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Survival analysis of the Spanish hotel industry

Germán Gémar [a, *, 1], Laura Moniche [b, 2], Antonio J. Morales [c, 3]

[a] Universidad de Málaga, Departamento de Economía y Administración de Empresas, Campus El Ejido s/n, 29013, Málaga, Spain
[b] Universidad de Málaga, Departamento de Economía Aplicada, Campus El Ejido s/n, 29013, Málaga, Spain
[c] Universidad de Málaga, Departamento de Teoría e Historia Económica, Campus El Ejido s/n, 29013, Málaga, Spain

HIGHLIGHTS

- We worked on a sample of 1033 hotels created from 1997 to 2009.
- The methodology of this study included an econometric analysis of survival.
- Survival of hotels depends on their size, location, management and business cycle.
- Survival doesn't depends on their typology of hotel nor Economic/Financial structure.
- The importance of this study is the methodology used to analyse the causes of hotel closure.

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ABSTRACT

The main objective of this study is an analysis of survival in the Spanish hotel industry. We used a sample of 1033 hotels opened from 1997 to 2009, examining financial and non-financial variables, including size; location; type of hotel; management, economic and financial structure and the year they opened, whether during an expansion or crisis period. The methodology included an econometric analysis of survival, using the non-parametric Kaplan–Meier estimator of constructed variables, in order to detect the particular influence of each variable. Semi-parametric regression was done with the Cox proportional hazards model, confirming which variables clearly influenced the survival of hotels and which signs existed for each analysed variables' influence. The survival of hotels depends on their size, location, management and launch in a time of prosperity. However, survival rates were not significantly tied to particular types of hotels or configurations of their economic and financial structures.

1. Introduction

Over the decades, according to the UNWTO's (2012) World Tourism Barometer, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. These dynamics have turned tourism into a key driver for socioeconomic progress all over the world. This is particularly true in Spain, one of the leading countries in tourism worldwide, where the participation of tourism in the gross domestic product and the percentage of total employment fluctuates around 12% (Instituto Estudios Turisticos, 2013).

Given the relevance of tourism to industrialised and developing economies and, in particular, the hospitality sector (Hemmington, 2007), it is important to understand the incentives tourism offers that attract private investors and the factors that determine post-entry performance. Clearly, investment in hotel industries is important for stimulating economies (Pan, 2005).

In this study, we put together a unique sample of more than

* Corresponding author.
E-mail addresses: ggemar@uma.es (G. Gémar), lmoniche@uma.es (L. Moniche), amorales@uma.es (A.J. Morales).
[1] Universidad de Málaga, Facultad de Ciencias Economicas y Empresariales, Departamento de Economía y Administración de Empresas, Campus El Ejido S/N, 29071, Málaga, Spain.
[2] Universidad de Málaga, Facultad de Ciencias Economicas y Empresariales, Departamento de Economía Aplicada (Estructura Económica), Campus El Ejido S/N, 29071, Málaga, Spain.
[3] Universidad de Málaga, Facultad de Ciencias Economicas y Empresariales, Departamento de Teoría e Historia Económica, Campus El Ejido S/N, 29071, Málaga, Spain.

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1000 hotels to understand the post-entry performance of the hotel industry in the Spanish economy from 1997 to 2009. In particular, we applied the Cox regression model, together with Kaplan–Meier estimates, to identify which factors most influence the probability of survival of hotels in Spain.

A novel aspect of this study is that it incorporates financial and non-financial information for companies. Regarding financial information, over 13 years of data were provided by the Iberian Balance Sheet Analysis System (SABI) database, which summarises and organises financial information from official records. SABI contains comprehensive financial information and business intelligence for companies in Spain and Portugal. The SABI data have been enriched with other variables that incorporate specific features of hotel companies. These variables refer to dimensions that the literature and conventional wisdom associate with hotel survival. In this way, we obtained information on size, age, location, quality and hotel typology. The economic and financial structure of hotels was also considered, together with the hotels' management structure and launching period, to assess whether these variables strongly influence survival.

A second novelty in this study is that, although the methodology we used is quite standard in the literature on survival, this approach has usually been used in the manufacturing sector, and it has quite rarely been applied to the hospitality industry. To the best of our knowledge, the exceptions are Baum and Ingram (1998), who examined the failure of hotels in Manhattan, and Kaniovski, Peneder, and Smeral (2008), who used parametric duration analysis to determine the survival rate of firms in the Austrian accommodation sector. Other than these two studies, the few studies that applied models of duration to the hospitality sector have estimated the length of tourists' stay.

Our results give an interesting picture of survival in the Spanish hotel industry, suggesting strategies that investors and policymakers can adopt in order to improve the duration of the accommodation sector. According to our analysis, the most significant features of successful hotels in terms of duration are being launched in times of prosperity with a clear distinction between ownership and management, proper accessibility to the destination and good management practices. Among the features that do not make any difference on the probability of survival are the typology of the hotels and their financial and economic structure.

The rest of the paper is organised as follows. Section two reviews the relevant literature, while section three is devoted to the research design. Section four presents the research methodology, and results are presented in section five and discussed in section six. Section seven presents the limitations and future lines of research. Finally, section eight offers conclusions.

2. Literature review

Business demography studies phenomena related to the entry, survival and exit of firms in markets. This field started with Marshall (1920) and Schumpeter's (1934) work and then moved into researching industrial organisations with authors such as Gibrat (1931) and Bain (1956).

The initial emphasis in the literature was on the entry of new firms in markets. Relevant empirical work has been done on business dynamics by many authors, including Evans (1987); Hall (1987); Dunne, Roberts, and Samuelson (1988); Audretsch (1991); Geroski (1995) and Caves (1998). These authors noted that the entry of new firms in markets is regularly associated with turbulence. The main conclusions of these studies reveal that, in business demography, (1) size is relevant in industries, (2) small businesses show considerable turnover and (3) the entry of new companies operates as a selection mechanism to introduce innovations in the early stages of the life cycle of industries and/or markets.

On a theoretical level, the contribution of Nelson and Winter (1982) needs to be highlighted, linking entrepreneurship with the concept of technological regime. Their work also inspired models by Klepper (1996) and Klepper and Simons (2000), who studied the relationship between input and output and product life cycle, as well as models by Jovanovic (1982) and others who observed the heterogeneity of firms entering markets and examined the concepts of selection and learning. According to Jovanovic (1982), new companies have no idea what will happen with their performance after entry, so the probability of survival is assumed to be randomly distributed among companies.

This led Audretsch and Mata (1995) to put a greater emphasis on understanding the post-entry performance of firms:

> A series of studies focusing on the process entry has led to the conclusion that what happens to firms subsequent to their entry is at least as important as the entry process itself. Understanding the *post-entry performance* of firms is important because it sheds light on the *selection process of markets*, enabling some firms to survive and grow while others stagnate and finally exit. (p. 413, emphasis in the original)

While studies in recent years have shown a growing interest in research on the market entry of new firms, the understanding of post-entry performance is still poor. The entry and exit of firms tends to occur simultaneously. That outputs correlate with inputs is an observation that enjoys consensus in the literature on enterprise mobility, as emphasised by Evans and Siegfried (1992), Love (1996), Fotopoulos and Spence (1998) and Disney, Haskel, and Heden (1999). Segarra (2002) and Segarra, Arauzo, Gras, et al. (2002) and Segarra, Arauzo, Manjon, et al. (2002) further explained the divergent paths and intensity of inflow and exit of firms based on their heterogeneous nature.

Although relationships between business survival and growth, age and size have proved consistent in findings on manufacturing firms, based on concrete results (Dunne & Hughes, 1994; Dunne, Roberts, & Samuelson, 1989; Geroski, 1995; Sutton, 1997), no such evidence exists for service firms (Mansfield, 1962). Post-entry performance seems remarkably different in the service industry when compared to manufacturing. Among the few studies of service firms, Audretsch, Klomp, and Thurik (1997) used a longitudinal database for Dutch companies in the retail and hospitality industries to identify around 13,000 new firms and 47,000 established firms. The cited authors developed a process to keep track of these over a number of years. The results suggested that the relationships between firm size, age, survival and growth are markedly different for service than for manufacturing companies. Similar results were obtained by Segarra and Teruel (2007).

The positive impact of age on the probability of survival in both service and manufacturing suggests that new firms have a high propensity to disappear in the period immediately after entry (Jovanovic, 1982). However, studies have found differences and similarities between the motivators of business survival in the manufacturing and service sectors. What is different in service as compared to manufacturing is the apparent lack of economies of scale, so the role played by size shrinks rapidly and disappears upon reaching a minimum size. In addition, the average start-up in the manufacturing sector is considerably larger than start-up service firms are.

In the literature on the hospitality industry, there are few papers dealing with the survival of firms. Baum and Ingram (1998) examined how the experience level of the organisation, the population and the related business group affect the failure of hotels in Manhattan. The results indicate the difficulty of applying different