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The impact of low cost carriers on non-aeronautical revenues in airport: An empirical study of UK airports

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ABSTRACT

The purpose of this study is to clarify the impact of low cost carriers (LCCs) on non-aeronautical revenues in 26 UK airports from 1999 to 2008. Increasingly non-aeronautical revenues have become an important source for airport revenue. Our literature review highlights that there is little consensus in empirical results concerning LCC impact on non-aeronautical revenues, some of these report positive impact while others show negative impact. We estimate a non-aeronautical revenue function which includes frequency share of LCC, Air Transport Movements (ATMs), number of passengers and population of hinterland of each observed airports as explanatory variables. In addition to this, we produce marginal revenue estimates for both the case of capacity constrained and capacity unconstrained circumstance in airports. As a result, in the case of a non-capacity constrained airport, on average, the marginal revenue of an additional LCC ATM is £147 while for non-LCC ATM it is £226. On the other hand, in the case of a capacity constrained airport, on average, substituting one non-LCC ATM with an LCC ATM reduces revenue by £79.

1. Introduction

Increasingly, many airport operators in the world are trying to attract low cost carriers (LCCs) to enhance their traffic volume and to develop their financial performance. In such a competitive situation, airport operators tend to face strong downward pressure on airport charges, given that airport charges are a core cost element of LCCs which tend to maximize the utilization of their aircraft to keep costs as low as possible (CAA, 2007). Thus, to attract LCCs, airport operators tend to set their airport charges as low as possible, and to compensate, seek to manage the airport by enhanced non-aeronautical revenues as the result of increased passenger volume.

The UK Civil Aviation Authority (CAA) describes this procedure as a "virtuous circle" of airport activity.[1] It means that pricing competitively and more actively seeking out new air services by airports, and consequent greater passenger throughput, allows the airport to increase its non-aeronautical revenue. This in turn means the airport can be less reliant on airport charges revenue and can price competitively to attract further air services. As such, non-aeronautical revenue is an important source for airport management and to understand how LCCs influence non-aeronautical revenues at airports has been very relevant for airport operators.

The purpose of this study is to examine the influence of LCCs on the non-aeronautical revenues of airports, by quantitative analysis using the dataset of the UK airports. Traditionally the literature has indicated that LCC passengers spend more at airport commercial facilities than other types of passengers, because they are not provided food and drink services inside an airplane. However, in a recent literature there is a counter argument that indicates non-aeronautical revenue per passenger maybe lower for passengers of LCCs than other types of passengers, given that LCCs appeal to price sensitive markets.

Our study advances the state of the art for a number of reasons. Firstly, we utilize a data set which includes the period of rapid expansion of LCC operators. Secondly, we consider the influence simultaneously of the number of air transport movements (ATMs) at an airport and the number of passengers per aircraft, in contrast to previous studies which have considered only passenger volumes. Thirdly, an important feature of our study is the ability to produce

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[1] See Fig. 2 in CAA (2005).

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marginal revenue estimates for both the case where LCC substitutes for non-LCC operations (capacity constrained circumstance) and also for the case where LCC aircraft movements are incremented with no decrease in other aircraft movements (capacity unconstrained circumstance).

The structure of this paper is as follows. Following this introduction, section 2 provides the context for why the UK is an interesting empirical case for understanding the impact of LCCs on airport non-aeronautical revenue, while section 3 clarifies the composition of non-aeronautical revenue vis-à-vis aeronautical revenue. Section 4 provides a review of the received empirical literature to date and section 5 outlines the data available for our study. Section 6 then outlines the econometric model selection process, while section 7 discusses the results. Section 8 concludes.

2. Development of LCC in the UK

There are two reasons why we focus on the UK in our study. The first reason is that the UK is the oldest, largest and most competitive market for LCCs in Europe (Lei and Papatheodorou, 2010). According to the CAA (2006), the LCC network covered only certain routes to and from London (operational hub of easyJet) and Dublin (operational hub of Ryanair) in 2000. However, this had expanded through most of the Europe countries by 2006.[2]

Fig. 1 shows the frequency share of LCCs departing from UK airports for the period from 1997 to 2012. LCC share has increased rapidly since 2001 and reached almost 50% at 2010.

The second reason is that a wide range of consistent and reliable statistics for airlines and airports can be obtained in the UK. Various types of traffic data for airlines and airports are downloadable at the CAA website and financial data from selected airports can be obtained by a series of "Airports Statistics" published by the Centre for the study of Regulated Industries (CRI) of the University of Bath.[3]

3. Non-aeronautical activities in airports

Airport revenue is usually classified into two main categories, aeronautical and non-aeronautical revenues. Table 1 shows the breakdown of airport activities by revenue sources. Aeronautical revenues are those sources of income that arise directly from the operation of aircraft and the processing of passengers and freight.

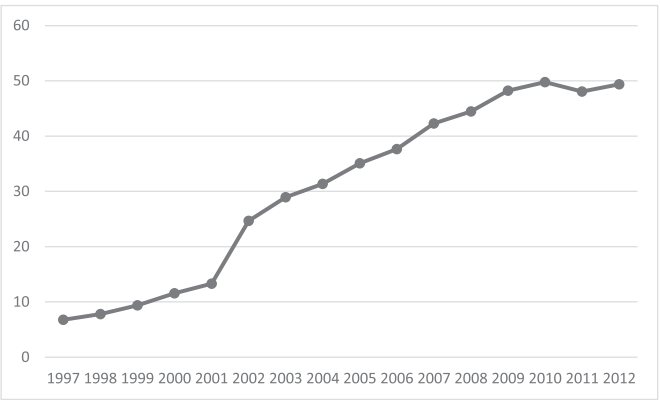

Fig. 1. Frequency share of LCCs in the UK airports 1997–2012 (%).
Source: OAG data.

[2] See Fig. 2.2 and 2.3 in CAA (2006).
[3] It ceased publishing at the 2008/09 edition.

Non-aeronautical revenues are those generated by activities that are not directly related to the operation of aircraft, notably those from commercial activities within the terminal like retail, food and beverage, and rents for terminal space and airport land (Graham, 2014).

Fig. 2 shows the non-aeronautical revenue breakdown at European airports in the Airports Council International (ACI) by source in 2012. In general, there are three main sources, retail concessions, car parking and property and real estate income or rent, in the non-aeronautical revenue.

4. Literature review

There are many previous studies focused on the differences of passenger characteristics between LCCs and full service carriers (FSCs). With respect to qualitative studies, Chiou and Chen (2010) focused on factors influencing LCCs and FSCs passengers and made comparisons between both types of passenger. Forgas et al. (2010) focused on passenger loyalty of LCCs and FSCs, and made comparisons between both types of passenger. Martinez and Royo (2010) conducted segmentation on LCC passengers in Spanish airports by cluster analysis. More recently, Kim (2015) examined the impact of perceived value on satisfaction and purchase intention for LCCs and FSCs in South Korea and showed that a passenger's perceived value was different for both types of carriers. Rajaguru (2016) investigated the influence of service quality and value for money on customer satisfaction and behavioural intention of LCCs and FSCs passengers. This revealed that while the LCCs depend strongly on value for money, FSCs survive on the balance between value for money and service quality.

On the other hand, with respect to studies which focus on the relationship between LCC and airport non-aeronautical activities, only a few literature have been found. Traditionally, we have believed that LCC passengers spend more at airport commercial facilities than other types of passengers like that of FSCs.

According to Graham (2014), LCC passengers are particularly good users of the food and beverage services because of the lack of free in-flight refreshments. In addition to this, LCC passengers tend to utilize more car parking because of the relative remoteness of some secondary airports.

Some earlier previous studies supported these hypotheses. Gillen and Lall (2004) referred that there are some arguments that LCC passengers are different and spend more money at airport concessions because they are not provided meals during their flight. Although their study has no evidence to support this view, they pointed out that, if this is true, then it is just an added bonus for the airport, and this could provide a net benefit to the airport even if landing charges have to be reduced to make the airport more attractive to LCCs. In fact, they illustrated that at Albany County Airport in New York, although airline revenue per enplaned passenger decreased from US $7.24 in 1998 to US $5.92 in 2000 when Southwest Airlines (a LCC) started service at the airport, non-airline revenue per enplaned passenger increased from US $7.60 in 1998 to US $10.55 in 2000.

Similarly, Francis et al. (2004) found in their survey at the London Luton airport that food purchases are important to low-cost passengers. This airport became the first UK base for easyJet in 1995. Subsequently, while passenger throughput at the airport has grown from 2.4 million in 1995 to 6.5 million passengers per annum in 2002, the proportion of revenue from non-aeronautical sources at the airport rose from 45% to 59% between 1995 and 2001.

As in the studies given above, traditionally the marginal effect of LCC passengers on non-aeronautical revenue at an airport has been thought to be higher than other types of passengers like FSCs. However, in more recent studies, the evidence concerning non-

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