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Low-cost pricing strategies in leisure markets

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ABSTRACT

The practice of dynamic pricing typical of low-cost carriers is generally regarded as a form of price discrimination between "leisure" and "business" travellers on a single flight or route. The same may not be true across different routes because of the different incidence of business travellers. If price increases in the 15 days prior to departure are meant to discriminate business demand, leisure demand should account for earlier price variations. In the present study, we used a database containing the daily fare over the 3 months prior to each flight operated by easyJet during 2009. For each route, we defined the "leisure index" as the difference between the price rates of change during the 90 days and 15 days prior to departure. Overall, "business" routes had lower average prices per km, while "leisure" routes showed less dynamic price behaviour, with higher minimum and lower maximum prices per km.

1. Introduction

Price differentiation strategies as traditionally pursued by flag carriers were one of the primary examples used by introductory/intermediate microeconomics textbooks to describe price discrimination under monopolistic conditions. The business market and the tourism/leisure/personal travel market were assumed to have different demand elasticities and to be kept separated by carriers. Deregulation via increased competition was postulated to mitigate the practice of discriminatory pricing. However, recent factual evidence has shown that things have by no means gone that way.

As frequently happens in disciplines like economics, different answers to the same question have been given at different times. Indeed, since the early 1980s, authors like Frank (1983) have warned against the habit of equating differential pricing with the discriminatory pricing allowed by market concentration. Subsequent literature has shown that demand uncertainty (Dana, 1999) and the competitive environment (Gerardi & Shapiro, 2009) are sufficient reasons to induce airlines to offer advance discounts *and, more generally, that* these variables affect price dispersion both among and within the airline fare structure.

Regarding low-cost carriers (LCCs) in particular, several studies have also convincingly shown that their offered fares systematically tend to increase as the departure day approaches (Button & Vega, 2007; Malighetti, Paleari, & Redondi, 2009; Piga & Bachis, 2007) implying that travellers have an increased willingness to pay as the departure day approaches. However, willingness to pay may increase with booking, regardless of the customer type, simply because of a shift in perceptions and expectations about fares and flight availability in the remaining days (Chen & Schwartz, 2008).

Among specialists in air transport economics, the idea that differential pricing ultimately discriminates between business and leisure travellers has persisted. Practically oriented discussions of discriminatory pricing, usually under the more palatable heading of "revenue (or/and yield) management", distinguish between quantity- and price-based approaches to revenue management (see, for example, Holloway, 2008). The former usually produces the well-known array of fare bases and booking classes utilized by traditional carriers, while the latter generates the dynamic pricing so typical of LCCs, namely, that of raising fares as the booking date approaches the date of flight. For a comprehensive discussion of the rationale behind the practice of dynamic pricing, see McAfee and te Velde (2006).

Although low-cost carriers do not typically provide business class, it does not follow that they do not target business travellers. A survey by Mason (2000) drew attention to the high propensity to employ low-cost carriers for short-haul flights among business travellers. In the case of EasyJet, as early as in 1999 its founder Haji Ioannou indicated that on some routes the proportion of business traffic reached figures around 50%. Its chief executive Andy Harrison recently stated (easyJet Interim report, January 22, 2009) that "the airline was attracting business passengers who are trading down in the current crisis" and "we are seeing a flight to value". EasyJet currently operates a large number of typically business routes with convenient and frequent schedules.

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If we assume that leisure travellers – differently from business ones – are inclined to book well in advance, we may conclude, as stated by Button and Ison (2008), that:

> The airline can maximize its revenues by fare differentiation, and in particular, charging higher fares to those who book closer to take-off time – these are often business travellers that are fairly fare insensitive because they have to make the flight at short notice (p. 3).

Focusing on a single flight, the above conclusion seems almost undisputable, and paves the way to some considerations about the welfare effects of dynamic pricing, based on the implicit cross-subsidizing mechanism. In fact, from a welfare perspective,

> [I]t is interesting to observe that not all travellers are affected in the same way with a decrease in the level of competition. Business travellers, who purchase high-price tickets, end up paying relatively lower fares in less competitive markets while leisure travellers pay more. Conversely, leisure travellers end up paying relatively lower fares with more competition. (Hernandez & Wiggins, 2008, p. 20)

Otherwise, if we consider a single route, it seems equally appropriate to observe that

> Even if differences in air fares are explicitly discriminatory […] they can improve profits and welfare. Low prices directed at leisure travellers, with elastic demand, can lead to an increase in the overall size of the market; this results in higher frequency, which is valued by the business travellers paying highest fares, and may also lead to larger aircrafts with lower unit costs. (Forsyth, Button, & Nijkamp, 2002, p. xiv).

The same conclusions, however, cannot be extended to the whole set of routes operated by a single carrier, if only because we cannot assume the same shares of business/leisure passengers on every route. Indeed, due to the diverse nature of different destinations, we may expect a widely divergent composition of business/leisure traffic on different routes. In this case we do not have sufficient *a priori* reasons to predict generally lower fares for "leisure" than for "business" destinations.

The aim of this paper is to investigate this last issue, which so far has been somewhat neglected even in specialized literature, with reference to one of the two major European LCCs. Using a database comprised of 3 months of daily fares prior to each flight operated by easyJet during 2009 (902 routes, 321,538 flights), we traced the fare variation for each individual route as the flight date approached. Our hypothesis was that price increases in the last 15 days before departure are meant to discriminate business demand, whereas leisure demand should account for earlier price variations, and that the relative weight of the two effects cannot be established *a priori*.

Accordingly, we classified each route by a "leisure index", defined as the percentage of offered flights where major price increases are in the earlier period. If this presumption is correct, it should be expected that: (i) the leisure index distinguishes between typically "leisure" and more "business" oriented routes, and (ii), on average, the leisure index intensifies for weekend and midday flights, whereas longer-term seasonal effects depend on the specific route characteristics. These assumptions should permit us to estimate the different pricing dynamics for the two kinds of flights/routes.

The paper is organised as follows. Section 1 reports the details of the construction of the leisure index. Section 2 describes the database and methodology employed in this study, and presents the main econometric results. Section 3 offers some concluding remarks.

2. Definition of the "leisure index"

A "leisure index" was constructed to distinguish "leisure" from "business" routes. This index is based on the idea that the intertemporal price discrimination implemented by carriers somehow reflects different motivations for travelling. Since the LCC business model does not entail any further restriction on fares, a business traveller is induced to reveal its nature and to buy late expensive tickets if this choice maximises her own surplus. This implies that intertemporal fare discrimination succeeds in separating the two types of customers, if the business traveller's willingness to pay increases with the booking time faster than that of the leisure traveller (or, more generally, if the spread between the willingness to pay of the two customer types increases over time). The rationale behind this assumption is that, in early stages, business travellers typically support a higher uncertainty cost about the real need to fly. After the meeting/business event is fixed, the cost of missing the flight is higher than that for a tourist, who might have to change the date and/or the destination if the first chosen flight is not available.

Therefore, we assumed that on those flights/routes where the intertemporal fare curve is expected to discriminate between the two types of customers, we should see an increase in the fares offered during the last two weeks more than proportional to what could be derived looking at the fare's trend in the early weeks. To test this conjecture, for each flight we firstly fit the temporal fare curve as in Malighetti et al. (2009) and Malighetti, Paleari, and Redondi (2010). This permits to estimate a coefficient (β) of dynamic pricing, derived from the following price function:

$$p_x = \frac{1}{\alpha \cdot (1 + \beta_{1\_90} \cdot x)} \quad x = 1, \ldots, 90 \tag{1}$$

where x is the number of days between the advance reservation and the flight date and p_x is the corresponding price. The referred price function is a hyperbola, with the price increasing as the flight date approaches. A low β value corresponds to a steady price trend as the number of advance booking days increases, whereas a high β value indicates a more significantly discounted fare, compared with the highest fare ever offered, on advance purchases.

We next estimated the value of β in the last two weeks before departure only:

$$p_x = \frac{1}{\alpha \cdot (1 + \beta_{1\_15} \cdot x)} \quad x = 1, \ldots, 15 \tag{2}$$

For each flight i, t (on route i departing at date/time t), the "leisure index" is defined as the difference between β_{1_90} and β_{1_15}

$$L_{i,t} = \beta_{1\_90,i,t} - \beta_{1\_15,i,t} \tag{3}$$

A significantly negative L index means that in the last 15 days, the fares tended to be higher than what could be expected looking at the overall trend, suggesting that in the last 15 days the airline is targeting customers with a higher willingness to pay at late booking (see Fig. 1).

Table 1 reports the average statistic of our leisure index at the flight level. Table 2 reports the top and the last 20 routes by average L index. Routes with a higher average L index and share of flights with $L > 0$ corresponded to typical leisure routes. Indeed, the top 20 routes typically connect the main UK and some German airports to Mediterranean touristic destinations in Greece, Egypt, Turkey, and Spanish Islands. Conversely, among routes with a strong negative L index, connections were between main European capitals (Milan, Paris, London and Brussels) and domestic connections (e.g., Toulouse–Lyon, Newcastle–Bristol, Milan–Rome), suggesting typical business trips.