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PERFORMANCE AND PROSPECTS OF SMALLER UK REGIONAL AIRPORTS

INTRODUCTION

Smaller regional airports in the UK have experienced some major changes in their operating environment over the last 10-15 years. Some witnessed significant traffic growth from low cost carriers (LCCs) in the early years of this period, only to find that external factors such as increased rates of Air Passenger Duty (APD) and the economic recession, combined with the dynamic and evolving strategies of LCCs and other carriers, caused this traffic volume to fall dramatically or disappear entirely. As a result some airports have been closed (e.g. Plymouth and Manston) or are in a very difficult financial situation, or have changed owners. Some however have fared much better.

Meanwhile, government help to smaller airports is under the spotlight, not only with the 2014 EU guidelines on state aid to smaller airports – generally those serving 1-5 million passengers per annum (mppa), but also with the decision of the UK government to award start-up aid to airlines at smaller regional airports through its Regional Air Connectivity Fund that views the airports as being vital engines for local economies.

The aim of this paper is to investigate traffic trends and the financial performance of smaller UK regional airports, and over a sufficiently long period of time, which in the case of this paper, is a fourteen year period from 2001 to 2014. Strong and weak performing airports are identified, and general trends are observed, which enables an assessment to be made of the future prospects for such airports.

The following section provides background to this paper with a review of literature on the general financial characteristics of smaller airports, the European Commission's (EC) view of smaller airports, and the focus of this paper. Subsequent sections introduce the sample airports and data sources used, provide a discussion of the findings, and conclude by considering future prospects for the airports.

BACKGROUND

General financial characteristics of smaller airports

Generally the airport industry experiences relatively high profit margins. In 2014, the top 100 airports by revenue recorded an average operating margin of 26.5%. Since the turn of the century the lowest average margin was 14%, even though this was at the height of the global recession that severely depressed traffic volumes.¹ Meanwhile the airline industry has often struggled to make an overall positive return in difficult years and it only recorded an operating margin of 5.5% in 2014 when there was a more favourable operating environment.² These contrasting profit levels for the airport and airline industry reflect their different cost and revenue structures, and arguably the less competitive environment for airports, together with reduced financial and business risks and the lower cost of capital.³

However different evidence exists for smaller airports. The average net profit margin for over 600 airports worldwide was 15.9% in 2013 while it was -11.9% for airports with less than 1 mppa. In addition, 93% of the net losses at airports worldwide were recorded at airports with less than 1 mppa. Over 98% of all losses were experienced at airports with less than 5 mppa.⁴

A major reason for the poor performance of smaller airports is that most have insufficient traffic to drive down costs and achieve economies of scale. Irrespective of traffic volume, fixed costs related to large infrastructure such as runways and terminals, and certain operating costs (e.g. related to aspects of security and safety) need to be covered. These fixed costs can represent 70-90% of total costs.⁵ This means that costs per passenger, or unit costs, will be large when passenger numbers are low, but will decline if traffic increases, since the largely unchanged costs will be shared between more passengers. In 2013, average operating cost for airports (excluding depreciation) per passenger for airports worldwide was US\$10.55. It was US\$14.04 for airports with less than 1 mppa.⁶ This less favourable situation for smaller airports has been confirmed by research which has looked at economies of scale or returns to scale at airports.⁷⁻¹⁶ Other research has found that major airports are more efficient than regional ones.^{17,18}

In terms of revenue generation, smaller airports are also likely to perform less well. In 2013, average unit revenues for airports worldwide was US\$20.02 compared with US\$14.32 for airports with less than 1 mppa. This is due to lower non-aeronautical revenues, which is partly a consequence of it not being financially viable for smaller airports to offer a full range of commercial services. The average retail revenue per square metre was US\$0.61 for airports with less than 1 mppa, US\$5.31 for airports with 1-5 million, US\$10-20 for airports with 5-25 million, and over US\$30 for airports with more than 30 mppa.¹⁹

On the aeronautical side, the larger unit costs at smaller airports would suggest that higher airport charges should be levied. However, the greater competitive forces that smaller airports often face, combined with the fact that the airlines serving such airports may be low cost or regional carriers that are more sensitive to the level of airport charges, means that this may not be the case. Moreover, many small airports tend to be dominated by just a couple of carriers, which may increase the airline bargaining power when charges are set. Indeed, aeronautical revenues per passenger for airports with less than 1 mppa were US\$9.99 in 2013, and US\$10.73 for airports with 1-5 million, which was not far from the average for airports worldwide of US\$11.88.²⁰

Whilst evidence indicates that airport size plays an important role in influencing financial performance, there are other factors related to small airports, which may add to the inherent disadvantages directly associated with size meaning that the nature, as well as the volume of traffic needs to be considered. At large airports, international passengers tend to dominate and this can increase costs compared with domestic passengers because of longer dwell times, extra luggage and the need for more services such as customs and border control. However, overall these increased costs are often more than compensated for by better revenue performance, particularly in the non-aeronautical area. Some studies have confirmed that higher shares of international traffic have a positive influence on overall economic or financial performance and so smaller airports handling mainly domestic traffic may not perform so well.²¹ Meanwhile, smaller airports serving holiday destinations may have a problem with seasonality and uneven capacity utilization, which can push up costs and reduce efficiency.^{22,23}

LCCs tend to be the dominant airlines at many smaller airports. This may reduce costs because of the simpler facilities that these airlines want, which in turn may lower the aeronautical revenues, especially if such carriers have been forceful in negotiating a favourable deal concerning airport charges. However, there is conflicting evidence as to

whether the presence of LCC passengers has a favourable²⁴ or detrimental²⁵ impact on non-aeronautical revenues. Recent research found that over 70% of airports report that LCC passengers spend less than other passengers on retail and over 45% report less spend on food and beverage.²⁶

Another key factor is ownership and governance, and notably whether the airport has been privatised. Whilst existing evidence is contradictory or inconclusive, nevertheless a number of studies have found that privatised airports have better economic or financial performance.²⁷⁻²⁹ This may be relevant for smaller airports as generally they have experienced less privatisation than larger airports. This is exemplified by the fact that in 2016, whilst 59% of airports in Europe were still in public ownership, they only accounted for 26% of the total passenger traffic.³⁰

The EC's view of smaller airports

Many assumptions about the general financial characteristics of smaller airports seem to hold true for the European situation. In 2013, 14% of airports with 3-5 mppa were loss making in terms of both operating and net profit. The corresponding shares for airports with 1-3 million were 16% and 35% respectively but for those with less than 1 million it was 79% and 77%.³¹

The view of the EC is that European airports with more than 5 mppa should usually be profitable and able to cover all of their costs, whilst those with 3-5 million should be able to cover a large proportion of their costs.³² Below 3 million, the EC separately considers the operating and capital costs and argues that for airports with 1-3 mppa, the majority of operating costs but only a partial amount of capital costs should be covered. Between 200,000 to 1 mppa, airports should only be able to partially cover the operating and capital costs. The most challenging situation is for airports with less than 200,000 passengers, which may not be able to cover both their operating and capital costs.

As a result of this situation many state owned smaller airports in the EU have relied on the use of public funds and subsidies to cover operating losses and/or to attract price-sensitive airlines such as LCCs, with price incentives, marketing support or long-term contracts with differentiated tariffs. This has been of growing concern to the EC who fears that this can produce a duplication of airports in the same catchment area and potentially create an over-capacity situation where traffic is split between a number of underutilised airports.

Consequently, new guidelines on state aid to airports were introduced in 2014.³³ These take into account the EC's current view on how small airports can cover both their operating and capital costs. For operating aid, the guidelines offer a transition period of ten years for airports with less than 3 mppa, during which a maximum of 50-80% of the funding gap (i.e. the difference between costs and revenues) can be covered by aid. After this the airports need to cover their own costs and be profitable (although the situation for airports with less than 700,000 passengers will be assessed again after four years). The transition period is designed to provide small airports with enough time to adjust to new market developments and to improve their financial performance, for example by differentiating their business models, attracting new customers, by introducing rationalisation measures, by raising airport charges and diversifying their revenue sources. As regards capital aid, there are new rules linked to airport size with the maximum being 75% for airports with less than 1 mppa, 50% for airports with 1-3 million, and 25% for airports with 3-5 million. There are some exceptions for airports in remote and peripheral regions.

According to the EC's impact assessment, the new guidelines will not mean that any airport of over half a million passengers will close, but smaller ones could do if they cannot improve their financial performance.³⁴

The focus of this paper

Having considered the general financial characteristics of smaller airports and the EC's view related to this, this section now links this to the UK situation, which is the focus of this paper.

Firstly, in line with the general case there is some evidence to suggest that small airports within the UK have weaker financial performance or efficiency levels,³⁵⁻³⁹ although contradictory or inconclusive research exists as regards the size relationship.^{40,41} Secondly, there has been some research regarding the impact of LCCs and other types of traffic on regional airports in the UK. Full service and charter carriers have been found to provide a higher contribution to aeronautical and commercial revenues compared to LCCs.⁴² Similarly, LCCs have been found to generate an average of £2.78 per passenger in commercial revenues compared to £5.59 for other carriers,⁴³ while smaller and regional UK airports with a higher share of LCCs tended to have lower unit revenues.⁴⁴ More generally for all UK airports, it has been found that most airports dominated by LCCs experienced below average growth in operating profit,⁴⁵ while LCC passengers impose significantly lower costs at UK airports.⁴⁶

Finally, as regards ownership, the limited research that exists relates to all UK airports, not just the smaller ones. This evidence is rather inconclusive with some studies arguing that privatised UK airports perform better compared to public or mixed ownership ones,^{47,48} whilst others found no such relationship.^{49,50} In relation to the EC state aid guidelines it is important to note that the UK has a much higher proportion of privatised small airports than in most other countries, making these guidelines somewhat less relevant. Nevertheless the issue of subsidies for smaller airports in the UK has still received attention and challenges the EC's view by arguing that both small and large airports can be profitable.⁵¹

In light of the situation regarding research on UK airports but also the more general discussion, this study aims to investigate traffic developments at the UK's smaller regional airports, and how changes in the nature of traffic may be affecting their performance. The study then investigates airport financial performance in terms of operating and net profit margins, and whether there is a relationship between traffic volume and the revenues and costs that are generated by airports. Traffic and financial performance according to airport ownership is also taken into consideration.

AIRPORTS AND DATA

This study focuses on the UK's smaller regional airports that generally serve between 100,000 to less than 5 mppa (Table 1). This does not include the six London airports (Heathrow, Gatwick, Stansted, Luton, London City and Southend) or the five larger regional airports serving more than 5 mppa (Manchester, Edinburgh, Birmingham, Bristol and Glasgow).

From the 25 airports listed in Table 1, 14 are included in this study (and vary in size from Newcastle with 4.5 million passengers in 2014 to Durham Tees Valley with 142 000). Remaining airports were excluded due to a lack of availability of financial data.

Table 1 UK regional airports serving 100,000 to 5 million passengers in 2014.

> 3 to 5 million	> 1 to 3 million	> 700,000 to 1 million	100,000 to 700,000
☐ East Midlands	Belfast City	Prestwick	☐ Bournemouth
☐ Newcastle	☐ Southampton	☐ Doncaster	Inverness
☐ Belfast International	☐ Cardiff	☐ Exeter	Norwich
☐ Liverpool			City of Derry
☐ Aberdeen			Scatsta
☐ Leeds Bradford			Sumburgh
			Stornoway
			☐ Humberside
			☐ Blackpool
			Newquay
			Kirkwall
			☐ Durham Tees Valley
			Stornoway

Source: UK CAA (2014).

☐= Included in this study.

By 2015, half of the airports were under total private ownership and the rest had at least some private involvement (Table 2). The only exception is Cardiff, which having been under total private ownership from 2001 to 2012, was bought by the Welsh government in 2013. By contrast, around half of the airports were still under total public local council ownership in 2001. There have also been a number of changes in the actual owners and there are now four groups that own or operate more than one regional airport, namely AGS, MAG, the Peel Group and the Rigby Group.

Table 2 Ownership of selected airports.

Airport	Ownership in 2015	Private interest 2015 (%)	Private interest 2001 (%)	Ownership changes since 2001
East Midlands	MAG	35.5	0	2013: IFM bought 35.5% of MAG
Newcastle	Local government (51%) AMP Capital (49%)	49	49	2001: 49% bought by Copenhagen airport from local government 2012: Private interest bought by AMP Capital
Belfast International	Airports Worldwide	100	100	2005: TBI owners bought by ACDL (90% Abertis/10% AENA ownership) 2013: Airport bought by Airports Worldwide
Liverpool	Peel Group	100	100	
Aberdeen	AGS	100	100	2006: BAA owners bought by Ferrovial 2014: Airport bought by AGS (Ferrovial/Macquarie partnership)
Leeds Bradford	Bridgepoint	100	0	2007: Bridgepoint bought airport from local government
Southampton	AGS	100	100	2006: BAA owners bought by Ferrovial 2014: Airport bought by AGS
Cardiff	Welsh Government	0	100	2013: Bought by Welsh government from ACDL
Doncaster	Peel Group	100	n/a	2005: Opened by owners Peel Group
Exeter	Rigby Group	100	0	2007: Airport bought by Balfour Beatty from local government 2013: Airport bought by Rigby Group
Bournemouth	MAG	35.5	0	2013: IFM bought 35.5% of MAG
Humberside	Eastern Group	82.7	0	2012: Eastern Group bought 82.7%

Blackpool	Balfour Beatty (with Rigby Group management contract)	95	0	share from MAG 2004: MAR Properties bought 95% from local government 2008: Private interest bought by Balfour Beatty
Durham Tees Valley	Peel Group	89	0	2003: 75% bought by Peel Group from local government 2012: Local government share reduced to 11%.

Source: Compiled by the authors from various sources.

Passenger traffic data for individual airports was extracted from the UK CAA website. Data includes total terminal passengers, and the split between domestic and international, and scheduled and charter. Airport financial data was extracted from the Centre for the Study of Regulated Industries report 'UK Performance Indicators' by LeighFisher. Data includes total revenues (and the split between aeronautical and commercial revenues), total operating costs, and operating and net profit. Financial data was available for financial years 2001/2 to 2014/15 (referred to as 2001 to 2014 in this paper). The start and end of financial years varies by airport and occasionally changes over time. Monthly traffic data is therefore used to fit in with the exact start and end of each financial year for individual airports.

Schedules data was extracted from the Innovata Flight Schedules Database that contains airline schedules according to points served, aircraft type and seat capacity, flight frequency, and available seat kilometres. The data includes almost every operating scheduled airline in the world, and also includes schedules for many leisure carriers. This study uses one-way schedules data from selected airports from 2002 to 2014. Flightglobal classifies passenger airlines worldwide according to five main types - mainline, low cost, regional, leisure and ACMI (wet lease). The Flightglobal classification was used to distinguish between the five types of carrier in this study.

FINDINGS

Traffic developments

Figure 1 shows a number of key traffic developments at selected airports. Passenger numbers grew from 2001 to 2007 with average annual growth of 14.3%. There were then a few years of decline to 2010 before growth stagnated up to 2014. Average annual growth from 2007 to 2014 was -2.8%. All of the airports experienced growth from 2001 to 2007 (Table 3). Only two of them (Aberdeen and Leeds Bradford) experienced growth from 2007 to 2014.

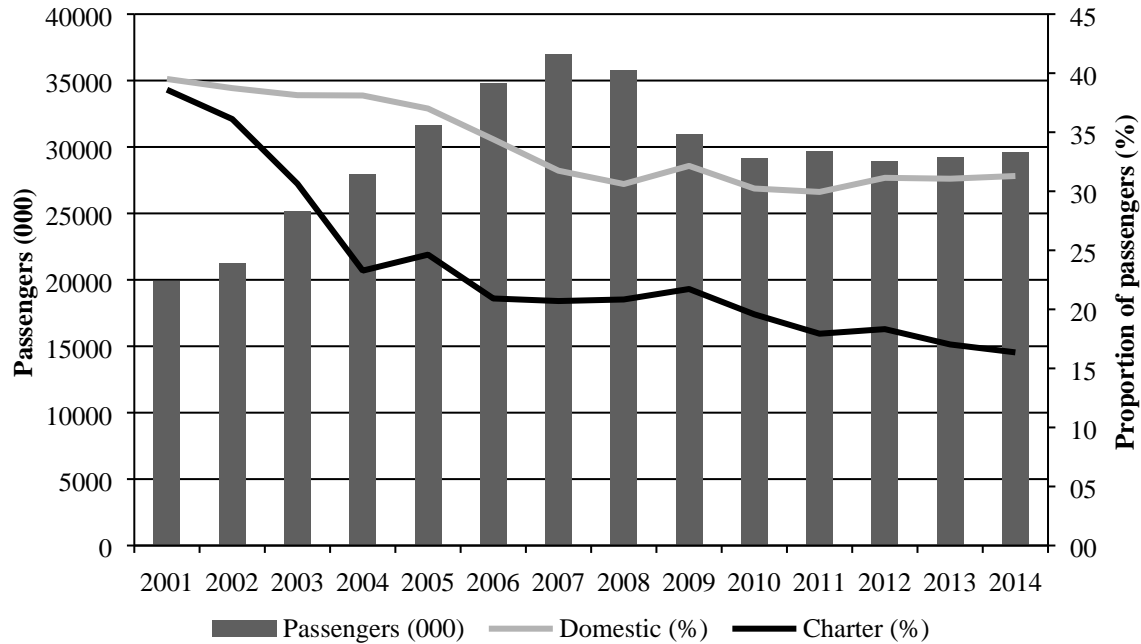


Figure 1 Traffic developments at selected airports, 2001 to 2014.

Table 3 Passengers at selected airports for key periods.

Airport	Passengers (000)			Average annual change (%)		
	2001	2007	2014	2001-2007	2007-2014	2001-2014
East Midlands	2380	5407	4507	21.2	-2.4	6.9
Newcastle	3376	5624	4513	11.1	-2.8	2.6
Belfast International	3603	5236	4032	7.6	-3.3	0.9
Liverpool	2251	5463	3984	23.8	-3.9	5.9
Aberdeen	2525	3411	3723	5.8	1.3	3.6
Leeds Bradford	1524	2860	3263	14.6	2.0	8.8
Southampton	857	1965	1830	21.5	-1.0	8.7
Cardiff	1524	2094	1020	6.2	-7.3	-2.5
Doncaster	n/a	1074	724	39.4*	-4.7	1.9*
Exeter	333	1012	767	34.0	-3.5	10.0
Bournemouth	265	1083	660	51.4	-5.6	11.5
Humberside	435	466	237	1.2	-7.0	-3.5
Blackpool	81	558	224	98.1	-8.6	13.6
Durham Tees Valley	730	735	142	0.1	-11.5	-6.2
Total	19884	36988	29626	14.3	-2.8	3.8

* Doncaster from 2005 (no passengers from 2001 to 2004).

The decline and subsequent stagnation in traffic growth is likely to have been caused by a number of factors. From February 2007, the UK's APD (an excise duty introduced in 1994 and charged on the carriage of passengers flying from UK airports) was doubled from rates of £5-£40 (depending on the destination and class of travel) to £10-£80. Rates have continued to increase most years since 2007. By 2014, rates varied from £13-£188 (depending on distance flown and class of travel). In addition, fuel prices peaked during 2008/9 and remained relatively high throughout the first half of the 2010's. Airlines therefore struggled to offer the low fares that stimulated demand up to 2007, and at a time when outbound business and leisure demand was depressed as a result of the financial crisis of 2007/8, the subsequent recession, and the weak pound. There were also one-off shock events such as the eruption of Eyjafjallajökull in Iceland in 2010 that resulted in the closure of large parts of European airspace for a number of weeks. Airports have also been under pressure themselves from increased security measures that have had a major impact on their costs.

Two main changes in the composition of passenger demand have also occurred (Figure 1 and Table 4). Firstly, the share of domestic passengers has declined from 37 to 31%. It has declined at all airports except for Cardiff, Exeter and Durham Tees Valley. The decline may be a result of APD being much higher on domestic routes as it is effectively charged twice for a return trip (once from each departing airport). With more stringent security measures, domestic air travel has also arguably become more cumbersome than rail travel. Domestic passengers may therefore have switched to alternative modes of transport where possible. The decline flattened out a little in later years.

Secondly, the share of charter passengers has declined from 39 to 16%. Dramatic reductions were experienced at all airports, except for Doncaster. The decline reflects changes taking place in the outbound leisure market from the UK where passengers have been shifting from the traditional package holiday to more independent and flexible travel arrangements offered for instance by LCCs, including short break holidays.

Table 4 Proportion of domestic and charter passengers at selected airports for key periods.

Airport	Domestic passengers (%)				Charter passengers (%)			
	2001	2007	2014	Change 2001-2014	2001	2007	2014	Change 2001-2014
East Midlands	13.9	12.9	9.0	-4.9	67.9	28.4	18.2	-49.7
Newcastle	30.3	29.8	26.1	-4.2	46.6	29.6	20.6	-26.0
Belfast International	72.6	65.8	67.1	-5.5	20.5	12.9	6.7	-13.8
Liverpool	31.4	15.1	19.9	-11.5	9.8	4.9	0.4	-9.4
Aberdeen	65.8	56.7	56.8	-9.0	26.5	21.8	24.1	-2.4
Leeds Bradford	28.9	22.1	11.3	-17.6	42.1	11.0	3.6	-38.5
Southampton	72.1	61.0	63.4	-8.7	6.3	0.5	0.5	-5.8
Cardiff	7.4	20.4	15.7	8.3	67.7	46.2	51.6	-16.1
Doncaster	7.2*	9.8	1.4	-5.8*	25.6*	27.7	55.4	29.8*
Exeter	30.9	39.6	39.5	8.6	64.0	26.5	30.4	-33.6
Bournemouth	1.9	10.3	0.2	-1.7	66.8	14.7	27.7	-39.1
Humberside	8.0	7.5	6.3	-1.7	63.4	63.5	30.0	-33.4
Blackpool	24.7	21.5	6.7	-18.0	76.5	4.5	8.9	-67.6
Durham Tees Valley	25.2	17.6	26.8	1.6	54.5	31.0	2.1	-52.4
Total	37.0	31.7	31.3	-5.7	38.6	20.7	16.4	-22.2

* Doncaster from 2005 (no passengers from 2001 to 2004)

In addition to being influenced by factors mentioned previously, changes in passenger demand are influencing and/or being influenced by changes in airline strategy. Leisure carriers are increasingly replacing charter with scheduled services, which has artificially reduced the proportion of charter passengers in Figure 1 and means that the proportion of scheduled capacity offered by leisure carriers from selected airports has increased (Figure 2 and Table 5).

Moreover, much of the early growth was from LCCs (Figure 2). The proportion of LCC seats peaked at 68% in 2008 (having increased each year from 42% in 2002). Since 2008, it has declined each year to 53% by 2014. Some of the larger airports have experienced significant reductions in the seat share of LCCs since 2007 such as East Midlands, Newcastle and Cardiff (Table 5). At Cardiff and East Midlands the demise of bmibaby lies behind the reduction in LCC services while at Newcastle it is easyJet that has dramatically reduced services. The share of regional carriers has increased from 14% in 2002 to 20% in 2014 while the share of mainline seat capacity has fallen dramatically from 42% to 14%, largely as a result of BMI, which provided 12% of the seat capacity in 2002 being integrated into British

Airways by 2012. British Airways themselves have reduced capacity at the airports from 26% in 2002 to 5% in 2014. Much of their capacity appears to be shifting to larger regional and London airports, especially the latter where they have precious slots available for more lucrative long-haul services.

Table 5 also shows that airports in the 3-5 mppa category are dominated by LCC capacity, except for Aberdeen where regional carriers including BMI Regional, Eastern Airways and Flybe, which all have bases at the airport, have increased the regional share of seat capacity. The airport also serves helicopter operations for the Scottish offshore oil industry. At remaining airports, the mix of traffic varies significantly. Many of the smaller airports, that are often dependent on just one or a few carriers, have experienced a fair amount of turbulence in recent years that is not shown in the limited data provided in Table 5. For instance, mainline carrier SAS started a service to Copenhagen from Humberside in 2013 but withdrew the route in 2014 due to weak demand. Leisure carrier Thomson Airways operated a number of routes to Spain from Durham Tees Valley during 2012 and 2013 but withdrew them by 2014 as a result of a disagreement with the airport operator. Blackpool was served by Citywing to Belfast via the Isle of Man and Aer Lingus to Dublin while its largest operator was Jet2.com serving ten destinations. All services were terminated when the airport initially closed in October 2014 (with Jet2.com switching its services to Manchester) following years of financial struggles for the airport operator. The airport reopened in April 2015, served by Citywing’s service to Belfast via the Isle of Man.

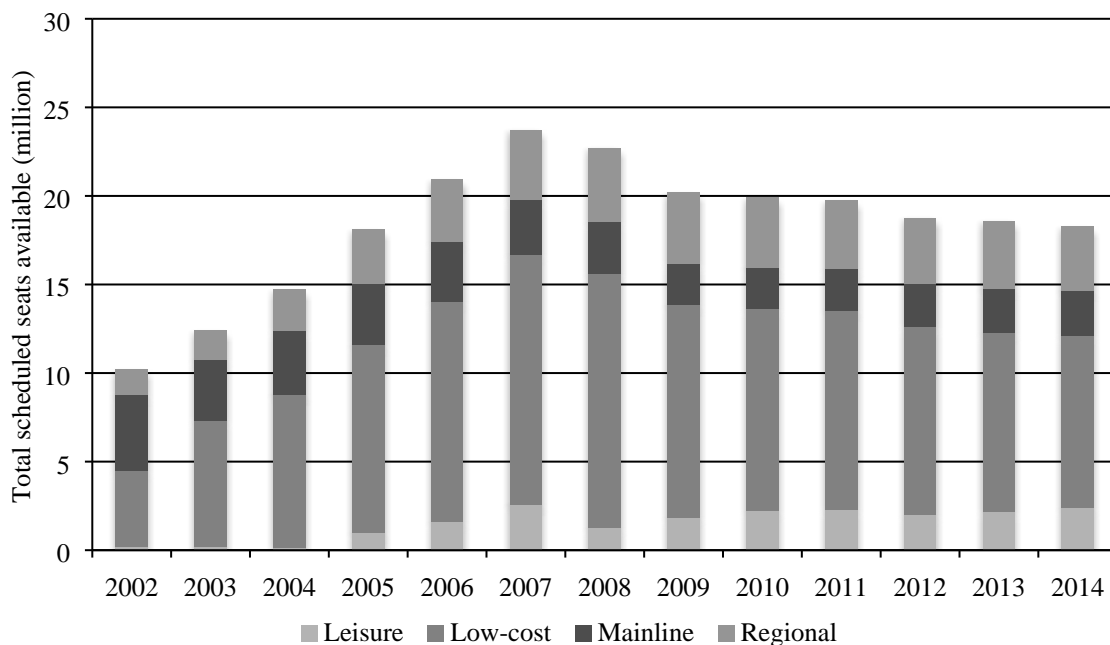


Figure 2 Share of scheduled seat capacity at selected airports, 2002 to 2014.
 Note: ACMI not shown (generally very low proportion of between 0 to 0.4%).

Table 5 Proportion of seats available by type of carrier for key periods.

Airport	Carrier	2002	2007	2014	Airport	Carrier	2002	2007	2014
East Midlands	Leisure	0.1	13.8	28.7	Cardiff	Leisure	9.9	33.5	41.5
	Low-cost	60.2	83.9	58.4		Low-cost	28.4	42.0	18.8
	Mainline	37.9	1.4	-		Mainline	56.8	10.0	15.9
	Regional	1.8	0.8	12.9		Regional	5.0	14.6	23.9
Newcastle	Leisure	5.0	11.4	19.1	Doncaster	Leisure	-	67.0	51.3
	Low-cost	9.6	55.9	43.3		Low-cost	-	26.8	46.1

	Mainline	63.4	21.7	28.6		Mainline	-	-	-
	Regional	22.0	11.0	9.0		Regional	-	6.2	0.5
Belfast International	Leisure	1.2	6.0	6.5	Exeter	Leisure	-	10.2	22.3
	Low-cost	82.4	91.8	91.3		Low-cost	-	0.8	-
	Mainline	16.4	1.9	2.0		Mainline	-	-	1.0
	Regional	-	0.3	-		Regional	100	89.0	76.7
Liverpool	Leisure	-	0.2	-	Bournemouth	Leisure	-	49.9	23.6
	Low-cost	90.3	96.3	96.8		Low-cost	100	45.3	76.4
	Mainline	2.7	0.1	-		Mainline	-	3.2	-
	Regional	7.0	3.4	3.1		Regional	-	1.6	-
Aberdeen	Leisure	-	1.1	0.5	Humberside	Leisure	-	16.2	2.1
	Low-cost	8.0	14.6	8.4		Low-cost	-	-	-
	Mainline	73.6	60.5	53.4		Mainline	-	63.0	70.6
	Regional	18.2	23.8	37.7		Regional	100	20.8	27.4
Leeds Bradford	Leisure	-	3.8	11.5	Blackpool	Leisure	-	13.0	-
	Low-cost	12.2	59.6	67.9		Low-cost	-	83.6	89.3
	Mainline	63.5	19.7	12.3		Mainline	-	-	-
	Regional	24.3	16.9	8.4		Regional	100	3.4	10.7
Southampton	Leisure	-	-	-	Durham	Leisure	-	1.9	-
	Low-cost	-	-	-		Low-cost	18.1	43.9	-
	Mainline	74.9	5.4	-		Mainline	49.1	43.3	70.9
	Regional	20.0	93.6	100		Regional	32.9	11.0	29.1

Note: ACMI not listed so where it does not equal 100%, the remainder is ACMI.

In recent years, many carriers, especially LCCs, have been investing in larger aircraft. For instance, Ryanair has phased out its smaller Boeing 737-200 aircraft for 189-seat Boeing 737-800 aircraft. As of 2014, Ryanair's principal fleet consisted of 297 Boeing 737-800 aircraft and is expected to increase to 426 such aircraft by 2019. In addition, Ryanair has signed up for 200 Boeing 737 MAX 200 aircraft by 2029 with plans to seat 197 passengers on them. Of the main carriers operating from the selected airports since 2002, easyJet has increased its average seats per departure from 148 in 2002 to 160 in 2014, Ryanair from 122 to 189, British Airways from 63 to 136, Flybe from 54 to 77, KLM UK from 55 to 108, and Eastern Airways from 21 to 33. Table 6 shows the impact that this has had on average aircraft capacity from the airports. Average sector length has also increased, as would be expected given the proportionate increase in international versus domestic traffic.

Table 6 Average capacity and sector length from selected airports for key periods.

Airport	2002		2007		2014	
	Seat capacity	Sector length (km)	Seat capacity	Sector length (km)	Seat capacity	Sector length (km)
East Midlands	94	788	158	1183	152	1683
Newcastle	84	558	122	1024	133	1562
Belfast International	136	395	151	850	159	888
Liverpool	127	753	157	1090	167	1082
Aberdeen	68	555	70	643	80	628
Leeds Bradford	57	358	104	865	137	1505
Southampton	46	372	66	503	72	475
Cardiff	58	709	122	1126	91	1357
Doncaster	n/a	n/a	190	1261	144	1876
Exeter	51	210	87	772	87	950
Bournemouth	141	542	167	1057	176	1729
Humberside	36	378	60	762	56	435
Blackpool	56	208	125	838	75	1659
Durham Tees Valley	69	377	79	858	55	430
Total	81	550	115	941	119	1199

Increased average unit fleet size and faltering demand has resulted in routes being reduced or dropped altogether as carriers shift capacity from the smaller regional airports to larger regional and London airports that have greater potential for demand. There are also operational limits at some of the airports that restrict their ability to handle the larger aircraft and longer distances flown. These were amongst the challenges faced by Plymouth – a small regional airport that served as many as 160,000 passengers in 2009 before closing in December 2011. The catchment area of the airport overlapped with Exeter and Newquay, and with Bristol nearby. This is a problem for many of the airports in this study such as Liverpool and Blackpool (with Manchester nearby), Belfast International (with Belfast City and City of Derry nearby), Durham Tees Valley and Newcastle are located in fairly close proximity to each other, as are Humberside and Doncaster, and Southampton and Bournemouth. In addition, the runway at Plymouth has a maximum take-off distance of less than 1200 metres (and with little room for expansion), which significantly limits the size and type of aircraft that can operate from the airport.

Another problem for Plymouth, which is also an issue for many airports in this study, is that UK passenger traffic is increasingly concentrated at London airports, and at the expense of potential regional hub airports. A growing scarcity of take off and landing slots from London Heathrow and Gatwick has progressively shifted from UK domestic routes to long-haul routes meaning that access for smaller regional airports to London markets, and also to long-haul gateway airports is increasingly limited. Of the airports in this study, only Newcastle (with British Airways), Aberdeen (with British Airways and Virgin Atlantic), and Leeds Bradford (with British Airways) had links to Heathrow in 2014. At Gatwick, it was just Newcastle (with easyJet and Flybe) and Aberdeen (with easyJet).

Financial performance

Average annual operating and net profit margins are shown in Figure 3. There are two distinct periods that coincide with the periods of traffic growth and decline that was seen in the previous section. There was a period of relative prosperity from 2001 to 2007 followed by a more challenging period from 2007 to 2014. Airports with larger traffic volumes have generally performed better (Table 7). The five largest airports achieved positive operating margins, on average, including during the challenging period from 2007 to 2014. Leeds Bradford is the only airport in the 3-5 million passenger category to have struggled, and the airport has recorded operating losses each year from 2007 to 2014. The 1-3 mppa airports (Southampton and Cardiff) have experienced mixed results, while airports with less than 1 mppa have generally performed poorly during both periods. Some of them appear to be inherently loss making, especially Blackpool and Durham Tees Valley, which have recorded operating losses each year from 2001 to 2014. In addition, Doncaster only opened in 2005 and has recorded operating losses in seven of the nine years since then.

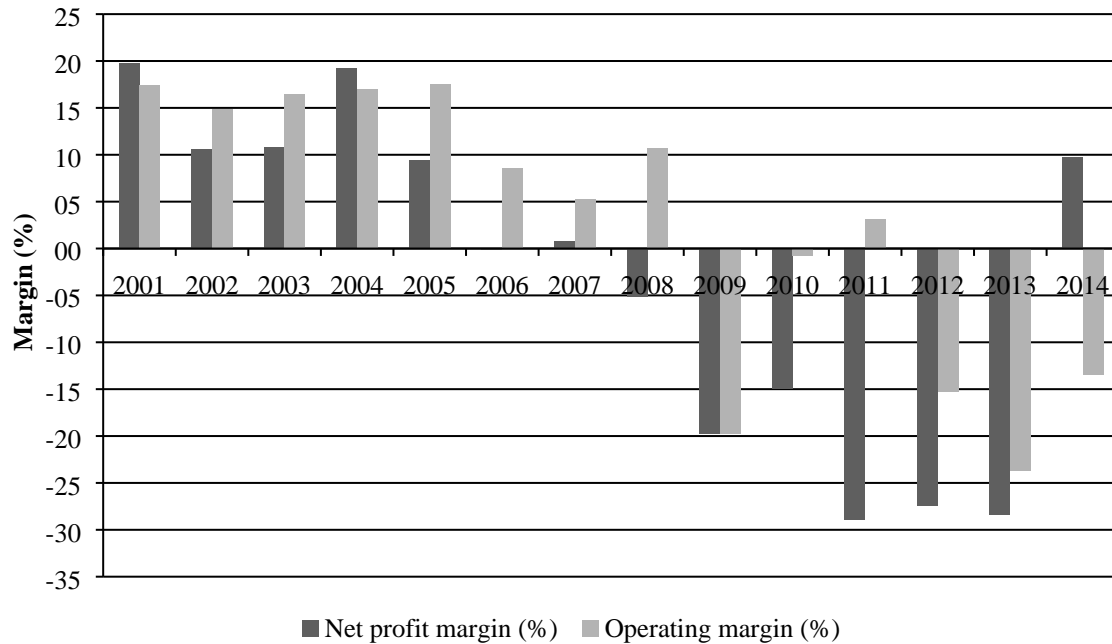


Figure 3 Average margins for selected airports, 2001 to 2014.

Table 7 Average airport operating and net profit margins at selected airports for key periods.

Airport	Operating margin (%)			Net profit margin (%)		
	2001-2007	2007-2014	2001-2014	2001-2007	2007-2014	2001-2014
East Midlands	32.4	20.6	25.5	24.8	14.4	17.9
Newcastle	32.8	32.2	32.3	16.7	25.9	22.9
Belfast International	27.8	16.0	20.6	18.5	8.8	12.2
Liverpool	11.5	8.9	9.9	8.7	-8.0	-1.7
Aberdeen	34.3	25.7	29.2	26.4	19.5	21.8
Leeds Bradford	7.5	-18.9	-6.5	3.8	-28.1	-13.4
Southampton	30.7	-7.5	9.3	22.5	-0.6	8.4
Cardiff	34.9	3.8	17.3	26.1	7.1	14.8
Doncaster	-42.0	-89.8	-80.1	-66.2	-132.1	-119.7
Exeter	7.1	1.7	4.7	18.0	-0.3	9.0
Bournemouth	17.9	12.2	14.4	15.2	-20.0	-5.4
Humberside	10.6	-0.8	4.5	-1.5	-6.2	-3.9
Blackpool	-37.9	-40.0	-37.8	-16.3	-40.1	-24.5
Durham Tees Valley	-15.1	-63.9	-42.5	-13.0	-47.7	-32.8
Total	13.9	-6.7	2.7	10.1	-14.3	-3.2

In terms of the link between ownership and financial performance, the findings are mixed. Four of the airports have remained 100% owned by private interests during the period from 2001 to 2014 (Belfast International, Liverpool, Aberdeen, and Southampton). These airports have performed reasonably well during both key periods of traffic development. Cardiff was 100% privately owned until the Welsh Government bought it from ACDL in 2013. Cardiff recorded an operating and net profit each year until 2012 but has recorded losses since then. Leeds Bradford and Exeter both changed from 100% local government to 100% private in 2007. The airports have experienced mixed fortunes since then. Leeds Bradford has recorded operating and net profit losses each year while Exeter has generally remained positive most years. Doncaster was opened by its owner the Peel Group in 2005 and has recorded operating and net profit losses in seven of the nine financial years since then. Newcastle changed from 100% local government ownership to 51% in 2001 and has remained 49% private since then even though the private share was transferred (from Copenhagen airport to AMP Capital in

2012). Similarly, East Midlands was acquired by MAG in 2001 (and was therefore publicly owned but privately managed). Australian investment fund IFM bought 35.5% of MAG in 2013. Along with privately owned Aberdeen, East Midlands and Newcastle are clearly the best financial performers of the airports in this study, and generally record healthy operating and net profits each year.

The four smallest airports in this study (Bournemouth, Humberside, Blackpool and Durham Tees Valley) were all 100% local government owned prior to 2001 but have since increased their share of private interests to varying degrees, and with mixed fortunes. Bournemouth and Humberside have generally performed satisfactorily while Blackpool and Durham Tees Valley are inherently loss making, recording losses every year since 2001.

Airport financial performance therefore seems to have less to do with ownership than the high fixed costs and insufficient levels of demand to drive down costs and achieve economies of scale, resulting in higher costs per passenger. Airports with the highest costs per passenger also generally achieve higher revenues per passenger (Figure 4 and 5) but the unit revenues for many of them remain below the level of unit costs, especially during the period from 2007 to 2014 (Table 8).

It is also interesting to note the apparent relationship that traffic mix has with unit costs and revenues at individual airports. The airports in Figure 4 and 5 can be grouped in three main categories according to their main type(s) of carriers from Table 5: the smaller airports with higher unit costs and revenues (Durham Tees Valley, Humberside, Exeter and Southampton) are dominated by mainline and regional carriers; the smaller airports with lower unit costs and revenues (Bournemouth, Doncaster and Cardiff) are dominated by leisure and LCCs; the larger airports with lower unit costs and revenues (East Midlands, Newcastle, Belfast International, Liverpool, Aberdeen and Leeds Bradford) are dominated by LCCs with the exception of Aberdeen that is dominated by mainline and regional carriers.

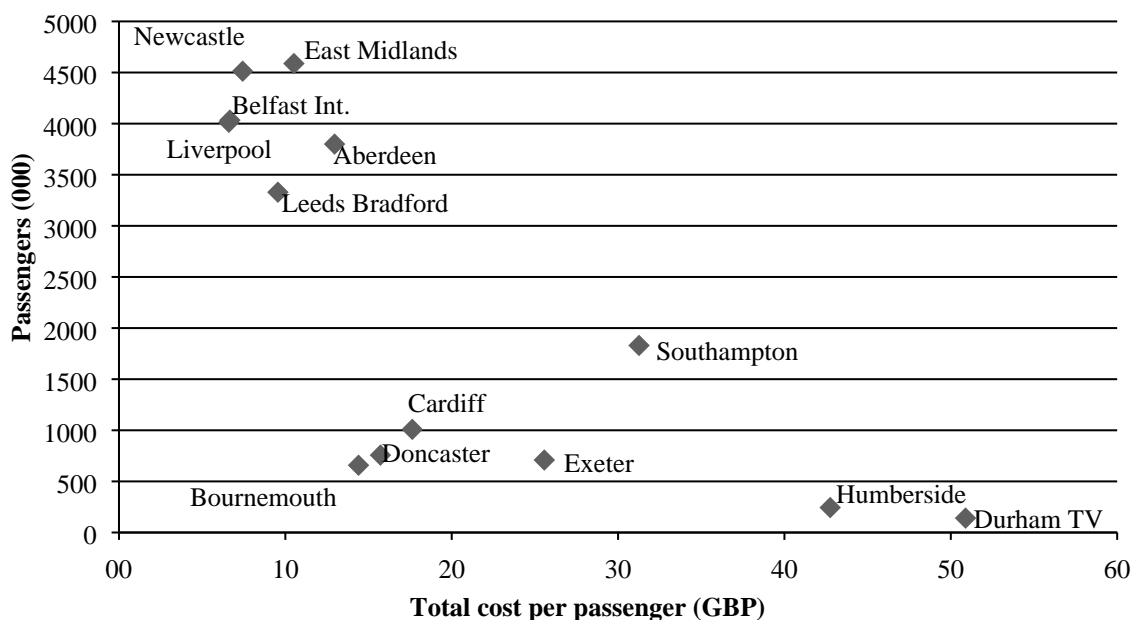


Figure 4 Total cost per passenger according to passengers, 2014.
 Note: Missing data in 2014 for Blackpool.

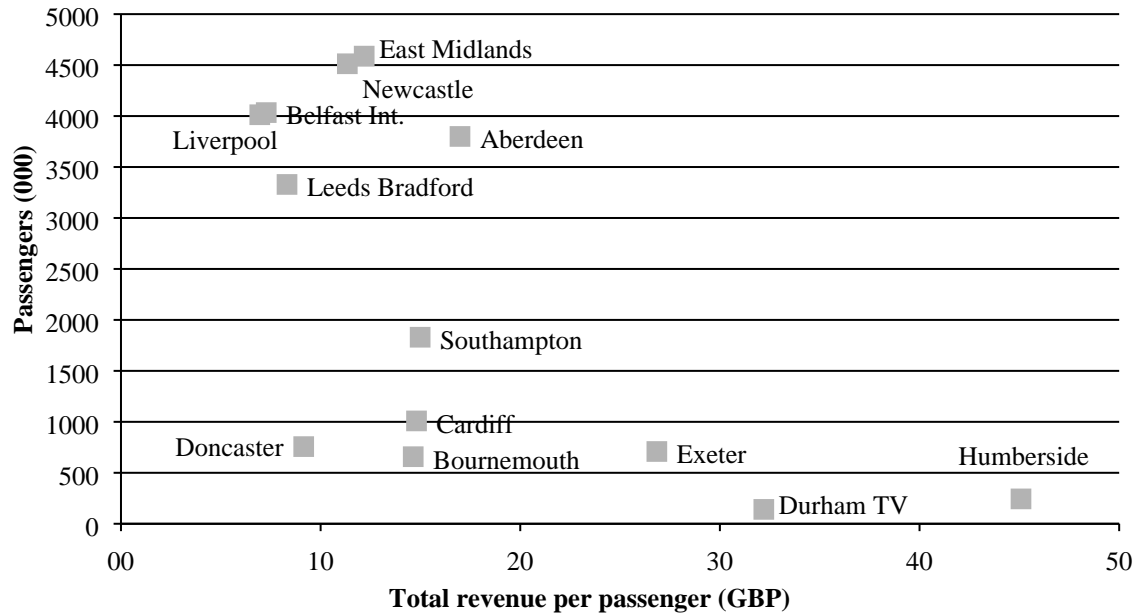


Figure 5 Total revenue per passenger according to passengers, 2014.
 Note: Missing data in 2014 for Blackpool.

Table 8 Average unit costs and revenues at selected airports for key periods.

Airport	Unit cost			Unit revenue		
	2001-2007	2007-2014	2001-2014	2001-2007	2007-2014	2001-2014
East Midlands	8.3	9.3	9.0	12.3	11.7	12.1
Newcastle	7.0	7.3	7.2	10.4	10.8	10.7
Belfast International	5.2	6.0	5.7	7.2	7.1	7.2
Liverpool	6.0	5.9	6.0	6.7	6.5	6.6
Aberdeen	7.4	11.9	10.0	11.3	15.9	13.9
Leeds Bradford	8.2	9.6	9.1	9.0	8.1	8.6
Southampton	9.8	15.9	13.3	13.9	14.7	14.5
Cardiff	8.1	12.5	10.7	12.5	12.7	12.7
Doncaster	12.1	19.2	18.4	9.2	11.5	11.5
Exeter	21.9	23.7	23.0	23.7	24.2	24.2
Bournemouth	18.5	16.1	17.7	22.1	18.5	20.6
Humberside	18.3	35.2	27.6	20.4	35.0	28.4
Blackpool	39.2	34.7	37.6	30.5	25.1	28.5
Durham Tees Valley	14.1	39.7	28.5	12.2	24.0	18.8
Total	13.2	17.7	16.0	14.4	16.1	15.6

Figure 6 and Table 9 show the proportion of revenue from aeronautical sources. Whilst these values reflect many factors, including the amount of outsourcing undertaken by the airports and the mix of traffic, they also demonstrate the importance of the aeronautical and commercial aspects of the business. From 2001 to 2007, there seems to be a clear trend with airports experiencing a reduction in the proportion of their aeronautical revenues, except for Southampton, Doncaster and Exeter. This may have been the result of increased passenger throughput (Figure 6) but also a greater emphasis on commercial activities, encouraged by a more business-like approach as a result of privatisation in the preceding years (Table 2), coupled with pressures from carriers to keep charges low as they rapidly expanded their services. This reduction in the proportion of aeronautical revenues continued to 2008 but flattened off to 2014. Whilst pressures on airport charges may have remained, falling

passenger throughput probably meant that commercial revenue generation became more challenging during this period.

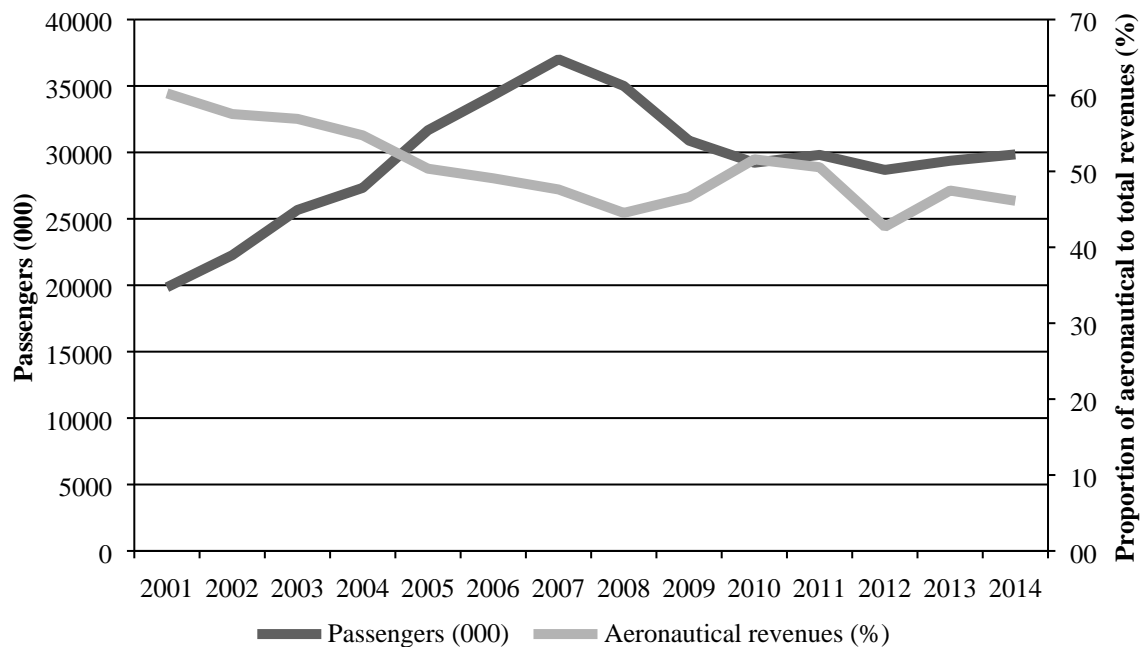


Figure 6 Average passengers and aeronautical revenues for selected airports, 2001-2014.

Table 9 Proportion of revenue from aeronautical sources at selected airports for key periods.

Airport	Average 2001-2007	Average 2007-2014	Average 2001-2014
East Midlands	58.6	47.2	52.6
Newcastle	60.4	48.1	54.1
Belfast International	52.0	45.1	48.4
Liverpool	49.6	36.1	43.9
Aberdeen	57.8	56.4	57.2
Leeds Bradford	57.4	36.8	43.7
Southampton	54.4	57.8	56.0
Cardiff	67.3	54.1	60.3
Doncaster	24.0*	34.1	32.0
Exeter	48.5	57.0	53.5
Bournemouth	35.8	32.9	34.6
Humberside	43.1	34.8	38.9
Blackpool	53.7	40.5	43.4
Durham Tees Valley	60.6	50.2	54.8
Total	53.1	44.7	48.6

* Doncaster taken from 2005 (no passengers from 2001 to 2004)

Through time if passenger numbers increase so should revenues, although not always in a straightforward manner since some revenue streams (e.g. landing charges and rents) may not be directly dependent on passenger throughput, and of course other factors such as the traffic mix and charging policies may change. Conversely, if numbers decrease revenues are likely to decline. As regards costs, airports generally have a high proportion of fixed costs and hence the link with passenger throughput is somewhat complex. Also a number of studies have found that economies of scale exist particularly for the smaller airports. Thus if traffic grows, depending on the size of the airport, costs may not necessarily rise. Also airport

investment is ‘lumpy’ and so costs will vary depending where the airport is positioned in the investment cycle.

The relationship between passenger throughput and revenues and costs is shown in Figure 7. The relationship between passengers and revenues is much stronger and more significant (correlation coefficient of .824, p .000) than the relationship between passengers and costs (.545, p .044). Although not shown in Figure 7, the relationship between passengers and the different types of revenues also varies. The relationship with commercial revenues is strong and significant (.782, p .001), while the relationship with aeronautical revenues is not significant (.202, p .489). Indeed, the average total amount of aeronautical revenue generated has remained fairly similar each year despite the increase and subsequent decrease and flattening out of passenger demand.

The findings for individual airports can be seen in Table 10. At the larger airports, there is generally a strong and significant relationship between passenger throughput and revenues. This includes with commercial revenues but not so much with aeronautical revenues. This may be due to downward pressure on aeronautical revenues in order to attract, grow and retain air services but also the ability of such airports to diversify and offer a full range of commercial facilities for their larger passenger volumes. There also appears to be a relationship between passenger throughput and costs at the larger airports suggesting that there are minimal economies of scale to be gained from increasing traffic at such airports.

The findings are less conclusive for smaller airports. There appears to be little relationship between passenger throughput and revenues, especially commercial revenues. This indicates the challenge faced by them in being able to offer a diverse and viable range of commercial facilities for their smaller passenger volumes. There also appears to be little relationship between passenger traffic and operating costs, which suggests that, unlike for the larger airports in this study, there are economies of scale to be gained from increasing traffic at the smaller airports.

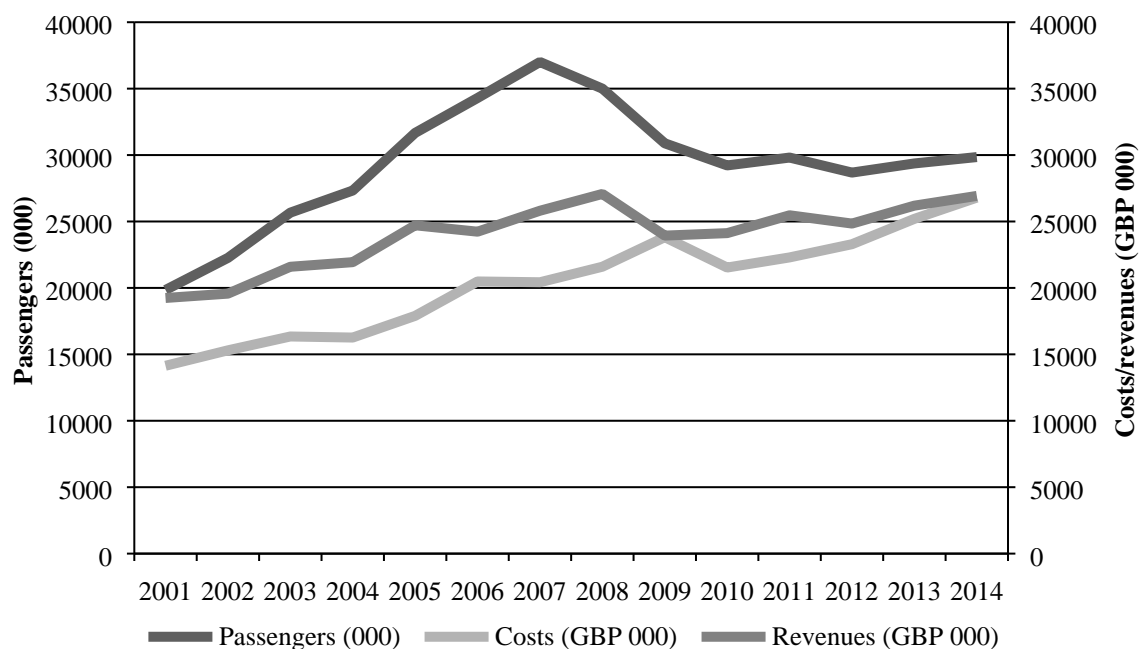


Figure 7 Average passengers, cost and revenues at sample airports, 2001-2014. Pearson correlation outputs: Passengers and revenues (.824, p .000); Passengers and costs (.545, p .044).

Table 10 Correlation between passengers and revenues and costs at selected airports between 2001 to 2014.

Airport	Revenues		Aeronautical		Commercial		Costs	
	Total Coefficient	P	Coefficient	P	Coefficient	P	Total Coefficient	P
East Midlands	.905**	.000	.049	.868	.708**	.005	.535*	.048
Newcastle	.914**	.000	.469	.091	.756**	.002	.691*	.006
Belfast International	.832**	.000	.231	.426	.881**	.000	.274	.343
Liverpool	.963**	.000	.239	.455	.970**	.000	.583**	.029
Aberdeen	.842**	.000	.809**	.000	.875**	.000	.758**	.002
Leeds Bradford	.819**	.000	-.692*	.018	.945**	.000	.854**	.000
Southampton	.809**	.000	.787**	.004	.717**	.013	.419	.136
Cardiff	.810**	.000	.625*	.017	.310	.280	-.372	.190
Doncaster	.330	.386	-.533	.140	.022	.955	-.533	.140
Exeter	.786**	.001	.278	.358	.527	.064	.809	.000
Bournemouth	.622*	.018	.307	.286	.604*	.022	.458	.100
Humberside	.160	.585	.557*	.039	-.045	.877	-.139	.637
Blackpool	.572	.052	.751**	.005	-.345	.273	.703*	.011
Durham Tees Valley	.949**	.000	.949**	.000	.757**	.002	.551*	.041

* Significant at the 0.05 level. ** Significant at the 0.01 level.

CONCLUSION AND FUTURE PROSPECTS

This paper investigates the traffic and financial performance of the UK's smaller regional airports from 2001 to 2014. During this time, the airports have experienced some major changes in their operating environment. In the early years, many of the airports experienced rapid growth from LCCs. During later years, traffic volumes fell dramatically and then stagnated at many airports, resulting in heavy and sustained losses for some.

The change in fortunes is partly a result of external factors such as the global financial crisis and subsequent recession in the UK, the weak pound, increasing rates of APD, tighter security measures at airports worldwide, and improved rail services in the UK. There have also been a number of one-off shock events such as the eruption of Eyjafjallajökull. These external factors have combined to suppress demand. However, aviation is a resilient and cyclical industry that will no doubt recover in coming years.

There are however two key issues to consider from the findings of this study when assessing future prospects for the airports. Firstly, airline strategies are evolving. Seasonal package holidays, which have traditionally been a main source of traffic for smaller regional airports in the UK, are still important. However, leisure carriers are increasingly switching from charter to scheduled seat sales, and to larger regional airports where there is greater potential for demand. The trend for switching to larger regional and in some cases London airports is also growing amongst LCCs. Increased unit fleet size and longer average sector length of carriers in general further emphasises the need for them to switch to larger airports where there is greater potential for demand and the possibility of feeding traffic onto longer-haul services, but also where infrastructure such as runways are capable of handling their aircraft. The high concentration of airports in the UK means that the catchment areas of many regional airports overlap anyway.

Secondly, is the lack of available capacity at London's main airports. Small regional airports are often considered as being vital for their regional economies due to the connectivity that they provide. However, without access to the UK's main cities, or to global connections from

the UK's long-haul airports, the benefits of such airports are somewhat reduced, and opportunities for air service development may be limited (e.g. to niche regional operations, business aviation, cargo, or outbound leisure routes). Delayed decisions over expanding airport capacity in London, and a limited regulatory framework for ring-fencing slots for regional services from such airports means that the problems regarding access to London from the regions will continue to grow. In addition, regional and mainline carriers fortunate to have slots at the main London airports may be more likely to use them for European and long-haul rather than domestic services anyway.

Changing airline strategies and the concentration of traffic at larger regional and London airports limits future prospects for the UK's smaller regional airports. The larger ones (serving 3-5 mppa) will be seeking to recover and grow the traffic that they lost in recent years including possible long-haul services. However, the smaller ones (especially those serving less than 1 mppa) are in a precarious situation. They are likely to experience significant downward pressure on aeronautical revenues as they seek to develop potentially non-viable air services, the low traffic volumes affect their ability to generate commercial revenues, and their high fixed costs are not so affected by changes in traffic volume anyway. Some of them appear to be inherently loss making and in addition to seeking to develop air services, may need to diversify their business in order to survive (e.g. by using airport land for maintenance facilities or commercial non-aviation purposes). In fact, this a key message contained in the EC's State aid rules for all EU airports, which remains relevant to UK airports even when the implications of leaving the EU are currently unclear. Specifically within this the UK Regional Air Connectivity Fund that was introduced in 2016 offers a timely lifeline to airports with less than 5 mppa by offering start-up aid of up to £7 million to support routes that are not currently commercially viable but may be so if given time to build passenger numbers. Applications in 2016 that involve airports from this study include: Leeds Bradford with a Flybe service from Newquay, Exeter with a Flybe service from Norwich, Newcastle with a Linksair service from Norwich, and Southampton with Flybe services to Lyon and Munich.

Without a significant change in fortunes, private investors involved in smaller loss-making airports may look to secondary sales, as has been the case in recent years with some of the larger airports in this study. Alternatively, they may be handed back to the government, as has been the case with Cardiff, or close. Some of the larger airports in this study have smaller neighbours nearby, and may therefore benefit significantly from any closures.

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