

The Optional Dawn Horror ¹: Explaining the trends in Scottish access to London Heathrow Airport (LHR) in the last ten years

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INTRODUCTION

One continuing issue of concern in Scottish transport policy is Scotland's access to London Heathrow Airport (LHR). Being able to fly to LHR to be able to connect to the international sectors which can only be accessed or accessed easily via that airport, is regarded as being of critical importance for the Scottish economy ². So, faced with a measurable decline in both numbers of flights and passenger loads between Scotland and LHR over the last ten years, it is no surprise that the Scottish Ministers, as well as many in the business community ³, have raised concerns at this trend. Secondary concerns include the access for domestic journeys through LHR (that is, those to and from London proper), and also some specific questions of access to LHR for both Glasgow and Inverness. These are also discussed in the paper, in order to provide the wider context.

The purpose of this paper is to quantify and document the evidence behind the changing trends in access to Heathrow for connecting and domestic flights as well as understanding the wider Scotland-London travel market. Accordingly, the paper is structured in four parts. First, the trends in Scottish access to LHR are documented. Second, a variety of 'push' and 'pull' factors are identified which explain the changes over time in the interlining traffic. Third, there is a discussion of the changes in the domestic traffics (including rail) between Scotland and London as a whole, and also between the UK regions and London as a whole. This is because the trends in these markets shed more light on the situation at LHR. Fourth, a variety of policy objectives are discussed. Essentially, a call is made for more clarity in the debate over access to LHR, on the basis that it must be seen as part of the wider transport task between Scotland and the rest of the world, in a market which has already seen significant change over the last ten years, and is likely to see as much change in the next ten.

This paper is a development out of work first published in Clark, 2013 ⁴. The data used for this analysis are mostly from the Civil Aviation Authority, and thus are in the public domain; and with data from the Office of Rail Regulation, and further data from a survey of Web airfares included as well. Disclaimer: this paper has been produced in a personal capacity; it is not an official Transport Scotland research project; and its views do not necessarily reflect official Transport Scotland policy.

1. The trends in the last ten years – the what

1.1 The wider policy context

The principal concern in this policy area, if not the only concern, turn on the access through LHR for onwards interlining journeys. This concern has sometimes included calls for Scottish services to be 'guaranteed' access to the airport ⁵. For example: for many years, the Highlands local authority has run a campaign that Inverness be given a Heathrow slot or slots ⁶, once BMI as-was decided in 2008 that it had better uses for that particular resource – and especially because they (BMI) were losing money at the time on the service ⁷.

These concerns were both summed up and explained by a press release by the Minister of Transport and Veterans in November 2012 ⁸. The occasion of this press release was the release of an aviation policy framework earlier in that year by the Westminster government ⁹. *Inter alia* the press release observed:

Transport Minister Keith Brown has called on the UK Government to ensure that its new aviation framework addresses the concerns of all regions in the UK, not just the South East. In submitting the Scottish Government's response to the draft policy framework, Mr Brown highlighted key concerns

such as access to Heathrow for Scottish services, aviation taxation and the ability of Scottish airports to compete for new air routes.

“Maintaining access to London is a huge concern for the aviation industry in Scotland and this access needs to be specifically to Heathrow. Heathrow is the UK’s only global hub airport and it provides a gateway into Scotland for business travellers and tourists, as well as allowing Scottish passengers to travel on to destinations such as North America and the Far East.

“Access to Heathrow for domestic services cannot be left entirely to market forces or we will see Scottish services continue to deteriorate. In the past five years, the number of flights from Edinburgh and Glasgow to Heathrow has dropped dramatically”.

The press statement also included this statement from Liz Cameron, the Chief Executive of the Scottish Chambers of Commerce:

“The UK needs an aviation framework that delivers for all of its constituent nations and regions and, from a Scottish perspective, our priority is to ensure the right transport connectivity to ensure Scotland’s future economic prosperity. That means getting the right mix of direct international air services from Scottish Airports and having extensive access to Heathrow, the UK’s hub airport”.

In addition, at the time that Virgin Airlines commenced its Edinburgh-LHR and Aberdeen-LHR operations, in April 2013, it was reported ¹⁰:

Nicola Sturgeon, the Deputy First Minister, who greeted the Virgin boss at Edinburgh Airport, said: “Good access to Heathrow, the UK’s only hub airport, is essential for Scotland’s economic development. The Scottish Government is also keen to see more direct international flights from Scotland and we continue to press for air passenger duty to be devolved as quickly as possible”.

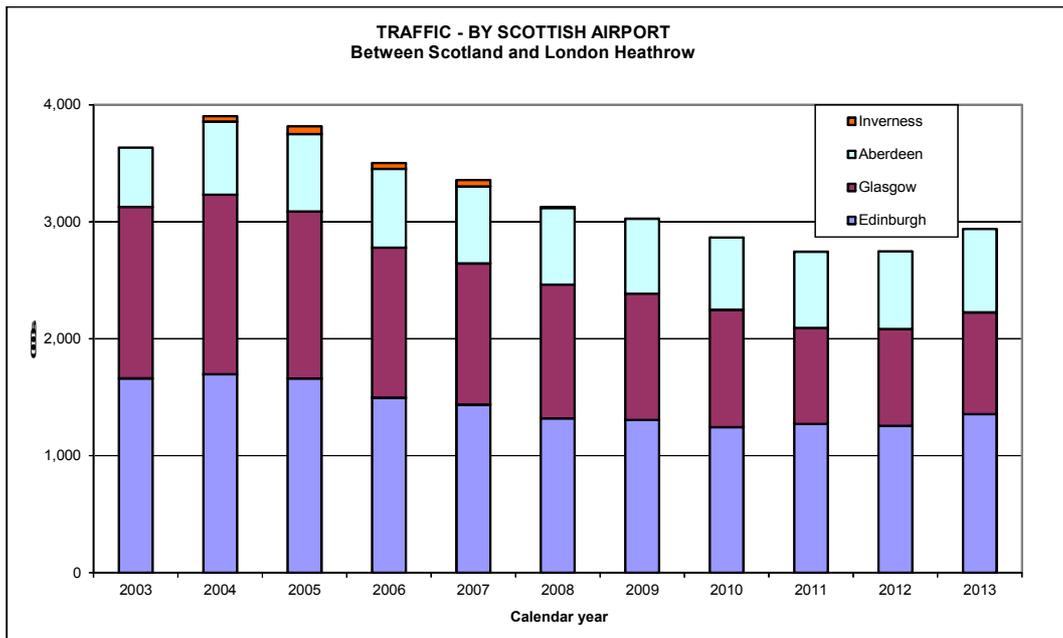
These concerns about access have also been expressed by many in the business community over the years ¹¹. The recent Airports Commission report identified that over the very long term (that is, out to 2040) the number of UK airports with access to LHR could fall from its current level of seven, down to four ¹², which would probably mean one Scottish airport losing its access completely. So this is very much a live issue, and is going to remain so.

Also worthy of note are some wider questions: the development of rail links between Scotland and London, where traffic has grown substantially over the last few years, and also access to the wider London airport system. While these are not directly related to the questions around LHR access, they do ‘set the stage’ and so are discussed elsewhere in the paper for the light they shed on LHR’s situation.

1.2 Specific commentary

Now, is it the case that Scotland is losing its LHR access over time, and with it access to the all-important interlining services? This is what we now turn to examine. We need to know how the market to LHR has actually been trending, and to distinguish the interlining from the domestic traffics. The overall situation is as follows. From a high point in calendar-2004, volumes declined consistently through to the end of calendar-2010, by over a quarter on the 2004 total (from 3.90m to 2.87m, or a loss of 1,030,000 passengers). This timeframe is particularly significant for understanding what went on in the domestic market (that is, the market for travel between Scotland and London proper). This is illustrated in Chart 1a following.

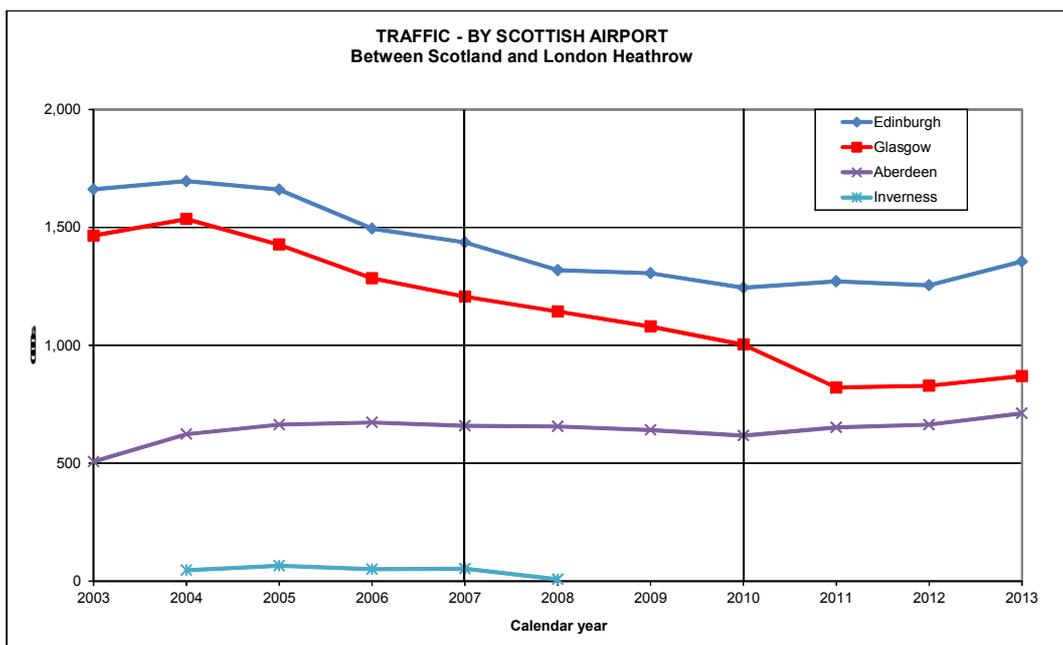
Chart 1a Scotland's traffic to LHR – by Scottish airport



From 2004 to 2012 the total net decline was 1.15m passengers per year, about thirty percent on 2004's volumes. 2013, however, saw a distinct turnaround in the market (+191,000 passengers, 6.9 percent). While this is much more positive, we still need to be able to explain how we got to where we are; so the commentary on the results for 2013 follows separately, at section 3.5.

Chart 1b following illustrates the makeup of traffic by Scottish airport, and highlights that the pattern of change by airport has hardly been consistent. The Aberdeen volumes actually remained stable over most of this time, at about 650,000 passengers per year and in 2013 reached over 700,000 passengers per year. However, the Edinburgh volumes fell by 27 percent to 2010 (-452,000 passengers), and the Glasgow volumes fell by 35 percent (-532,000 passengers). Glasgow then saw a further decline in volumes in 2011, related to BMI withdrawing their services in March 2011.

Chart 1b Scotland's traffic to LHR – by Scottish airport – detail



The period between 2007 and 2010 is marked out in several charts in this paper, because this was the period in which the economy was in recession, and the domestic travel market especially so.

In terms of the number of flights per day the change has been as follows:

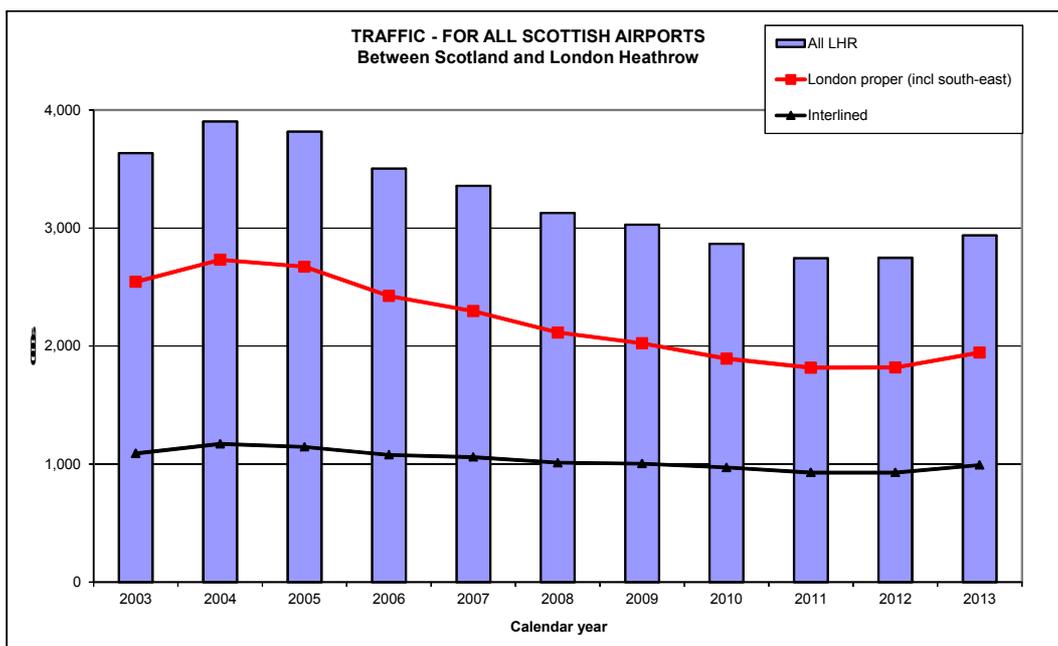
Table 1 The number of flights from Scotland to LHR, 2008 and 2014 ¹³

As-at Jan 2008:	Flights per day, one-way:					Total	
	EDI	GLA	ABZ	INV			
BA	11	10	7	0	28		
BMI	8	8	6	1	23		
	19	18	13	1	51		
As-at Jan 2014:							
BA	11	9	8	0	28	0	
Little Red	6	0	3	0	9	-14	
	17	9	11	0	37	-14	
CHANGE:							
- in daily flights	-2	-9	-2	-1	-14		
Annual pax - 2007	1,436,598	1,207,127	658,984	53,549	3,356,258		
Annual pax - 2013	1,355,929	869,957	712,184	0	2,938,070	-418,188	
Change in flight nos.	-11%	-50%	-15%	-100%	-27%		(per day)
Change in volumes	-6%	-28%	8%	-100%	-12%		(per year)

For the record, total Scotland-LHR volumes stood at 3.2m passengers in 2001 and 3.9m passengers in 2004. While the recession started to kick in after this stage (2007), this highlights that it is Glasgow which has seen the sharp decline in frequencies, even more so than in volumes travelling.

The other significant variation has been in the change of volumes when analysed by journey type. Chart 1c following shows the makeup of journey by modelled journey type, that is, either interlined or domestic. The share of traffic which is deemed to be interlined, reflects a standard ratio of between 30 and 35 percent of traffic, increasing over time ¹⁴, to provide at least an indicative assessment of these volumes (Clark, 2008; Clark, 2013).

Chart 1c Scotland's traffic to LHR – by journey type



That is, while interlining traffic fell by 21 percent from 2004 to 2012 (-242,000 passengers), domestic traffic fell by 33 percent (-913,000 passengers; that is, nearly 80 percent of the net total decline and hence the main driver of the decline in service frequencies). The domestic decline between 2004 and 2012 is discussed further in section 3 below. This is because the changes in LHR's domestic market cannot be explained without reference to the rest of the London airport system, and the railway system as well. Essentially, we have to explain whether it was a fall in the number of flights which led to the decline in volumes, or whether the decline in volumes led to a fall in the number of flights.

2. The trends in interlining travel – the why

The pressures which underlie change in a market can be loosely grouped under two heads. The first are the *push* factors; that is, the aspects which discourage a traveller from using a particular service. The second are the *pull* factors; that is, the aspects which encourage a traveller to use another service instead. How do these factors explain what has been happening?

2.1 The usual suspects: the push factors

At this point, it must be made clear that there is no regulatory rule which determines how much capacity is supplied to Scotland, for either domestic or interlined journeys. That is in the gift of the airlines (BA, and now Virgin) who own the slots at LHR needed to supply the services to Scotland and the other UK regions; the services are not in the gift of LHR's owners and certainly not in the gift of the Westminster Government. A change in the regulatory rules to force the airlines to apply at least a minimum level of access to the UK periphery, for example Inverness, is unlikely. What *does* drive the level of provided capacity is the level of market strength. Casting the discussion in terms of market strength both explains how actual demand has trended and how the airlines are reacting.

Trends in fare levels and fare structures

Any 'push' of traffic away from LHR – that is, factors which *discourage* the use of a particular asset or service – would be applied through the airlines' pricing mechanisms. The airlines themselves have no particular preference to carry one traffic over another; but prices must be sufficient to cover not just the operating costs, and the aircraft's cost of capital, but the cost of capital required to commit anything up to £30m or so in a landing-and-takeoff slot at peak times¹⁵. So we will start the analysis by looking at the pattern of interlining fares.

Because the concern is sometimes expressed that Scotland, and other UK destinations, are being "priced out" of Heathrow, an exercise was undertaken in July 2013 to assemble data on airfares which would provide a way to test this argument. If a particular traffic was to be excluded or discouraged, it would be through the fares mechanism. So, to test this hypothesis, data were gathered on fares and fare structures. The data gathered were as follows: journeys between LHR and a variety of overseas destinations; the marginal cost of flying from a Scottish airport via LHR to those overseas destinations; and the cost of flying from a Scottish airport to LHR and return on the pair of flights which would be used for the local leg of an interlining journey. This research provides us with a way of confirming or otherwise rejecting this hypothesis as to the source of market movements.

That is: as-shown on the following tables, we are comparing the marginal cost of the connecting flight ([4]: [1] – [2]), with the cost of a domestic return flight from a Scottish airport to LHR ([3]); and then calculating any saving ([5]: [3] – [4]). To provide a representative dataset, we must also multiply this through by a representative set of journey pairs ($n = 10$), a set of booking profiles ($n = 3$) and the Scottish airports which have services through to LHR ($n = 3$). The ten journey pairs are a sample of European, American and Asian destinations served by BA from LHR. The three booking profiles are: one week out, one month out, and three months out.

The results of the survey for the three Scottish airports with LHR access are shown in Tables 2a-2c following. The priority was to check each booking profile for the airports on the same day; fare structures can and do change on a day-to-day basis, especially when close to the time of the journey.

Some comments on the process are required:

- the return fares for a particular day were taken from the minimum for that day, and in a couple of cases the return fares for the day were a lot higher than what would usually be expected (that is, higher than the expected return fare from Scotland to LHR).
- in some cases BA was offering a transfer to or from LHR via one of the other London airports, and this was taken into account where this would be the only feasible option for a Scottish-origin journey.
- the service from Scotland was compared with a direct LHR flight to the foreign destination, although this was not always possible (for example, a flight to LAX where there was a connection offered to Scottish traffic through Boston, with a BA partner carrier).
- in nearly all cases, the BA services would face competition, either from direct services, or from other connecting services.
- BA often offers a lot of connecting services through the day through to the international service, and manages the fares for the interlined prices around the cycle of overall demand through a day.
- there were some cases where for various reasons the Scottish-LHR-foreign destination fare was less than the ex LHR fare, or (in the other direction), where the marginal cost of the connecting Scottish flight was more than what would be expected as the reasonable 'cheap connecting fare' for the day.
- in some cases there was a cheaper fare available with a One World alliance partner, but the consistent approach was to use the British Airways service in the comparison if at all possible.

The results of this exercise are as follows.

Table 2a Direct and interlining fares from Edinburgh

ANALYSIS OF INTERLINED FARE STRUCTURES - British Airways						
Assumes: seven-day return period and economy fare						
	[1] Fare ex EDI, via LHR	[2] Fare ex LHR [on a comparable flight]	[3] Fare EDI-LHR ret. [indicative, for those days]	[4]: [1] - [2] EDI-LHR Interlined	[5]: [3] - [4] Saving	Notes
22-Jul One week out:						
29-Jul Paris CDG	£381	£290	£342 [a]	£91	£251	} Separate direct link available with another airline
Madrid	£534	£225	£342	£309	£33	
Budapest	£903	£640	£342	£263	£79	} Scottish link via EWR
New York JFK	£1,223	£1,135	£342	£88	£254	
Atlanta	£1,381	£1,067	£342	£314	£28	Direct LHR-ATL and ret.
Los Angeles	£1,665	£1,641	£342	£24	£318	Direct flights LHR-LAX and return
Johannesburg	£1,146	£855	£342	£291	£51	
Beijing	£1,240	£1,137	£342	£103	£239	Irregular route inbound
Singapore	£1,666	£1,368	£342	£298	£44	
Tokyo NRT	£1,119	£996	£342	£123	£219	
avg.	£1,126	£935	£342	£190	£152	
					56%	
22-Aug One month out:						
29-Aug Paris CDG	£275	£184	£112	£91	£21	} Separate direct link available with another airline
Madrid	£378	£287	£112	£91	£21	
Budapest	£462	£371	£112	£91	£21	} Scottish link via EWR
New York JFK	£807	£786	£112	£21	£91	
Atlanta	£858	£837	£112	£21	£91	
Los Angeles	£1,431	£1,410	£112	£21	£91	
Johannesburg	£768	£710	£112	£58	£54	
Beijing	£1,237	£1,179	£112	£58	£54	
Singapore	£1,006	£1,048	£112	£42	£154	Note ex EDI charged at less. Possibly reflecting specific competitive situation
Tokyo NRT	£966	£1,109	£112	£143	£255	
avg.	£819	£792	£112	£27	£85	
					24%	
24-Oct Three months out:						
31-Oct Paris CDG	£265	£174	£112	£91	£21	} Separate direct link available with another airline
Madrid	£313	£223	£112	£90	£22	
Budapest	£297	£207	£112	£90	£22	} Scottish link via EWR available
New York JFK	£562	£604	£112	£42	£154	
Atlanta	£644	£643	£112	£1	£111	Cheaper options available ex LHR
Los Angeles	£616	£595	£112	£21	£91	
Johannesburg	£848	£790	£112	£58	£54	
Beijing	£924	£866	£112	£58	£54	
Singapore	£910	£852	£112	£58	£54	
Tokyo NRT	£840	£742	£112	£98	£14	Cheaper via LGW, or with JAL
avg.	£622	£570	£112	£52	£60	
					47%	
Averaged:						
Paris CDG	£307	£216	£189	£91	£98	
Madrid	£408	£245	£189	£163	£25	
Budapest	£554	£406	£189	£148	£41	
New York JFK	£864	£842	£189	£22	£166	
Atlanta	£961	£849	£189	£112	£77	
Los Angeles	£1,237	£1,215	£189	£22	£167	
Johannesburg	£921	£785	£189	£136	£53	
Beijing	£1,134	£1,061	£189	£73	£116	
Singapore	£1,194	£1,089	£189	£105	£84	
Tokyo NRT	£975	£949	£189	£26	£163	
avg.	£856	£766	£189	£90	£99	
					48%	

Data accessed:
Monday 15 July, for one week out
Monday 22 July, for one calendar month out
Wednesday 24 July, for three calendar months out

[a] - Normally £151 return

Comment specific to Edinburgh

The survey of the booking profile for one week out was complicated because the straight domestic return fare for those days, at the time of the fare survey, was much higher than normal. However, the survey proceeded, in order to see how this large domestic fare translated into the interlined international fares. The three cases where flying *through* LHR was charged at less than flying *from* LHR could possibly be explained by competitive pressures faced by BA in Scotland which they don't face at LHR.

Table 2b Direct and interlining fares from Glasgow

ANALYSIS OF INTERLINED FARE STRUCTURES - British Airways						
Assumes: seven-day return period and economy fare						
	[1] Fare ex GLA, via LHR	[2] Fare ex LHR [on a comparable flight]	[3] Fare GLA-LHR ret. [indicative, for those days]	[4]: [1] - [2] GLA-LHR Interlined	[5]: [3] - [4] Saving	Notes
22-Jul One week out:						
29-Jul Paris CDG	£290	£290	£148	£0	£148	} Separate direct link available with another airline
Madrid	£256	£225	£148	£31	£117	
Budapest	£640	£640	£148	£0	£148	
New York JFK	£1,223	£1,135	£148	£88	£60	
Atlanta	£1,383	£1,067	£148	£316	-£168	"Rogue" result
Los Angeles	£1,665	£1,641	£148	£24	£124	
Johannesburg	£930	£855	£148	£75	£73	
Beijing	£1,329	£1,137	£148	£192	-£44	
Singapore	£1,565	£1,368	£148	£197	-£49	Via LGW on the outbound link
Tokyo NRT	£1,099	£996	£148	£103	£45	
avg.	£1,038	£935	£148	£103	£45	
					69%	
22-Aug One month out:						
29-Aug Paris CDG	£275	£184	£112	£91	£21	} Separate direct link available with another airline
Madrid	£356	£287	£112	£69	£43	
Budapest	£462	£371	£112	£91	£21	
New York JFK	£807	£786	£112	£21	£91	Scottish link via EWR available
Atlanta	£858	£837	£112	£21	£91	As for EDI
Los Angeles	£1,431	£1,410	£112	£21	£91	As for EDI
Johannesburg	£767	£710	£112	£57	£55	As for EDI
Beijing	£1,237	£1,179	£112	£58	£54	As for EDI
Singapore	£1,005	£1,048	£112	-£43	£155	Note ex GLA charged at less. Possibly reflecting specific competitive situation
Tokyo NRT	£966	£1,109	£112	-£143	£255	
avg.	£816	£792	£112	£24	£88	
					22%	
24-Oct Three months out:						
31-Oct Paris CDG	£285	£174	£112	£111	£1	} Separate direct link available with another airline
Madrid	£235	£223	£112	£12	£100	
Budapest	£271	£207	£112	£64	£48	
New York JFK	£522	£604	£112	-£82	£194	Scottish link via EWR available
Atlanta	£546	£643	£112	-£97	£209	Cheaper options available ex LHR
Los Angeles	£616	£595	£112	£21	£91	
Johannesburg	£867	£790	£112	£77	£35	
Beijing	£924	£866	£112	£58	£54	
Singapore	£910	£852	£112	£58	£54	
Tokyo NRT	£765	£742	£112	£23	£89	
avg.	£594	£570	£112	£25	£88	
					22%	
Averaged:						
Paris CDG	£283	£216	£124	£67	£57	
Madrid	£282	£245	£124	£37	£87	
Budapest	£458	£406	£124	£52	£72	
New York JFK	£851	£842	£124	£9	£115	
Atlanta	£929	£849	£124	£80	£44	
Los Angeles	£1,237	£1,215	£124	£22	£102	
Johannesburg	£855	£785	£124	£70	£54	
Beijing	£1,163	£1,061	£124	£103	£21	
Singapore	£1,160	£1,089	£124	£71	£53	
Tokyo NRT	£943	£949	£124	-£6	£130	
avg.	£816	£766	£124	£50	£74	
					41%	

Data accessed:
Monday 15 July, for one week out
Monday 22 July, for one calendar month out
Wednesday 24 July, for three calendar months out

Comment specific to Glasgow

The domestic fare structure for one week out was much closer to normal than its equivalent in Edinburgh, so provides an interesting contrast. The average saving on an interlined fare in this sample, when compared with a domestic one, was £74.

Table 2c Direct and interlining fares from Aberdeen

ANALYSIS OF INTERLINED FARE STRUCTURES - British Airways						
Assumes: seven-day return period and economy fare						
	[1] Fare ex ABZ via LHR	[2] Fare ex LHR [on a comparable flight]	[3] Fare ABZ-LHR ret. [indicative]	[4]: [1] - [2] ABZ-LHR Interlined	[5]: [3] - [4] Saving	Notes
22-Jul One week out:						
29-Jul Paris CDG	£382	£290	£176	£92	£84	} Separate direct link available with another airline
Madrid	£347	£225	£176	£122	£54	
Budapest	£846	£640	£176	£206	£-30	
New York JFK	£1,224	£1,135	£176	£89	£87	Scottish link via EWR
Atlanta	£1,514	£1,067	£176	£447	£-271	Direct LHR-ATL and ret.
Los Angeles	£1,666	£1,641	£176	£25	£151	
Johannesburg	£931	£855	£176	£76	£100	
Beijing	£1,330	£1,137	£176	£193	£-17	Departing the following day
Singapore	£1,445	£1,368	£176	£77	£99	
Tokyo NRT	£1,207	£996	£176	£211	£-35	
avg.	£1,089	£935	£176	£154	£22	
22-Aug One month out:						
29-Aug Paris CDG	£276	£184	£165	£92	£73	} Separate direct link available with another airline
Madrid	£379	£287	£165	£92	£73	
Budapest	£463	£371	£165	£92	£73	
New York JFK	£843	£786	£165	£57	£108	Scottish link via EWR
Atlanta	£859	£837	£165	£22	£143	
Los Angeles	£1,433	£1,410	£165	£23	£142	
Johannesburg	£769	£710	£165	£59	£106	
Beijing	£1,238	£1,179	£165	£59	£106	
Singapore	£1,006	£1,048	£165	£-42	£207	
Tokyo NRT	£1,106	£1,109	£165	£-3	£168	£966 with JAL
avg.	£837	£792	£165	£45	£120	
24-Oct Three months out:						
31-Oct Paris CDG	£266	£174	£160	£92	£68	} Separate direct link available with another airline
Madrid	£294	£223	£160	£71	£89	
Budapest	£272	£207	£160	£65	£95	
New York JFK	£536	£604	£160	£-68	£228	Scottish link via EWR
Atlanta	£547	£643	£160	£-96	£256	Cheaper options available for LHR pax.
Los Angeles	£598	£595	£160	£3	£157	
Johannesburg	£849	£790	£160	£59	£101	
Beijing	£925	£866	£160	£59	£101	
Singapore	£911	£852	£160	£59	£101	
Tokyo NRT	£841	£742	£160	£99	£61	
avg.	£604	£570	£160	£34	£126	
Averaged:						
Paris CDG	£308	£216	£167	£92	£75	
Madrid	£340	£245	£167	£95	£72	
Budapest	£527	£406	£167	£121	£46	
New York JFK	£868	£842	£167	£26	£141	
Atlanta	£973	£849	£167	£124	£43	
Los Angeles	£1,232	£1,215	£167	£17	£150	
Johannesburg	£850	£785	£167	£65	£102	
Beijing	£1,164	£1,061	£167	£104	£63	
Singapore	£1,121	£1,089	£167	£31	£136	
Tokyo NRT	£1,051	£949	£167	£102	£65	
avg.	£843	£766	£167	£78	£89	
				47%		

Data accessed:
Monday 15 July, for one week out
Monday 22 July, for one calendar month out
Wednesday 24 July, for three calendar months out

Comment specific to Aberdeen

The domestic fare structure for one week out was much closer to normal than its equivalent in Edinburgh, so again provides an interesting contrast. In one case, the quoted fare ex ABZ was far more than ex LHR – that is, the price difference was much more than what a normal interlined fare would be. This can be explained because much cheaper fares which were available in the Aberdeen market, were with another carrier using LHR, instead of BA, and the service was via an intermediate American airport and not direct from LHR. For consistency, it was decided to price the journey with BA and as a direct LHR-to-destination flight.

A summary table of results is provided in Table 2d following.

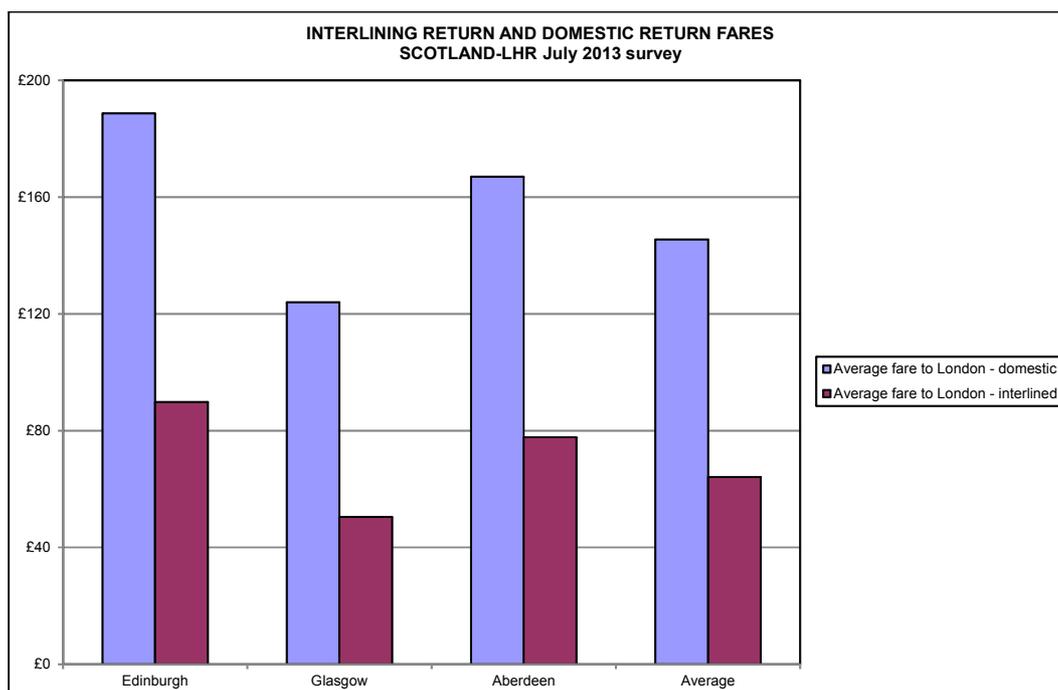
Table 2d The fare study: average results

Assumes: seven-day return period and economy fare					
	[1]	[2]	[3]	[4]: [1] - [2]	[5]: [3] - [4]
	Average fare via LHR	Fare ex LHR [on a comparable flight]	Indicative LHR return fare	Average Interlined fare	Saving
One week out:					
Edinburgh	£1,126	£935	£342	£190	£152
Glasgow	£1,038	£935	£148	£103	£45
Aberdeen	£1,089	£935	£176	£154	£22
avg.	£1,084	£935	£222	£149	£73
				67%	
One month out:					
Edinburgh	£819	£792	£112	£27	£85
Glasgow	£816	£792	£112	£24	£88
Aberdeen	£837	£792	£165	£45	£120
avg.	£824	£792	£130	£32	£98
				25%	
Three months out:					
Edinburgh	£622	£570	£112	£52	£60
Glasgow	£594	£570	£112	£25	£88
Aberdeen	£604	£570	£160	£34	£126
avg.	£607	£570	£128	£37	£91
				29%	
All fares, averaged:					
Edinburgh	£856	£766	£189	£90	£99
Glasgow	£816	£766	£124	£50	£74
Aberdeen	£843	£766	£167	£78	£89
Overall:	£830	£766	£146	£64	£81
				44%	

(for 90 observations overall. The percentage showing is the ratio of calculated interlined fares to the indicative LHR return fare).

The consistent evidence is that the marginal fare of an interlined journey originating or terminating in Scotland is not that great, when compared with flying from LHR, and tends to be a lot less than what would be charged for a straight Scotland-to-LHR journey and return for the same pair of flights. Why this is so is quite straightforward; the airlines are pricing in such a way as to maximise the absolute 'yield' from the journey, which on an interlined trip includes the foreign component. A domestic journey may be priced more, but may well not have the overall or absolute yield per end-to-end journey that an international journey would have. The evidence from BA is clear enough – if anything, it is the volume of domestic journeys which have declined over time, much more than the interlined ones; and this also confirms that it is not necessarily UK traffics which are being squeezed out to the benefit of the direct international services – because an interlined journey is, fundamentally, part of that international service. Chart 2 following illustrates the differences in the structure of domestic return and interlining return airfares.

Chart 2 Scotland to LHR: Interlined and domestic fares



Some of the results in the above survey reflected “outlier” results, where the calculated connecting fare was above the straight return domestic fare or, alternatively, negative. The averages were recalculated with these 14 observations excluded, and this is shown in Table 2e following:

Table 2e The fare study: average results, summary, excluding outliers

	[1] Average fare via LHR	[2] Fare ex LHR [on a comparable flight]	[3] Indicative LHR return fare	[4]: [1] - [2] Average Interlined fare	[5]: [3] - [4] Saving
All fares, averaged:					
Edinburgh	£844	£741	£189	£103	£85
Glasgow	£794	£732	£124	£62	£62
Aberdeen	£815	£734	£167	£81	£86
Overall:	£804	£733	£146	£71	£74
				49%	

So, while the domestic average return fare is the same, with these exclusions the domestic component of the interlined journey is still charged at only about half of a ‘normal’ return fare (the situation for which is discussed further in section 3.1). The consistent if not comprehensive picture is that the marginal cost of a connecting flight (that is, within the same booking), is still significantly less than a discrete return airfare from Scotland to LHR. The UK Civil Aviation Authority have commented:

Increased airline yields could arise directly, where connecting fares are higher than point to point fares on the same route, although this is rare. Passengers who have the alternative of a direct or a connecting route between two points, can be expected to prefer the direct one, other factors being equal. Typically, therefore, the fare for a connecting journey from a network airline will be lower than the sum of the point-to-point fares for the two individual legs of that journey. This effect can be observed through the fares quoted on airline websites, and indicates that most network airlines would benefit from selling two direct tickets rather than one connecting ticket at the same class and conditions. Airline yield benefits from connectors are therefore more likely to arise indirectly, where average passenger yield rises through the greater range and frequency of services offered.

(Civil Aviation Authority, 2009; para 7.14).

This explanation has been further borne out by some theoretical work by Johnson *et al.* (2013) on patterns in surface access ¹⁶. Using a survey of Scottish travellers, they found a strong preference for direct flights over inter-connecting flights and thus a much higher willingness-to-pay for direct flights. If so, this explains why BA and the other airlines need to provide a significant discount on their interlining services from LHR to the UK regions; it is essential if the traffic is to be secured at all, and especially given the economics of 'legacy' airlines, which rely on transfer traffics (both internally within the UK and international transfer) in order to be viable. Section 2.4 following discusses issues to do with Air Passenger Duty, which impacts the structure of fares as well.

2.2 Other airlines' LHR-Scotland pricing

A survey was also undertaken of other airlines' pricing policies with respect to UK interlining traffic out of LHR, which are shown in Table 3 following. This showed, from a number of examples, that the margin charged by the airline concerned for the additional connection and out of into Scotland, when compared with the equivalent service to LHR, was not great and generally much less than the straight return flight over the same sector. For the most part, the general picture was that the Scottish component of an interlined journey was priced at a lot less than a straight return fare, especially if the service was provided, as in the examples below from Virgin Atlantic, by the same airline. For the most part, it would appear that BA 'wholesales' interconnecting services on a comparable basis to both their alliance partners and their non-alliance competitors.

In the analysis, there were two cases with Singapore Air where an extremely cheap fare was available from LHR which wasn't available in the ex Edinburgh or ex Glasgow listing at the time I looked. For contrast, the first of these listings included the cheapest comparable ex LHR fare; the second included the clearly cheapest ex LHR listing. The return premium for Scotland was £88 return on average (that is, 60 percent of the normal return fare; so, slightly more than the equivalent fare premium for BA, which was £74). With the last observation excluded, because the saving to Scottish passengers of flying through LHR on that particular booking was negative, the average for the sample fell to £65 (44 percent of the normal return fare). Also worth noting is that in many cases, a much cheaper return fare for Scottish travellers was available ex Glasgow with Emirates. The effect of this activity in the travel market is discussed later.

Table 3 Equivalent fare structures from other airlines

Analysis of interlined fare structures

Date of Check	Journey	Airline(s)	Date out	Date back	Fare ex Scotland	Fare ex LHR	Premium for Scotland	Fare Scotland-LHR (domestic)	Margin (saving)
26-Jul	EDL-LHR-DXB	Virgin/Virgin	31-Jul	03-Aug	£1,050 [a]	£995	£55	£165	£110
26-Jul	EDL-LHR-LAX	Virgin/Virgin	11-Aug	18-Aug	£1,219 [b]	£1,198	£21	£125	£104
26-Jul	ABZ-LHR-SYD	Virgin/Virgin	11-Aug	25-Aug	£1,638	£1,569	£69	£147	£78
26-Jul	ABZ-LHR-JNB	Virgin/Virgin	02-Sep	23-Sep	£766	£710	£56	£147	£91
26-Jul	EDL-LHR-JNB	Virgin/Virgin	02-Sep	23-Sep	£766	£710	£56	£108	£52
26-Jul	EDL-LHR-HKG	Virgin/Virgin	02-Sep	23-Sep	£956	£901	£55	£109	£54
26-Jul	EDL-LHR-HKG	BA/Cathay	02-Sep	23-Sep	£903 [c]	£895	£8	£111	£103
26-Jul	GLA-LHR-SIN	BA/Singapore	05-Aug	19-Aug	£1,540 [d]	£1,371	£169	£151	-£18
26-Jul	GLA-LHR-SIN	BA/Singapore	26-Aug	03-Sep	£1,052 [d]	£968	£84	£151	£67
26-Jul	GLA-LHR-SIN	BA/Singapore	04-Nov	25-Nov	£858 [e]	£786	£72	£151	£79
26-Jul	GLA-LHR-SIN-AKL	BA/Singapore	04-Nov	25-Nov	£1,295 [f]	£975	£320	£151	-£169

Averages: £1,095 £1,007 £88 60% £147 £59

Notes

- [a] Emirates GLA-DXB for these dates quoted at £382 (£529 on the earlier departure that day); and a £499 return fare for these days was available via AMS with KLM.
 [b] Cheaper LHR-LAX return journey available on later flight (not available to an ex EDI booking)
 [c] Emirates GLA-DXB-HKG for these dates quoted at £558 (minimised transit time)
 [d] Emirates GLA-DXB-SIN for these dates quoted at £535 and £545, but with an extended transit time
 [e] Heavily discounted fare available ex LHR, of £666
 [f] For contrast with the previous listing, the ex LHR listing is the heavily discounted fare. The ex LHR return fare comparable to the Scottish one is £1,036.

So, on balance, the evidence for these carriers is that interlining journeys are priced at a consistent if not comprehensive discount on straight domestic return journeys; and thus, we can also argue that Scotland is not being priced out of access to LHR's international/interlining services. The marginal cost of flying to and from Scotland on an interlining journey on a carrier other than BA is generally

relatively low – confirming that in this respect, the other carriers behave in a way akin to BA. Therefore, the hypothesis that Scottish international traffic is being priced out of LHR remains ‘not proven’. The alternative hypothesis, that airlines sell the additional leg to and from Scotland at a significant discount in order to preserve the overall yield, appears, from the evidence, to be much more likely.

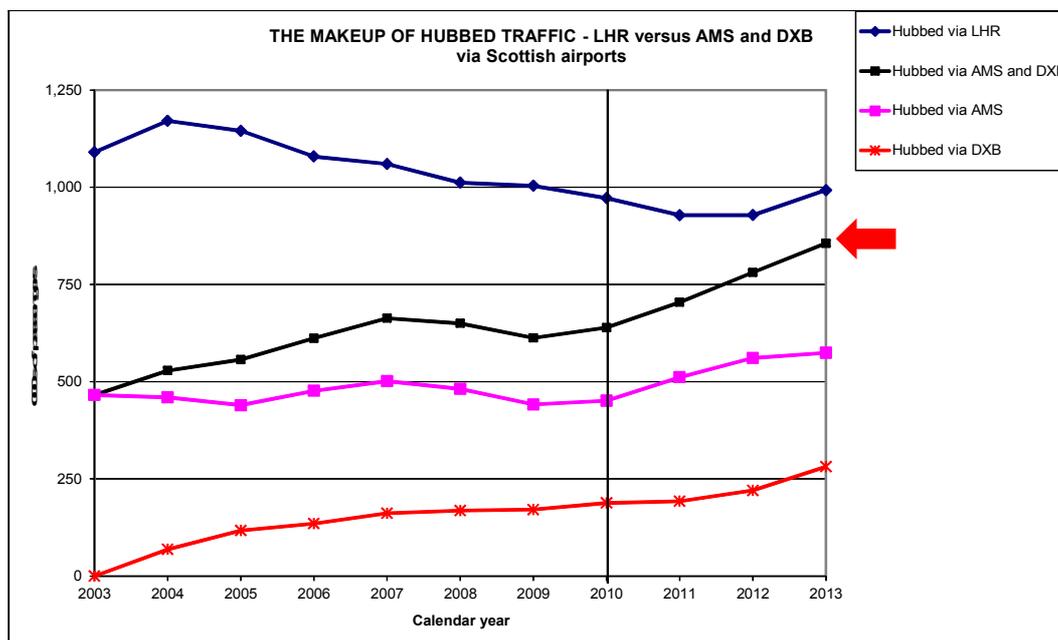
2.3 The usual suspects: the pull factors

So, if ‘push’ factors like fares don’t explain the decline in demand and therefore in services, this means that we need to look at the ‘pull’ factors which are encouraging the interlining and general international market, to use airports other than LHR. A discussion of the interlining trends affecting the other London airports is included as well, for comparison. There are two key observations to make:

First, the nature of the interlining process is changing

Chart 3 following shows the scope of the LHR interlining process for Scottish journeys, when compared with the equivalent Scottish traffic through Amsterdam. What is clear is that as the LHR/Scotland interlining traffic has been declining, the equivalent traffic via Amsterdam has been indeed been growing in the last few years (and over 25 percent since 2010). For the UK as a whole, it has been reported that, “...people outside London, are as likely to use Schiphol to get to their final global destination as they are to use Heathrow”¹⁷. The total UK passenger flows are currently around 2m passengers per year in Amsterdam’s case¹⁸. Given that Scotland has better access to LHR than many other areas in Great Britain, one would thus expect Scottish use of Amsterdam for interlining purposes to be less, if not much less¹⁹. Not for nothing should Schiphol be regarded as the “UK’s second hub airport”; last year it was connected to over 20 airports in the United Kingdom proper, compared with eight for LHR, as well as the other four London airports.

Chart 3 Travel between Scotland and LHR, AMS and DXB

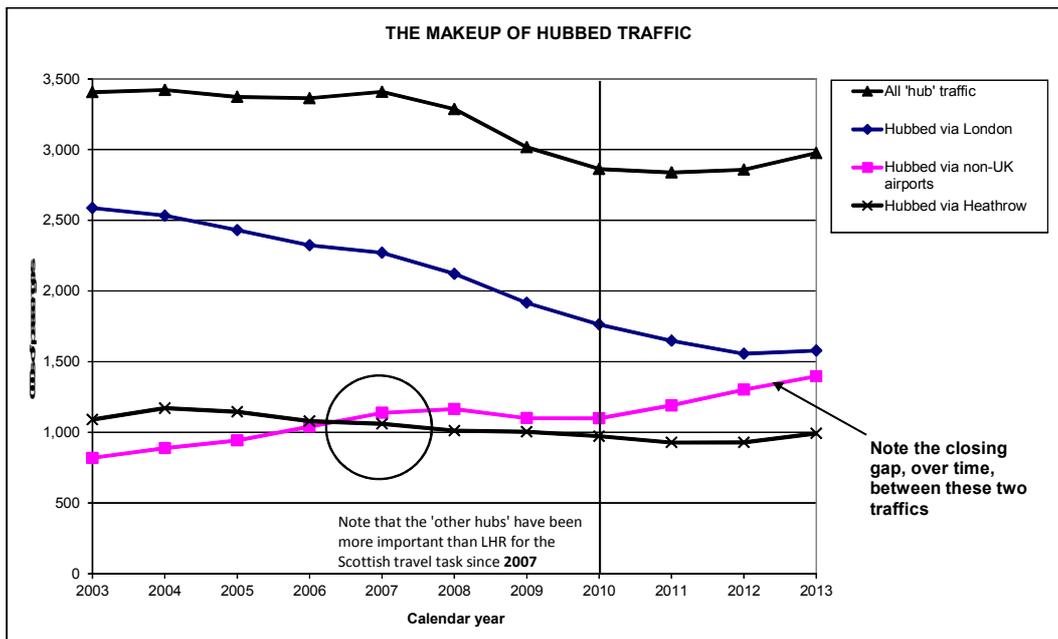


There is also a very large transfers traffic using Dubai which needs to be considered. If this traffic is included as well with Schiphol’s (heavy black line, arrowed), then it can be seen that those two airports have become, over time, almost as important as LHR for Scottish international traffic. The magnitude of the changes in the last ten years is striking. This re-inforces the view that markets can be very effective at responding to congestion in one part of the overall system. That is, some of the market has chosen to move out of LHR to use Amsterdam, with the result that interlining volumes through LHR have fallen over the ten years. Once the equivalent traffic from Dubai is added in as well, it instead becomes clear that the traffic which ten years ago – and certainly fifteen years ago – would have gone through LHR, is now going through these two airports. Indeed, Dubai is now Glasgow’s largest single

overseas traffic flow, just ahead of Amsterdam, and the third-largest discrete (airport-to-airport) Scottish international traffic flow, after Edinburgh-Amsterdam and Edinburgh-Dublin.

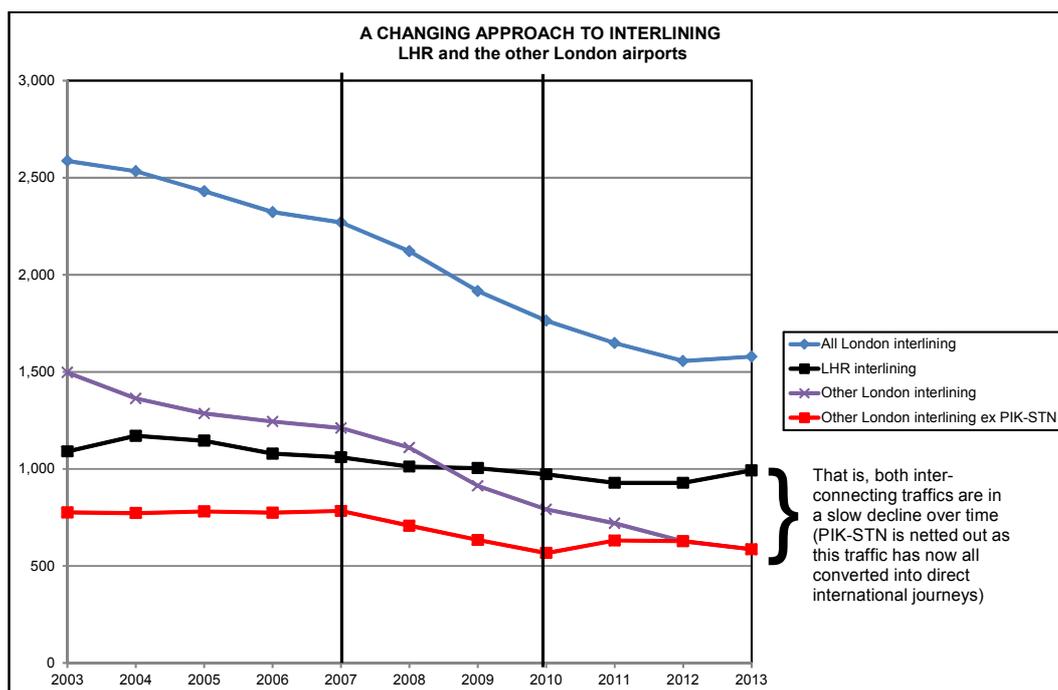
Chart 4 following shows the situation for the wider offshore interlining market – that is, both London as a whole (including the interlining traffic through the other London airports, a market which is complementary to that provided through LHR), and then other offshore airports. Scottish interlining as a whole at airports *outwith* the United Kingdom nearly doubled between 2003 and 2013, and collectively is now close in size to the interlining task for London as a whole. Besides Amsterdam and Dubai, the other airports included in this analysis are: Frankfurt, Paris CDG, Newark (for travel to the USA; with La Guardia, it stands to New York JFK in the same way that Gatwick stands to LHR) and even Dublin (again, for some travel to the USA). This market is certainly larger than the LHR market, as a whole, and has been for some years. Istanbul and Qatar are not as yet included in this analysis, but may be in time.

Chart 4 The Scottish interlining process, overall



In other words, the volume of Scottish international air travel which require a transfer in the journey has fallen somewhat over time; but the volume transitting in an overseas airport has nearly doubled in the last ten years while the equivalent transit market through London as a whole has fallen about forty percent. The change in the interlining process away from LHR is also being seen in the equivalent traffic through the other London airports; their interlining process serves a complementary function to LHR's, and is included in this analysis both for compare-and-contrast purposes and for completeness. This is shown in Chart 5 following.

Chart 5 The changing Scottish interlining process – by London airport



That is, what we are seeing for LHR, we are seeing for traffic between Scotland and the other London airports as well. This also shows that when the Prestwick-Stansted traffic is netted out, because Ryanair is now carrying this traffic directly into and out of Scotland, the situation shows only a slow decline over time, for both LHR transit traffic and that through the other London airports (the latter is shown through the lowest red line).

In the context of our discussion this is important because it provides significant evidence that the market pressures moving Scottish transfer traffic away from LHR (where there is congestion), are being seen in the traffic patterns for the other London airports (where there is much less congestion). On that basis, then, the congestion and price issues at LHR cannot be why its overall UK traffic is declining, if a comparable decline is apparent in other airports or services unaffected by congestion or access issues. In other words, has the Scottish international travel market lost its commitment to LHR and indeed London generally? It is also tempting to draw a connection between the growth in the Dubai transit traffic and the decline in the equivalent LHR traffic, especially for Glasgow. Obviously the parallel is not perfect, but when added to the growth in the equivalent Schiphol traffic, as well as the other hub airports, the correlation is clear: traffic trends are changing, and our policy must keep this in mind.

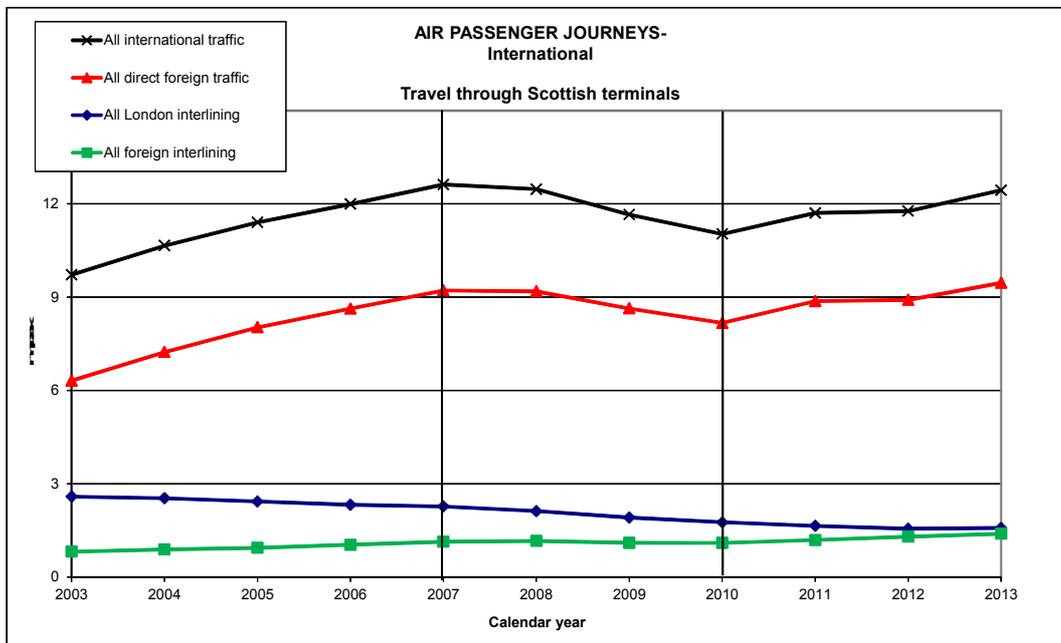
Also, there is evidence that the change in the patterns of the LHR and London airline transfer market is occurring in markets besides Scotland's. Dublin Airport has recently reported that a growing part of its market is coming from Northern Ireland²⁰. Instead of going through LHR, residents of Northern Ireland are choosing to take the two-hour road journey from Belfast to Dublin, which as an airport is increasingly well-served for destinations, and the numbers involved are not insignificant²¹. The airport has also advised that the number of Northern Ireland-based passengers using Dublin Airport has almost doubled since 2010 and the airport is confident of further growth. "We recently added new long-haul destinations such as Dubai and Washington DC and new European destinations such as Düsseldorf, Palermo, and Bologna. The growth in transatlantic capacity means that this summer, we will have 224 weekly flights to and from the United States and Canada, which is more than Gatwick or Manchester airports". Dublin also has the advantage that it can offer pre-clearance to the USA (that is, the US border clearance procedures are completed in Ireland, meaning that when the flight arrives in the USA, it is treated as a domestic service). This provides the airport with a distinct unique selling point for Scottish and other residents of the UK which LHR does not provide²².

Second, the nature of the direct international travel task is changing

Chart 6 following shows the trends in the Scottish international travel task. In 2003 the total international travel task was running at about 9.7m passengers per year, of which 6.3m was direct (no transfer), 820,000 was through a foreign hub, and a further 2.6m passengers, 27 percent of the total, were interlining through Heathrow or the rest of the London airport system. By 2013, total volumes had recovered and then grown to over 12.4m passengers per year (+28 percent), with direct international traffic at 9.5m passengers per year (+50 percent), 1.4m through external hubs (+71 percent) and the balance through the London airport system (1.6m, -39 percent). So, some of the extra direct demand is from traffic which previously would have gone from LHR or another London airport.

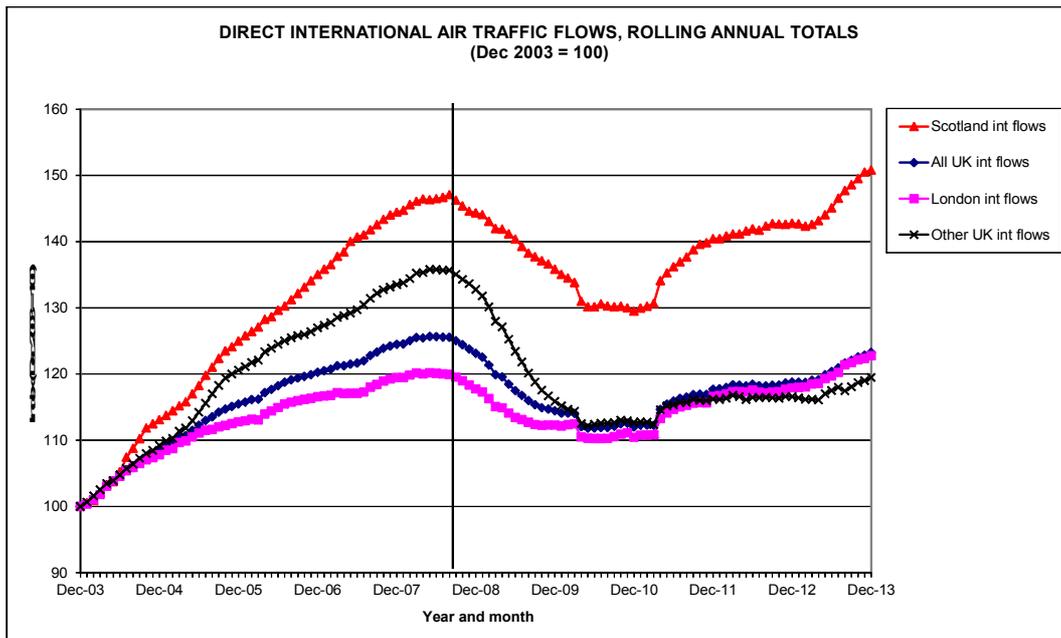
We can see that Scottish direct international volumes grew very strongly, relative to end-2003, right up until September 2008; at which point the recession started taking its toll of transport demand (Clark, 2013, section 2.4). As Chart 4 above shows, the volumes of traffic as a whole which have a transfer in the journey have fallen slightly over time, and is now a smaller share of the overall travel task (35 percent down to 24 percent). This trend provides some significant empirical support for the findings of the Johnson et al. research.

Chart 6 The Scottish international travel task



After April 2011 the market began to recover consistently; the overall task is the important value to monitor, remembering that for Scotland, the decline has been in the interlining process and specifically the non-LHR London interlining process. To illustrate: in 2000, direct flights, including those to the hubs, handled less than three-quarters of the Scottish international travel task; they now handle close to ninety percent of it. The overall volumes are back to their 2007 levels, but the share of it flying direct is a lot higher.

Chart 7 following shows the situation for the UK as a whole, in terms of trends in the various aviation markets.

Chart 7 Travel in UK international aviation traffic, by market, relative to December 2003

This employs an index chart to make the markets more comparable, as they are very different in absolute size. This also confirms that the trends seen in Scotland have been seen for the UK as a whole as well, if at a lesser scale. What is interesting is to compare the growth in the Scottish market relative to the others; in that it grew more strongly than its England-regional equivalent and the market as a whole. It was the other markets which grew much more slowly, suggesting that as various Scottish journey pairs hit levels of 'critical mass', travellers substituted these trips to travelling through London.

To summarise, the availability of both more direct flights and more interlined services via other airports have served to provide a significant 'pull', which has encouraged travellers to look at other options. It would appear that the 'pull' factors have proved to be more important than any 'push' ones. As a variety of other travel options have built up, the travelling public has moved round to using them, for all sorts of reasons. These data do leave the impression that what is sometimes nicknamed the 'dawn horror' is becoming, over time, far more 'optional'; if interlining travellers can avoid LHR²³, especially if a direct flight is available, they will²⁴. As Chart 4 shows, the same can be seen for the other London airports; and the simplest explanation for this is that the changes working their way through at LHR, are doing so at these airports as well. The public's mood of 'anywhere but Heathrow' has also become a mood of 'anywhere but London'.

2.4 The possible effects of Air Passenger Duty (APD)

For the record, one should also note here the effects of Air Passenger Duty on airfares. A charge is levied on the outward leg or legs of a single booking, except when the second leg is commenced within a specified time and is therefore regarded as an integral part of the original journey²⁵.

A possibility is that the way in which APD is charged, may be creating an incentive to 'hub' through airports other than LHR in order to avoid a higher APD charge. This is because for APD purposes connected flights originating in the UK are treated as one journey and APD is charged according to a passenger's final destination, provided the flights are connected and the connections are within the stipulated time limitations. While this creates incentives for quick connections when using a UK hub airport (to avoid being charged significant levels of APD for a longer international flight) it can also create incentives to 'hub' through a non-UK airport where there will be no APD equivalent charge for the second leg of the journey.

It has been suggested that a degree of this abstraction is occurring through Amsterdam and Dublin Airports, thus the strong growth over time in these markets. That said, there are some significant arguments against this view – the money saved in APD would in all likelihood be lost in the cost of an additional return airfare to either airport, which otherwise would be wrapped up in the main booking. Also, undertaking a long-haul multi-sector flight on separate bookings has some significant risks, if the first flight was delayed in some way. It is worth noting that although APD is not charged for journeys arising in Northern Ireland going outwith the UK and Europe, Dublin Airport is benefitting from much more travel originating in Northern Ireland.

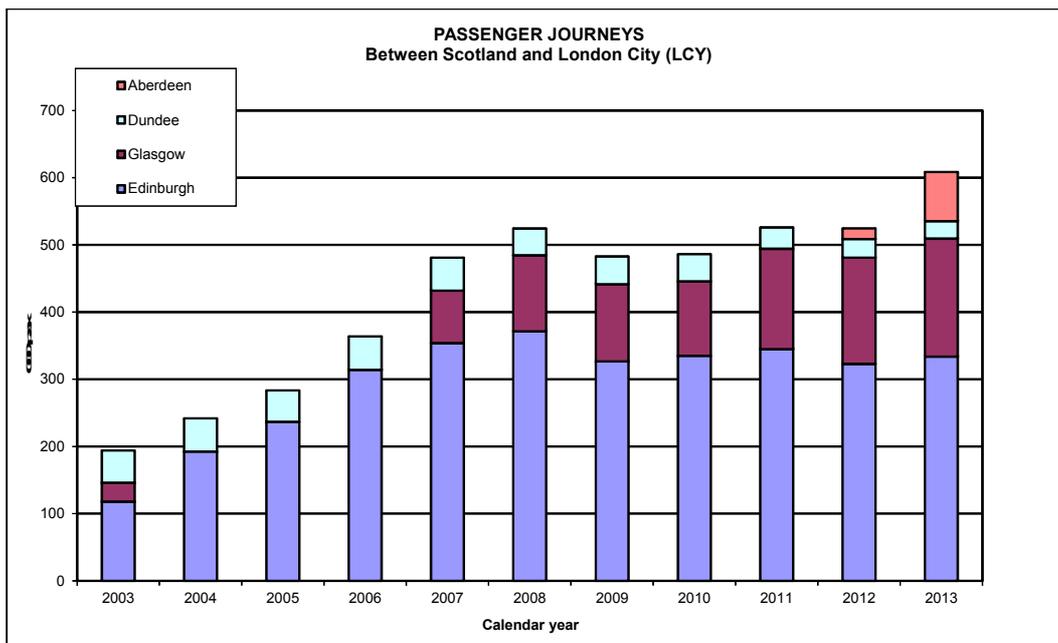
3. The Scotland-London domestic travel taut

This leaves the question of how Scotland’s domestic market to London (Chart 1c above) has trended. The bulk of the absolute decline in numbers has occurred in this market segment, so it is worth attention. Also, the changes in the LHR domestic market are at the root of the changes in service frequency shown in Table 1. Two principal reasons for this decline, which between them explain the variation in the domestic market shown in Chart 1c above, are clear:

First, London City (LCY) is handling much more of Scotland’s London domestic traffic

Chart 8 following shows the trends in traffic between LCY and Scotland over the last ten years (none of it is assumed to be interlined). More services to Glasgow were added after the end of BMI’s services in March 2011, and new services have been added in the last year or so to Aberdeen.

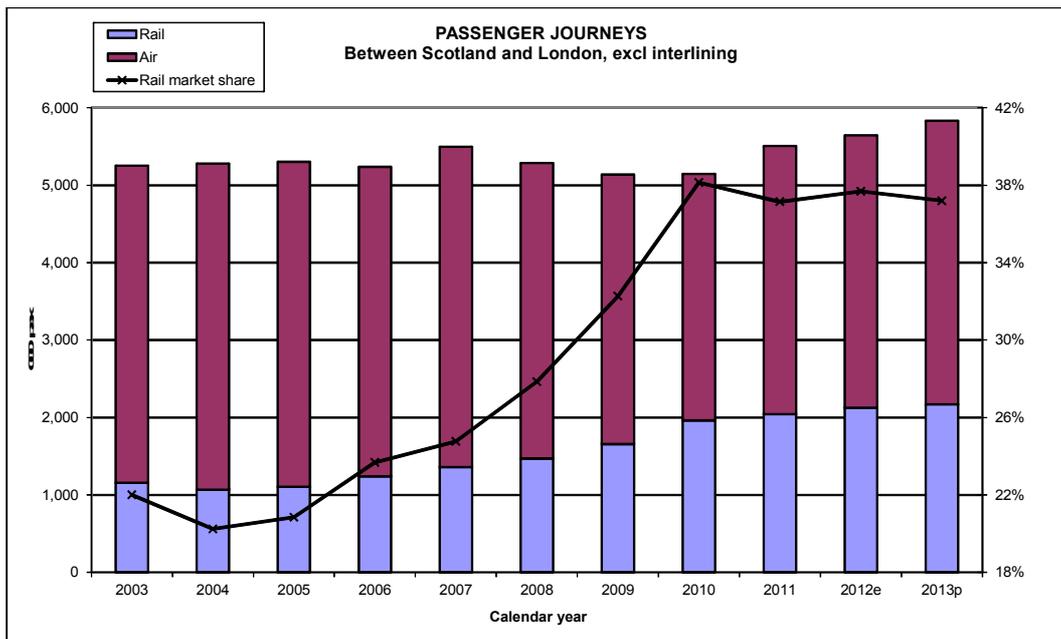
Chart 8 London City-Scotland



Combined with the very large growth in the Edinburgh-LCY market (by a factor of three in the five years to 2008) it is not asking much to assume that this is traffic which previously would have used LHR. There has been some net growth over this time in the Scotland-Gatwick sector as well.

Second, we are also seeing the effects on airline demand of a resurgent railway

Rail volumes between Scotland and London proper nearly doubled over the 2004-2010 period, from 1.1m to 2m passengers per year, with its market share stable thereafter. This is illustrated in Chart 9 following.

Chart 9 Scotland's traffic to London proper (excl. the south-east)²⁶

Between Scotland and London & the South-East as a whole, volumes grew over the 2004-2010 period from 1.2m to 2.2m passengers.

This shift in mode, from air to rail, was pretty well across the board within Great Britain, where there was a time-competitive rail option. Also worth noting is that this market was shifting from air to rail in markets which do not face LHR's congestion or pricing issues; which implies that the move of the market out of LHR was not because of congestion issues either. In a market which was declining after 2007, because of the recession, there was only one place the growth in the railway's traffic could come from, the airlines. It certainly resulted in a significant reduction in frequency in LHR services. Basically, the market trend was more than Scotland to London or even Scotland to Great Britain as a whole (Clark, 2008; and Clark, 2013). These changes are also part of some wider shifts in the Scotland-London market. These are summarised in Tables 4a and 4b following, for the period 2004-2012.

Table 4a The context of the wider London market

	2004	2012		
LHR domestic	2,732	1,819	-913	-33%
Other London:				
- Gatwick	1,299	1,403	105	8%
- London City	242	525	283	117%
- Luton	1,012	642	-370	-37%
- Stansted	628	529	-99	-16%
Other London:	3,180	3,099	-82	-3%
All domestic airline (a)	5,912	4,918	-994	-17%
			↓	
Plus rail (inc. Southeast) (b)	1,234	2,368	1,135	92%
Total Scotland-London/SE (c)	7,146	7,286	140	2%

Table 4b The context of the wider London market – summary

	2004	2012		
The 3 airports in decline	4,371	2,990	-1,382	-32%
Less growth at London City/LGW	1,541	1,928	387	25%
Net decline (a)	5,912	4,918	-994	-17%
Railway: - London	1,069	2,127	1,059	99%
- SE	165	241	76	46%
Total (b)	1,234	2,368	1,135	92%
Air and rail together (c)	7,146	7,286	140	2%
			Rail growth less air's decline	

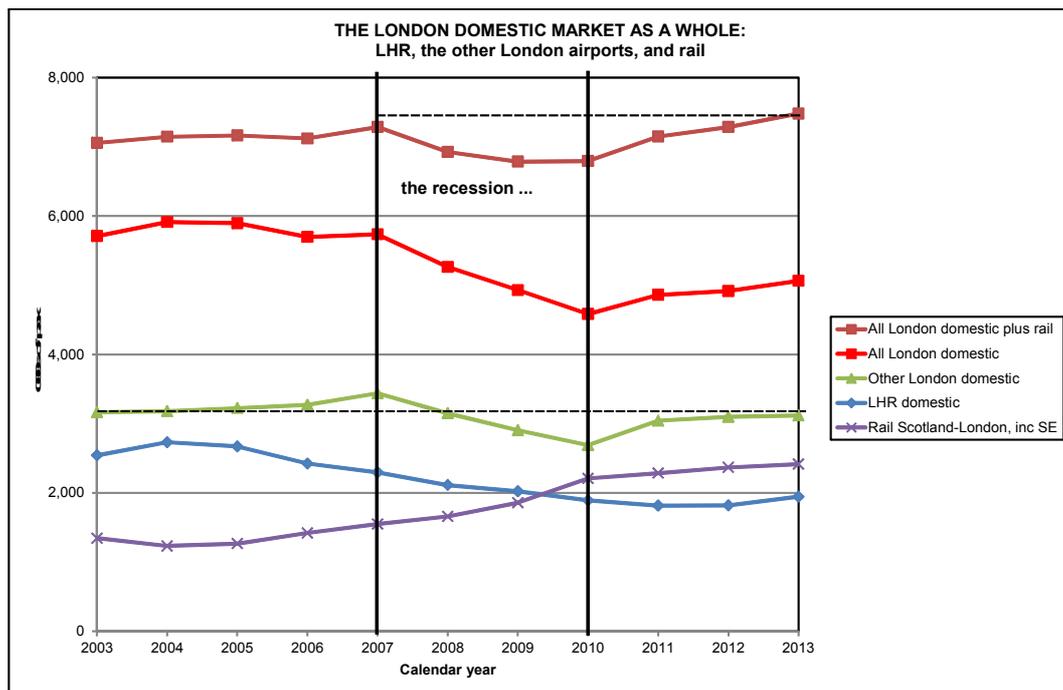
Table 4c following provides a comparable presentation of these data, from the point of view of where the growth in the railway demand came from:

Table 4c Explaining the changes in the railway market

	2004	2012	change	
LHR lost domestic traffic overall:	2,732	1,819	-913	-33%
It lost traffic to LCY	242	525	283	117%
It lost traffic to LGW	1,299	1,403	105	8%
	1,541	1,928	387	25%
So, the remaining decline was to rail:			525	
Which also got traffic from LTN			370	
Which also got traffic from STN			<u>99</u>	
			994	
Now, its overall market grew:			1,135	
So its natural market growth (from its own improvements) was:			140	qed

For the period 2004-2010, it should be noted that the total market declined some 5 percent on its 2004 total, from 7,146,000 to 6,794,000 trips ²⁷.

These tables document how, over time, LHR, Stansted and Luton, between them, lost traffic to the railways and in LHR's case, it lost a lot of traffic to London City as well. In summary: of the additional rail passengers, 525,000 came from LHR and a further 469,000 from Luton, in particular, and Stansted. The railways' total growth (1,135,000 trips) was somewhat higher than the net loss for the airports, meaning that the rest of their growth – 140,000 passengers per year – was 'natural', reflecting some growth in the economy since 2010 and some net growth, apart from the former airline traffic, from service improvements. Chart 10 below shows the changes in the London market overall.

Chart 10 The changing Scotland-London market (incl. south-east)

The situation for the other London airports as a whole shows that their volumes, as a whole, are about where they were in 2003, which is highlighted by the lower dashed line. This is discussed further in Section 3.1 below. When rail volumes between Scotland and London & the South-east are added in (lowest line), the total market is now at about the same size it was before the recession, as shown by the top line on Chart 11. It is worth remembering that domestic aviation had been in decline from about the end of 2005 and then in clear decline from the start of 2008, because of the recession; international traffics did not begin to decline until September 2008 and recovered fairly quickly after the end of 2010 (Clark, 2013, for a further discussion).

To summarise, the changes at LHR in its domestic market were paralleled over time with a similar decline for two of the other London airports (that is, a shift to rail). Again, the simplest explanation is that the market pressures on the domestic market at LHR are being seen in the remainder of the London airport system overall – there is no need to look for a separate explanation. There was also a separate and further loss of domestic traffic at LHR arising from a shift in the market which favoured London City, and to a separate and smaller extent Gatwick.

The changes for Scotland-London as a whole (here comparing frequencies as-at January 2014 with those as-at January 2008) are as follows:

Table 5 The number of flights from Scotland to London, 2008 and 2014

As-at Jan 2008:	Flights per day, one-way:						Total
	EDI	GLA	ABZ	INV	DND		
LHR	19	18	13	1	0		51
LGW	10	8	5	4	0		27
LCY	15	4	0	0	4		23
LTN	4	5	2	1	0		12
STN	5	5	0	0	0		10
	53	40	20	6	4		123
As-at Jan 2014:							change:
LHR	17	9	11	0	0		37 -14
LGW	9	7	2	4	0		22 -5
LCY +	10	4	3	0	0		17 -6
LTN	3	4	1	1	0		9 -3
STN +	4	4	0	0	2		10 0
	43	28	17	5	2		95 -28
CHANGE:							
- in daily flights	-10	-12	-3	-1	-2		-28
Annual pax - 2007	3,416,633	2,711,602	1,023,815	377,654	49,000		7,578,704
Annual pax - 2013	3,022,573	2,241,060	1,041,352	311,182	26,056		6,642,223

Change in flight nos. -19% -30% -15% -17% -50% -23% (per day)
Change in volumes -12% -17% 2% -18% -47% -12% (per year)

Heathrow results, for comparison:

Change in flight nos. -11% -50% -15% -100% -27% (per day)
Change in volumes -6% -28% 8% -100% -12% (per year)

+ Allows for two more BA flights about to be added, and a shift of the DND services to Stansted

In other words, about half the decline in London traffic (by airport) was to LHR; and while Edinburgh and Glasgow both lost flights, the percentage loss for Glasgow was greater. That volumes have declined by less than patronage, means that airlines are succeeding in making better use of the capacity they provide. It should be noted that BMI as-was had very poor load factors, including, it appears, on its domestic UK services²⁸. For the record, total Scotland-London volumes were around 7m passengers in 2001 and 8.4m passengers in 2004.

3.1 The Scotland-London market: the structure of fares

Basically, to understand the changes at LHR, we need to see them in the wider context of separate changes in the domestic and international markets. It doesn't help to look at the volume changes in isolation, or without regard to the situation for prices and fares. So, in line with the analysis of interlining fares, we have to look at the structure of domestic air fares as well, to see what difference they could be making.

As there are still remaining concerns about Scottish access to London proper, even with the growth in the rail market, an exercise was undertaken which reported the costs of flying from Edinburgh and Glasgow to LHR for day return journeys, over a variety of short-term booking profiles (that is, up to a week before the day of travel). This was then compared with the quoted fares of flying from Edinburgh and Glasgow to the other London airports which BA serves. This work was undertaken to test an hypothesis that BA varies its pricing for services to London across the three airports it serves in order to improve its capacity utilisation and grow its revenues. This approach also conserves the Heathrow capacity for interlining and higher-value domestic journeys.

The results of this exercise are shown in Table 6a following; data are also shown for Virgin Atlantic and Easyjet, for comparison for similar journeys.

Table 6a Airfares Edinburgh-London, by airport and booking profile

Return airfares with BA, Edinburgh to London by airport, cheapest return fare available, flying down and returning in one day. LGW is priced on the 'no baggage' option						Virgin Atlantic	Return fares w/Easyjet: [Before credit card or baggage charge]					
Profile	LHR	LGW	LCY	LON *	Avg.	LHR	LGW	LTN	LSE *	STN	Avg.	
Next day	£333	£203	£402	£284	£306	£235	£196	£103	£125	£121	£136	
Two days out	£296	£233	£339	£296	£291 95%	£313	£211	£143	£123	£142	£155 114%	
Three days out	£316	£227	£346	£329	£305 100%	£265	£137	£131		£131	£133 98%	
Six days out	£301	£167	£362	£174	£251 82%	£326	£145	£134	£90	£120	£122 90%	
avg.	£312	£208	£362	£271	£288	£285	£172	£128	£113	£129	£137	
% of LHR fare		67%	116%	87%	% is of next-day fare	91%	55%	41%	36%	41%	% is of next-day fare	
* That is, allowing separate airports for flying to and from London, and with baggage						* Returning the next day						

Data captured Tuesday 6 August 2013

For East Coast Main Line train services, an offpeak open return is £127 (1st class £300 rtn)
Booked before 1800 on the day previous to the day of travel!

Against a variety of booking profiles, it is clear that Gatwick's services are priced at a significant discount's to LHR's, even without the £10 no-baggage discount²⁹; the discount is a conscious policy to grow this market for domestic traffic and release capacity for LHR services. London City services are then priced at a premium; the fares data capture was undertaken before CityJet's decision to exit the Edinburgh-London City sector was announced³⁰; by that stage, they were offering only four return flights per day. Virgin Atlantic's services are priced on a comparable basis, and Easyjet's are a lot cheaper, even for Gatwick. The comparable situation for Glasgow is shown below in Table 6b.

Table 6b Airfares Glasgow-London, by airport and booking profile

Return airfares with BA, Glasgow to London by airport, cheapest return fare available, flying down and returning in one day. LGW is priced on the 'no baggage' option						Virgin Atlantic	Return fares w/Easyjet: [Before credit card or baggage charge]					
Profile	LHR	LGW	LCY	LON *	Avg.	LHR	LGW	LTN	LSE *	STN	Avg.	
Next day	£442	£263	£449	£283	£359		£245	£115		£121	£160	
Two days out	£453	£183	£496	£473	£401 131%		£201	£201		£148	£183 135%	
Three days out	£288	£227	£341	£288	£286 94%		£151	£115		£119	£128 94%	
Six days out	£353	£177	£404	£193	£282 92%		£137	£117		£122	£125 92%	
avg.	£384	£213	£423	£309	£332		£184	£137		£128	£149	
% of LHR fare		55%	110%	81%	% is of next-day fare		48%	36%		33%	% is of next-day fare	
* That is, allowing separate airports for flying to and from London, and with baggage						* Not served [LGW for two days out was booked out, so the LTN value was used]						

Data captured Tuesday 6 August 2013

For Virgin Trains services, an offpeak open return is £127 (1st class £307 rtn)
Booked before 1800 on the day previous to the day of travel!

In other words, the fares policy employed for domestic traffic on BA's UK services is the clear opposite of that employed for its interlining traffic, especially for business journeys, which tend to be booked at shorter notice. That is, an interlining journey will be priced at a distinct discount to a domestic journey; but within the market to London proper, BA treats access to LHR as a 'premium product' and prices it accordingly, certainly when compared with its LGW pricing. This is certainly an appropriate commercial strategy, and it also makes better use of LHR's capacity; but it is a question for the Scottish Ministers to consider, which is whether this domestic fares policy is going to create any particular difficulties for Scottish interests³¹. In particular, note how Glasgow-LHR traffic seems to be priced significantly higher than the corresponding Edinburgh-LHR and Edinburgh-LCY traffics. The Easyjet fares are more or less comparable across the two airports' services, which also suggests that Easyjet price their Gatwick services with an eye to BA's pitch (fares, services) in the market and then price their Luton and Stansted services for the price-sensitive market.

3.2 Explaining the shifts in the domestic market

The structure of LHR domestic airfares outlined in this paper, when compared with the growth in rail traffic over the period, does raise the question – what actually drove that growth in rail demand, and does it also indicate that Scotland, and Glasgow in particular, was being priced out of LHR's domestic traffic? The question is important because of the potential problems for Glasgow business interests from any overpricing on that sector, especially with BMI no longer present. As it happens, the overall evidence points in the other direction:

First, the evidence is that overall long-distance rail fares were trending well above the ONS overall airfares index (that is, relative to January 2000) for most of this period (Clark, 2013, section 1). Rail fares booked at short notice still carry something of a penalty, and the 'open return' fare, which has to be booked by 1800 the night before, is often ineligible for certain peak trains.

Second, the period post-2004 was marked with some significant improvements in rail's level of service, and marketing, and some significant problems in the airports' and airlines' level of service. The net effect of this was to shift a lot of the market within Great Britain to rail, where there was a feasible rail option; the resulting general decline in domestic aviation demand (Chart 8 above) was pretty well a given. On the other hand, where there wasn't any feasible competition from rail (for example, the traffics between London and Northern Ireland, Northern Scotland and the Crown dependencies – see below, Section 3.4), the consistent evidence is that over the ten years as a whole, demand levels remained reasonably stable – apart from the recession, they certainly didn't decline. This also means that any significant degradation in rail's level of service could shift the market back to the airlines, and that in short order as well. As was noted in 2013, "The reliability of Virgin Trains' services between Glasgow ... and London is said to be getting so bad that business passengers who were lured onto rail by faster journeys, are switching back to air"³².

So, we are left with the conclusion that the shift in the market was caused in the first instance by traffic moving away from flying to rail, as a mode, because of service issues; rather than the airlines electing to crimp domestic demand through a pricing mechanism, in order to favour traffics which were more lucrative. In Glasgow's case, left with a remaining market for which rail was not feasible or less feasible, there is more scope to maintain the higher fares, especially for the business sector. Comparing this with Edinburgh, the presence of both an airline competitor and a somewhat quicker rail journey does put a lid on the upside in fares in the business market. BA's pricing of its Gatwick services does seem to reflect a desire to both release more capacity for interlining through LHR, and make better utilisation of the capacity provided for Gatwick. The situation for the other London airports would appear to be that a significant part of their remaining demand is into markets such as the south-east, for which rail is not really time-practical (on the other hand, these airports have also lost that share of their traffic which had a time-competitive rail option).

To come back to our question at the end of section 1 of this paper, we can thus fairly argue that the decline in the volume of services provided came after the decline in the market's volumes. This is true for both interlining and domestic (terminating) journeys^{*}.

3.3 Glasgow: declining access or a changing market?

With the overall environment in mind, one specific concern registered by the Scottish Ministers has been the decline in services between Glasgow and LHR, in particular; airfare issues are sometimes mentioned as well. So, within the overall discussion, explaining why this specific fall has happened is thus of some importance.

The first contributor to the decline after 2004, as elsewhere, was the resurgent rail sector. In Glasgow's case, the completion of the West Coast Main Line improvements in 2009 took about an hour off the time needed to get to London, and the market responded accordingly. In particular,

* * At a run-through with colleagues of the presentation for this paper, I was asked what the airline response would be if for some hypothetical reason there was more restraint on the use of LHR. If this happened, it is likely that that airlines would probably focus on the high-yield London traffics (ie. the business market), and interlining, because of the overall end-to-end international yield. The traffic which one would see less of at LHR would be the lower-yield 'leisure' trips, which would divert to other London airports, especially Stansted and Luton, or who would take the train.

weekend travel times saw a marked improvement. This explains part of why the fall in GLA-LHR demand between 2004 and 2010 was more severe for Glasgow (35 percent) than for Edinburgh (27 percent). After 2010, services to Edinburgh picked up slightly, so the overall decline 2004-2012 was 26 percent. However, the equivalent Glasgow traffic fell by 46 percent in the years 2004-2012. So, at one level, it is understandable that Ministers have been concerned.

The situation for Glasgow's airline market is as follows. In 2010 the total market was running at about 1m passengers per year, of which BMI were carrying 400,000 and losing over £10m per year as it did so³³. It is hardly a surprise that BMI would eventually conclude that enough was enough – loss-making services are simply not sustainable in any more than the short term. The recession was responsible for a sharp overall decline in the Glasgow market (Clark, 2013; section 4.1), especially when compared with what happened in Edinburgh, or, for that matter, in Aberdeen. So, when BMI cancelled its services in March 2011, this withdrawal of service was then accompanied by complaints that BA had hiked its fares when BMI left (which was hardly surprising; that BMI had not been making money on the sector implies that BA hadn't been either, competitive pressures being what they are).

However, *total* volumes between Glasgow and the London airports were about the same in 2011 when compared with 2010, suggesting that the decline at that time was in fact being made up by the rest of the London airport system. Once BMI did stop serving Glasgow, the overall change in the market was not one of a sharp decline, as if none of the capacity that BMI had been supplying was replaced. In the event, BA responded with additional capacity into LHR (for example, by using larger aircraft), and the overall fall in demand was only around 200,000 passengers, meaning that BA's increase of service volumes was able to pick up about half the traffic which BMI, in a full year, had been carrying. BA also provided additional capacity into Gatwick and London City³⁴ in the aftermath of BMI exiting LHR, and Easyjet also got a few more passengers into their bases at Luton and Gatwick. This is shown in Table 7 following, which also includes data from 2012 for comparison. By that time the market had more or less stabilised.

Table 7 Glasgow-London Airports traffic 2010-2011-2012

<i>All numbers in 000s</i>							
	2010	2011			2012	Variation on 2010:	
Heathrow-with BA	603	721	118	19%	829	225	37%
Heathrow-with BMI	400	100	-300	-75%	0	-400	-100%
	1,003	821	-182	-18%	829	-175	-17%
Gatwick (BA, EZY)	489	566	77	16%	607	119	24%
London City (BA)	111	149	38	35%	158	47	42%
Luton (EZY)	248	275	27	11%	276	29	12%
Stansted (EZY)	302	343	41	14%	332	30	10%
All non-LHR	1,149	1,333	183	16%	1,374	224	20%
	2,153	2,154	1	0%	2,202	50	2%

The picture also needs to be examined over the longer-term, based here on the baseline of the high-point in demand in 2004, compared with 2012. That is, while Glasgow's LHR link lost over 700,000 passengers in those eight years, Table 8 following provide some idea where this traffic has gone: 151,000 to Emirates, which is almost as much as the fall in Glasgow's specifically interlined traffic (at least 70 percent of the Dubai traffic is interlined³⁵; and note also the rate at which that traffic has grown, as the service's capacity is about triple what it was when the service commenced in 2004). There has also been a net shift of 313,000 passengers to rail and a further 105,000 passengers to the other London airports – thus confirming that the market as a whole has actually fallen only slightly over time. The situation for Edinburgh is shown in Table 8 as well, and Charts 10 and 11 following provide illustrations of the situation.

Table 8 Glasgow and Edinburgh: the market change, comparing 2004 with 2012

Glasgow-LHR, total					Edinburgh-LHR, total				
	2004	2012	-707	-46%		2004	2012	-441	-26%
Glasgow interlined	461	290	-171	-37%	Edinburgh interlined	509	439	-70	-14%
Glasgow-domestic	1,075	539	-536	-50%	Edinburgh-domestic	1,187	816	-372	-31%
Emirates-transit	69	220	151	219%					
Rail GLA-Euston	218	530	313	144%	Rail EDI-Kings Cross	572	866	294	51%
Glasgow-LON (non-LHR)	1,269	1,374	105	8%	Edinburgh-LON (non-LHR)	1,884	1,636	-249	-13%
Rail and other LON (non-LHR)	1,487	1,904	418	28%	Rail and other LON (non-LHR)	2,457	2,502	45	2%
All air and rail	3,091	2,953	-138	-4%	All air and rail	4,153	3,757	-396	-10%

All data in 000s.

There is no evidence of traffic suppression, here or elsewhere, separate to the decline in traffic which can fairly be explained by the recession. There is a contrast to make between Glasgow and Edinburgh, where the decline in Heathrow domestic volumes was just over 370,000 passengers – in a very different market – although here, the traffic into the other London airports actually declined as well. The growth in the rail volumes was about the same in absolute terms across the two markets, although much less for Edinburgh in percentage terms³⁶. Interestingly, the fall in Edinburgh’s interlined volumes was quite small compared with its Glasgow counterpart (70,000 passengers/14 percent against 171,000 passengers/37 percent), which further suggests that Emirates was now capturing a lot of Glasgow traffic which in the past would have gone through LHR. Charts 11 and 12 following show the components of the Glasgow-London and Edinburgh-London markets.

Chart 11 Changes in the Glasgow-London market

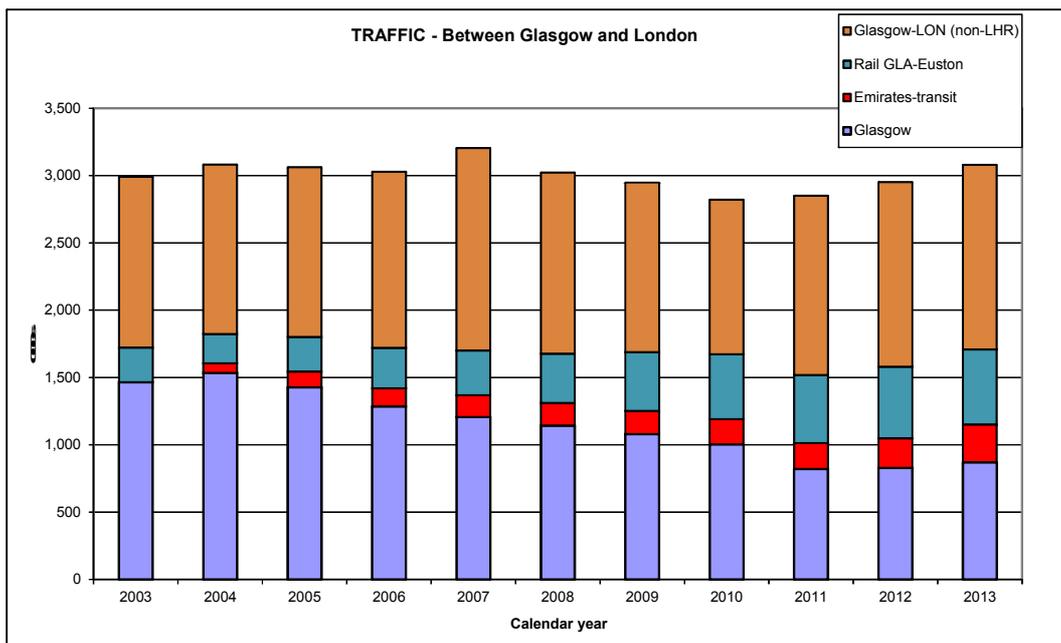
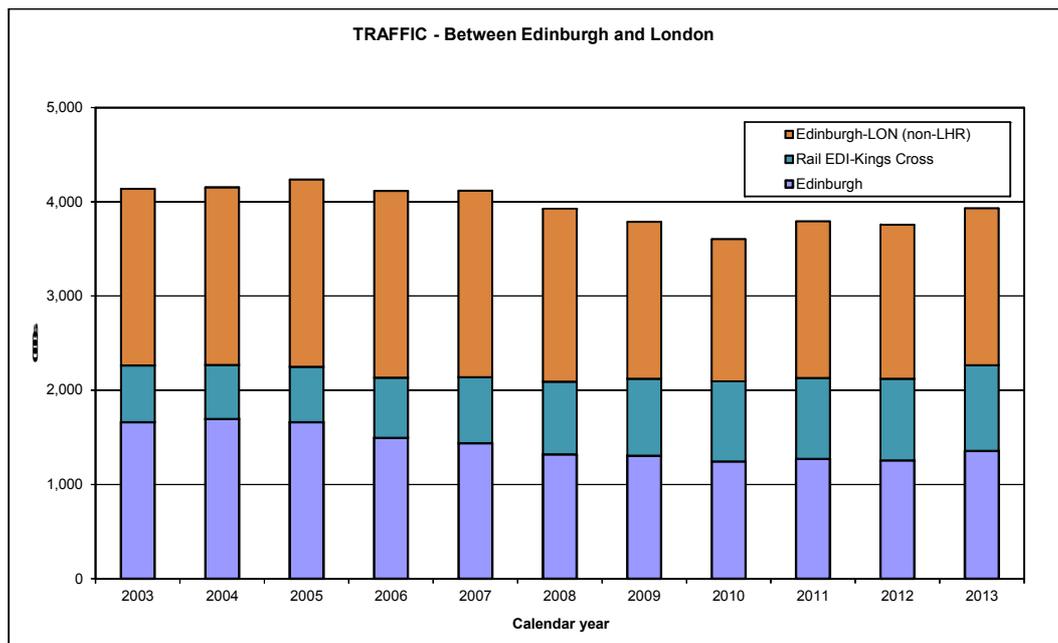


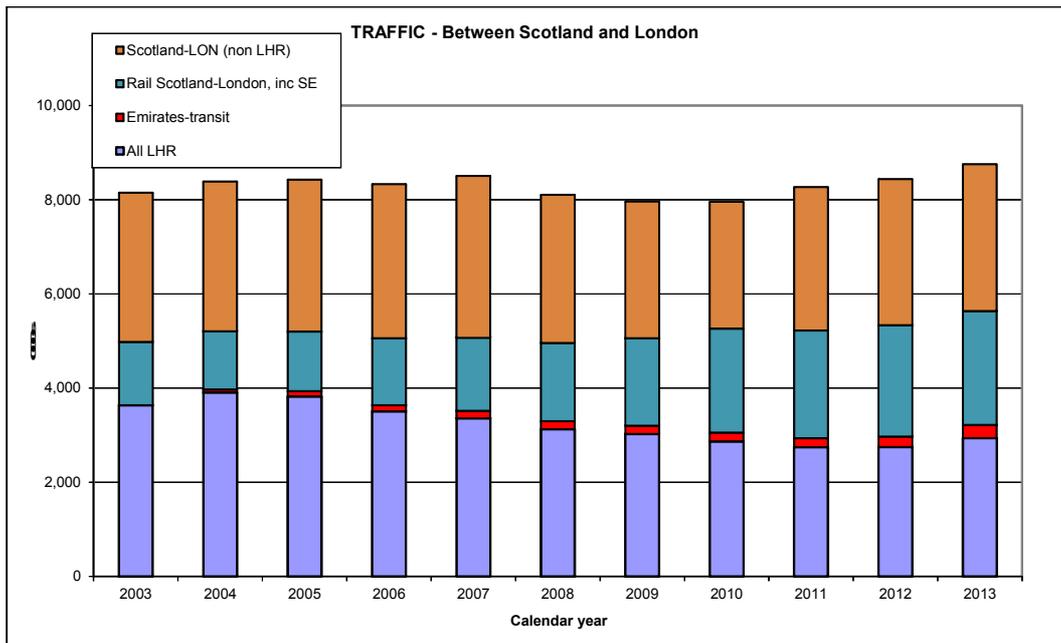
Chart 12 Changes in the Edinburgh-London market

One obvious contrast is that the Edinburgh-London market (to or through), at just under 4m passengers per year, is about a third larger than its Glasgow equivalent.

There is also a contrast to be made with Aberdeen, whose LHR volumes have been pretty consistent over time, around 650,000 passengers per year since 2005; Glasgow's volumes now stand at just under 830,000 passengers per year. Its case provides us with an intriguing counter-example to that of Glasgow, although the differences can be easily explained as well. First, it does not have the range of direct international services which Edinburgh and Glasgow do, so there is going to be a stronger demand for LHR interlining services. Second, it does not face the competition from rail for travel to and from London proper, because rail is not time-competitive. Third, its regional economy – like Edinburgh's, unlike Glasgow's – seems to have held up a lot better over the recession. What this reminds us, is that there has to be a market strong enough to justify the commitment of a slot; which is why the Glasgow market demand is down and the Inverness-LHR service operated by BMI during the 2000s did not survive longer than three years³⁷, although part of that was as a result of inconvenient connection times.

Chart 13 following uses the same structure of the previous two charts, to illustrate the situation for Scotland-London as a whole. While it shows the decline in LHR traffic, it also makes clear where that traffic has gone; much more into rail, in particular. Seen in that light, it is clear that the overall volumes through London and beyond have actually held up fairly well, all things considered – so again, there is no real evidence to say that demand is being suppressed – but that there has been a redistribution of traffic away from LHR, is clear as well.

Chart 13 Changes in the Scotland-London market

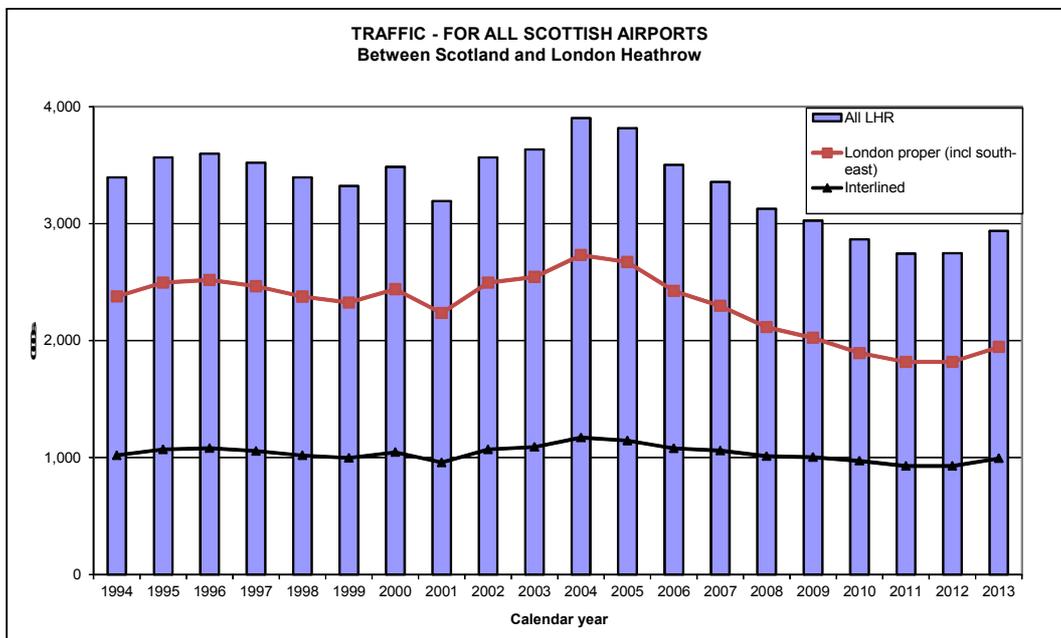


To compare this with Chart 9 above, it now includes the interlining and Dubai traffics.

3.4 The very long-term trends

Chart 14a below show the very-long-term trends for traffic between Scotland and LHR. This is included because it provides more context for the evidence we are examining.

Chart 14a Scotland to LHR – the very long term, by traffic



Note that 2004 represents a high point in the historical record, especially when contrasted with the 'low' year of 2001, which is the base year for the equivalent Airports Commission analysis. A number of points relevant to our discussions (especially of the policy issues, see section 4 following) can be made:

- The high-point used in this analysis (calendar-2004) should be seen in the context of a three-year 'growth spurt' which had come from the sharp decrease in airfares at that time (Clark, 2008 and Clark, 2013). The growth in volumes was about ten percent relative to the average for 1994-2001.
- The bulk of the strong growth, in terms of absolute volumes, was in the domestic market, just as the decline which followed was in the domestic market.
- The interlining volumes – the Scottish Ministers' principal concern – had been relatively stable, by comparison, in the period 1994-2001. Over the long-term the net interlining volumes between Scotland and LHR are actually reasonably stable, as the net growth in the international travel tasks has actually occurred in the direct traffics. Current interlining volumes are still close to the longer-term pattern.
- Put another way, if we used 2001 as our starting-point, which was a low year for LHR's domestic traffic, possibly because of 9/11, very little net change in interlining would actually be apparent – because the net decline since that time will nearly all have been in the domestic travel market.

For Scotland-London as a whole, the overall air traffics doubled between 1994 and 2004 (from 4m to over 8m per year), and at 6.5m passengers per year are still well above where they were in the mid-1990s. This is shown in Chart 14b following.

Chart 14b Scotland to London – the very long term, by traffic type

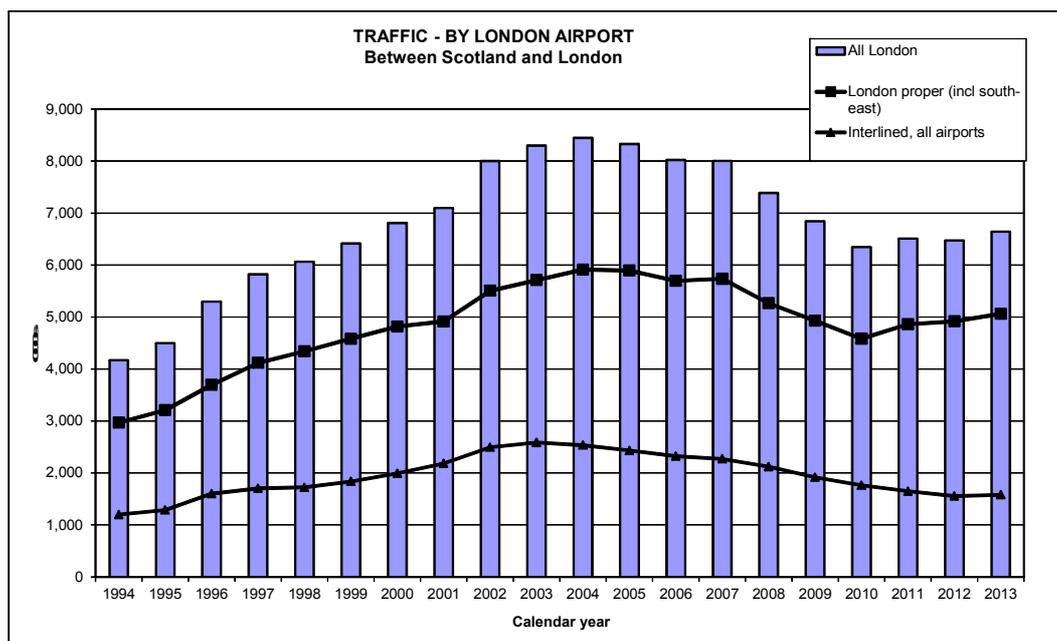
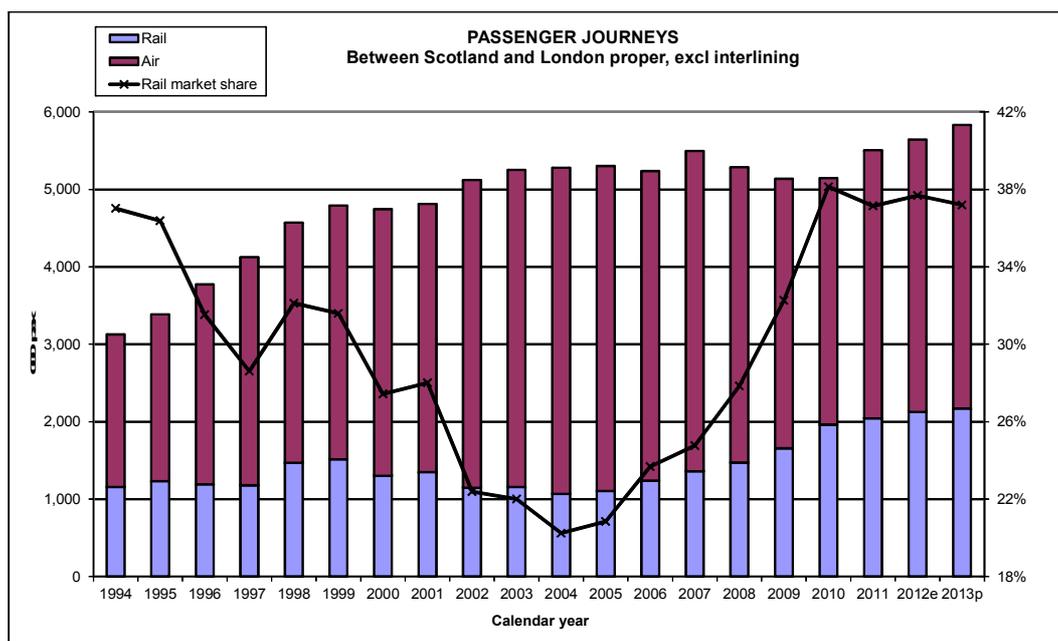


Chart 14c following provides a complementary illustration of rail's share of the market to London proper over the same timeframe. Note also the recovery in the market over the last three years, after several years of relative stagnation; and that rail's share of the market is now back to levels not seen in the last twenty years. This chart also excludes the traffic to the south-east proper (that is, excluding London). This is because rail's share of this market is very low.

Chart 14c Scotland to London proper – the very long term, by mode



3.5 Commentary on the 2013 traffic trends

After several years of decline (2004 to 2011) and a further year (2012) where the market was static, 2013 saw a turnaround in the market for travel between Scotland and LHR. The market itself grew nearly 7 percent, against an overall growth in the market of less than 5 percent. Edinburgh and Aberdeen grew by more than Glasgow; and Edinburgh's absolute growth was more than half the growth in this market for Scotland as a whole.

Table 7 Comparing 2012 and 2013 – key markets

<i>All data in 000s</i>					
	2012	2013	Change		
Scottish terminals, all	22,207	23,246	1,039	4.7%	Commentary
All LHR services:	2,747	2,938	191	6.9%	
- Edinburgh	1,255	1,356	101	8.0%	Domestic & interlined
- Glasgow	829	870	41	5.0%	
- Aberdeen	664	712	48	7.3%	
All international	10,212	10,858	646	6.3%	Direct services and through foreign hubs
- Edinburgh	4,673	5,093	420	9.0%	
- Glasgow	3,577	3,693	117	3.3%	Most of its net growth to DXB (+88K pax)
- Aberdeen	936	959	23	2.5%	
- Prestwick	992	1,075	82	8.3%	
- Inverness	34	38	4	12%	Mostly Amsterdam

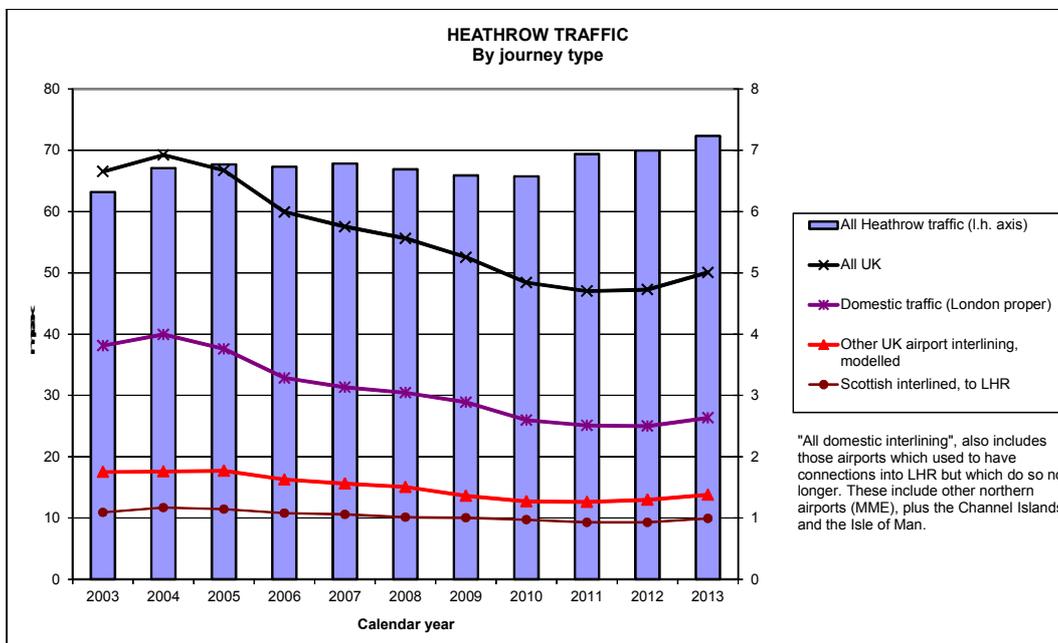
However, the interesting comparison comes from putting these results alongside the findings for the growth in the international traffic. Over half the growth in the Scottish travel task was for international services, and the growth in Edinburgh's own services comprised two-thirds of that. Most of Glasgow's net growth in international services can be accounted for by the growth in the link through to Dubai, which increased over the year by 25 percent because of more capacity. The difference in percentage growth is clear. If we group the key sectors together by airport, it becomes clear where the great bulk of the growth, in absolute terms, is coming from. A possible explanation is that growth in traffic is still reflecting some differences in regional patterns of economic growth.

3.6 The UK-London air travel task

The analysis of the Scotland-London market shows that the net shift of traffic away from LHR was concentrated in the domestic market, and included traffic shifting to London City as well as to rail, and with traffic from Stansted and Luton shifting to rail as well. As noted above, there was also a small net increase in Gatwick's traffic over this time. Now, if these are the trends, is it the case that international services at LHR are being favoured at the expense of Scottish and other UK domestic services? Chart 15 following expands the data of Chart 3 to show the situation for the English regions to LHR, as a whole, over the last ten years. This analysis is included because it provides the wider context again for discussing Scotland-LHR and Scotland-London patterns.

What this chart shows is that the decline of services between the regions and LHR has been a consistent one, both by timing and by sector (for example, some 30 percent overall between 2004 and 2010 for all UK volumes, and also for traffic to and from London proper). Intriguingly, this makes it clear that Scotland's interlining access has, over time and all things considered, held up reasonably well. That particular traffic has fallen by nearly half in the last ten years. Overall domestic volumes (the UK to LHR proper) have fallen as well, because of the resurgent rail market identified above ³⁸.

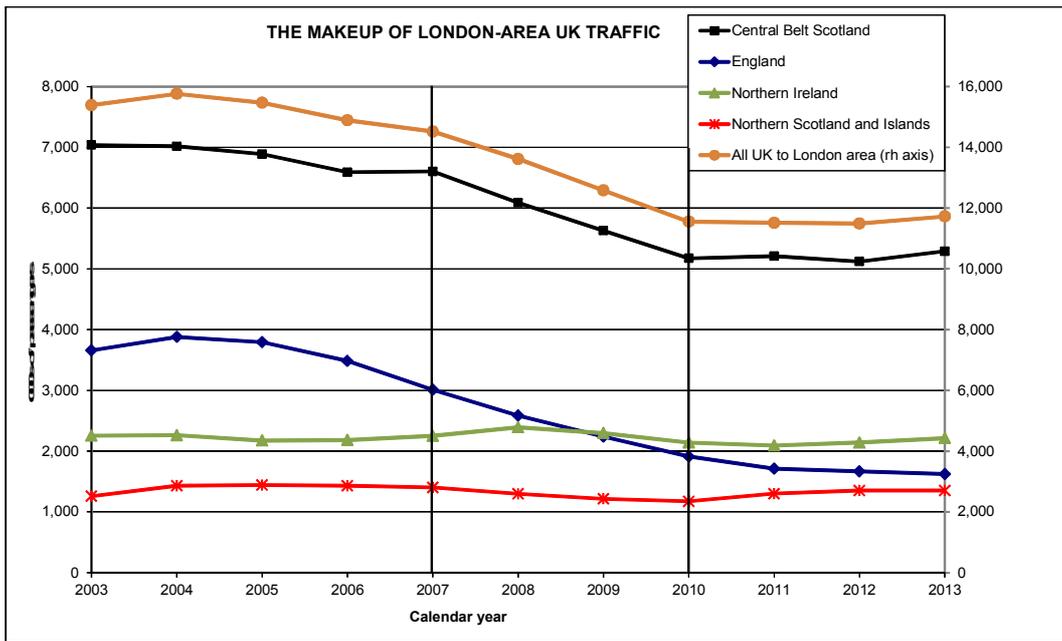
Chart 15 The UK regional traffic to LHR



Further context for our discussion is provided by an examination of the trends in the wider UK-to-London travel market as a whole. Charts 16a and 16b following provides an analysis of UK-London traffic by geographical market. The largest decline in percentage terms has been in the traffic from the English regions to London; the next largest decline (although of about the same size, in absolute terms) has been from the Central Scotland airports (Edinburgh, Glasgow, Prestwick, Dundee). About half of that specific decline is from the decline and now cancellation of services between Prestwick and Stansted, as noted above.

What is striking – given their often-expressed concerns about access to LHR and sometimes London as a whole – is that the traffics from Northern Scotland (Aberdeen and Inverness) and Northern Ireland have consistently held up over time. In Aberdeen's case, the more-or-less stable market to LHR was seen in a more-or-less stable market to London as a whole. On the other hand, the UK markets with both a greater weight of railway services and a greater weight of direct international services, saw a decline in their use of LHR and London as a whole. The single largest contribution to that was the steady, and substantial, decline in volumes between Manchester and LHR, as the West Coast Main Line (rail) improvements kicked in, reducing the domestic traffic; and as Manchester's international traffic has grown in its own right.

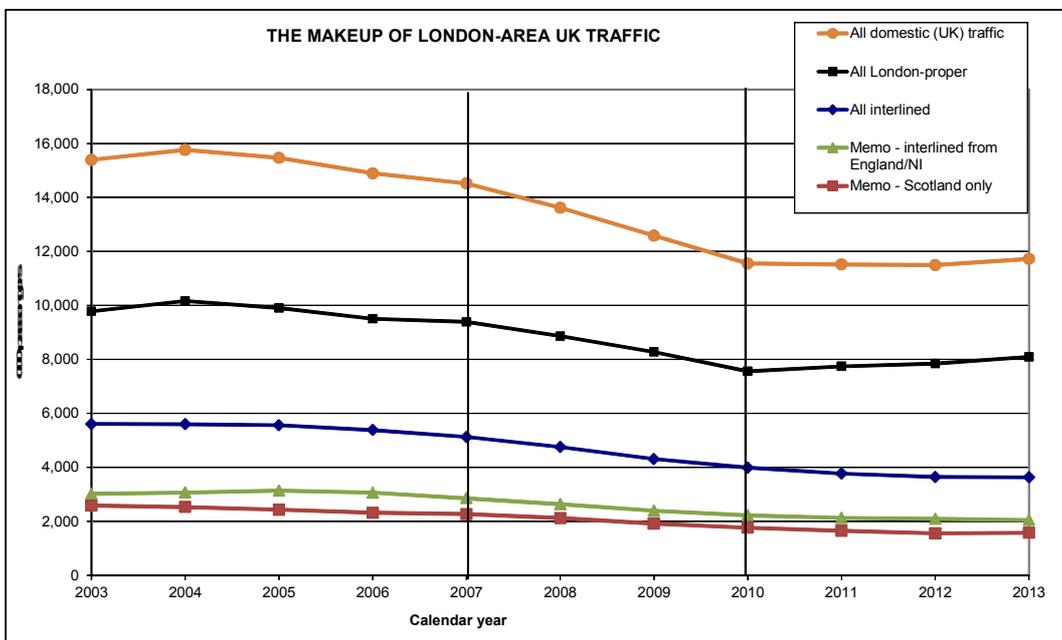
Chart 16a UK regional air traffic to London – by geographical market



Not shown on the above chart is the traffic between the Channel Islands and London, or the Isle of Man and London (a further million trips per year in total across these two markets).

The general trend of a decline in the use of the London airports as a whole, can be illustrated for both domestic and interlining traffic (Chart 15b following).

Chart 16b UK regional air traffic to London – by journey type



That is, in the period 2004-2012 the non-interlined traffic between the UK and London fell by 2.3m passengers per year (23 percent), and total interlining for the UK regions as a whole through London as a whole, fell by a further 2m passengers per year, or 35 percent. It has not just been a case of decanting LHR's total UK volumes, domestic or interlining, onto the other London airports. The changes in traffic observed between Scotland and LHR and then Scotland and London as a whole, is being seen for the UK to LHR and the UK to London as a whole as well. The domestic market has levelled out, but the wider London interlining market, as a whole, continued to fall after 2010.

That is, the findings from the above analysis can be summarised as follows:

- The decline in UK *domestic* traffic into LHR, whether from Scotland or elsewhere in the UK, has been mirrored by a similar decline into the London airport system as a whole. This decline in domestic traffics can be explained by the resurgence in the rail market over this period;
- At the same time, London City picked up much more of the Scotland-London market, basically from LHR;
- The decline in *interlining* traffic into LHR, whether from Scotland or elsewhere in the UK, has been mirrored by a similar decline into the London airport system as a whole. This traffic has shifted across to direct flights and to non-UK hubs; and,
- *domestic* fares into LHR are clearly priced at a premium to Gatwick, the airfares for which are higher again than Luton or Stansted, but *interlining* fares into LHR are clearly priced at a significant discount in order to maintain the airlines' demand and thus the overall revenues from their international services.

So, on that basis, we are not seeing Scotland being pushed out of LHR, and London as a whole, as much as we are seeing the market shifting itself out of LHR and London as a whole. In particular, if we had seen Scottish interlining volumes into LHR falling at a time when the equivalent interlining volumes into the rest of the London airport system had held up, and especially if they had been increasing, then there would be significant reason for thinking that Scotland was being 'squeezed out'.

The UK domestic air task, as a whole

Finally, the trends we have seen are also quite clear when air traffic volumes for the UK as a whole are analysed. Although domestic volumes in total declined some 22 percent (26.1m to 20.4m, -5.8m journeys) between 2005 and 2010, an analysis of the individual air traffics as to whether or not rail is competitive with them, showed some distinct variations. Where the traffics were not affected by rail competition (for example, Northern Ireland to England or London), the decline as a whole for these traffics was only 8 percent (11.7m to 10.7m, -960,000 journeys), and since 2010 the overall market has grown about 3.4 percent. This analysis includes the loss of the Prestwick-Stansted traffics, as these were converted to direct international services. Where the traffics were in corridors affected by rail competition (for example, Central Scotland to London), the decline between 2005 and 2010 was significantly more, about 33 percent (14.5m to 9.7m, -4.8m journeys); and there was a slight decrease from then onto to 2013. Between 2012 and 2013, though, the rate of growth across both 'markets' was about the same, just over 2 percent³⁹.

4. The policy objectives

What sort of a problem in access to LHR does Scotland actually have?

It is clear that the decline in LHR's domestic market is because that traffic through has either shifted to rail – and the same is certainly true for the Scottish traffic to LTN, in particular, and STN – or shifted to using London City (sometimes Gatwick); and that the decline in the interlining market is from a general shift to direct international services or through other hub airports. It is certainly not the case that Scotland is being priced out of LHR for interlining journeys, for which there is no apparent evidence, although business interests might have issues from the fare structure for domestic journeys. However, the thoroughness with which markets can change over time, never mind any changes in UK

Government policy, is such that continued monitoring of the environment is more than justified. 2013 was a strong year, because of a recovering economy.

We need to be able to work from that evidence to articulate policy objectives and to argue for which policies would be the most effective in maintaining that access to LHR. Some measures are clearly within the gift of the Scottish Ministers, others are very much Westminster's responsibility, but Scotland can still argue for them.

4.1 What Scotland could do

There are three particular objectives which could be undertaken in or by Scotland, in order to help it 'fight its corner' effectively.

First, we need to keep front and centre in our arguments, the market realities underlying the current patterns of access

It may sound obvious, but it is the strength of a market which creates the 'business case' for access, not the other way round. That is clear from the review of the situation for Aberdeen-LHR, Glasgow-LHR and in a separate way, for Inverness. Even if access was regulated for certain peripheral airports in the UK, as is sometimes suggested ⁴⁰, there is still no guarantee that a service would have the financial strength to be maintained, even if little or no effective charge had to be paid for the access. That was why the Inverness-LHR service was abandoned; it was simply not commercially viable, especially once the capital cost of the slot had to be accounted for. Another issue in mandating access is that the slots are owned by the airlines, not the airport or the Government, so if a slot was not needed because of (say) better rail access to the airport, the airline would be able to sell it off to another operator, or use it for another service or sector. If more slots at LHR were opened up by, say, a change to mixed-mode operations, then at that point there might be a case to allocate some of these slots to additional or new UK regional operations. Concerns about Glasgow's access to LHR and the cost of its airfares as well, must be read in the context that even regulated access will not guarantee that airlines will run services, if they can't make money doing so.

Keeping this clear understanding of how the market works – that Scotland can have all the access it wants to LHR, as long as it is prepared to pay for it – would help us make better use of what is a scarce and quite expensive resource. Government regulation works best when it works in parallel with how a market works (that is, to aid that market's operation), rather than trying to work against it. Access to transport services is a necessary condition for a region to perform economically; it is certainly not a sufficient condition. Ignoring these market realities will not help Scotland argue its case; instead, it would run the risk of being accused of wishful thinking. The need for Scotland to have good international connections is recognised; but increasingly, though, the market wants those connections through airports other than LHR.

Second, we must be much clearer in our argument as to which interlining access can only be secured through LHR

The growth in Scotland's access to the other hub airports in the last few years is also, as a result, expanding Scotland's access through these hubs to a much greater number of destinations – for example, Turkish Airlines serves about 180 international destinations from its hub at Istanbul ⁴¹. Edinburgh-Doha (Qatar) services are due to begin at the end of May 2014, with a second daily service already being talked about ⁴². A seasonal Edinburgh-Chicago service commences in June. When the combined access to these other airports is put together, it means that Scotland actually has a very wide access to the world. For example, LHR is the only London airport serving Los Angeles. However, one can also fly from Scotland to Los Angeles via Amsterdam, or via an American hub like Newark. A site like Skyscanner (www.skyscanner.com) could no doubt identify more options. What is not clear though, from any of the discussion, is *which* airports can only be served, or served conveniently, from LHR. Logically, it is defending the access to those destinations which should be the Scottish priority; and especially, the frequencies to those destinations which LHR offers which the other hubs don't offer. Trying to, in effect, defend everything is stretching our resources too far, not to mention our credibility. LHR is not the airport in Europe with the most destinations, it is now about fifth, although (as people never fail to point out) it is the airport with the highest frequencies to the major growth and business markets.

It is actually unclear how much frequency is needed for a market to work well. The popularity of the Glasgow-Dubai link indicates that two flights per day is probably sufficient for longer-haul destinations, as long as the connections at the mid-point hub are not too dragged out. Also, the analysis from the Aviation Environment Federation (included in the Airportwatch, (2009) reference) does not provide evidence as to the relationship between service frequency and effectiveness in promoting business connections; simply observing that LHR has double the frequency of services to the big world business centres does not identify for us the 'critical mass' of services which Scottish businesses require in terms of access to these centres. At any rate, the less frequent access provided by any of the major hub airports to the other major airports served by LHR – or even the access provided through the second-string hubs such as Dublin – does not seem to have affected those cities' business viability.

Basically, this is the big story: one is finally left with the impression that LHR and its airlines need the regions' interlining traffic more than the regions need LHR and its airlines. That certainly explains the very different patterns observed in Scotland-LHR airfares, depending on whether or not the journey is interlined or a straight domestic return journey. At a recent (February 2014) conference which examined air-rail issues, I asked the representative from LHR that, given the current market trends which have moved UK interlining traffic away from LHR, why it was that the airport was concerned to see a connection via HS2 between the airport and the north of England. He replied that currently, passengers don't now have the choice (that is, to use Heathrow), "and we want them to have that choice".

This, then, leads onto a related question of how critical is access to LHR for domestic traffic. It is clear from even a cursory review of the domestic fare structures that the use of LHR for domestic traffic is priced at a significant premium to the use of Gatwick for similar journeys, and Glasgow-LHR services are priced at something of a premium to Edinburgh-LHR journeys, for short-notice business trips, anyway. Does this create policy issues for the Scottish Ministers? More possible, perhaps, is if domestic access is restricted in other ways (see section following) – again, more work might be needed here. To recap: an examination of the fare structures for LHR provide no evidence that Scotland is being priced out of LHR's interlining market, but plenty of evidence that using LHR for domestic journeys to London is being priced at a premium. If this creates issues for the Scottish Ministers, these issues have not been articulated yet.

Third, we should continue to work with the airlines and local airports to build up our other hub airport connections

While this is being done, it is generally in the context, it seems, of expanding our direct international connections. However, it is the connections provided through these hub airports, which are going to matter as much in future. The regional UK market is moving away from travelling through LHR anyway – the large growth in the Amsterdam and Dubai traffics is clear evidence of that. Again, the clear trend is that it is not about this market being pushed out of LHR; it is much more accurate to say that the market is moving away to these airports. Where Dubai/Emirates has blazed a trail, and not just in Scotland, other international airports/airlines are beginning to follow (as this paper was being finalised, Etihad announced its clear intention to enter the Scottish market after this year ⁴³). So, on the principle that effective public policy is about working with markets, not against them, we need to cast our involvement along the lines of nurturing these connections against the day when the market shifts away of its own accord even more from using LHR.

4.2 What Westminster could do

We must also look at what would need to be done via Westminster government action to help LHR work better. While Scotland cannot bring these changes about by itself, it can lobby along these lines.

First, restrict the UK's access to LHR to transfer passengers only

The closer the UK's regional airports are to London, the higher the proportion of transfer passengers. However: given that for Central Scotland, London has four other airports and good rail connections, one is left thinking that this is the way the market is trending anyway. Formalising this via a regulatory approach would release at least twenty thousand 'slots' per year for international services; there would be some possible problems but BA serves more than LHR in London anyway. There could be a significant disadvantage from the loss of frequency. Using Glasgow as an example, it would go from

nine BA flights per weekday as at present, all providing access to both international and London-proper journeys at LHR, to only three flights for LHR transfers and six more to the other London airports for domestic travel⁴⁴. This is not especially market-friendly, but it maintains at least some international hub access in an environment where that access could be lost; although the consequences that this measure will have for the domestic market cannot be ignored either. This is also assuming that the detailed legal issues in slot access are not insurmountable either⁴⁵.

Second, move all of LHR's UK traffic off to RAF Northolt

One option which has been discussed, is opening up RAF Northolt, some six miles north of London, to domestic (UK) aviation. However, as the Airports Commission noted⁴⁶, there are significant air traffic control issues in using the airport in this way, and any landside transfer from this airport to the main Heathrow campus would be long-winded, short of an expensive direct tunnelled railway link⁴⁷. The suggestion of using Northolt for UK domestic access was raised again recently, in the context of a discussion of how to secure Inverness's access to London⁴⁸. If this option were adopted, it would raise issues for Scottish Ministers as to how much specific domestic access they might need for LHR, because the Ministers' concern for interlining access has tended to dominate the discussion of this issue. Another issue is that Ministers want a military or specifically Government airfield within the M25 ring road⁴⁹.

*Third, remove the remaining price control from LHR*⁵⁰

Traditionally, BAA had three separate 'products' in its London airport inventory. To compare them to cars, the products were and are akin to a big BMW sedan, a Toyota Yaris and a Mini Cooper (ie. LHR, Gatwick and Stansted. To extend the analogy, LCY is equivalent in its market to an Audi coupé, and Luton is a Skoda). While most of the airports are priced appropriately to their market, as is clear from the price paid for Gatwick slots, LHR is the obvious exception. For historical reasons, we see a BMW-standard product sold at a cheaper price; as a result, it is no surprise that the airlines are so keen to fly into LHR, apart from the separate question of LHR's market strength, and why they are prepared to pay so much per slot to do so.

Removing the price control would have several effects. The increase in prices would reduce the value of a slot, which is why the airlines *currently* using LHR would be so bitterly opposed to the idea. But this would also force the airlines, faced with a more economically realistic price for LHR, to look at other options to meet the London market. There is a big gap between the prices for LHR and Gatwick anyway; making it larger could have some economically positive effects. The passenger would still face a higher price for flying through LHR, either from the upfront landing charges or from the airlines' need to recover the costs of capital tied up in the slot. But removing the price control would transmit through to the airlines a more economically accurate cost of operations – as it would capture at least some of the value tied up in the landing slots. A freed-up pricing regime for LHR⁵¹ would attend to a lot of the congestion issues, and would also provide further encouragement, as if they needed it, for the regional UK to look for other hubs to fly through⁵². Alternatively a differential APD might have the same effect⁵³, although again, the Airports Commission do not think that this would work⁵⁴. A very recent study by Brendon Sewill (Sewill, 2014) is also worth noting here. He points out that the construction of a third runway at Heathrow would require an increase in landing charges from £19/passenger to £31/passenger; a new runway at Gatwick would require a lift in landing charges from £8/passenger to £29/passenger. He also considered that the Gatwick market would be far more likely to notice this charge than its Heathrow equivalent.

A shift to a more 'market' approach is not going to make any friends. But it would force the airlines, who in many ways do benefit from the current arrangements, to make better use of that scarce resource. Perhaps what we have is a bifurcation in the market itself, in which the UK regional market is moving away from using LHR at the same time as the international market still wants access to LHR and more than ever. Pricing the resource properly should transmit to the market the signals which it is not receiving at the moment, as the current regime is now all about the economic rents which the current setup allows the airlines to charge (although the capital cost of a slot needs to be recovered as well, and the passenger does pay more for flying through LHR and not another airport.

There is certainly plenty of scope for allowing other (non-UK) hub airports to take more of the ‘strain’ in terms of providing international connections for the UK well as encouraging more direct connections⁵⁵. For example, the airlines which rely on BA to provide the regional inter-connections into LHR, such as Singapore Air, could end up providing those connections through Schiphol – and Schiphol is already better-connected into the UK regions than LHR is, in terms of numbers of airports served.

4.3 Wider issues in Scottish regional aviation access

The fate of Flybe’s services from Inverness, although not part of the main focus of this paper, has brought some wider issues into play as well. In May 2013 it was announced that Flybe was selling its 25 Gatwick slots to Easyjet for some £20m. This immediately raised questions as to whether the Inverness-Gatwick services would remain at the extent at which Flybe has been providing them. What was eventually announced is that Easyjet will consolidate its services with the existing Flybe ones, going from four rotations per day in total over the sector to three⁵⁶. As *The Scotsman’s* Terry Murden observed, “Such is the scarcity of slots at hub airports that they can command a good price, all the more so when capacity is being squeezed. None of Flybe’s seven services to Gatwick made a profit and, given that it was in need of capital, it must have been very tempting when someone offered £20 million”⁵⁷. Essentially the services had not been making money, which leaves one with the impression that even with a dedicated slot, an LHR service would not be able to actually pay its way, given LHR’s much higher landing charges. Given that the slots were less than £1m each, they are hardly expensive relative to the cost of the aircraft or indeed its operation. Many of the LHR slots are another matter, of course. On the other hand, that Aberdeen’s volumes have held up over time is an excellent reminder of the principle that it is market strength which creates access and not the other way round.

What also became clear, during the writing of this paper, is that there is still a lot of Inverness-LHR traffic; but indirectly, via Aberdeen, which is a two-hour drive away. Research by the Scottish Council for Development and Industry⁵⁸ shows that a large proportion of Inverness’s traffic to London is being diverted in this way (about 50,000 trips per year; compare Inverness’s total passenger numbers to London as a whole, currently running at about 320,000 passengers per year). When a service was being operated to LHR during the mid-2000s, it was carrying about 54,000 passengers per year, against the services to Gatwick which over those years carried an average of 236,000 passengers per year. At that stage BMI was competing with BA (to Gatwick) and Easyjet (to Gatwick and Luton) with this service. If it were BMI’s strategy to divert competitors’ traffic off the then-current Gatwick services, it does not seem to have been successful. These data suggest that while there is a core of Inverness demand which specifically needs access to LHR, and is prepared to take on the time cost of an extended surface journey at the Scottish end of the air journey to get it⁵⁹, that core of demand is not large enough to support its own direct air service. Separately, traffic between Inverness and Amsterdam, is picking up in its own right, and increasingly, this service is providing an improved access to connecting services at the KLM hub⁶⁰. While it could not substitute for all the demand to LHR, it could still pick up a larger measure of it in time.

Essentially, the debate here would be much more helpful if it was made clear *how much* service it is thought needs to be provided to the peripheral regions, including minimum frequencies, and at what sort of fare levels. In the Scottish rail or ferry networks, the Scottish Government can specify how much service is provided and generally at what fares. This is not the case in the aviation market, except for some air services within the Highlands area and indeed the Highlands airport network itself.

CONCLUSION

The evidence provided in this paper shows a market moving itself out of LHR from various “pull factors”, much more than it being priced out (“push factors”). This ‘moving out’ has come about because of strong growth in the London railway market and also the direct international air services market, and both of these changes from improvements in services. The paper suggests some ways in which Scotland can argue its case effectively for continued access, including in areas not normally associated with the LHR or wider London airline market. The paper also proposes some measures which the Westminster Government and/or regulatory authorities could consider in order to make better use of LHR’s limited capacity.

Acknowledgements

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References

- Airports Commission (2013), *Interim Report*. Web reference: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/266668/airports-commission-interim-report.pdf
- Airportwatch (2011), "How well connected are UK airports to the world's main business destinations?", *Airportwatch*, August 2011. Web reference: http://www.aef.org.uk/downloads/Business_Connectivity_Report_August2011.pdf
- Aviation Environment Federation, (2014), "New report highlights a new runway at Heathrow or Gatwick would mean big increases in passenger fees". Web reference: http://www.aef.org.uk/?p=1712&utm_source=rss&utm_medium=rss&utm_campaign=new-report-highlights-a-new-runway-at-heathrow-or-gatwick-would-mean-big-increases-in-passenger-fees
- British Chambers of Commerce (2009), "Economic impacts of Hub airports". Web reference: http://www.thamesvalleychamber.co.uk/uploads/EconomicImpactsofHub_Airports_Jul09.pdf
- Civil Aviation Authority (2009), "Connecting passengers at UK airports". Web reference: http://www.caa.co.uk/docs/5/Connecting_Passengers_at_UK_Airports.pdf
- Civil Aviation Authority, annual & monthly passenger statistics. Web reference: <http://www.caa.co.uk/default.aspx?catid=80&pagetype=88&pageid=3&sglid=3>
- Clark, Ross (2008), "Examining the wider context of rail-air competition between Scotland and England & Wales", presented at the 4th *Scottish Transport Applications and Research* (STAR) Conference, Glasgow, April 2008. Web reference: http://www.stsg.org/star/2008/Ross_Clark.pdf
- Clark, Ross (2013), "The still-flying Scotsman: Trends in the Scottish civil aviation market since January 2000". Presented at the 9th *Scottish Transport Applications and Research* (STAR) Conference, Glasgow, April 2013. Web reference: <http://www.stsg.org/star/2013/Clark.pdf>
- Johnson, D., et al., (2013), "Understanding air travellers' trade-offs between connecting flights and surface access characteristics", *Journal of Air Transport Management* (volume XXX:pp1-8). <http://dx.doi.org/10.1016/j.jairtraman.2013.08.001>
- Murphy, Vernon (2011) "Whatever happened to Heathrow's domestic air services?" *Logistics and Transport Focus*, Vol 13:6, June 2011.
- Nimmo, Ross (2014), "Connect to succeed: the unique role of aviation in Scotland's competitiveness and economic success". Presented at the 10th *Scottish Transport Applications and Research* (STAR) Conference, Glasgow, May 2014 (this conference). Web reference: <http://www.starconference.org.uk/2014programme.pdf>
- Network Rail, (January 2013), "Industry specific strategic business plan for Scotland", section 2.4.3. Web reference: <http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784336>
- Office of Rail Regulation, annual patronage statistics. Web references: <http://www.rail-reg.gov.uk/server/show/nav.1863>; <http://dataportal.orr.gov.uk/>
- Scottish Council for Development and Industry, "Air Connectivity between Inverness and London", July 2013. Web reference: [http://www.scdi.org.uk/sr/Docs/SCDI-Research-Air-Connectivity\(July2013\).pdf](http://www.scdi.org.uk/sr/Docs/SCDI-Research-Air-Connectivity(July2013).pdf)
- Scottish Government (2006), *Scotland's National Transport Strategy*. Web reference: <http://www.scotland.gov.uk/Resource/Doc/157751/0042649.pdf>
- Scottish Government (2006), *Scotland's Railways*. Web reference: <http://www.scotland.gov.uk/Resource/Doc/157764/0042650.pdf>
- Sewill, Brendon (2014), "Who would pay for a new runway?" Aviation Environment Federation. Web reference: http://www.aef.org.uk/uploads/Who_would_pay_for_a_new_runway_1_2_3.pdf

Endnotes

- 1 An anagram of the phrase, "London Heathrow Airport", but the phrase is applicable in other ways as well.
- 2 To quote the columnist George Kerevan, "doing nothing at Heathrow ... will have severe implications for Scotland. Inevitably, Scottish connections to Heathrow will be squeezed to maintain precious slots for international routes. Some Scottish flights can be scattered to other London airports. But splitting the London hub into fragments undermines the economic rationale for the hub-and-spoke system. That will raise costs on Scottish routes and reduce the number of onward flights to Europe available from Scotland. Worst of all, to manage capacity, Air Passenger Duty will rise exponentially, hitting Scottish passengers in their wallets". "George Kerevan: Dithering over Heathrow damages Scotland", *The Scotsman*, 19 July 2013. Web reference: <http://www.scotsman.com/news/george-kerevan-dithering-over-heathrow-damages-scotland-1-3006434>
- 3 For example, refer the letter from the Glasgow Chamber of Commerce to Ross Nimmo of Glasgow Airport, dated 18 May 2011, in which the view is expressed: "... protecting our regional slots at Heathrow is vital, maximising our connectivity to London itself and to major international business centres". Web reference: http://glasgowchamberofcommerce.com/media/109700/ga_draft_master_plan_gcoc_response.pdf. Refer also to Ross Nimmo's paper in this conference (Nimmo, 2014).
- 4 Clark, Ross (2013), "The still-flying Scotsman: Trends in the Scottish civil aviation market since January 2000". Presented at the 9th *Scottish Transport Applications and Research* (STAR) Conference, Glasgow, April 2013.
- 5 Two examples, of many: when BA bought out BMI in December 2011, it was reported that, "... businesses and politicians have demanded assurances that a deal to sell ailing airline BMI to British Airways's parent company will not lead to fare hikes or damage services between Heathrow and Scotland". "Concern for Scots air routes after BA buys BMI", *HeraldScotland*, 23 December 2011. Also: "MPs refer BMI sale to watchdog" *HeraldScotland*, 31 January 2012. Web references: <http://www.heraldscotland.com/news/transport/concern-for-scots-air-routes-after-ba-buys-bmi.16249647>; <http://www.heraldscotland.com/news/transport/mps-refer-bmi-sale-to-watchdog.16630168>.
- 6 More recently, "Long-term hope is for the return of Heathrow link", *Strathspey & Badenoch Herald*, 8 August 2013.
- 7 Web reference: "Airline to terminate London link", *BBC News*, 3 January 2008, URL: http://news.bbc.co.uk/1/hi/scotland/highlands_and_islands/7169480.stm. The issue isn't going away by any means: Fergus Ewing MSP, "Regional routes need protecting", *Inverness Courier*, 9 July 2013. <http://www.fergusewing.com/2013/07/uk-government-still-have-questions-to-answer-on-highland-air-routes/>. Also, Fergus Ewing, "Future slots should be protected – legally" *Inverness Courier*, 29 April 2008.
- 8 Web reference: <http://www.transportscotland.gov.uk/news/response-to-UK-aviation-policy>.
- 9 The draft can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/2739/draft-aviation-policy-framework.pdf. The final form of the strategy was released in March 2013 and can be found here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf
- 10 "Branson to heat up competition on Scottish flights", *The Scotsman*, 9 April 2013. Web reference: <http://www.scotsman.com/the-scotsman/business/branson-to-heat-up-competition-on-scottish-flights-1-2883510>.
- 11 To provide a recent example: "Gatwick boss backs London flights", *Glasgow Evening Times*, 28 January 2014. Here, the MD of Gatwick Airport was arguing that flights between Glasgow and London (presumably, both his airport and LHR), "should be protected". Web reference: <http://www.eveningtimes.co.uk/news/gatwick-boss-backs-glasgow-flights-149841n.23267980>.
- 12 Airport Commission (2013), para. 3.85.
- 13 This was the number of flights available 'on the day', when checked a few days previously. Flight availability can vary from day to day, often depending on short-term requirements.
- 14 The modelling I have employed to date (eg. Clark, 2008), assumed that a consistent 30 percent of the Scottish traffic into LHR is interlined. After some more thought on the matter, the 30 percent ratio has been retained for the Aberdeen traffic, but for the other two airports (EDI/GLA), an increasing taper of 1 percent per year for the five years 2005-2010 and stable at 35 percent thereafter, has now been employed. However, I now suspect that the approach I am using is probably reporting on the 'high side' of the change in the actual value of interlining traffic. Again, the Airports Commission analysis considers that over time this traffic is more or less stable.
- 15 Web reference for this sum:

http://www.deloitte.com/view/en_gb/uk/969833d0303fb110VgnVCM100000ba42f00aRCRD.htm. Recently, Etihad Airways were prepared to spend \$US70m for three pairs of slots, so about £16m or so per pair: <http://www.arabianbusiness.com/etihad-buys-heathrow-slots-from-india-s-jet-for-70m-491141.html>. Another useful reference is: <http://www.routes-news.com/airlines/14-airlines/887-heathrow-airport-slot-trading>

16 Johnson, D., et al., (2013), "Understanding air travellers' trade-offs between connecting flights and surface access characteristics", *Journal of Air Transport Management* (volume XXX:pp1-8). <http://dx.doi.org/10.1016/j.jairtraman.2013.08.001>

17 Joe Lynam, "Could airport hub capacity see UK lose out to rivals?". Reported at: <http://www.bbc.co.uk/news/business-21275784> (1 February 2013). The Airports Commission's estimate of this value, however, is a lot higher, at about 2.8m passengers per year (refer Airports Commission, Figure 3.10). The equivalent volume of transfers at Dubai from the regional UK has been estimated by the Airports Commission, to be at least 1.5m passengers per year.

18 Further discussed in Clark, 2013; section 4.1. Confirmation of my estimate for the Amsterdam transfer traffic of about 2m passengers per year, is provided by the Airports Commission report at Figure 3.10.

19 The total share of traffic going through Amsterdam which is transfer traffic is reported to be 45 percent (British Chambers of Commerce, 2009), which is the value used in the modelling for the specifically Scottish traffic as well. It is also known that 70 percent of the KLM traffic using Amsterdam, as a whole, is transfer; refer,

http://userpage.fu-berlin.de/~jmueller/gaprojekt/downloads/gap_papers/finalreport.pdf. For the re-remaining values, refer Figure 2.9 of the British Chambers of Commerce report, which also provides at least an indicative confirmation of the data for Scotland-LHR.

20 Web reference:

http://www.dublinairport.com/gns/at-the-airport/latest-news/13-03-12/Dublin_Airport_Grows_Northern_Ireland_Business_by_15_in_2012.aspx. Since then, see also: "Dublin Airport 'an alternative hub to Heathrow', says Aer Lingus", *Daily Telegraph*, 4 July 2013. Web reference: <http://www.telegraph.co.uk/finance/newsbysector/transport/10158483/Dublin-airport-an-alternative-hub-to-Heathrow-says-Aer-Lingus.html>

21 The Wikipedia article on Dublin Airport advises that the traffic is around a million passengers per year: http://en.wikipedia.org/wiki/Dublin_airport. This value has also been referenced in a recent press statement by Willie Walsh, the BA Chief Executive. Web reference:

<http://www.telegraph.co.uk/finance/newsbysector/transport/10668444/BA-chief-English-holidaymakers-will-flock-to-independent-Scotland-to-avoid-flight-tax.html>. In contrast, the volume of Belfast-LHR interlining is about 200,000 passengers per year. At any rate, this confirms a view that passengers are prepared to take on an extended landside or surface journey (for example from Edinburgh over to Glasgow to catch a long-distance flight), in order to avoid a transfer at a big hub airport like LHR – especially LHR – or to avoid an extended landside or surface journey at the eventual destination. Refer also, "Belfast International Airport loses out to Dublin in the race for long-haul routes", *Belfast Telegraph*, 11 February 2014. Web reference: <http://www.belfasttelegraph.co.uk/business/news/belfast-international-airport-loses-out-to-dublin-in-the-race-for-longhaul-routes-29994635.html>

22 Further to endnote 21, more details on Aer Lingus's use of Dublin at a hub can be found here: http://www.anna.aero/2014/03/13/30-second-interview-aer-lingus-chief-commercial-officer-stephen-kavanagh/?utm_source=anna.aero+newsletter&utm_campaign=b77175fd27-anna_nl_140314&utm_medium=email&utm_term=0_ecdbf41674-b77175fd27-86869221

23 As to why, see users' comments on the Airline Quality website about LHR's terminals, especially when compared with other large airports such as Singapore or Amsterdam (web reference: http://www.airlinequality.com/Airports/Airport_forum/lhr.htm). LHR still rates above Paris CDG, but that is being damned with faint praise; one 'weak link' at LHR is the inter-terminal transfer arrangements, which are not as strong or frequent as they could be; although CDG's equivalent arrangements are, by all accounts, dreadful.

24 It is also worth noting that when a direct service between Edinburgh and Chicago was announced in September 2013, the response of the First Minister was as follows: "By improving direct routes overseas, we can help reduce the need for travellers to make *extra connecting flights via London or the continent*, support tourism, trade and investment and so further strengthen Scotland's economy" (emphasis added). Web reference: <http://www.scotsman.com/news/transport/united-airlines-to-launch-edinburgh-chicago-route-1-3090360>

25 The official advice as to how APD functions can be found here:

http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageLibrary&propertyType=document&id=HMCE_CL_000505#P137_12550.

Section 4.2 of this document has more details on the charging arrangements for multiple-sector journeys.

26 The data for the London airport traffic going into the south-east as distinct from London is excluded at this point to allow a fairer comparison with railway traffic. Rail has a large proportion of the market to and from London proper but very little of the market to and from the south-east proper (that is, excluding London).

27 Specific data are available from the author.

28 "IAG sees loss-making BMI generating €100m earning in 2015", *Flightglobal Magazine*, 11 May 2012. Web reference: <http://www.flightglobal.com/news/articles/iag-sees-loss-making-bmi-generating-100m-earning-in-371736/>. It was reported at the same time that BMI's load factors at LHR were only 50 percent, which is very poor, and this also explains why BMI was losing so much money. For details, refer: <http://centreforaviation.com/analysis/british-airways-plans-two-phases-to-bring-bmi-and-its-london-heathrow-slots-to-profitability-65333>

29 For more details on this measure, and why BA are employing it, refer, "British Airways boosted by hand baggage only fares", *Buying Business Travel*, 2 August 2013. Web reference: <http://buyingbusinesstravel.com/news/0221210-british-airways-boosted-hand-baggage-only-fares>

30 Web reference: <http://www.scotsman.com/business/cityjet-axes-edinburgh-london-flights-1-3045498>

31 For example, it could be argued that this fares structure favours the various London interests because the London market is simply that much stronger. To recap, *how much* Scottish access to LHR is needed for domestic journeys, and at what sort of fare levels, is a question which does not seem to have been addressed.

32 "Passengers face west coast main line travel misery" *The Scotsman*, 25 August 2013. Web reference: <http://www.scotsman.com/news/transport/passengers-face-west-coast-main-line-travel-misery-1-3061995>.

33 "Rail trips take off as BMI axes London service" *Glasgow Herald*, 28 March 2011.

34 "British Airways adds capacity on Glasgow-London routes", 13 April 2011. Web reference: <http://www.glasgowairport.com/about-us/media-centre/press-releases/british-airways-adds-capacity-on-glasgow-london-routes#>. More services were added later that year (date of statement: 26 October 2011): <http://www.glasgowairport.com/about-us/media-centre/press-releases/ba-increases-capacity-on-glasgow-heathrow-service>

35 Refer: "Emirates to add second daily flight to Dubai", *Glasgow Herald*, 11 January 2012. Web reference: <http://www.heraldscotland.com/news/transport/emirates-to-add-second-daily-flight-to-dubai.16422641>

36 The data here are based on Network Rail's advice of reported demand for the Glasgow-London and Edinburgh-London services in the year to October 2012 (529,000 and 868,000 passengers). Refer Network Rail, January 2013, section 2.4.3. The web reference is: <http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784336>.

37 There was also a service to Inverness during the 1990s, which was abandoned in early 1997. It carried many more passengers than the equivalent service in the 2000s.

38 But the equivalent analysis from the Airports Commission shows a near-stable level of interlining from England and Northern Ireland to LHR over this time, and therefore a much sharper decline in domestic traffic. Refer endnote #14 above.

39 Further details are available from the author.

40 Refer endnote 3 above, especially Fergus Ewing's comments.

41 This according to Wikipedia: https://en.wikipedia.org/wiki/Turkish_Airlines. Once the domestic destinations within Turkey are included, some of which have direct services from elsewhere in the UK, the airport's reach is well over two hundred separate destinations.

42 "Edinburgh 'could get second flight to Qatar'", *The Scotsman*, 25 March 2014. Web reference: <http://www.scotsman.com/news/transport/edinburgh-could-get-second-flight-to-qatar-1-3352781>

43 "Etihad Airways to begin flights from Scotland", *The Scotsman*, 28 February 2014. Web reference: <http://www.scotsman.com/news/transport/etihad-airways-to-begin-flights-from-scotland-1-3323494>

44 Currently BA provide 9 flights per day Glasgow-LHR and 10 more to other London airports (LGW, LCY); they provide 11 flights per day Edinburgh-LHR and 12 more to other London airports (LGW, LCY); and 8 flights per day Aberdeen-LHR and 3 more to LCY. Virgin supplies 6 more flights per day Edinburgh-LHR and 3 more Aberdeen-LHR. For the record, they also provide a further three flights per day between Manchester and LHR.

45 Refer para. 4.51ff of the Airports Commission report.

46 Ibid., para. 5.102ff.

47 For more details, refer: "RAF Northolt may be sold to raise defence funds", *The Guardian*, 25 January 2012. Web reference: <http://www.guardian.co.uk/uk/2012/jan/25/raf-northolt-may-be-sold>. See also: "Setback for RAF Northolt runway plan", *The Telegraph*, 7 April 2012. Web reference:

<http://www.telegraph.co.uk/finance/newsbysector/transport/9192426/Setback-for-RAF-Northolt-runway-plan.html>

48 “Ministers urged to open RAF airfield to commercial airlines”, *Herald Scotland* 7 June 2013.

Web reference: <http://www.heraldscotland.com/news/home-news/ministers-urged-to-open-raf-airfield-to-commercial-airlines.21279142>.

49 “Airport expansion: Which options will be cleared for take-off?” BBC News, 17 December 2013. Web reference: <http://www.bbc.co.uk/news/uk-19570653>

50 In fact, BAA as-was, was allowed to rebalance its landing charges, through increasing the domestic landing charge by 50 percent. This led to protests at the time by BMI that they were being ‘priced out’ of LHR. Refer Murphy (2011), p32, and also:

<http://www.telegraph.co.uk/finance/newsbysector/transport/8261850/Airline-BMI-reviews-UK-domestic-flights-at-Heathrow.html>

51 This was recommended by *The Economist* newspaper several years ago: “Breaking up BAA – a new departure for London’s airports”, *The Economist*, 21 August 2008.

52 It is acknowledged that there is a measure of the Scottish via-Heathrow international traffic which could not easily be served through Schiphol or Paris, because the Heathrow services are much more frequent. The questions remain, though, both as to how large this market actually is, and also *which* traffic to *which* overseas airports would be affected by any reduction in LHR access.

53 “Tax rise at Heathrow and Gatwick ‘will force flyers to use provincial airports’”, *The Guardian*, 29 December 2012. Web reference:

<http://www.guardian.co.uk/world/2012/dec/29/tax-rise-heathrow-gatwick-airports>

54 Airports Commission, para. 4.48ff.

55 *Ibid.*, para. 5.91ff.

56 ‘Easyjet pledges more Inverness to London flights’, *The Scotsman* 26 June 2013. Web reference:

<http://www.scotsman.com/news/transport/easyjet-pledges-more-inverness-to-london-flights-1-2975369>.

57 “Flybe blame game goes beyond Gatwick”, *The Scotsman*, 25 May 2013. Web reference:

<http://www.scotsman.com/business/transport/comment-flybe-blame-game-goes-beyond-gatwick-1-2942446>

58 “Air connectivity between Inverness and London”, *Scottish Council for Development and Industry*, July 2013.

Web reference: [http://www.scdi.org.uk/sr/Docs/SCDI-Research-Air-Connectivity\(July2013\).pdf](http://www.scdi.org.uk/sr/Docs/SCDI-Research-Air-Connectivity(July2013).pdf). Refer also to endnote 16 above.

59 Discussed at length in Johnston *et al.*, (2013).

60 “Demand for flights taking off: new figures show Inverness to Amsterdam route growing in popularity”, *Aberdeen Press & Journal*, 6 September 2013.