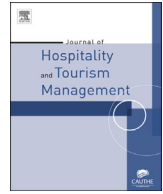




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Performance evaluation of the hotel industry in an emerging tourism destination: The case of Oman



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ABSTRACT

This study is concerned with evaluating the performance of the hotel industry in the Sultanate of Oman through a two-stage data envelopment analysis (DEA) procedure. In the first stage, DEA-bootstrap is used to estimate point and interval efficiency ratios of the hotels, identify the benchmark hotels and suggest a potential ranking. In the second stage, a truncated regression model based on the double bootstrapping procedure of Simar & Wilson (2007) is implemented to identify potential sources of hotels' operational inefficiency. In addition, an empirical approach is introduced to quantify the attractiveness of tourism destinations through a weighting scheme.

The benchmarking analysis is carried out on a sample of 58 hotels, and revealed that (1) the majority of hotels in Oman are technically inefficient; (2) most of the efficient hotels are located in the capital, Muscat; (3) star rating and cultural attractions are the most important factors influencing hotels' efficiency. Practical implications of these findings are also discussed.

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1. Introduction

The sultanate of Oman is located on the southern tip of the Arabian Peninsula with, on its borders, the United Arab Emirates (U.A.E.), Saudi Arabia (S.A.), and Yemen. Oman covers an area of 309,500 km², with rugged mountains and rocky deep-water fjords to the north, the mountains and green hills of the Dhofar region to the south, and the Wahiba Sands in the center (Choufany & Younes, 2005). Lying on the Tropic of Cancer, Oman is one of the world's hot and arid regions, though part of the south of the country has a tropical climate (Fig. 1).

Oman's economy is oil based, with an oil activity accounting for 30% of Gross Domestic Product (GDP) and representing 61% of total exports, estimated to \$53bn in 2012 (QNB, 2013). Oman has been successful at turning its oil wealth into broad-based economic growth, stirred by the government's strategy of diversifying the economy and reducing dependence on petroleum resources. Although the latest among the Gulf countries to join the tourism "race", Oman is emerging as one of the most attractive tourism destinations on the Arabian Peninsula with the number of tourists

increasing every year (Winckler, 2007). Moreover, tourism industry is perceived among the key alternatives to petroleum based economy (Subramoniam, Al-Essai, Al-Marshadi, & Al-Kindi, 2010) and set as one of the top targets of the long-term socio-economic plan, namely, "Oman 2020" (Winckler, 2007). The industry's total contribution to GDP nears 5.7% in 2015, with 111,500 jobs, equivalent to 5.7% of total employment (WTTC, 2016). The forecast for 2023 is 117,000 jobs supported by the industry (WEF, 2013).

With a sector expanding so rapidly, measures are being taken by the Omani government to boost tourism competitiveness, expand tourist base, facilitate travel activities, and endorse innovative initiatives (Assaf & Barros, 2011). As the largest and arguably the most important actors of tourism industry, hotels must compete globally to attract customers and achieve high profits (Tarim, Dener, & Tarim, 2000). Viewed from this perspective, conducting a performance evaluation of the hotel industry is a necessary step to developing a meaningful set of benchmarks for best practices and successful hotel businesses (Min, Min, & Joo, 2009). Such a focused study can help stakeholders to determine current competitive positions of different hotels in the Omani market, in addition to supporting decisions pertaining to the improvement of operational performance, downscaling specific operations, or deferring scheduled expansions (Assaf & Barros, 2011). To the authors' best knowledge, apart from the work of Oukil and Al-Zaidi (2014), performance of the hotel industry has never been researched in

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Fig. 1. Map of Oman.

Oman's context specifically. Therefore, the present paper adds to previous research in this field.

This study uses a two-stage approach (Barros, Botti, Peypoch, & Solonandrasana, 2011; Shang, Wang, & Hung, 2010). The approach starts with a Data Envelopment Analysis (DEA) evaluation of the hotels' technical efficiencies, followed by a statistical regression of the efficiency scores over a set of contextual factors. The objective of the second stage is to identify the factors that contribute more significantly to the efficiency of the hotels. A truncated regression model with a double bootstrapping procedure (Simar & Wilson, 2007) is implemented to identify these factors, but also to assess the consistency of the DEA efficiency scores.

In the light of the above, the contribution of the present study to the hospitality and tourism literature is two-fold. First, the study investigates efficiency measures of the Omani hotel industry, a topic that has not been addressed hitherto, in spite of its pertinence to such a growing industry. Second, the study examines the contextual factors that impact the hotel industry in Oman, with possible extension to other tourism destinations with similar characteristics. Concurrently, an empirical approach is introduced to quantify the attractiveness features of touristic destinations.

The remainder of the paper unfolds as follows. In the next section, a brief review of the literature pertaining to the two-stage approach in the hotel industry is presented. Section 3 outlines the methodology of the study. Section 4 is dedicated to the discussion of the results related to point and interval estimation of the hotels' efficiency scores. In Section 5, the potential relation between the hotel contextual factors and efficiency levels is discussed. The paper concludes with some recommendations and possible venues

for future research.

2. Literature review

In recent years, the measurement of efficiency in the hotel industry has mostly been addressed through frontier efficiency methods, namely, the stochastic frontier (Greene, 2008) and data envelopment analysis (Cooper, Seiford, & Tone, 2002). The stochastic frontier analysis (SFA) requires the output of the decision making units (DMUs) to be expressed as an explicit function of a set of inputs, an inefficiency factor, and a random error whose distribution is assumed a priori (Coelli, Rao, O'Donnell, & Battese, 2005). Some leading studies that use SFA in the hotel industry include Anderson, Fish, Xia, & Michello (1999), Barros (2004, 2006), Chen (2007), and Hu, Chiu, Shieh, and Huang (2010). Unlike SFA, data envelopment analysis (DEA) is a non-parametric approach that does not impose functional forms on the data nor does it need to use probability distributions (Barros et al., 2011). Furthermore, DEA has the potential to evaluate the efficiency of DMUs that employ multiple inputs (resources) to produce multiple outputs (products and/or services).

According to Wöber (2007) "Although efficient frontier methods have been used extensively in the past, it has been just recently that tourism researchers have discovered DEA for examining efficiency in their industry". Indeed, the share of tourism is estimated to only 1.34% of all DEA application papers (Liu, Lu, Lu, & Lin, 2013). Hruschka (1986) and Banker and Morey (1986a) are first to apply DEA to the hospitality industry, more specifically, to restaurants. Later, Bell & Morey (1994, 1995) use DEA to determine best practices for corporate travel agencies. The application of DEA to the hotel industry is pioneered by Morey and Dittman (1995).

Over 63% of related publications cover destinations in the Asian Pacific region (Assaf, 2012; Keh, Chu, & Xu, 2006), with around 50% dealing with the hotel industry only in Taiwan (e.g., Assaf, Barros, & Josiassen, 2010; Chin, Wu, & Hsieh, 2013; Huang, Ho, & Chiu, 2014). Research on the performance of hotels in the Middle East using DEA is very scarce. The few existing publications consider cases in Turkey (e.g., Tarim et al., 2000; Tumer, 2010; Önüt & Soner, 2006), Iran (Shirouyehzad, Hosseinzadeh Lotfi, Shahin, Aryanezhad, & Dabestani, 2012) and Israël (Hadad, Friedman, & Israeli, 2005). Apart from the study in Assaf and Barros (2011) which involves hotel chains from S.A., the U.A.E. and Oman, there is no known research dedicated specifically to performance analysis of the hotel industry in Oman. Therefore, the present work enriches the literature in this field through a systematic analysis of hotels' performance in Oman with a view to identify benchmarks for best practices and support stakeholders' operational decisions.

Our methodological approach covers two-stages. The first stage uses DEA to estimate the hotels' efficiency scores. In the second stage, an econometric analysis is conducted to discern possible correlation between the DEA efficiency scores and the contextual factors. The latter are often exogenous factors that are neither inputs nor outputs, but can still influence the operating process (Jeong, Park, & Simar, 2010). The objective is to identify the factors that might influence efficiency significantly.

The application of the two-stage approach in the hotel industry is quite recent. Early studies have investigated the effect of hotel contextual factors on efficiency using ordinary least squares (OLS) estimation (e.g., Sun & Lu, 2005). However, the OLS estimation has been considered unsuitable for explaining the efficiency scores since the latter variables are bounded. Instead, Tobit regression models have been used in subsequent research. In Hu, Shieh, Huang, and Chiu (2009), DEA is adopted to evaluate the operational performance of international tourist hotels (ITHs) in Taiwan through cost, allocative, technical, and scale efficiency ratios. In the

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