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The effect of destination type and travel period on the behavior of the price of airline tickets

María-Encarnación Andrés Martínez [a], José-Luis Alfaro Navarro [a, *], Jean-François Trinquecoste [b]

[a] Facultad de Ciencias Económicas y Empresariales de Albacete, Plaza de la Universidad, 1, 02071, Albacete Spain
[b] Université Bordeaux, Avenue Léon Duguit Pessac cedex, Bordeaux 33608, France

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ABSTRACT

The effects of customer characteristics, differentiating between tourist and business travelers, and the date of travel are considered important elements in airline price behavior. In the literature, the difference between tourist and business travel is based on consumer characteristics; however, the main contribution of this paper is to examine this difference with respect to the characteristics of the destination. Thus, in this paper, we consider the top- and bottom-ranked tourist destination cities (to differentiate between most-and least-visited tourist destinations) and two travel periods (a holiday period and an off-peak period) in order to analyze the effect of the destination and travel period on airline price behavior. The results show that the price level is highest during the holiday period to the lowest-ranked tourist destinations, and that the price dispersion is highest during the holiday period but to the top-ranked tourist destinations.

1. Introduction

Many consumers use the internet due to the lower prices on offer relative to traditional channels. This situation has been analyzed with particular interest regarding the sale of airline tickets as they have been available for purchase online for a relatively long time (Sengupta & Wiggings, 2006).

The online sale of airline tickets increases transparency and competition; retailers therefore have more information about their customers and the use of price discrimination as a pricing strategy in the airline industry has increased accordingly. There are three degrees of price discrimination: first-degree price discrimination is where a monopolist seller of a good or service knows the absolute maximum price that every consumer is willing to pay; with second-degree price discrimination, the price varies according to quantity demanded; and third-degree price discrimination entails charging different prices to different consumer groups. These groups can be established according to geographic, demographic, psychographic, and behavioral variables (Carroll & Coates, 1999; Huang, Chang, & Chen, 2005). Typical practice for internet sales is to use dynamic

* Corresponding author.
E-mail addresses: encarnacion.andres@uclm.es (M.-E. Andrés Martínez), joseluis.alfaro@uclm.es (J.-L. Alfaro Navarro), jean-francois.trinquecoste@u-bordeaux4.fr (J.-F. Trinquecoste).

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pricing whereby prices change according to fluctuations in demand and the supply-and-demand conditions in effect at that time (Maxwell, 2002).

This price discrimination is likely to increase when customer characteristics differ, particularly when these characteristics are related to the price elasticity of demand. In this regard, one of the most widely-used characteristics is the reason for travel. Accordingly, in many papers (Borenstein, 1985; Borenstein & Rose, 1994; Gerardi & Shapiro, 2009; Holmes, 1989; Mantin & Koo, 2010; Obermeyer, Evangelinos & Püschel, 2013) some kind of tourist/business variable is used to distinguish between different behavior, as business travelers seem to have lower industry demand elasticities than tourist travelers, and higher time valuations. However, price discrimination is not the only reason for price differences between business and tourist travel; it is more expensive to serve business travelers and they generally want a higher-frequency service, hence the inventory costs of having seats/flights available is reflected in higher fares for business travel. There is thus an element of efficiently allocating common costs to the most inelastic demand. However, to the best of our knowledge, there are no papers that consider whether or not the city is a popular tourist destination when analyzing price behavior.

Barron, Taylor, and Umbeck (2004) and Leiter and Warin (2007 and 2012) highlight the importance of price level and price dispersion as key elements in price analysis. Similarly, many papers analyze price level (Ancarany & Shankar, 2004; Huang & Swaminathan, 2009; Morton, Zettelmeyer, & Silva-Risso, 2001; Stylianou, Kumar, & Robbins, 2005; Zettelmeyer, Morton, & Silva-Risso, 2006); price evolution (Alegre & Sard, 2008; Friesen, 2005; Gillen & Mantin, 2009); and price dispersion (Alderighi, Cento, & Piga, 2011; Bhatta, 2012; Huang et al., 2005; Kannan & Kopalle, 2001; Kung, Monroe, & Cox, 2002; Malighetti, Paleari, & Redondi, 2009; Mantin & Koo, 2010; Stylianou et al., 2005) with respect to different kinds of intermediaries. However, few papers examine whether the selected date of travel has a clear effect on price behavior. In this sense, Gale and Holmes (1993) present a theoretical model explaining the pricing behavior between peak and off-peak flights/periods. Escobari (2009) studies the effect of travel period on pricing and concludes that travelers faced and paid higher fares when flying in the ex-ante known peak period for the Thanksgiving holiday of 2005. Gillen and Hazledine (2011) consider the effect of date of travel on price behavior using control variables in their estimations.

Therefore, the main contribution of this paper is based on the analysis of the effect of destination type rather than customer characteristics on price behavior, as well as the effect of the date of travel with respect to the summer holiday period instead of Christmas or weekends. Specifically, in the case of destination characteristics, we have selected two groups of destinations defined in relation to the international tourist arrivals in 2011, in order to incorporate the most-visited and least-visited tourist destinations. For the date of travel, we have selected a date clearly within the time period that is usually considered the holiday season both in the place of departure as well as in destination countries. We have also chosen other dates which are not typically considered as part of the holiday period.

We consider the top- and bottom-ranked destination cities according to Euromonitor International (2012) in order to differentiate between most-visited and least-visited tourist destinations. Moreover, we select two travel periods: the holiday period from 29th July to 5th August; and an off-peak period between 18th and 25th November. To analyze the effect of the destination and travel period on airline price behavior, we use information about flights from Madrid to different cities in Asia, the United States, Europe and Spain. The results show higher prices during peak periods to the lowest-ranked tourist destinations. Moreover, price dispersion is also higher during peak periods, but in this case to the top-ranking tourist destinations.

Thus, in Section 2 we perform a literature review of the research that has been carried out on this subject. In Section 3, we describe the data and methodology used in this paper, and provide brief graphical and analytical results. In Section 4, we analyze the main results obtained with the data collected and finally, in Section 5, we outline the main conclusions and limitations of this paper.

2. Literature review

The sale of products on the internet has risen dramatically over the past decade, particularly with respect to air travel. The internet theoretically reduces search costs and enables buyers to identify low-price sellers, enhancing competition and reducing prices and price dispersion (Sengupta & Wiggings, 2006). The great number of airline tickets sold via the internet has led to airline ticket sellers adopting advanced pricing mechanisms, such as dynamic pricing. These pricing strategies, which include mechanisms such as price discrimination, have been analyzed by authors such as Giaume and Guillou (2004) and Puller and Taylor (2012).

One of the elements that has a clear influence on price dispersion is competition. In this vein, Borenstein (1985), Holmes (1989) and Borenstein and Rose (1994) show that competition causes a greater reduction in the prices offered to non-loyal (leisure) travelers than in the fares available to loyal (business) customers, that is, price dispersion increases with competitive pressure. These papers analyze the effect of competition on price dispersion with respect to two kinds of travelers. These two kinds of travelers are identified according to customer characteristics, as price discrimination increases when customer characteristics are different, especially when those differences reflect customers' differing price elasticity. In this regard, the most widely-used customer characteristic is the reason for travel, with nearly all studies using the difference between tourist and business customers.

Borenstein and Rose (1994) use a tourist variable, which represents the share of tourist passengers as a percentage of all passengers, based on the ratio of tourist income to the total income in the endpoint cities of each route. Gerardi and Shapiro (2009) consider two segments: "leisure routes" and "big-city routes". Leisure routes are more homogeneous, with the majority of passengers being leisure travelers, whereas big-city routes have both passenger types. Mantin and Koo (2010) construct a business index by assuming that business passengers will buy flexible and unrestricted tickets, and then dividing the total number of unrestricted tickets by the total number of tickets of all types. Obermeyer et al. (2013) define a dummy variable to indicate whether at least one of the cities on the route is a potential tourist destination. Moreover, business travelers typically travel alone while leisure travelers generally travel in groups, and pricing and price elasticity differ by group size (Gillen and Hasheminia, 2013).

Despite the different variables used to measure the tourist characteristics of the traveler, all of these studies produce similar results in the sense that the heterogeneity of consumers has an influence on price discrimination; however, they are not in agreement as regards the direction of this relationship. Thus, Borenstein and Rose (1994) find substantially less price dispersion caused by price discrimination on the most tourist-oriented routes. Gerardi and Shapiro (2009) show that a high proportion of leisure travelers results in much less price dispersion than routes with higher proportions of business travelers. Mantin and Koo (2010), on the other hand, show that a higher proportion of price-insensitive business passengers leads to less price fluctuation and, therefore, to low price dispersion on the routes with a high business index, as

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