



## Airline competition in the British Isles

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### ABSTRACT

We study the relationship between pricing and market structure on the routes connecting the UK and the Republic of Ireland. Because in 2007 the European Commission prohibited the takeover of Aer Lingus by Ryanair, the analysis focuses on their pricing strategies in particular. We use an original dataset of fares posted on-line, which allows to control for the fares' inter-temporal pattern for each specific flight and each carrier's specific yield management system. Our evidence supports the European Commission's view that the elimination of a competitor in the Irish airline market is likely to have harmful consequences for consumers.

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### 1. Introduction

Aer Lingus and Ryanair largely dominate the routes departing from the airports located in the Republic of Ireland. In October 2006, Ryanair launched a take-over bid for Aer Lingus. After an extensive investigation, in June 2007 the European Union Competition Commission decided to block the merger, arguing that the proposed acquisition would increase the market concentration and raise serious anti-competitive concerns (European Commission, 2007). For instance, out of the 35 intra-European routes operated by both parties, the acquisition would lead to monopoly in 22 routes, and to a dominant position with a joint market share of more than 60% on the remaining routes. Furthermore, the econometric evidence provided by the Commission indicates that the Ryanair's presence is associated with Aer Lingus' charging around 7–8% lower prices when considering city-pairs markets, and about 5% lower prices when considering airport-pairs.<sup>1</sup> Aer Lingus prices therefore appear to be constrained by competition from Ryanair. Although the evidence supporting the related notion of Aer Lingus exerting a competitive constraint on Ryanair's prices is weak, the European Commission concluded that the two carriers were close competitors. Finally, in addition to the elimination of actual competition, the analysis in European Commission (2007) also points out to other likely negative impacts: lack of incentive to develop new routes; elimination of potential competition, in particular with regards to either parties entering routes where the other is already present; unlikely entry by a third party, because the enhanced position of the merged entities would make it difficult for a new entrant to establish a viable competitive presence.

Building on a dataset of on-line posted fares, where for each flight fares are tracked over about a 2 months' period, we pursue two main, intertwined lines of investigation with the aim to complement the analysis carried out in European Commission (2007). First, using fare data on routes where both airlines operate, we study their inter-temporal pricing profile by showing when the fares posted by one of the carriers are consistently higher or lower than those posted by the other. According to Borenstein and Rose (2007, p. 30), business-model experimentation, in pricing, logistics, competitive strategies and organizational form have been a key feature of the US airline industry following deregulation. The coexistence of alternative

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<sup>1</sup> A city-pair (e.g., London and Dublin) generally includes more than one route, each identified by a unique airport-pair combination (e.g., London Heathrow/Dublin and London Stansted/Dublin).

business models, such as the established full-service model based on the hub-and-spoke system and the recent low-cost model based on the point-to-point service, is a recent example (Alderighi et al., 2004). In this study, we focus on the role of revenue management systems, which constitute an important managerial and strategic tool because they enable a better alignment of the evolution of actual demand relative to forecast demand for individual flights. They are also used to implement peak-load pricing and third-degree price discrimination (Dana, 1999). We suggest that the way the two carriers tackle their revenue management problems may be reflected to a large extent in the inter-temporal profiles of their fares. Detecting differences in such profiles has important implications on the way the markets are segmented and therefore on the welfare evaluation of the takeover. Indeed, the analysis of a previous merger involving Ryanair conducted in Dobson and Piga (2008) reveals that relative to the pricing profile adopted by the target airline Buzz, on the acquired routes Ryanair imposed a drastically different inter-temporal pricing profile, so that on average post-merger early booking fares were between 14 and 27 British Sterlings cheaper but fares available 1 day prior to departure were about 20 British Sterlings more expensive than those posted by Buzz. The evidence we present here shows interesting differences in the inter-temporal pricing profiles of both Ryanair and Aer Lingus, with the latter applying a much more uniform distribution of fares than the former, whose fares start at a low level and increase sharply as the date of departure nears. Given the precedent case of Buzz discussed in Dobson and Piga (2008), we argue that had the same mechanism been applied for the Aer Lingus' takeover, the steep increase in late booking fares that Ryanair could have imposed on its acquired routes could have harmed consumers. Thus, on the one hand, our analysis strengthens the Competition Commission's decision to block the merger. On the other, our conclusion is reached by stressing the heterogeneity of the two carriers' business model, in line with the view expressed by Borenstein and Rose (2007), while the Competition Commission's investigation often considers the two carriers as characterized by very similar business models and yield management systems (see, for instance, point 360 on page 87 and point 438 on page 108 in European Commission, 2007).

Second, we conduct a panel data analysis on the routes connecting the Republic of Ireland to the United Kingdom to evaluate the relationship between pricing and market structure, as well as the extent to which the absence of one of the carriers in a route affects the price levels of the other. Unlike the specification employed by the European Commission, our econometric model accounts for possible regular specificities in fares setting that differentiate Ryanair's approach to yield management from Aer Lingus'. Furthermore, we tackle the endogeneity bias linking price and market structure by adopting instrumental variable techniques with the instruments proposed in Borenstein (1989) and Borenstein and Rose (1994). In our analysis, market structure measures are defined both at the route and the city-pair level. Such a distinction between relevant market definitions may again be important to assess the competitive effects of a proposed takeover. Indeed, a monopolistic route may be subject to strong competitive forces when it represents a product which can be easily substituted with many other routes in the same city-pair.

The econometric evidence confirms that, net of the possible effects due to market concentration and dominance, the application of Ryanair's yield management approach on the target routes could have entailed sharp price increases for late booking customers. This is a novel result relative to the findings in Competition Commission (2007). Our estimates also suggest that Aer Lingus' fares were higher in routes where Ryanair is absent, i.e., that the latter carrier constrains the former's price setting. This finding is reminiscent of those obtained by the Competition Commission. However, we do not find that in routes where Aer Lingus is not present Ryanair charges higher fares.

## 2. Data collection

The analysis relies on two main datasets, one containing primary data on posted fares, the other providing market structure measures derived from secondary data obtained by the UK Civil Aviation Authority (CAA).

All the fares were obtained from the internet using a web spider, which accessed the web-sites of the low-cost carriers (LCCs) included in the sample (Bmibaby, Mytravellite and Ryanair), and retrieved the fares of the Full Service Carriers, namely Aer Lingus and British Airways, from an on-line travel agent, Opodo.<sup>2</sup> For each day between 1 June 2003 and 31 December 2004 and for each flight code, the spider collected all the posted fares that a hypothetical consumer would pay if she booked her ticket 1, 4, 7, 10, 14, 21, 28, 35, 42, 49, 56 and 63 days<sup>3</sup> before the departure day.<sup>4</sup> We will refer to these dates as "booking days".

LCCs price each leg independently and the retrieved fares refer to a single one-way ticket. Fare data for the Full Service Carriers (FSCs), instead, reflect a more sophisticated yield management technique that usually makes it uneconomical for the consumers to buy each leg independently.<sup>5</sup> Therefore, for the FSCs the spider collected round-trip fares, which could be considered more representative of the actual fare pattern observed by consumers. Furthermore, because the LCCs' fares do not include such restrictions as Saturday night stay-over, the spider was programmed to have the return leg scheduled one week after the outgoing flight. To make a FSCs round-trip fare comparable with a LCC one-way fare, we follow the traditional approach in

<sup>2</sup> See [www.opodo.co.uk](http://www.opodo.co.uk), which is owned and managed by Aer Lingus, Air France, Alitalia, Austrian Airlines, British Airways, Finnair, Iberia, KLM, Lufthansa, and the global distribution system Amadeus. Thus, fares listed on Opodo represent the official prices of each airline; although Opodo may not report promotional offers that an airline may post on its own website.

<sup>3</sup> For Aer Lingus and British Airways the series reduces to 7, 10, 14, 21, 28, 35, 42, 49 and 56.

<sup>4</sup> See Piga and Bachis (2007), where this same time pattern is used.

<sup>5</sup> FSCs normally price a round-trip ticket cheaper than two separate one-way tickets, so that consumers have the incentives to purchase round-trip tickets.

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