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Modelling growth and revenue for Swedish hotel establishments☆

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ABSTRACT

This paper provides first estimates of the determinants of output growth of Swedish hotels based on establishment data. Growth of overnight stays is modelled as a function of initial size, age, type of accommodation, location and hotel prices measured as average revenues per guest nights. The empirical model accounts for potential endogeneity of hotel prices through the two-stage least absolute deviation model (2SLAD) and the instrumental variable quantile regression method. 2SLAD estimates show a positive and significant relationship between hotel prices and subsequent growth. The relationship is nonlinear with a decreasing impact as the price level increases. Growth of establishments is significantly higher for smaller and younger hotels. An important result is that city hotels, in comparison to tourist and other hotels – which are mainly located outside urban areas (in the mountains and at the sea) – exhibit significantly higher growth rates with a gap between 2.2 and 3.4 percentage points. Furthermore, the positive impact of hotel prices on growth is larger for high-growth establishments. Accommodation prices significantly decrease with the number of local competitors with a non-linear form and increase with size. City hotels and accommodation in the capital city have the highest revenues per guest night.

1. Introduction

The empirical analysis of firm growth is a classic field in industrial economics. Insights into the determinants of firm growth are particularly interesting for mature markets. A typical example of a mature market is the hotel industry in developed countries, characterised by a high degree of competition and concentration, and declining entry rates (Kalnins, 2006). The industrial economics literature shows that the growth of hotels and other accommodation establishments depends on initial size, age and locational characteristics (Santarelli, 1998; Audretsch et al., 2004; Piergiovanni et al., 2003; Park and Jang, 2010). The tourism literature also shows that age and firm size are central determinants of firm growth in the hospitality industry (see Marco, 2012 for 3600 Spanish hotels and Alonso-Almeida, 2013 for Spanish travel agencies, hotels, and rural accommodations). While age and size are central determinants of long-term firm growth, little is known about the role of the price segment of hotels for growth. It may be the case that growth rates differ systematically between budget, middle class and luxurious hotels. Knowledge of the relationship between prices and firm growth is interesting since it is often stated that high hotel prices signal high quality services.

Studying the growth of overnight stays in hotels in different locations is interesting since city tourism has grown significantly in Europe in recent years whereas tourism in rural areas has stagnated. Driving forces of the increase in tourism to urban areas are supply side factors such as new attractions (e.g., range of sporting events, festivals, and fairs and expositions) (Law, 2002). Other reasons for the rise in urban tourism are the emergence of low cost air carriers with new point to point connections and reduced fares (Page, 2002). Furthermore, in Europe abolition of border controls has facilitated travel to urban destinations. Other reasons for the popularity of urban destinations are changes in leisure preferences towards secondary short leisure trips and increases in travelling for conferences, shopping and cultural tourism (Ashworth and Page, 2011).

This paper contributes to the literature by providing first empirical evidence on the determinants of growth of overnight stays and hotel prices in the Swedish hotel industry at the

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establishment level. Special focus is put on the relationship between hotel prices and growth in subsequent years. Growth of establishments is measured as the average annual change in overnight stays (including both domestic and foreign tourists) between two five-year periods. The following samples are employed: one for the pre crises period (2002–2007) and the other for the period 2005–2010. Other determinants of growth include size, age, type of hotel (e.g., city hotel, hostels, cottages) and location. The empirical model accounts for potential endogeneity of output prices through the estimation of the two-stage least absolute deviation model (2SLAD) with the number of competitors in a given municipality as the instrument for prices. In order to allow for heterogeneity of the parameters between low and high growth establishments, we use quantile regression methods. This approach makes it possible to examine the whole distribution of establishment growth through hotels with rising overnight stays, moderate growth of overnight stays and falling growth. Quantile regression has been frequently used in tourism research (Hung et al., 2010; Lew and Ng, 2012; Santos and Vieira, 2012; Chen and Lin, 2013). In order to account for the endogeneity of hotel prices, we employ the control function approach introduced by Lee (2007) with the number of competitors in a given municipality as the instrument for prices.

Sweden is an interesting country case study for the analysis of the growth of hotels. With 29 million overnight stays in hotels and related establishments in 2012, it is a small player in tourism in Europe. However, growth of overnight stays in hotels between 2000 and 2012 is higher in Sweden than those in Mediterranean countries and other Western European destinations.[1]

This paper also contributes to the determinants of prices in the lodging industry. Recent studies show that age, size, location, geographical concentration and share of foreign travellers play a significant role in hotel prices (Hung et al., 2010; Becerra et al., 2013). Unlike most previous studies, we employ the total population of establishments in the lodging industry rather than a selected sample of hotels listed in online booking systems.

The key research questions addressed in this paper are as follows: (i) How important are establishment-specific factors – such as age, size, location, type of accommodation, attractiveness for foreign visitors, region and price segment of the hotels (measured as revenues per visitor nights) – for the growth of visitor nights in establishments? (ii) Are there differences in the determinants between fast and low growing establishments? (iii) What are the main determinants of accommodation prices in the Swedish hotel industry?

The availability of unique establishment data for the total population of the Swedish hotel industry makes it possible to jointly analyse the determinants of growth of establishments and average gross revenues per visitor. The large number of observations makes it possible to model parameter heterogeneity. Data is available for about 2460 establishments for the period 2005–2010 (and 2265 establishments for the period 2002–2007). To the best of our knowledge, this is the first paper to jointly estimate the determinants of growth of visitor nights and hotel prices for accommodation establishments including very small enterprises (the so-called micro enterprises).

The paper is structured as follows: Section 2 describes the theoretical background. Section 3 introduces the empirical model, while Section 4 provides the data and descriptive statistics. Section 5 presents the empirical results, and Section 6 concludes.

[1] Sweden: 2.5 percent, Norway: 1.6 percent, Switzerland: 0.2 percent, Finland: 1.9 percent, Austria: 1.4 percent, Spain: 1.4 percent, Italy: 0.8 percent, France: 0.9 percent per year on average. *Source*: Eurostat, New Cronos.

2. Theoretical background

The analysis of firm growth is a classic field of research in business, management and economic literature. Growth is an important goal of companies because it serves as a basic indication of success. Gibrat (1931) suggests that a firm's growth is independent of its initial size; the probability of output growth should thus be the same for firms of varying sizes in a given industry (see Sutton, 1997 for an overview). However, the majority of empirical studies have shown that firm growth depends significantly negatively on initial size. An important recent study for the US shows that there is no systematic relationship between firm size and growth when controlling for firm age (Haltiwanger et al., 2013). Other factors include age, location and legal form. The literature for tourism establishments also tends to agree that smaller and younger firms grow faster than their larger and older counterparts (Audretsch et al., 2004; Rufın, 2007; Park and Kim, 2010; Park and Jang, 2010).

Location is another important factor for output growth. Barros (2005) suggests that location is a significant determinant of hotel efficiency with hotels in or close to cities being more efficient than those in more remote locations. The reason is that city hotels have the potential to attract more clients and more business tourists. New shopping centres and more new visitor attractions have contributed to this development.

Consequently, city hotels are expected to have better growth prospects than those located in rural areas. Furthermore, urban hotels might have better growth rates because of better flight connections, falling airfare and changes in leisure preferences towards short-term trips.

Besides the classical determinants of firm growth, the price segment can also affect the growth of hotel establishments. Skalpe and Sandvik (2002) suggest that higher prices per unit sold should have a positive effect on firm performance. However, prices depend on a bundle of factors and are likely to be endogenous to firm growth. In the empirical part of the paper we account for endogeneity of hotel prices by using the number of local competitors as the instrument. The number of local competitors can be used as instrument because it is significantly correlated with hotel prices but is not correlated with the error term of the growth equation. The main hypothesis is that prices matters for growth of establishments.

It is well established that in a competitive market, high prices signal high quality products and services, and low prices reflect low products and services (Milgrom and Roberts, 1986; Stiglitz, 1987; Bagwell and Riordan, 1991). Nayyar (1990) suggests that in a competitive market for service products, high prices signal high-quality services. The theoretical foundation for this price quality relationship goes back to Scitovsky (1945) who suggests that consumers associate higher prices with higher quality. For the hotel industry, high average prices reflect the tourist's willingness to pay for high quality hotels. Using data for Taiwanese international tourist hotels, Chiu and Chen (2014) find a significant and positive monotonic function between service quality and hotel prices suggesting that higher prices may signal higher service quality. Similarly, using hotel data for Italy, Abrate et al. (2011) show that hotel prices can be largely explained by quality measured as the star rating category and presence of quality assurance programmes. Anderson (2012) finds that increases in review scores by one point on a five-point scale lead to an increase in prices by 11 percent given level of occupancy or market share. Israeli (2002) and Henley et al. (2004) find a positive relation between hotels' star ratings and hotel prices.

Hotel prices are not only dependent on quality but are determined by an interplay of forces of demand and supply side factors (Gerstner, 1985). A high hotel price may reflect higher costs of provision (room size, labour costs), general high real estate prices and many other hotel attributes such as comfort of bed, atmosphere, bathroom amenities, complimentary items and availability