Efficiency of travel agencies: A case study of Alicante, Spain

Ramón Fuentes*

Faculty of Economics, Department of Applied Economic Research, University of Alicante, Ap. Correos 99, E-03080. Spain

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ABSTRACT

This study analyses the relative efficiency of 22 travel agencies of similar characteristics based in Alicante (Spain). This analysis is carried out using the Data Envelopment Analysis (DEA) technique and smoothed bootstrap. Following the analysis, possible lines of action that the agencies can take in order to improve their efficiency in the future are provided. Finally, using the Mann Whitney *U* Test, the relationship, or lack thereof, between the levels of efficiency of these agencies and their ownership type, location and level of experience is examined.

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1. Introduction

The growing amount of competition in the economy over the last few years has stimulated interest in the analysis and assessment of efficiency in all economic sectors. The services sector is no exception, despite the fact that its unique characteristics (such as intangibility or heterogeneity of its outputs) mean that it is difficult to assess and quantify its efficiency (McLaughlin & Coffey, 1990).

Travel agencies work in the services sector, and more specifically in the tourism sector. Given the importance and global scope of today's tourism sector, it seems important to carry out an analysis of the efficiency of agencies whose main, albeit not only, aim is to help connect supply to demand. It would also be useful for any economic agents with direct or indirect links to these agencies to be able to access information about their level of efficiency so that they can make informed decisions about investment and/or management.

With this in mind, this project aims to analyse the efficiency of a group of travel agencies based in Alicante (Spain). Alicante was selected for the analysis for two main reasons: firstly, because it is an area of Spain where the tourism sector is of great importance, in terms of both supply and demand; and secondly, because the number of travel agencies in the area has increased at such an exceptionally high rate over the last few years that the number of agencies per capita has now more than doubled the national average. Between 2000 and 2007, the number of travel agencies in Alicante increased by 205.26%, while the total increase for the whole of Spain was just 67.41%. Furthermore, in 2007, the proportion of agencies per inhabitant was 0.05% in Alicante, compared with 0.022% for the whole of Spain (County Council of Alicante, 2009; National Statistics Institute, 2009). A setting with such a high level of competitiveness was therefore a very suitable choice for the study of efficiency in this sort of agency.

Then, based on the results of this analysis, it will assess the way in which certain characteristics of the agencies may affect their efficiency parameters. In particular, the study aims to ascertain whether or not the agency's ownership type, location or the length of time it has been in operation are factors which affect its level of efficiency. By examining these variables, the study will try to ascertain whether or not the fact that an agency forms part of a chain, is located in the city centre or has many years of experience in the sector are relevant factors when it comes to improving its level of efficiency.

2. Literature review

To date, only seven articles analysing the efficiency of travel agencies have been published. The first two of these, written by Bell and Morey (1994, 1995), did not analyse the efficiency of travel agencies exactly, but that of 31 corporate travel departments. Input-oriented Data Envelopment Analysis (DEA) was used for these studies, using the level of service provided as a representative variable for output, whilst input variables used were the levels of travel expenditure (such as car and airline costs and hotel bills), labour costs, other general expenditure (space and technology costs, for example) and, finally, other environmental factors (to illustrate a company's ability to obtain travel cost discounts).

Some years later, Anderson, Lewis, and Parker (1999) used the same data that was used in the afore-mentioned study to show the

* Tel./fax: +34 965 90 97 11.
  E-mail address: rfuentes@ua.es

differences between input-oriented DEA and stochastic frontier results. However, the constructed variables used were different. The output was the number of company trips made and the inputs used were labour costs, the sum of air, hotel and car expenses and, finally, other expenses (such as technology or occupancy costs). The authors concluded that corporate travel departments are a good investment for companies as they are highly efficient and they make it possible to control the increase in travel costs.

Subsequently, another article was written by Barros and Matias (2006). It examines the efficiency of 25 Portuguese travel agencies using stochastic cost frontier analysis. This study includes an exhaustive review of previously-published articles which have applied frontier analysis to assess levels of efficiency in the tourism sector (essentially hotels and travel agencies), showing that DEA is the most widely-used method.

The variables used by Barros and Matias were selected based on their availability and the fact that they had been used in previous works. Specifically, they used: operational costs at constant prices, price of labour, price of capital-stock (proxied by the ratio of earnings to stock), price of capital-premises (proxied by the ratio of expenses in premises divided by the value of real assets), dummy variables for Spanish companies operating in the Portuguese market (based on the idea that due to their recent entry into this market, they may have been still undergoing a convergence and consolidation process), additional dummy variables for companies which had carried out mergers and acquisitions and, finally, sales at constant prices (the output). These authors concluded that the main factors determining efficiency in the sector were capital, labour, sales, and mergers and acquisitions activities.

In the same year, Wöber (2006) analysed efficiency data gathered in 2003 relating to 80 branch offices of a tour operator in Austria, using a DEA model which considered variable returns to scale, which was input-oriented in the first instance, and output-oriented later. He also calculated levels of super-efficiency in order to draw up a ranking of the efficient branch offices. The controllable inputs used were: personnel, occupancy, marketing and other variable and fixed costs, the number of employees (weighted by the number of working days per year) and their average job experience. The non-controllable inputs used were: number of residents living near each agency, a visibility and competitiveness index (based on the size of the window display and the number of agencies nearby in the close neighbourhood) and ease of access via car or public transport. The outputs used were: total number of contracts, total turnover and contribution margin for each of the outlets. As a result of the analysis, the author was able to suggest ways in which the management scores for the agencies could be improved, both in terms of the use of inputs and the production of outputs. He also provided a ranking of all the offices studied. All of this information could be used to provide practical solutions for the different management targets.

Only one year later, Köksal and Aksu (2007) used input-oriented DEA to assess the efficiency of 24 travel agencies in the city of Antalya (Turkey). They also employed the Mann Whitney U test to analyse the relationship between the ownership type of an agency and its level of efficiency, and concluded that there is no link between the two variables. The authors also applied DEA to calculate changes in the level of inputs that inefficient agencies would have to achieve in order to become efficient. The variables were obtained through surveys and comprised: the number of staff, the level of annual expenses, the potential level of service that they can provide (inputs) and the number of customers served (outputs).

Finally, Barros and Dieke (2007) analysed changes in the productivity of travel agencies based on the study of a significant sample group of agencies operating in the Portuguese market between 2000 and 2004. They applied a quantitative method based on the calculation of the Malmquist index, breaking it down into four factors. They also used a bootstrapped Tobit model. In order to calculate productivity, they used sales and profits as outputs, and wages, capital, total costs excluding wages and book value of premises as inputs. In the second stage of the analysis, the efficient Malmquist scores were analysed using a Tobit model where the explicative variables were: foreign ownership of the company, the ratio of operational costs to sales, the market share of the agencies and whether or not the agency belonged to a commercial chain which could give it access to economies of scale. The authors concluded that the level of capital, market share, control of factor costs and belonging to a group were the main factors which determined efficiency in the Portuguese sector.

To date, no further analyses of efficiency in the travel agency sector have been carried out. However, the fact that these studies are often included in hospitality research literature means that it is reasonable to include other studies that have analysed efficiency in this context in this review (other previously-published works with excellent reviews of this topic include, for example, Barros & Dieke, 2007; Sigala, Jones, Lockwood, & Airey, 2005 or Wöber, 2006). Table 1 provides a list of works published to date that analyse efficiency in the tourism and hospitality sectors.

The review of the works included in the above table reveals relevant information with respect to the different methods that have been used in the past to analyse the efficiency of firms operating in the tourism and hospitality sectors and the variables that have been selected as inputs and outputs of these methods. Therefore, the conclusions that may be obtained based on this analysis will be useful in determining the type of statistical procedure to follow and the most appropriate variables for the analysis. With regard to the latter, as well as the information obtained from the bibliographical review, the opinion of company managers from the sector under analysis will also be taken into account as will the availability of the information required (Barros & Matias, 2006).

On the one hand, with respect to the statistical procedure used, the main conclusions that can be drawn from the published literature both on tourism in general and on travel agencies in particular are, firstly, that DEA is the method that has been used most often to carry out efficiency analyses, although other methods, such as stochastic frontier analysis, have been used to a lesser extent. In fact, it may be observed that DEA was used in 86.37% of studies analyzing the efficiency of DMUs and in 38.64% of these cases it was combined with other methods in order to obtain additional information regarding their behaviour (multiple regression, analysis of variance, the Mann Whitney U Test ….). Furthermore, on the whole, the kind of efficiency that has been most analysed is technical efficiency, in spite of the fact that other forms (such as overall, allocative or scale efficiency) have also been considered on occasion.

Finally, the type of DEA model applied has gradually incorporated new characteristics and/or complementary methods which have helped authors to gather more information and results. Studies such as those conducted by Barros and Mascarenhas (2005), Reynolds and Thompson (2007), Sigala (2003, 2004), Sigala, Airey, Jones, and Lockwood (2004) or Wöber and Fesenmaier (2004) used stepwise DEA models and/or combined DEA with regression analysis, ANOVA and other statistical techniques in order to enrich their results.

On the other hand, with respect to the variables, it is not possible to arrive at conclusions which are as highly defined as those for the case of the statistical procedure applied. This is due to the wide diversity of the type of DMUs analysed in the bibliographical review which means that the inputs and outputs employed are also diverse. However, it is possible to make general conclusions when the variables are grouped into broad categories. So, if we first focus on the inputs, it may be affirmed that the type of variables most used as