oriented locations (Abrate et al., 2011) and the presence of a pool for more leisure-oriented locations (Espinet et al. 2003). More recently, it was highlighted how also the star rating of a hotel should be considered carefully, as it is an evaluation that already takes into account some of the tangible attributes of a hotel (Yacouel & Fleischer, 2012). The findings from these studies are contrasting. The cross-comparison of older studies indicates a divergent impact of facilities and amenities on price levels (Monty & Skidmore, 2003; Thrane, 2007; White & Mulligan, 2002). Whilst Thrane (2007) and Abrate et al. (2011) indicate a moderate effect on prices, White and Mulligan (2002) indicate a positive effect. At the opposite extreme, Monty and Skidmore (2003) do not identify any interaction with the price level. In light of these empirical findings, the influence on price levels has to be tested in relation to the total amount of facilities and amenities. A partial answer to this question comes from Zhang et al. (2011) who stress the importance of tangible attributes in having a premium price, thus clarifying that the weight of

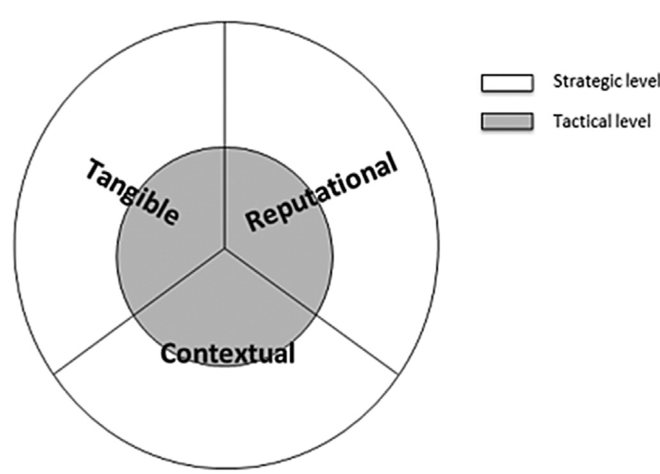

Fig. 1. Conceptual model.