



## WestminsterResearch

<http://www.wmin.ac.uk/westminsterresearch>

### **Airport traffic and financial performance: a UK & Ireland case study.**

**Anne Graham  
Nigel Dennis**

School of Architecture and the Built Environment

This is an author-produced electronic version of an article published in the Journal of Transport Geography, 15 (3). pp. 161-171, May 2007.

The definitive version is available at:

<http://dx.doi.org/10.1016/j.jtrangeo.2006.05.001>

---

The WestminsterResearch online digital archive at the University of Westminster aims to make the research output of the University available to a wider audience. Copyright and Moral Rights remain with the authors and/or copyright owners. Users are permitted to download and/or print one copy for non-commercial private study or research. Further distribution and any use of material from within this archive for profit-making enterprises or for commercial gain is strictly forbidden.

---

Whilst further distribution of specific materials from within this archive is forbidden, you may freely distribute the URL of WestminsterResearch.  
(<http://www.wmin.ac.uk/westminsterresearch>).

In case of abuse or copyright appearing without permission e-mail [wattsn@wmin.ac.uk](mailto:wattsn@wmin.ac.uk).

# **AIRPORT TRAFFIC AND FINANCIAL PERFORMANCE: A UK AND IRELAND CASE STUDY**

**Dr Anne Graham(+) and Dr Nigel Dennis**

**University of Westminster**

**35 Marylebone Road**

**London NW1 5LS, UK**

**Tel + 44 (0) 20 7911 5000, Fax +44 (0) 20 7911 5057**

**e-mail: [grahama@westminster.ac.uk](mailto:grahama@westminster.ac.uk), [dennisn@westminster.ac.uk](mailto:dennisn@westminster.ac.uk),**

**(+) Corresponding author**

## **Abstract**

The aim of this paper is to examine the development of air services at UK and Irish airports since 1998 and to assess the impact on airport financial performance. A sample of 14 medium/small sized UK airports and three Irish airports is used. The traffic analysis shows that low cost carriers have been largely responsible for strong passenger growth and increased passenger load at a number of regional airports. Some of these carriers use established primary and regional airports whilst others seek out small secondary airports. The airports with a high proportion of low cost traffic tend to have lower unit revenues, particularly as regards airport charges, demonstrating their desire to remain price competitive to capture this type of traffic.

## **Key words**

United Kingdom, Ireland, Air Services, Airports, Low Cost Carriers

## **1. Introduction**

This paper aims to examine the development of air services at UK and Irish airports since 1998 and to assess the impact on airport financial performance. To achieve this aim, three research objectives were formulated. These were (i) to analyse the influence of air service development on airport traffic growth and patterns of operations; (ii) to examine the relationship between these traffic characteristics and key airport financial indicators; and (iii) to investigate the role which charging policies and incentives play in encouraging air service provision.

In 1998 full European airline deregulation had just occurred, which promised new opportunities and greater competition (Doganis, 2006). One of the most visible impacts of this was the rise of the low cost carrier (LCC) sector which placed new and challenging demands on the airport industry (Barrett, 2004). At the same time, airport commercialisation, whereby airports adopted more businesslike management philosophies and acted more competitively, continued to be a trend. In some cases it led to partial or full airport privatisation (Graham, 2003). Meanwhile the global aviation industry entered into an unprecedented era of volatility and uncertainty brought about by the attacks of 9/11, further terror scares and the outbreak of SARS.

The most dramatic growth in LCC activity within Europe during the study period was experienced in the UK and Ireland. These two countries have produced the two largest and strongest European LCCs, namely easyJet and Ryanair. In the face of this threat, British Airways and Aer Lingus have taken dramatic steps to remain competitive. BA has scrapped minimum stay restrictions on the cheapest short-haul fares while Aer Lingus has embraced other low-cost product features such as an emphasis on direct internet sales and charging for food and drink. Moreover British Midland has now introduced its bmibaby low-cost product to all services operated with mainline jet aircraft.

As regards the airport industry, the UK has the greatest number of partially or fully privately owned airports (under different ownership) in the world. Meanwhile although airport privatisation has been discussed in Ireland, the three largest airports (Dublin, Cork and Shannon) remain under 100 per cent government control. Up until October 2004, these airports were owned by a

semi-state company called Aer Rianta. This has subsequently been renamed Dublin Airport Authority (DAA) and the airports are being organised into three autonomous state companies. In both countries there has been considerable debate in recent years regarding future capacity provision which culminated in the publication of 'The Future of Air Transport' White Paper in the UK and the decision to build a second terminal at Dublin airport (Department for Transport, 2003a; Department of Transport, 2005). Within this context of capacity provision and corresponding policy decisions, the role of regional airports and their evolving nature, has become an area of popular discussion (Graham and Guyer, 2000; Humphreys and Francis, 2002). Of particular interest are route development funds (RDFs) which have recently been provided by some UK regional development bodies to support new services which are deemed beneficial to a region's overall economic development (Civil Aviation Authority, 2005).

This paper concentrates on small and medium sized airports in the UK and Ireland where the LCC developments have been the most significant. Section 2 discusses the methodological issues and introduces the sample airports. Section 3 provides an overview of the traffic and financial trends at the airports. Section 4 then goes on depth to look at traffic developments at the individual airports. Section 5 explores the impact of these on financial performance and this leads onto a discussion about the use of financial incentives and RDFs to encourage traffic growth in section 6. The final section 7 draws some concluding remarks.

## **2. Methodology**

Whilst this paper begins by considering all UK airports and the three main Irish airports, a smaller sample of 14 UK airports has been used subsequently to enable a more in-depth examination to be undertaken (Figure 1). This UK sample was drawn from only a possible 22 airports which each recorded more than half a million passengers in 2003 and hence was considered sufficiently representative. Since the focus here is primarily on medium/small sized airports the large airports of London Heathrow and Gatwick have not been included in the detailed analysis. The exact sample was selected so as to include a broadly equal balance of airports with a high, medium and low/no dependence on low cost carriers,

The schedule data for this analysis are taken from the OAG flight guide and focus on 1998, 2003 and 2005. The traffic and financial data come primarily from the annual reports of the airports in question and the statistical databases in the UK of the Civil Aviation Authority, the Department for Transport and the Centre of Regulated Industries. The financial and traffic data are mostly for the year April-March (e.g. FY2003 = April 2003-March 2004), although some of the traffic data are for the calendar year. Individual financial data are not available for the three separate Irish airports and so for the financial assessment the three airports have to be considered together. In addition much of the DAA data are related not only to operations at the Irish airports but also to other activities of the airport group such as Great Southern hotels, the provision of commercial activities at overseas airports and the partial ownership of Birmingham and Hamburg airports – and so this cannot be included. Published airport charges details have been obtained from the IATA Airport Charges Manual and from the airports but it has not been possible, for confidentiality reasons, to obtain details of the more useful actual airport charges which may be considerably lower because of airport price incentives to the airlines.

It is very difficult to precisely define a LCC operation and for some of the services under consideration, there are equally convincing arguments for including them under a low cost definition as there are arguments against this. Moreover certain airlines such as Aer Lingus, Flybe and BMI have changed the nature of their operations during the study period under consideration. A measure such as cost per available seat-kilometre could theoretically be used but data for this measure are not available for Ryanair. An alternative approach is to use a classification based on the 'frills' offered. For example, the UK Department for Transport and Civil Aviation Authority have a 'No Frills Carrier' definition which covers easyJet, Ryanair, bmibaby, Jet2 and FlyGlobespan (Department for Transport, 2003b). However since this classification was defined in 2003 it does not include overseas scheduled airlines such as Air Berlin and Germanwings, nor the UK charter or 'leisure' carrier Thomsonfly, all of whom have subsequently significantly expanded their no frills operations. Nor does it include Flybe which only consistently started marketing itself as a low cost or no frills carrier since 2003, and moreover has some characteristics, particularly its use of smaller regional aircraft, which are not common for low cost operations. In spite of these shortcomings, this is the only classification for which a published breakdown of traffic is available and so it has been adopted here. Hence

whilst the major LCCs are included in this classification, some of the less clearly defined airlines are not – although it has been possible to discuss them in the schedule analysis. In Ireland, Ryanair, bmibaby, FreshAer and Skynet services are classified as low cost although there could be an argument for now including Aer Lingus as well because of its transformation in recent years from a full service airline to a carrier which now has more in common with the LCC sector.

### **3. Overall traffic and financial trends**

Initially an assessment of the overall traffic and financial performance of all the UK airports above half a million passengers, together with the three Irish airports (which account for around 97 per cent of all Irish traffic (McLay and Reynolds-Feighan, 2006)), has been undertaken to put in context what has been happening at the individual sample airports. This shows that there has been a significant variation in the growth patterns for different types of traffic between 1998-2003 (Figure 2). In the UK whilst the volume of full service and charter traffic has overall remained relatively unchanged after the six years, the most dramatic growth has occurred with the LCCs on short-haul scheduled routes, particularly international services, where passenger numbers have increased from 7 million in 1998 to 44 million in 2003. An equivalent split of traffic is not available for the Irish airports but from the data which are accessible it is apparent that the greatest growth has been achieved with mainland European services (14 per cent average annual growth) which again is primarily due to the growth in LCC services (Figure 3)

In total the UK airports experienced an average annual growth rate in passengers of 4.5 per cent between FY1998 and 2003 with the traffic at the London airports growing more slowly than elsewhere (Table 1). In Ireland, passengers numbers at the Dublin, Cork and Shannon airports increased from 14 million in 1998 to 20 million in 1993, representing an average annual rise of 6.9 per cent - comparable to growth at the UK regions. This was fuelled by the continued growth of Ryanair, together with the buoyant Irish economy.

Revenue from airport charges at the UK airports in real terms grew by 4.1 per cent which was slightly below the passenger growth rates. Interestingly whilst the relative passenger increase in London was lower than in the regions, the growth in real airport charges was higher and vice versa for the regional airports. This suggests that the regional airports may have been more active in reducing their charges or keeping them competitive to stimulate growth. However the revenues levels were also strongly influenced by the fact that Heathrow was allowed to increase its charges quite substantially in 2003 when a new price cap was set by the regulator, primarily to cover investment costs at the new Terminal 5. Revenue from charges in Ireland rose mostly because of the phasing out in the late 1990s of the generous discount scheme which had been in place for a number of years – in preparation for the abolition of intra-EU duty and tax free sales in 1999. In more recent years, however, charges revenue in Ireland has fallen significantly in real terms since the introduction of price regulation in 2001. Overall real growth in commercial revenue appeared to be more closely related to traffic growth. However over the period in question, these revenues did not grow as fast as passenger numbers and this may well reflect the negative impact of the abolition of EU duty free sales. There was not such a large difference between London and the regional airports when costs were concerned. As a result of these trends in revenue and cost performance, overall profits at UK airports increased but did not match the traffic growth in either London or the regions.

#### **4. Traffic developments at the airports**

Within the sample of airports, the mix of traffic varies significantly (Figure 4). There are five UK airports, namely Prestwick, Liverpool, Belfast International, Nottingham and Bristol, where LCC passengers were the most important type of traffic (over 45 per cent of the total) in 2003 – these have been named group 1 airports. There are a further six airports (group 2: Dublin, Shannon, Cork, Cardiff, Glasgow, Newcastle) where LCC traffic still represented a significant share (over 15 per cent) of the traffic. The remaining airports (group 3: Durham Tees Valley, Aberdeen, Manchester, Humberside, London City, Belfast City) had little or no LCC services, relying either on conventional scheduled carriers, as at London City airport, or charter operations, as at Humberside airport. By contrast in 1998 Prestwick was the only airport which

was highly dependent on low cost traffic (79 per cent of total) and only Liverpool and the Irish Airports could have been defined as having a significant share.

Between FY1998-2003 four out of the five group 1 airports recorded the highest growth rates in total and scheduled passenger numbers and likewise most of lowest growth rates for scheduled traffic were group 3 airports which had little or no involvement with LCCs (Table 2). In the vast majority of cases scheduled traffic has grown at a faster rate than charter traffic.

It therefore appears that the development of low cost traffic is the major driving force behind the airports with the highest growth rates. For this reason at airports where there have been significant developments with these airlines (group 1 and 2 airports) a detailed analysis of the schedules for 1998 and 2003 has been undertaken. Moreover whilst traffic details are not yet available for 2005, schedule information was accessible and hence is included to give some insight into the most recent developments. . In addition to group 1 and 2 airports, Manchester is included in the schedule analysis because it is of a more comparable size to Dublin than the other airports and faces considerable LCC competition at neighbouring airports, particularly Liverpool. Belfast City is also included as it is in direct competition with Belfast International (a number of services having shifted between the two airports in recent years) and about two thirds of its traffic is with flybe – which as discussed can in some ways be considered as a LCC.

The number of flights operated has not increased as fast as the number of passengers handled at most of the sample airports in the schedule analysis (Table 3). This is because the low-cost carriers tend to operate relatively large aircraft (149 seat Boeing 737-700s and A319s for easyJet; 189 seat 737-800s for Ryanair) at high load factors. On routes where the low-cost carriers have replaced a previous regional aircraft service then frequencies may actually have gone down. This is particularly apparent when a hub feeder service has also been lost, as this can more than offset any growth in the local market. For example, Nottingham to Amsterdam had 43 flights per week by bmi and KLMuk in 1998 but now has just 13 by bmibaby. Belfast International to Amsterdam had 20 flights per week by KLMuk in 1998 but is now reduced to 7



by easyJet. Cardiff to Glasgow, a simple point-to-point service has dropped from 16 flights by BA (Manx) to 12 by bmibaby and Newcastle-Dublin from 20 by Aer Lingus to 13 by Ryanair.

Group 2 and 3 airports such as Belfast City, Dublin and Glasgow have only seen modest growth in the number of scheduled flights operated over the last seven years. In the case of Belfast there has been some reshuffling of services between the airports leaving what is left of the traditional industry along with flybe at Belfast City while Belfast International specialises in low-cost, charter and transatlantic. In contrast, airports with a low starting base and major low cost carrier expansion have seen dramatic changes (e.g. the group 1 airports of Prestwick, Liverpool, Bristol).

Table 4 compares the average passenger load on scheduled services at these airports for 1998 and 2003 still prior to Ryanair's full conversion to 737-800s). This has doubled at Cardiff (from 27 to 59 passengers) and Nottingham (from 36 to 72 passengers) and increased by around 50 per cent at the other low-cost dominated locations. Typical load on low-cost services is around 100 passengers, still diluted in the total airport figures by remaining regional aircraft operations. Manchester has seen a static average passenger load moving their position from one of the largest in 1998 (67 passengers/ATM) to below average in 2003 (69 passengers/ATM)). Over the same period, neighbouring Liverpool has surged from 51 passengers/ATM to 93. Low-cost carriers therefore clearly lead to a more efficient utilisation of airfield capacity (aprons, runways), although ironically this is not generally in short supply at the secondary airports favoured by low-cost airlines.

The growth of low-cost operations has led to a large number of new destinations being served with direct flights although these are typically at low frequency (e.g. once daily). Table 5 shows that the low-cost dominated airports typically offer 30-40 non-stop scheduled destinations in 2005, up from 10-15 in 1998. The major expansion has been in European services and whereas the original international links were to major hubs and business centres, leisure destinations have been the main growth area. Due to the large increment of capacity that must be added in moving from a daily to a twice daily service with a Boeing 737, LCCs tend to expand by adding

routes much faster than frequencies from the smaller airports in their network. Belfast City which handles only UK and Ireland traffic has seen no net growth in network coverage as it already served most of the worthwhile locations in this region. Here, growth has been in traffic volume on existing routes.

The network development of the LCCs (and the other operators which have largely embraced the low-cost business model) essentially follows one of several key patterns:

**easyJet, FlyGlobespan, Jet2, bmibaby, Aer Lingus (on short-haul routes)**

These airlines have concentrated on markets where there is a strong demand, using some primary airports and established regional airports. easyJet is the dominant operator, based on Bristol, Nottingham, Liverpool, Newcastle and Belfast International but the other airlines have found a niche in airports not yet developed by easyJet but flying to the same type of destinations – such as Manchester (Jet2 and bmibaby), Glasgow (FlyGlobespan) and Dublin and Cork (Aer Lingus).

Destination points for these networks fall into three key categories: major domestic cities, (e.g. Edinburgh, Belfast, London), major charter destinations (e.g. Alicante, Malaga, Faro) and mixed business/leisure destinations (e.g. Amsterdam, Geneva, Prague, Nice). These airlines are not generally interested in solely business oriented markets or inbound markets which rules out most of Germany and Scandinavia. They also avoid most secondary leisure destinations where there is not an established demand. This strategy inevitably puts them into conflict with the traditional airlines. On some routes they co-exist (e.g. Bristol-Edinburgh operated by BA and easyJet; Manchester-Gatwick BA and Jet2). In others the traditional airline has withdrawn (e.g. Bristol-Newcastle was BA now easyjet; Cardiff to Edinburgh was BA now bmibaby).

Airport charges are not the over-riding factor for these airlines. More important is the ability to obtain higher yields and strong load factors. [easyJet has expanded operations at Gatwick despite having to contend with one of the most congested runways in Europe](#) Usually either a

modest market share is required or the conditions are right to stimulate demand ([attractive destinations with high existing fare levels](#)).. Although lower charges were probably a factor in easyJet's decision to develop Liverpool rather than Manchester as its northwest base, other airlines have emerged to fill this gap (although competing on a limited selection of routes compared to the traditional scheduled network from Manchester) and a similar process has taken place at Glasgow. [Jet2 and FlyGlobespan are aiming for higher yields than would be possible out of Liverpool or Prestwick](#) Aer Lingus has revised its network from Dublin to focus on similar destinations to those of easyJet or Jet2 out of the UK.

Several former charter airlines (e.g. Monarch. My Travel Lite) operate on familiar territory to traditional charter destinations in the Mediterranean. As has always been the case with charters, some of these are at low frequency (once or twice per week), particularly where smaller airports are involved. bmibaby has found some of its markets too thin for viable low-cost operations with a Boeing 737 and has leased ATR42 capacity from Air Wales at Cardiff (e.g. Cardiff-Glasgow and Paris) while returning other routes to bmi regional at Nottingham (e.g. Nottingham-Brussels and Paris) and leaving routes such as Manchester-Aberdeen in the same hands.

### **Ryanair, Thomsonfly,**

[There is a different path in terms of network structure, exemplified by Ryanair..](#) Ryanair avoids primary airports (except for a Dublin service in some cases). Traditional route planning is largely dispensed with in favour of setting the airports in competition with each other for new services and negotiating the most favourable deal. Many European end points are also secondary airports (e.g. Prestwick-Hahn) and some are not in conventional markets for outbound leisure travel from the UK and Ireland. This tends to lead to low yields and low frequencies but also very low costs. [These airports are generally uncongested, permitting shorter turn-around, taxiing and flying times, leading to better aircraft and crew productivity which is of similar significance to low airport charges in reducing total costs.](#) Ryanair often threatens to fly elsewhere, or actually relocates services, if its demands at airports are not met. For example, it

moved 70 per cent of its services from Birmingham to Nottingham in 2004, allegedly because of a 100 per cent increase in airport charges (Civil Aviation Authority, 2005). Ryanair has shown itself able to massively stimulate demand through low fares and non-stop services and to divert traffic from other more distant airports where there is a natural demand for air travel. Passengers are willing to undertake long surface journeys if they are making a large saving on the air fare. Thomsonfly have also favoured small secondary airports excluded from this analysis for development of their scheduled services. Examples include Doncaster Robin Hood, Coventry and Bournemouth, which are likely to be driven by low charges rather than high demand.

#### Flybe

Flybe have found a potential niche by going to certain airports (not in the sample) in isolated parts of the UK - which may have a strong regional identity - but represent too small a market even for Ryanair (e.g. Exeter, Norwich) or have operational restrictions on the use of 737 equipment (e.g. Southampton or Guernsey). Flybe's destinations are primarily domestic which gives them a greater business travel focus however. In the case of Belfast City and Birmingham, flybe operates from airports with a greater attraction to business travellers than the rival airports of Belfast International and Nottingham. They hence sit on the middle ground between the regional airlines and the LCCs, which is reflected in higher yields than most LCCs.. To Europe their network shows more in common with Ryanair than easyJet, featuring obscure French, Mediterranean and Alpine airports. For many of these airports flybe is the only game in town, hence the airline's negotiating position is strengthened.

## 5. Financial performance comparisons

Although the LCCs have been largely responsible for the strong growth at regional airports, their operations has been encouraged by the simultaneous changes at the regional airports which have resulted in a much more commercial airport industry, with a more pro-active approach in seeking ways to develop their traffic. Therefore it is interesting to compare the financial performance of the airports with varying levels of involvement with LCCs. Beginning with unit

revenues (measured by revenues per Work Load Unit (WLU) when the WLU is equivalent to one passenger or 100 kg freight) it is apparent that aeronautical revenue is lowest at a number of group 1 airports (Belfast International, Liverpool and Nottingham) and highest at a number of group 3 airports (Durham Tees Valley, Humberside, London City) (Table 6).

In terms of commercial revenue, Belfast International, Liverpool and Nottingham, again have some of the lowest unit revenues and airports in group 3 have some of the highest. It is often suggested by airlines that even if low cost airlines do not bring much aeronautical revenue to airports, their passengers will spend money in the retail and catering facilities at the airports and hence will have a net effect of growing the revenues. Many low cost passengers are not budget travellers and are therefore quite willing, given the opportunity to spend at airports, to do so just as other passengers. Moreover it has been argued, for example by easyJet, that low cost passengers actually make very good shoppers at airports. This is since they encourage passengers to check-in early because of their first come, first served boarding procedure and also because the airline allows for minimum dwell time at the gates. These two factors may increase the time available for shopping. Furthermore the minimal catering on board encourages the use of airport catering facilities and in addition easyJet tends to have a longer operating day which ensures better use of commercial facilities (Winter, 2005). Whilst this may be true, at least for easyJet operations, adequate retail facilities must be in place to start with to enable these advantages to be exploited. This may mean that airports which are interested in developing a long-term future with low cost carriers need to revisit their business model and further expand their dependence on the non-aeronautical revenue side of their operations (Francis et al, 2004). This greater reliance on non-aeronautical sources does not appear to be apparent at least with Belfast International, Liverpool and Nottingham. However Bristol performs much better in the commercial area which may partly be explained by its new terminal which was opened in 2000. Prestwick also generates more commercial revenue but much of this from its property and land related activities rather than commercial facilities inside the terminal.

When unit costs are considered, again the group 1 airports tend to have the lowest costs and the group 3 airports the highest. . Many factors could explain this but it may be that the group 1

airports are providing more basic lower cost facilities or that the high growth patterns which have been experienced by these airports have enabled them to achieve much greater resource utilisation which has subsequently lowered their unit costs. Moreover Durham Tees Valley, Humberside and London City are comparatively small airports and most research indicates that unit costs for small airport tend to be higher (e.g. Pels et al, 2003). By combining the unit revenue and cost figures to produce operating margins (i.e. operating profits as a percentage of total revenue) there now appears to be very little relationship between this and the presence of low cost operations with the lower revenue and cost airports not consistently performing better or worse than the other airports. Thus at a first glance there does appear to be some relationship between revenue and cost levels and the share of low cost traffic, but not profitability. One other key observation is that Belfast City airport appears to perform in a much more similar way to the group 1 airports than the group 3 airports which again raises doubts as to whether its classification as a non LCC airport is correct given the presence of flybe.

## **6. Using financial incentives and RDFs to encourage traffic growth**

The impact of aeronautical charging policies is now further investigated by making a comparison of charges in 2003 for the sample airports, when this information was available. Representative airport charges have been calculated using the Boeing 737- 800 aircraft with a 70 per cent load factor giving 125 passengers and indexed with the average being equal to one (Figure 6). In general, there does not appear to be a clear relationship between low cost operations and the level of airport charges. However a comparison of published airport charges does not necessarily provide an indication of the comparative prices which airlines have actually paid the airport operator because of the discounts on airport charges which are used by many airports, particularly to 'kick-start' the inauguration of new routes. These new service incentives may not only include reductions in airport charges but also marketing support to help develop new routes. In return for reduced charges the airline may guarantee to base a certain number of aircraft or operations at the airport, or commit itself to a certain number of years at the airport. Such discounts are particularly attractive to low cost airlines since airport charges and handling costs represent a large share of their costs, for example 30 per cent at easyJet (Winter, 2005).

This is because such airlines have tended to minimise all other cost and the short-haul nature of much of their operations means these charges are levied frequently throughout the day.

Most airports keep details about these incentives confidential but it is possible from some to glean an idea of the scale of these. As regards new routes there are typically two approaches. Firstly an all-inclusive passenger charge will replace the weight related landing charge and separate passenger charge. The advantage of this for the airline is that the charge will now be totally based on passenger numbers and so will be relatively small at the initial stages when passengers numbers are low and need to grow. This type of incentive is offered, for example, at Manchester, Shannon and Cork airports (Table 7). An alternative is to offer a straightforward discount on all charges, perhaps differing between domestic and international services as is the case at Glasgow, or just being offered on certain services, such as non-EU flights at Dublin. In addition market support is offered at three different levels at Dublin (5,000-19,000 Euros, 25,000-50,000 Euros, >50,000 Euros) depending on a set of market development criteria (Dublin Airport Authority, 2005). The confidential nature of these incentives means that it is also difficult to identify their overall impact on the airport finances. However it is known that at Manchester airport, marketing support amounted to around £7m or around 3 per cent of total costs in 2001/2 (Competition Commission, 2002). At the Irish Airports discounts and marketing support amounted to more than 90 million euro between 1999 and 2003 (Aer Rianta, 2004).

An indication of the overall level of discounting may be obtained by comparing relative airport rankings from published airport charges with relative rankings from aeronautical revenue per WLU values (again indexing this with the average equivalent to one) – although that this may not pick up on all the incentives as some may be classified as a ‘marketing support’ cost rather than a reduction in charges (Figure 6). The most significant differences with the UK airports occur with Belfast International and Nottingham East Midlands airport where the relative ranking of aeronautical revenue is much less than with the charges. Both these airport have a high proportion of low cost traffic – suggesting much discounting. By contrast relative rankings of revenues are higher than charges at Manchester and Glasgow where the proportion of low cost traffic is much less and it is less likely that discounting takes place. Moreover whilst aeronautical

revenues per WLU at Glasgow airport have declined by less than five per cent per annum in real terms since 1998, at Belfast International the equivalent reduction has been more than 15 per cent per annum. This limited evidence thus appears to support the view that much of the recent growth at UK and Irish airports has been in part been driven by the rapid development of the LCC and the competitive pricing deals which have been agreed with many of the airports. A key and much debated issue, however, is whether this current situation can be sustained into the future as the sector matures, and particularly as many of the incentives given to the airlines unwind. Moreover the recent European Commission's guidelines for publicly owned airports which limit the amount of incentives given and the time period during which they are applicable, adds further uncertainty for the future (European Commission, 2005), but is perhaps less relevant in the UK given the predominantly private airport industry.

Whilst the introduction of LCCs can be useful in filling spare capacity at minimal cost for the airport operators, continual growth will mean that at some stage there will be a need for future investment which may not be covered by the low aeronautical revenues (Rozario, 2004). There is also an indication from this limited research that the non-aeronautical revenues at certain airports have not been increased to the extent to which they may fully compensate for the reduced aeronautical revenue. In making investment decisions, consideration has to be given as to whether to provide new facilities at a very basic low cost level, which many low cost carriers appear to demand, or to build to a higher quality specification to encourage better retail opportunities. A compromise position might be a lower cost facility such as the so-called T2 in Glasgow which if used enables the airlines to qualify for a 25 per cent rebate on passenger charges, but also allows the passenger access to the other commercial facilities at the airport. As the landing charge still has to be paid in full, however, this is likely to be well below the level of discount that low-cost carriers are seeking.

In many instances, incentives at regional airports have been given to achieve the broader objective of encouraging economic development in the surrounding area. This is this situation when the airport is in public hands which is fairly rare in the UK. However there is now the example of the route development funds (RDF). These are funds provided by regional



development bodies to support new services which are deemed beneficial to the region's overall economic development by encouraging better business links or inbound tourism. Moreover such funds are designed to have a catalytic impact in that airlines can potentially share the same based aircraft on these supported routes which bring inbound benefits, with using them on additional non-subsidised outbound leisure services. The support, which must comply with the EC guidelines, is given as discounts on airport charges, limited to a three year period, and must be matched by an equal commitment by the airport operator. The first RDF, amounting to £6.8 million for three years was created in 2002 by the Scottish Executive and managed by Scottish Enterprise. Then in 2003 a £4 million three year fund was set up by the Northern Ireland Department of Enterprise, Trade and Investment and managed by Invest Northern Ireland. In the UK Airports White Paper of December 2003, other regional development agencies and the Welsh Assembly Government were invited to consider such funds and some have been doing this. At the sample Scottish airports by the end of 2005, Aberdeen had five supported routes, Glasgow three and Prestwick nine. The non-sample airport Edinburgh, has also been a major beneficiary of the Scottish funds and there have been a small number of new routes at Inverness, Sumburgh, and Kirkwall as well. In Northern Ireland, Belfast International had six routes, Belfast City one and non-sample airport Derry one.. Not all the routes have been successful, however, with the most notable example being the five routes operated out of Edinburgh by Duo which went out of business (Pagliari, 2005) . Nevertheless, an analysis undertaken by the Civil Aviation Authority, led to the conclusion that overall the RDFs had helped in providing a limited 'kick-start' to new services and in raising the profile of the airports and regions concerned(Civil Aviation Authority, 2005)).

## **7. Conclusions**

This paper has shown that at a number of UK and Irish airports since 1998, LCCs have been largely responsible for strong passenger growth, increased passenger load and a greater offer of European services. These airports tend to have lower unit revenues, particularly as regards airport charges, but also lower unit costs and there is no overall obvious link between airport profitability and low cost operations. The conventional assumption that traffic growth is always

beneficial for an airport does need to be questioned however. It is perhaps more important to first determine the objectives of an airport. Is it to produce as high a profit margin as possible or simply to increase turnover? Is it to improve accessibility to or from a region or simply to find a purpose for under-utilised infrastructure? The answers will be different depending on the circumstances. The market emphasis of the low-cost airlines has been mainly on outbound tourism from the UK but has undoubtedly stimulated inbound tourism to Ireland. The RDF initiatives have tried to address this in Scotland and Northern Ireland by targeting inbound travel and providing essential links for the business community but it appears questionable as to exactly what demand some of these routes are meeting. There is the further issue that a hub link by the hub airline can provide global accessibility and effective marketing overseas, whereas a point-to-point service on the same route by a LCC is primarily destined to cater for local outbound leisure traffic.

The research in this paper has been challenging due to the problems of an appropriate LCC definition and the subsequent choice of a representative airport sample. Further research would be useful in determining whether the findings which are presented here are also applicable to the non-sample UK airports. However as the low cost industry evolves, the problem of a LCC definition is likely to become even more difficult, or perhaps irrelevant, as other traditional and charter carriers react to the development of this sector. Moreover this paper has shown how some carriers such as easyJet use primary airports and established regional airports whereas others such as Ryanair are keener to seek out small secondary airports. This means that these airlines have varying price sensitivities, as well as different traffic characteristics., and hence will have different impacts on an airport's financial performance. Data limitations have not allowed generalisations concerning these different impacts to be made but as this sector continues to grow, so will the availability of data related to different types of airlines, not only in the UK and Ireland but also elsewhere in Europe, and hence there will be greater opportunities for more developed and detailed research in this important area. A debate is perhaps only just beginning on whether the surge in air travel demand created by the Low Cost Carriers is economically or environmentally sustainable. It is also uncertain where the equilibrium point between the LCCs and the network airlines will eventually lie. The performance of the secondary and regional

airports is therefore highly dependent upon national and international policy decisions as well as the future direction that the airline industry takes.

## References

Aer Rianta, 2004. Annual report and accounts 2003. Dublin: Aer Rianta

Barrett, S., 2004. How do the demand for airport services differ between full-services carriers and low-cost carriers? *Journal of Air Transport Management*. 10, 33-39.

Civil Aviation Authority, 2005. UK Regional air services, CAP 754. London: CAA.

Competition Commission, 2002. A report on the economic regulation of Manchester airport plc. London: The Stationery Office.

Department for Transport, 2003a. The future of air transport White Paper. London: DfT.

Department for Transport, 2003b Passenger forecasts: Additional analysis, London DfT.

Department of Transport, 2005. Government approves aviation action plan, press release. 18 May. Dublin: DoT.

Doganis, R., 2006. The airline business, 2nd edition. Abingdon: Routledge

Dublin Airport Authority, 2005. Route support scheme 2005, available from [http://www.dub.aero/AR\\_Dublin/pdf/DUBRSS05.pdf](http://www.dub.aero/AR_Dublin/pdf/DUBRSS05.pdf)

European Commission, 2005. Community guidelines on financing of airports and start-up aid to airlines departing from regional airports. Brussels: EC.

Francis, G., Humphreys, I., Ison, S., 2004. Airports' perspectives on the growth of low-cost airlines and the remodeling of the airport-airline relationship. *Tourism Management*. 25, 507-514.

Graham, A., 2003. *Managing airports: An international perspective*, 2nd edition. Oxford: Elsevier.

Graham, B., Guyer, C., 2000. The role of regional airports and air services in the United Kingdom. *Journal of Transport Geography*. 8, 249-262.

Humphreys, I., Francis, G., 2002. Policy issues and planning of UK regional airports. *Journal of Transport Geography*. 10, 249-258.

McLay, P., Reynolds-Feighan, A., 2006. Competition between airport terminals: The issues facing Dublin Airport. *Transportation Research Part A*. 40, 181-203.

Pagliari, R., 2005. Developments in the supply of direct international air services from airports in Scotland. *Journal of Air Transport Management*. 11, 249-257.

Pels E., Nijkamp P., Rietveld, P., 2003. Inefficiencies and scale economies of European airport operations. *Transportation Research Part E*. 39, 341-361.

Rozario, K., 2004. Regionals face challenge. *Jane's Airport Review*. July/August, 13.

Winter, E., 2005. A la carte' airport services: what we really want and what we are prepared to pay for. Paper given at 15<sup>th</sup> ACI Annual Assembly, Munich, June.

**Table 1: Traffic and financial trends at all UK(\*) and DAA (+) Irish airports 1998-2003**

<b>Average annual growth FY 1998-2003</b>	<b>Passenger numbers</b>	<b>Real aeronautical revenues</b>	<b>Real commercial revenues</b>	<b>Real costs</b>	<b>Real operating profit</b>
All UK airports	4.5	4.1	3.0	4.3	2.0
London airports	3.3	5.3	2.2	4.8	1.5
UK regional airports	6.8	2.4	5.3	3.5	3.0
DAA Irish airports	6.9	9.8	n/a	n/a	n/a

(\*) All airports with > 0.5 million terminal passengers in 2003 excluding Belfast City and Prestwick when not all data were available. (+) Cork, Dublin, Shannon

Sources: CRI, DAA

**Table 2: Traffic growth at sample airports 1998-2003**

Airport	Terminal passengers (mns)		Average annual passenger growth 1998-2003		
	1998	2003	Total	Scheduled	Charter
<b>Group 1 (high dependence on low cost traffic)</b>					
Belfast Int.	2.6	4.0	8.5	9.6	5.1
Bristol	1.8	3.9	16.5	26.0	5.5
Liverpool	0.9	3.2	29.6	34.1	12.1
Nottingham	2.1	4.3	14.8	28.4	2.5
Prestwick	0.6	1.9	27.1	28.1	17.8
Average	1.6	3.5	19.3	25.2	8.6
<b>Group 2 (some dependence on low cost traffic)</b>					
Cardiff	1.2	1.9	9.1	25.3	0.8
Cork	1.3	2.2	10.7	n/a	n/a
Dublin	11.5	15.8	6.5	n/a	n/a
Glasgow	6.5	8.1	4.6	5.3	3.1
Newcastle	2.9	3.9	6.0	10.2	1.3
Shannon	1.4	2.0	6.9	n/a	n/a
Average	4.1	5.7	7.3	13.6	1.7
<b>Group 3 (little or no dependence on low cost traffic)</b>					
Aberdeen	2.7	2.5	-1.1	-0.1	-3.8
Belfast City	1.3	2.0	8.5	8.6	-15.8
Durham T.Valley	0.7	0.7	1.4	-1.2	4.9
Humberstone	0.3	0.5	8.5	3.6	10.9
London City	1.4	1.5	1.6	1.6	-18.1
Manchester	17.2	19.5	2.6	5.4	-0.1
Average	4.0	4.5	3.6	3.0	-3.7

Sources: CAA, DAA

**Table 3: Development of flight frequencies 1998-2005**

Airport	Number of scheduled departing flights in first week of July		
	1998	2003	2005
Belfast City	329	340	365
Belfast International	266	275	403
Bristol	235	378	488
Cardiff	121	168	180
Cork	162	339	291
Dublin	1324	1562	1513
Glasgow	737	777	932
Liverpool	127	289	460
Manchester	1181	1537	1749
Newcastle	334	333	463
Nottingham	230	293	288
Prestwick	77	144	168
Shannon	161	170	234

Source: OAG

**Table 4: Average passenger load - scheduled services 1998 and 2003**

Airport	Passengers/air transport movement	
	1998	2003
Belfast City	39	62
Belfast International	74	106
Bristol	34	63
Cardiff	27	59
Cork	39	62
Dublin	79	97
Glasgow	60	75
Liverpool	51	93
Manchester	67	69
Newcastle	44	69
Nottingham	36	72
Prestwick	53	93
Shannon	37	74

Source: CAA, DAA

**Table 5: Network coverage 1998-2005**

Airport	Number of destinations with non-stop scheduled service in first week of July		
	1998	2003	2005
Belfast City	18	17	17
Belfast International	13	17	34
Bristol	14	24	42
Cardiff	10	18	20
Cork	14	28	30
Dublin	58	77	104
Glasgow	40	38	58
Liverpool	6	13	39
Manchester	72	93	115
Newcastle	18	22	39
Nottingham	14	29	28
Prestwick	3	9	18
Shannon	19	21	32

Source: OAG

**Table 6: Financial performance of sample airports FY 2003**

Airport	Revenues per WLU (£)			Costs per WLU (£)	Operating margin (%)
	Aeronautical	Commercial	Total		
<b>Group 1 (high dependence on low cost traffic)</b>					
Belfast Int.	3.32	2.97	6.29	5.05	19.8
Bristol	5.64	5.04	10.68	5.00	53.2
Liverpool	3.76	3.12	6.88	6.95	-1.1
Nottingham	4.40	3.15	7.56	4.54	39.9
Prestwick	5.52	4.90	10.42	8.49	18.5
Average	4.53	3.84	8.37	6.01	25.9
<b>Group 2 (some dependence on low cost traffic)</b>					
Cardiff	7.73	3.86	11.59	7.82	32.6
DAA	3.43	n/a	n/a	n/a	n/a
Glasgow	5.31	3.68	8.99	6.38	29.0
Newcastle	6.66	3.64	10.30	6.92	32.8
Average	5.10	3.73	10.29	7.04	31.5
<b>Group 3 (little or no dependence on low cost traffic)</b>					

Aberdeen	6.46	4.71	11.17	7.80	30.1
Belfast City	4.33	2.34	6.78	6.49	4.2
Durham T.Valley	9.30	4.09	13.39	13.91	-3.9
Humberside	8.39	9.22	17.62	14.46	17.9
London City	14.84	4.97	19.80	16.77	15.3
Manchester	6.07	5.68	11.74	8.52	27.4
Average	8.23	5.17	13.42	11.33	15.2

Sources: CRI, DAA

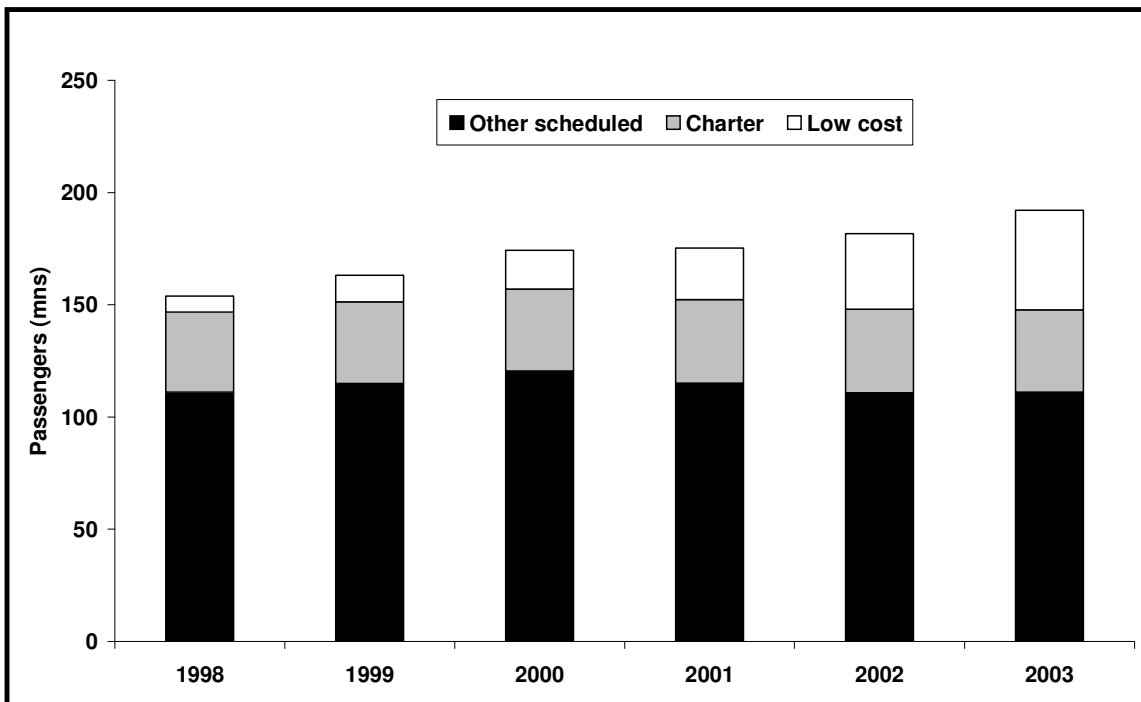


**Table 7: Examples of new route incentive schemes**

<b>All-inclusive passenger charge</b>		<b>Rebate on airport charges</b>	
<b>Manchester</b>	<b>Cork/Shannon</b>	<b>Glasgow</b>	<b>Dublin</b>
Standard periods: - Y1 £3.00 - Y2 £4.00 - Y3 £5.00	Cork: - Y1,Y2,Y3 3 Euro - Y4,Y5 5 Euro	International: - Y1 Up to 50% - Y2 Up to 30% - Y3 Up to 10%	Non EU routes: - Y1 100% - Y2 75% - Y3 50% - Y4 25%
Off-peak periods: - Y1,Y2,Y3 £3.00 - Y4 £5.00 - Y5 £7.00	Shannon: - Y1 1.5 Euro - Y2 2.5 Euro - Y3,Y4,Y5 3 Euro	Domestic: - Y1 Up to 30% - Y2 Up to 20% - Y3 Up to 10%	

Sources: Individual Airports

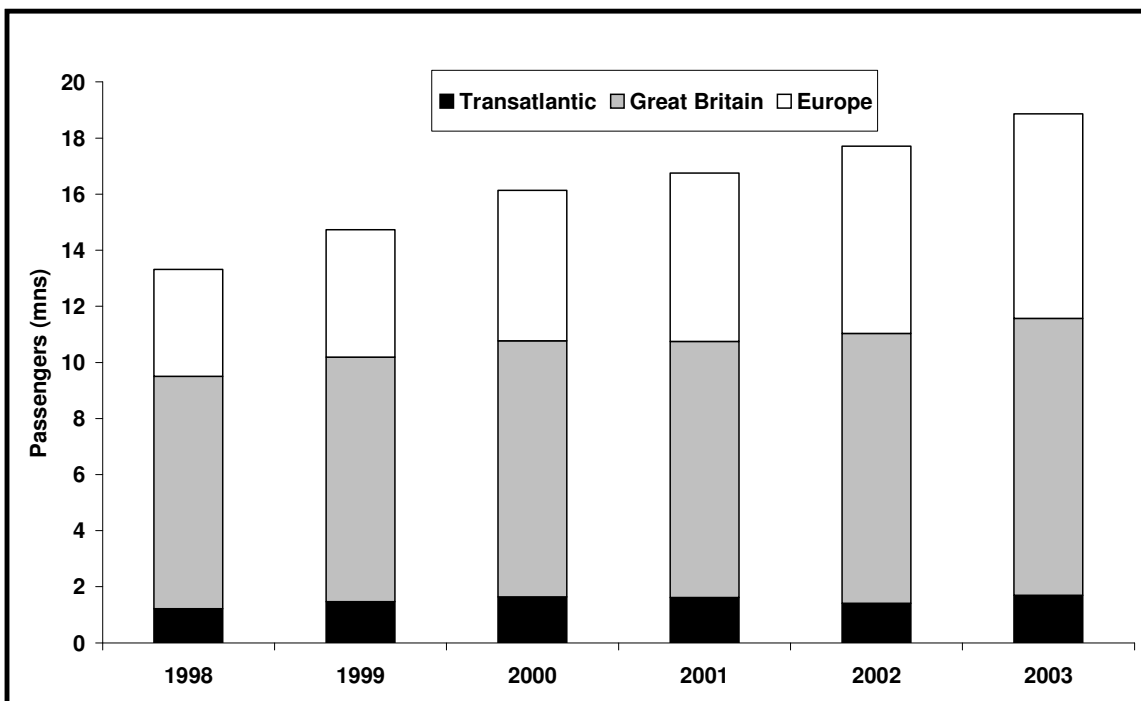
**Figure 2: Passenger traffic growth at UK airports(\*) 1998-2003**



(\*) All airports with > 0.5 million terminal passengers in 2003

Source: CAA

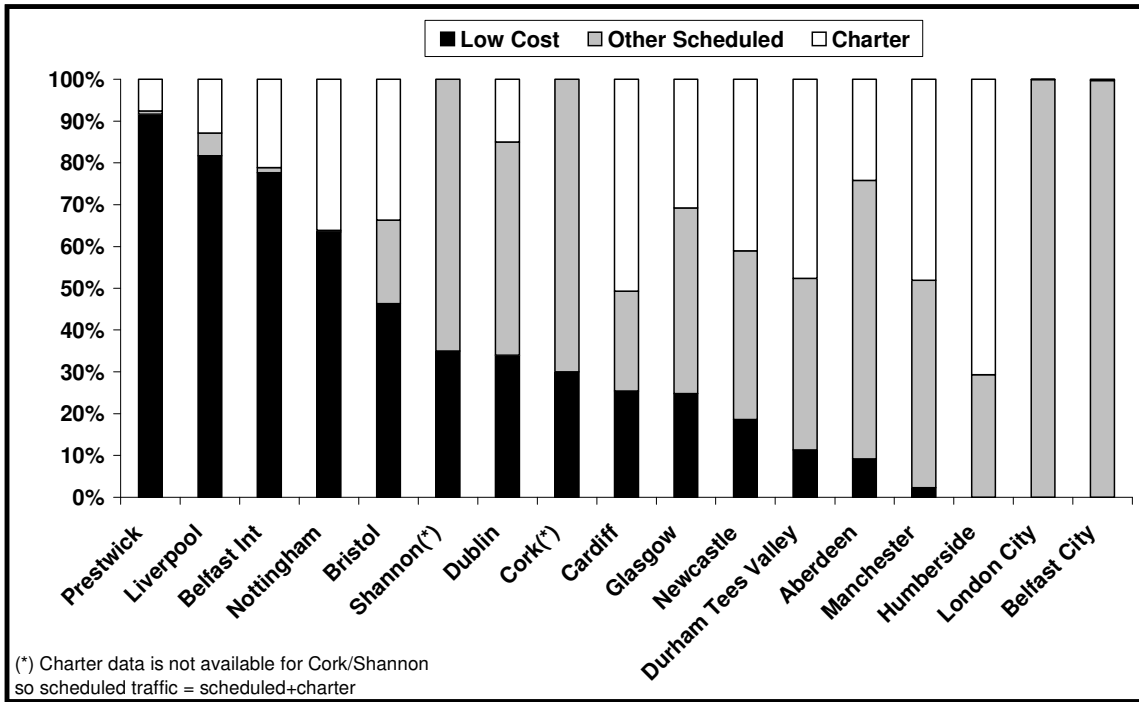
**Figure 3: Passenger traffic growth at Irish airports(+) 1998-2003**



(+) Cork, Dublin and Shannon

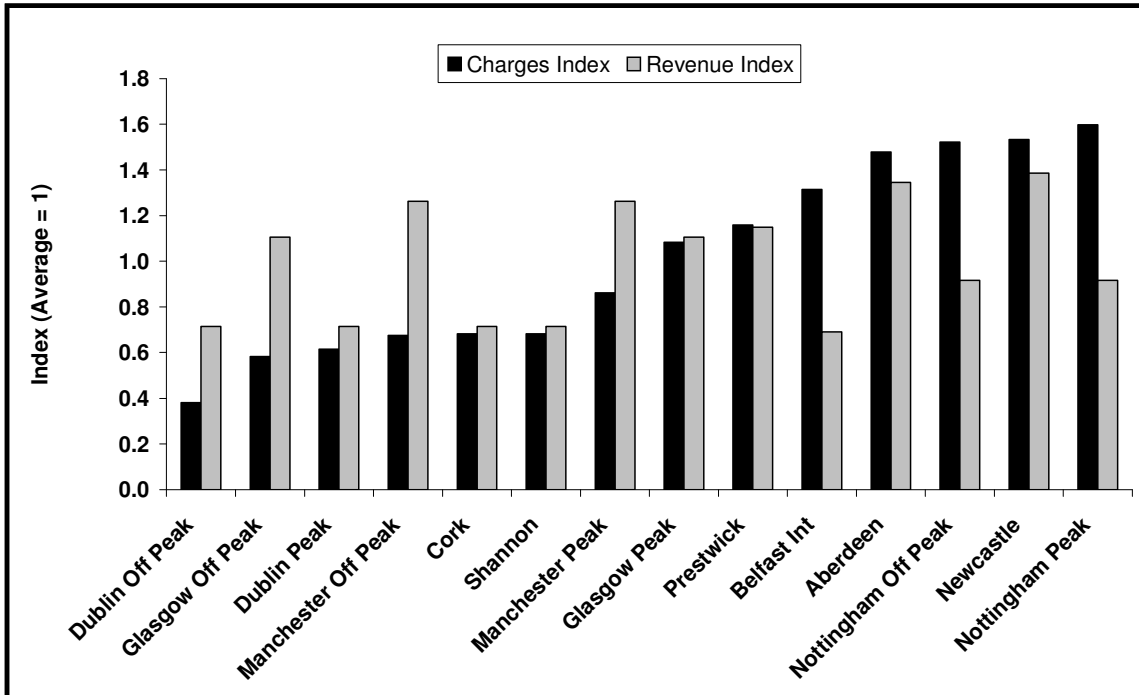
Source: DAA

**Figure 4: Passengers by type of airline at sample airports 2003**



Sources: Dft, CAA, DAA (some figures are estimates)

**Figure 5: Published airport charges and aeronautical revenues per WLU at sample airports for FY2003**



includes navigation charge only if levied by airport operator; data not available for all sample airports  
Sources: CRI, IATA, DAA

