



## Theoretical, empirical, and operational models in hotel location research

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### ABSTRACT

This paper aims to review past literature on hotel location models and evaluate the state of the art, as well as set out future directions. This study divides hotel location models into three major categories: theoretical models, empirical models, and operational models. Four theoretical hotel location models are reviewed and discussed, including the tourist-historic city model, the mono-centric model, the agglomeration model, and the multi-dimensional model. Based on previous literature, six empirical models and three operational models of hotel location are elaborated. Furthermore, some challenges related to hotel location studies are discussed, and future research directions are provided. In particular, we advocate the development of more sophisticated hotel location models and the use of Geographic Information System (GIS) in hotel location analysis.

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### 1. Introduction

Successful investment in the hotel industry hinges greatly on location factors (Kim and Okamoto, 2006) because ideal location is always associated with larger accommodation demand (Lockyer, 2005), higher revenue per available room (Sainaghi, 2011), higher customer satisfaction (Sim et al., 2006), better performance (Chung and Kalnins, 2001), and lower failure rate (Baum and Mezas, 1992). More importantly, since hotel location is a long-term fixed investment, a flawed location strategy can be very difficult to rectify. As a result, there is a huge demand for the analysis of hotel location and the identification of factors contributing to a superior location. For private hotel investors, the pattern of hotel location and its evolution provide valuable information on market access to potential guests and can be further used to understand market competition and equilibrium: whether the hotel industry is over-supplied within a certain area.

The study of hotel location also facilitates the understanding of urban tourism space and structure because hotels are the basic facilities that support urban tourism (Rogerson, 2012a) and their locations influence tourists' movement within a city (Shoval et al., 2011). Therefore, hotel location research helps governments and

authorities understand the geography of accommodation supplies and contributes to industrial policies for urban tourism development (Adam, 2013). Moreover, as a major element of "regional life" and basic urban infrastructure, hotels function in conjunction with other infrastructures in the city, like convention centers, central business districts (CBDs), transport gateways, and major tourist attractions. Hence, further knowledge of hotel location provides vital information to urban and regional planning efforts, especially those planning projects for service infrastructure and urban renewal (McNeill, 2008).

The multi-disciplinary nature of hotel location research has resulted in a relatively separate body of literature that is scattered throughout a diverse mix of academic disciplines, such as tourism and hospitality management, geography, economics, marketing, finance, and urban planning. Researchers with different backgrounds tend to over-emphasize the theories and models of their own disciplines. Therefore, methodological differences and variations can be observed, albeit somewhat loosely, in different streams of hotel location research. To fill this research gap, we present a comprehensive retrospective analysis of past research on hotel location in different disciplines and present recent developments on hotel location modeling as a unified body of knowledge. The results highlight the advantages and disadvantages of different theoretical, empirical, and operational models. They also provide valuable guidance on how to choose the appropriate model or use a combined one to understand specific hotel location problems for both scholars and practitioners. Moreover, we discuss several previously overlooked issues with various hotel location models and set out a future research agenda in this research area.

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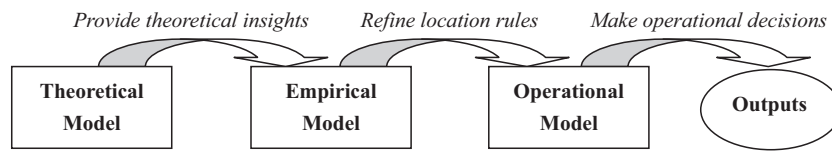


Fig. 1. Research models in hotel location analysis.

This study divides previously documented hotel location models into three major categories: theoretical models, empirical models, and operational models (Fig. 1). Theoretical models explain the hotel location process under certain conditions with particular theories and are generally able to predict future hotel locations. Empirical models employ a strategy that explains the hotel location mechanism/pattern based on empirical observations and summarizes the refined hotel location rule. Finally, operational models indicate how to apply the pre-existing hotel location rule to make operational hotel location decisions. In the following part of the paper, different model sub-categories within each of these three models will be reviewed and discussed.

We also examine different spatial scales of various hotel location models because these scales lead to different decision-making processes. Basically, we consider three spatial scales of hotel location analysis, namely, inter-regional, intra-regional, and intra-metropolitan. For inter-regional studies, the attractiveness of each region to new hotel entries is assessed and these studies facilitate market entry decision making for hotel investors. For intra-regional studies, specific locations within a region (like a county, a state, or even a country) are considered, and city structure factors can be partly overlooked in this broader scale. Finally, for intra-metropolitan studies, the major task is to select an appropriate site within a town, city, or metropolitan area. As a result, city structure, such as CBD location and urban sprawl, tends to play a crucial role.

Having introduced the research objectives, the remaining parts of this paper are organized as follows: after the introduction, four types of theoretical hotel location models will be discussed in Section 2, while six empirical models will be reviewed in Section 3. For practitioners, three major operational hotel location models will be presented in Section 4. In Section 5, the general issues on hotel location modeling will be discussed and future research directions will be provided. Lastly, in Section 6, final conclusions will be drawn.

## 2. Theoretical model

Theoretical models establish the theoretical foundation for the spatial location choice of hotels. Theories from different disciplines have been used to explain different perspectives on hotel location. These theories include geographical (Egan and Nield, 2000; Shoval, 2006), economic (Kalnins and Chung, 2004) and marketing theories (Baum and Haveman, 1997; Urtasun and Gutiérrez, 2006). We categorize previously documented theoretical models into four types based on their disciplinary backgrounds, and they are the tourist-historic city model, the mono-centric model, the agglomeration model, and the multi-dimensional model.

### 2.1. Tourist-historic city model (THC model)

THC models date back to Ashworth and Tunbridge's (1990) comprehensive typology of hotel locations within medium-sized Western European provincial towns. In their work, six types of location zones were identified, including traditional city gates (A), railway station/approach roads (B), main access roads (C), "nice" locations (D), transition zones and urban periphery on motorway (E), and airport transport interchanges (F). These different zones are associated with different types of hotels. For example, large modern

hotels can be found in type E and type F locations, whereas small and medium hotels dominate type D locations. They attributed these clusters to the influence of access, land values, environmental convenience, historical continuity, and land-use policy.

In tourism and hospitality studies, there is a long tradition of applying the THC model to investigate hotel location and spatial distribution in tourist-historic cities. Most tourist cities have been found to exhibit a hotel distribution pattern postulated by the THC model. Burtenshaw et al. (1991) applied the THC model to explain the typology of hotel distribution in several European cities. To interpret hotel evolution from a spatial perspective, Timothy and Wall (1995) studied the accommodation in Yogyakarta, Indonesia and discovered that the THC model can reasonably explain the location of hotels and predict the locational classification of accommodations. Furthermore, Oppermann et al. (1996) used this model to discuss the hotel distribution in Kuala Lumpur, Malaysia. In their study, seven types of location zones were recognized, and the most distinguished was the "new Central Business District location." This included large modern hotels and deluxe shopping centers, which are common in Southeast Asian countries. Rogerson (2012a) also highlighted the importance of CBD in attracting hotels in three cities of South Africa, and identified some "nice" locations for hotels as described in the THC model.

In another study by Bégin (2000), it was found that hotel locations in Xiamen, China, in general, coincided with those described in the THC model. A large number of cheap hotels were clustered in the historical center, and new hotels were constructed in the transition zone between the old downtown and the emerging CBD. Shoval and Cohen-Hattab (2001) investigated the location of tourism accommodations in Jerusalem, Israel over the past 150 years. Focusing on four periods of development, the study confirmed the predictions of the THC model. It also highlighted other important factors shaping hotel distribution, such as political upheavals and social and cultural differences between the population groups. Aliagaoglu and Ugur (2008) found that the results from Dökmeçi and Balta (1999) on hotel location pattern in Istanbul, Turkey confirmed the THC model's prediction, and both type A and type E locations in the city were identified.

The value of the THC model lies in its simplicity and briefness to consider major location hotspots for hotels and the general spatial arrangement within a tourist city. Although it is very popular in the tourism literature, the THC model is subject to many limitations. First, as indicated by Ashworth and Tunbridge (2000), the model is taxonomic rather than explanatory. As such, even though the potential location for hotels within the city can be identified, we do not understand the exact reason why it is selected. Apart from that, while this model has been found to be applicable to tourist-historic cities, it may not be appropriate for non-tourist-historic cities (Aliagaoglu and Ugur, 2008; De Bres, 1994). If it is applicable, however, then, what improvements or modifications should be made to cater to this new situation?

### 2.2. Mono-centric model

The mono-centric model describes the distribution of land use patterns as several mono-centric rings according to the distance from the city center and emphasizes the paramount importance of

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