



Expanding Airport Capacity: Competition, Connectivity and Welfare

Discussion of Options for Gatwick and Heathrow



Case-Specific Policy Analysis

Expanding Airport Capacity: Competition, Connectivity and Welfare

Discussion of Options for Gatwick and Heathrow



Case-Specific Policy Analysis

THE INTERNATIONAL TRANSPORT FORUM

The International Transport Forum at the OECD is an intergovernmental organisation with 57 member countries. It acts as a strategic think tank with the objective of helping shape the transport policy agenda on a global level and ensuring that it contributes to economic growth, environmental protection, social inclusion and the preservation of human life and well-being. The International Transport Forum organises an Annual Summit of ministers along with leading representatives from industry, civil society and academia.

The International Transport Forum was created under a Declaration issued by the Council of Ministers of the ECMT (European Conference of Ministers of Transport) at its Ministerial Session in May 2006 under the legal authority of the Protocol of the ECMT, signed in Brussels on 17 October 1953, and legal instruments of the OECD.

The Members of the Forum are: Albania, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Chile, China (People's Republic of), Croatia, Czech Republic, Denmark, Estonia, Finland, France, Former Yugoslav Republic of Macedonia, Georgia, Germany, Greece, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Korea, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Mexico, Republic of Moldova, Montenegro, Morocco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and United States.

The International Transport Forum's Research Centre gathers statistics and conducts co-operative research programmes addressing all modes of transport. Its findings are widely disseminated and support policy making in member countries as well as contributing to the Annual Summit.

Further information about the International Transport Forum is available at
www.internationaltransportforum.org

DISCLAIMER

This work is published under the responsibility of the Secretary-General of the International Transport Forum. The opinions expressed and arguments employed herein do not necessarily reflect the official views of International Transport Forum member countries. This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Acknowledgement



The analysis for this report was undertaken by SEO Economic Research. The SEO team comprised Guillaume Burghouwt, Jan Veldhuis, Thijs Boonekamp, Joost Zuidberg and Rogier Lieshout, together with Wouter de Wit from the International Transport Forum.

SEO Economic Research carries out independent applied economic research on behalf of the public and private sectors. SEO Economic Research is affiliated to the University of Amsterdam, giving it access to the latest scientific research tools. Operating on a not-for-profit basis, SEO continually invests in the intellectual capital of its staff by arranging for them to pursue graduate studies, publish scientific papers and participate in academic networks and conferences.

Table of Contents

Introduction	7
Background.....	7
Previous work undertaken by the ITF/SEO for the UK Airports Commission	8
Outline of the report.....	9
Estimates of airline responses to airport capacity expansion	11
Introduction.....	11
Airline responses.....	12
Modelled welfare impacts.....	13
Comparison of expansion option results.....	20
Sensitivity analysis of assumptions on transfer shares	23
Scarcity rents and airport charges.....	28
Scarcity rents.....	28
Do airlines benefit from scarcity rents?	29
Pass-through of higher airport charges	34
Review of submissions on competition impacts.....	37
InterVISTAS on competition and air fares	37
Gatwick Airport Ltd. – Supporting Traffic & competition analysis.....	46
British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East	49
CAA (2015). CAA response to the Airports Commission consultation: increasing the UK’s long-term capacity	50
Boosting capacity where it matters most - the nub is the hub. The CBI’s position on future aviation capacity.	51
Virgin Atlantic Response to the Airports Commission final consultation.....	51
EasyJet response to the Airports Commission consultation	52
Heathrow Airport Main submission.....	53
Conclusions from the review of submissions	53
Mechanisms to influence connectivity outcomes in the uk.....	55
Demand management measures.....	55
Local rules and guidelines in the slot allocation mechanism.....	56
Public Service Obligations.....	59
Traffic Distribution Rules	62
Differentiation in airport charges and taxes.....	65
Start-up aid/ incentives	67
Synthesis	70
Bibliography	72

Figures

1	Consumer benefits under the assessment of need Scenario in 2030	20
2	Consumer benefits under the assessment of need Scenario in 2040	21
3	Passenger numbers in 2040 for carbon traded and carbon capped forecasts.	22
4.	Reduction of excess demand decreases ticket prices/ airline scarcity rents	29
5	Passenger charge differentiation (tariff per departing passenger) by type of destination	66

Tables

1.	Summary of Airline Response Paths Analysed in this Report	11
2.	LCC or point-to-point growth at Gatwick results in positive welfare effects for OD passengers; transfer passengers benefit less from a Gatwick expansion.	13
3.	OD passengers strongly benefit from an expansion of Gatwick under the Low Cost is King Scenario; benefits for transfer passengers are low or negative.	15
4.	Both transfer and OD passengers benefit from hub carrier growth at Heathrow, point-to-point growth results in large benefits for OD passengers.....	17
5.	Results following the extended northern runway option are similar to those found for the additional north west runway option.....	19
6	Transfer shares at Heathrow and Gatwick in the unconstrained and do-minimum scenario.	23
7.	Sensitivity to Assumptions on Transfer Traffic: Heathrow expansion with new northwest runway, Hub carrier growth at Heathrow, Assessment of Need Scenario, results for 2030.....	25
8.	Sensitivity to Assumptions on Transfer Traffic: Gatwick expansion, Gatwick becomes LCC gateway, Low Cost is King Scenario, results for 2040	26
9.	Summary of the instruments to influence connectivity outcomes	71

Introduction

Background

The UK Airports Commission was established to examine the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub and to identify and evaluate how any need for additional capacity should be met in the short, medium and long term. It is to make recommendations to the Government, underpinned by a detailed review of the evidence in relation to the current position in the UK with regard to aviation demand and connectivity, forecasts for how these are likely to develop, and the expected future pattern of the UK's requirements for international and domestic connectivity.¹

In December 2013 the UK Airports Commission short-listed three options for airport expansion in the UK, two at Heathrow and one at Gatwick. In addition, The Airports Commission adopted five qualitative scenarios to assess the future. These scenarios were developed for the Commission's Interim Report and then updated for the purpose of the Commission's appraisal of its shortlisted options.² The different scenarios have been designed to provide contrast to test possible different development paths rather than to establish a range of forecasts to different degrees of probability around a central baseline projection. The following five scenarios were developed.

A. Assessment of need scenario.

The Assessment of need scenario develops a forecast of future demand determined primarily in relation to past trends and central projections of GDP, global oil prices, population etc. taken from external sources and used in economic projections produced by other government departments.

B. Global growth.

This scenario is characterised by higher aviation demand levels in the UK driven by strong economic growth in Asian economic and increasing economic integration. Existing major aviation hubs and alliances strengthen. Liberalisation of aviation markets continues. Continued growth of the middle class leads to strong demand growth. Middle East carriers continue to grow. Global airline alliances further strengthen the global hub network, benefiting from a new generation of fuel-efficient aircraft.

C. Relative decline of Europe.

This scenario also shows high aviation demand levels driven by strong economic growth in Asian economies and increasing economic integration. However, it assumes aggressive competition between

1 As set out in the terms of reference for the Commission,
<https://www.gov.uk/government/organisations/airports-commission/about/terms-of-reference>

2 <https://www.gov.uk/government/publications/airports-commission-interim-report> ;
<https://www.gov.uk/government/news/airports-commission-publishes-consultation-on-shortlisted-options-for-a-new-runway>

the legacy carriers and new market entrants from emerging economies. This results in a decline in the importance of the European aviation hubs as European airlines are frequently out-competed by Middle Eastern and Asian carriers. Middle Eastern carriers use new aircraft technology to by-pass the major European hubs and fly directly into secondary European cities. The role of global alliances declines.

D. Low cost is king.

Scenario D assumes a growing role for low-cost carriers. They enter long-haul markets and self-connecting becomes more common for passengers. The importance of hubs and network carriers declines throughout the world. Liberalization of aviation markets worldwide continues. Low-cost carriers use new aircraft technology such as Boeing 787 and Airbus A350 to enter long-haul point-to-point markets. The low-cost carriers have little incentive to enter into formal alliances.

E. Global fragmentation.

Scenario E assumes a decline in global economic and aviation growth. The world economy fragments and liberalisation stalls. Countries turn inward, adopting protectionist and interventionist policies. Global aviation markets suffer from protectionism and a global economic slowdown. Airlines compete aggressively for a relatively small pool of passengers, resulting in a partial break-up of alliances. New long-range aircraft enable more markets to be served point-to-point.

An extensive explanation of the underlying assumptions can be found in earlier reports published by the International Transport Forum and by the Airports Commission.

Previous work undertaken by the ITF/SEO for the UK Airports Commission

The UK Airports Commission requested the International Transport Forum and SEO Economic Research to carry out a series of studies to determine how each of the short-listed expansion options may affect the competitive nature of the London and UK-wide airport system under different scenarios. The impacts of expansion on consumer welfare do not only depend on the macro-economic and aviation industry future, as defined by the aviation scenarios developed by the Airports Commission, but also on the airline responses that can be expected as capacity comes on stream.

The ITF/SEO studies are designed to answer the question what combination of factors will drive the most “competitive” outcome for each of the expansion options. They aim to provide the Airports Commission with an evidence-based assessment to scrutinise airport capacity expansion options in regard to their competitive outcomes, connectivity and overall user benefits.

The first of the studies (ITF/SEO November 2014) analysed the potential consequences for airline behaviour in case one of the short-listed options were to be implemented. In addition, the study discussed potential implications of expansion at each airport for connectivity and competition to the benefit of the aviation user. The study assessed the likelihood of different airline responses under the different scenarios identified by the Airports Commission

The second study (ITF/SEO December 2014) quantitatively assessed the impacts of potential airline responses to expansion of runway capacity at either Gatwick or Heathrow airport under a selection of the scenarios developed by the Airports Commission and modelled the results in terms of changes in:

- scarcity rents;
- competition; and
- connectivity.

The results of this exercise were released at the same time as the public consultation on shortlisted options for a new runway in the South East of England undertaken by the Airports Commission.³

A third study (ITF June 2015) reviews the forecasts used by the Airports Commission, discussing the appropriateness of the outputs produced and the robustness of the scenarios and including an examination of the approach to allocating traffic between London's airports.

Outline of the report

The present and fourth report builds on the previous studies in several ways. First, it expands the quantitative assessment of airline responses to expansion at Gatwick and Heathrow. For this assessment the same methodology was used as in the second study and again the results are broken down into impacts on scarcity rents, competition and connectivity. The results are presented in Chapter 2 of this report.

Next, this report analyses and addresses technical submissions to the public consultation on shortlisted options for a new runway pertaining to the results of the second study. Chapter 3 addresses responses related to scarcity rents and airport charges while Chapter 4 addresses submissions related to competition. Chapter 5 briefly addresses responses related to connectivity, focusing on which instruments the Government might potentially use to influence connectivity outcomes.

3 <https://www.gov.uk/government/consultations/increasing-the-uks-long-term-aviation-capacity>

Estimates of airline responses to airport capacity expansion

Introduction

This chapter presents the results of modelled estimates for the impact of airline responses on competition, connectivity and scarcity rents following capacity expansion at Gatwick or Heathrow. Consumer benefits are estimated for 2030 and 2040. In December 2014, ITF/SEO estimated the consumer benefits for four airline responses under three different Airports Commission growth scenarios. We refer to this report for a discussion of the methodology applied. This chapter summarises analysis of two additional potential airline response paths following Gatwick expansion and two airline response paths following Heathrow expansion for 2030 and 2040 under the Airports Commission Assessment of Need Scenario. The paths analysed are as follows.

Heathrow expansion:

- Hub carrier growth at Heathrow, point-to-point growth at Gatwick (2030 and 2040)
- Point-to-point growth at Heathrow and Gatwick (2030 and 2040)

Gatwick expansion:

- Gatwick becomes low-cost gateway, Heathrow remains network hub (2030 and 2040)
- Point-to-point growth at Gatwick, Heathrow remains network hub (2030 and 2040)

In addition, we provide estimates for the impact in 2030 and 2040 of two airline response paths following Gatwick expansion under the Low Cost is King Scenario. The airline response paths considered are ‘Gatwick becomes a low-cost gateway’ and ‘Point-to-point growth at Gatwick’. The results presented are based on the passenger forecasts developed for a carbon-traded world, with a discussion of what would potentially happen if instead a carbon capped scenario applied. In the following sections, first, we briefly recap the four airline response paths considered and then present the results for the expansion options Gatwick, Heathrow new north-west runway and Heathrow extended northern runway.

Table 1. Summary of Airline Response Paths Analysed in this Report

Airline response	Gatwick		Heathrow			
	Low cost gateway	Point to point growth	Hub carrier growth		Point to point growth	
Runway option			HAL, new northeast runway	HHL, extended runway	HAL, new northeast runway	HHL, extended runway
Assessment of Need Scenario	✓	✓	✓	✓	✓	✓
Low Cost is King Scenario	✓	✓				

Airline responses

In this section we summarise the airline response paths. For an extensive description of these responses see the ITF/SEO report of December 2014.

Heathrow expansion

Airline response A. Hub carrier growth at Heathrow, point-to-point growth at Gatwick:⁴

The hub carrier and partners benefit from additional capacity at London Heathrow as it enables operation of a more efficient, fully developed wave-system for coordinating arrivals and departures at the airport, maximising opportunities for transfer between flights. This results in higher transfer shares for Oneworld carriers at Heathrow. A significant share of Oneworld carrier operations currently operated from Gatwick move to Heathrow. Oneworld carriers only continue to operate a few flights to leisure destinations from Gatwick, with a limited share of ‘guided’ transfer traffic.

Airline response B. Point-to-point growth at Heathrow and Gatwick, Heathrow remains the network hub

Additional capacity at Heathrow is primarily taken up by point-to-point carriers. LCC and point-to-point carriers gain market share at the expense of Oneworld carriers, both at Gatwick and Heathrow. As a result of more competitive pressure and less growth of Oneworld, transfer demand is crowded out as demand increases. Overall, transfer traffic increases in absolute terms but the share of transfer traffic of Oneworld airlines at Heathrow remains the same as in the ‘do minimum’ scenario.

Gatwick expansion

Airline response C. Partnerships: Gatwick becomes a low-cost gateway, Heathrow remains the network hub

Low cost carriers gain market share at Gatwick at the expense of full service carriers. At Gatwick, in both long-haul and short-haul markets the presence of low cost carriers increases. To create more route density, low cost carriers start to carry a limited amount of transfer traffic (10%). At Heathrow, the market share of Oneworld carriers remains stable compared to the ‘do minimum’ scenario. As growth at Heathrow is limited, transfer shares do not change with respect to the ‘do minimum’ scenario. Compared to the ‘unconstrained’ scenario for Heathrow, transfer traffic is ‘crowded out’ to a certain extent.

Airline response D. Gatwick point-to point-growth, Heathrow remains the network hub

Point-to-point carriers take up all additional Gatwick capacity. The market share of Oneworld carriers at Gatwick decreases. Similarly to airline response 3, Heathrow remains the network hub. The market share of Oneworld carriers remains stable and transfer shares do not decrease with respect to the ‘do minimum’ scenario.

4 The previous report (ITF/SEO2014) examined 6 potential airline response paths, 3 for expansion at Heathrow, 3 for expansion at Gatwick. The four response paths examined in the present report correspond to responses 1, 3, 5 and 6 in the previous report.

Modelled welfare impacts

In this section, aviation scenario-airline response combinations are evaluated in terms of consumer welfare impacts arising from connectivity gains, changes in competition levels and reduction in airline scarcity rents. The SEO Netcost model is used to estimate these effects, see ITF/SEO 2014 and SEO for a description of the methodology. The tables summarise the results of modelling consumer welfare changes and compare direct benefits, per passenger and in total, with a do-minimum case where there is no expansion of runway capacity in the London airports system.

Gatwick expansion option

Assessment of Need Scenario

Table 2. LCC or point-to-point growth at Gatwick results in positive welfare effects for OD passengers; transfer passengers benefit less from a Gatwick expansion.

	Gatwick becomes low-cost gateway, Heathrow remains network hub				Point-to-point growth at Gatwick, Heathrow remains network hub			
	2030		2040		2030		2040	
Benefit / OD passenger	£	2.22	£	7.60	£	3.84	£	9.61
Connectivity	£	0.59	£	2.28	£	0.59	£	2.29
Competition	£	0.64	£	0.52	£	0.29	£	0.09
Scarcity	£	0.99	£	4.79	£	2.96	£	7.23
Benefit / transfer passenger	£	0.27	£	1.57	-£	0.43	£	0.49
Number of OD passengers		165,770		188,449		168,623		192,112
Heathrow		71,281		77,693		71,420		77,841
Gatwick		45,435		57,192		48,150		60,707
City		6,474		6,418		6,474		6,418
Luton		11,903		15,127		11,903		15,127
Stansted		30,676		32,018		30,676		32,018
OD passengers constrained		164,546		176,811		164,546		176,801
Number of transfer passengers		24,200		26,740		21,581		23,295
Heathrow		21,452		23,137		21,313		22,988
Gatwick		2,748		3,603		268		307
City		0		0		0		0
Luton		0		0		0		0
Stansted		0		0		0		0
Transfer passengers constrained		21,851		23,355		21,851		23,355
Total passenger benefits (GBP mln.)		373		1,430		630		1,783
UK		227		914		383		1,140
Non-UK		146		516		247		644
Total benefits OD passengers (GBP mln.)		367		1,388		639		1,772
Business		92		356		161		455
Leisure		274		1,032		478		1,317
Connectivity		97		417		98		422
Competition		106		95		48		16
Scarcity		164		876		493		1,334
Benefits transfer passengers (mln GBP)		7		42		-9		11

Source: SEO Netcost

The consumer benefits per OD passenger under Gatwick expansion are relatively small in 2030 under the Assessment of Need Scenario. This mainly reflects the passenger forecasts for this scenario. The total number of passengers at all London airports in the ‘do minimum’ scenario adds up to 184 million. This increases only by 4 million after the expansion of Gatwick in the Assessment of Need Scenario, resulting in limited consumer benefits. In 2040, consumer benefits are higher as there is a stronger difference in passenger numbers between the expansion and do-minimum cases.

In 2040 the consumer benefits per OD passenger are GBP 7.60 and 9.61 in the LCC gateway and point-to-point growth airline responses, respectively. The benefits in the latter response are higher, as all new capacity at Gatwick is used by OD passengers, while LCCs also carry transfer traffic in the LCC gateway scenario. Transfer passengers are more price sensitive than OD passenger, so the costs of travelling do not need to decrease as much as in the case of OD passengers to change their behaviour. This in turn leads to smaller impacts of expansion when the share of transfer passengers is higher

Competition effects are higher in the LCC gateway airline response than in the point-to-point growth response. In the latter airline response, competition by low cost carriers gradually reduces full service carrier supply at Gatwick (including that of Oneworld carriers), leading to more competition and therefore lower airfares. In the LCC gateway scenario the shift from Oneworld and other full service carriers to point-to-point carriers is much stronger, leading to higher consumer benefits attributed to competition.

The benefits per transfer passenger are relatively low in both airline responses, in comparison to airline responses following Heathrow expansion. This is because transfer traffic is mainly influenced by developments at Heathrow. In the two airline responses Heathrow remains the network hub for Oneworld, therefore there is no difference in airline presence at Heathrow between the two scenarios. The effects in the LCC gateway airline response are slightly higher, as LCCs carry some transfer traffic in this airline response.

Low Cost is King Scenario

Table 3. OD passengers strongly benefit from an expansion of Gatwick under the Low Cost is King Scenario; benefits for transfer passengers are low or negative.

	Gatwick becomes low-cost gateway, Heathrow remains network hub				Point-to-point growth at Gatwick, Heathrow remains network hub			
	2030		2040		2030		2040	
Benefit / OD passenger	£	17.89	£	34.12	£	20.34	£	35.77
Connectivity	£	3.63	£	6.42	£	3.54	£	6.32
Competition	£	1.92	£	2.87	£	1.51	£	1.81
Scarcity	£	12.35	£	24.83	£	15.29	£	27.64
Benefit / transfer passenger	-£	3.34	£	1.29	-£	8.35	-£	14.11
Number of OD passengers (x 1000)		187,041		217,441		191,869		222,396
Heathrow		68,161		73,117		68,278		73,231
Gatwick		67,747		88,020		72,458		92,862
City		6,778		6,285		6,778		6,285
Luton		15,016		15,793		15,016		15,793
Stansted		29,339		34,225		29,339		34,225
OD passengers constrained (x 1000)		169,579		185,299		169,579		185,299
Number of transfer passengers (x 1000)		25,406		28,277		20,724		22,328
Heathrow		20,559		22,121		20,442		22,007
Gatwick		4,847		6,156		282		320
City		0		0		0		0
Luton		0		0		0		0
Stansted		0		0		0		0
Transfer passengers constrained (x 1000)		22,422		25,262		22,422		25,262
Total passenger benefits (mln. GBP)		3,106		6,907		3,503		6,977
UK		1,889		4,187		2,131		4,229
Non-UK		1,217		2,720		1,372		2,748
Total benefits OD passengers (mln. GBP)		3,191		6,871		3,676		7,292
Business		804		1,839		926		1,952
Leisure		2,387		5,031		2,750		5,340
Connectivity		647		1,292		640		1,289
Competition		342		578		272		370
Scarcity		2,202		5,001		2,764		5,634
Benefits transfer passengers (mln. GBP)		-85		36		-173		-315

Source: SEO Netcost

The relatively high GDP growth assumption in the Low Cost is King Scenario results in higher passenger forecasts and therefore higher consumer benefits following runway capacity expansion. We find similar results for the two airline response paths following expansion at Gatwick in both 2030 and 2040.

Benefits for OD passengers are somewhat higher in the point-to-point growth airline response at Gatwick. This follows from the fact that point-to-point carriers do not carry transfer traffic, while there

are transfer passengers in the LCC gateway scenario, albeit a limited number. Additional capacity at Gatwick is fully utilised by OD passengers in the second airline response.

The consumer benefits for transfer passengers are lower compared to the Assessment of Need scenario. As follows from the AC's Low Cost is King Scenario, there is a shift of traffic from Heathrow to Gatwick and passenger numbers at Heathrow are lower in the Low Cost is King Scenario. The share of transfer traffic at Gatwick is limited and this capacity expansion is almost entirely utilised by OD traffic. Therefore, the overall number of transfer passengers decreases, yielding negative consumer benefits in this segment. In the LCC gateway scenario, the presence of transfer traffic on low cost carriers results in a positive result for transfer passengers in 2040.

Competition effects are larger in the LCC gateway scenario, resulting from the increase in low-cost carrier market share and its downward pressure on fares.

We note that there is uncertainty with respect to how much transfer traffic is crowded out as a result of shrinking excess capacity. Annex 2 provides a sensitivity analysis for the LCC gateway scenario in 2040, with varying degrees of 'crowding out'.

Heathrow additional runway (HAL) option*Assessment of Need Scenario*Table 4. **Both transfer and OD passengers benefit from hub carrier growth at Heathrow, point-to-point growth results in large benefits for OD passengers**

	Hub carrier growth at Heathrow, point-to-point growth at Gatwick		Point-to-point growth at Heathrow and Gatwick; Heathrow remains the network hub	
	2030	2040	2030	2040
Benefit / OD passenger	£ 9.00	£ 18.32	£ 27.52	£ 37.29
Connectivity	£ 1.99	£ 5.72	£ 2.18	£ 5.86
Competition	£ 0.20	£ 0.25	£ 1.74	£ 2.00
Scarcity	£ 6.81	£ 12.35	£ 23.59	£ 29.42
Benefit / transfer passenger	£ 34.73	£ 39.98	-£ 3.12	£ 1.18
Number of OD passengers	170,569	195,120	187,163	214,800
Heathrow	87,097	100,521	103,689	119,858
Gatwick	37,749	41,590	37,751	41,933
City	4,558	6,778	4,558	6,778
Luton	10,861	12,758	10,861	12,758
Stansted	30,304	33,472	30,304	33,472
OD passengers constrained	164,124	176,355	164,546	176,811
Number of transfer passengers	38,028	43,660	22,014	25,293
Heathrow	37,839	43,440	21,592	24,803
Gatwick	189	220	422	490
City	0	0	0	0
Luton	0	0	0	0
Stansted	0	0	0	0
Transfer passengers constrained	22,272	23,812	21,851	23,355
Total passenger benefits (GBP mln.)	2,827	5,149	4,771	7,331
UK	1,612	3,056	2,722	4,351
Non-UK	1,214	2,096	2,049	2,980
Total benefits OD passengers (GBP mln.)	1,506	3,403	4,840	7,301
Business	377	851	1,210	1,826
Leisure	1,129	2,552	3,629	5,475
Connectivity	333	1,063	384	1,148
Competition	34	46	307	391
Scarcity	1,139	2,294	4,149	5,762
Benefits transfer passengers (mln GBP)	1,321	1,746	-69	30

Source: SEO Netcost

There is a large difference in the consumer benefits arising under the two airline responses paths modelled following Heathrow expansion. The hub carrier growth path at Heathrow results in a large increase in transfer traffic – almost as high as in the unconstrained demand scenario. In the point-to-point growth path, the transfer share does not increase compared to the capacity constrained, do-minimum case. Supply and demand balance with less reduction in generalised costs under the hub carrier growth response path because of its accommodation of transfer traffic, which is much more price-elastic than OD traffic.

Under the Assessment of Need Scenario, the consumer benefits of Heathrow expansion are much larger than the benefits modelled for Gatwick expansion. This is driven by the large difference in the total amount of passengers at London airports between the two expansion options. Under the Gatwick expansion option, in 2030 the Airports Commission Scenario foresees a total of 188 million passengers, compared to 205 million for Heathrow expansion. The potential for a reduction in scarcity rents is therefore much higher in the case of Heathrow expansion.

In a point-to-point growth airline response, Oneworld carriers lose market share to other airlines. These carriers provide more seats for OD passengers and generally offer lower ticket prices. This results in positive welfare effects. Added to this, a decreasing market share for Oneworld at London Heathrow results in a decrease in airfares. The model results imply that in 2040 an average ticket is 2 pounds cheaper because of an increase in competition.⁵

On the other hand, welfare benefits for transfer passengers are relatively low with point-to-point growth. In 2030 a negative welfare effect is observed, as the capacity shift to other airlines results in a decrease of transfer passengers at Heathrow. In 2040, the welfare effects for transfer passengers are slightly positive, as the additional capacity leads to an increase in transfer passengers in this year.

Consumer benefits from competition are low under the hub carrier growth response path. As Oneworld is the dominant airline group for a large number of destination regions, an increased market share of Oneworld leads to a decrease in competition.

In Annex 2 a sensitivity analysis is provided. This analysis shows how the results are affected in 2030 by using higher or lower transfer shares in the hub carrier growth response path at Heathrow.

5 In the ITF/SEO paper of December 2014 we argued that decreases in scarcity rents translates into lower ticket prices. Any increases in aero-charges are absorbed by the airlines through a further reduction of scarcity rents. See: <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>. We also refer to the ITF/SEO note on scarcity rents and aero-charges.

Heathrow extended northern runway option (HHL) option*Assessment of Need Scenario***Table 5. Results following the Extended Northern Runway Option are Similar to those found for the Additional North West Runway Option**

	Hub carrier growth at Heathrow, point-to-point growth at Gatwick				Point-to-point growth at Heathrow and Gatwick; Heathrow remains the network hub			
	2030		2040		2030		2040	
Benefit / OD passenger	£	9.06	£	14.25	£	27.45	£	33.28
Connectivity	£	2.02	£	4.90	£	2.21	£	5.01
Competition	£	0.20	£	0.22	£	1.81	£	1.95
Scarcity	£	6.83	£	9.13	£	23.43	£	26.31
Benefit / transfer passenger	£	34.74	£	37.48	-£	2.98	-£	2.00
Number of OD passengers		170,674		191,164		187,530		210,177
Heathrow		87,137		95,611		103,742		114,293
Gatwick		37,740		42,027		37,988		42,358
City		4,564		6,574		4,564		6,574
Luton		10,929		13,655		10,932		13,655
Stansted		30,304		33,297		30,304		33,297
OD passengers constrained		164,124		176,354		164,546		176,811
Number of transfer passengers		38,047		41,548		22,028		24,053
Heathrow		37,858		41,329		21,606		23,562
Gatwick		189		220		422		491
City		0		0		0		0
Luton		0		0		0		0
Stansted		0		0		0		0
Transfer passengers constrained		22,272		23,812		21,851		23,355
Total passenger benefits (GBP mln.)		2,838		4,176		4,766		6,391
UK		1,619		2,508		2,719		3,838
Non-UK		1,219		1,668		2,047		2,553
Total benefits OD passengers (GBP mln.)		1,516		2,619		4,831		6,439
Business		379		674		1,208		1,658
Leisure		1,137		1,944		3,623		4,781
Connectivity		338		900		388		970
Competition		34		41		318		378
Scarcity		1,144		1,678		4,125		5,091
Benefits transfer passengers (mln GBP)		1,322		1,557		-66		-48

Source: SEO Netcost

For 2030 the results are very similar for both runway options at Heathrow. In 2040 the results for the extended northern runway show slightly lower benefits than for a new runway. The capacity expansion following extension of the northern runway is smaller than with a new additional runway.

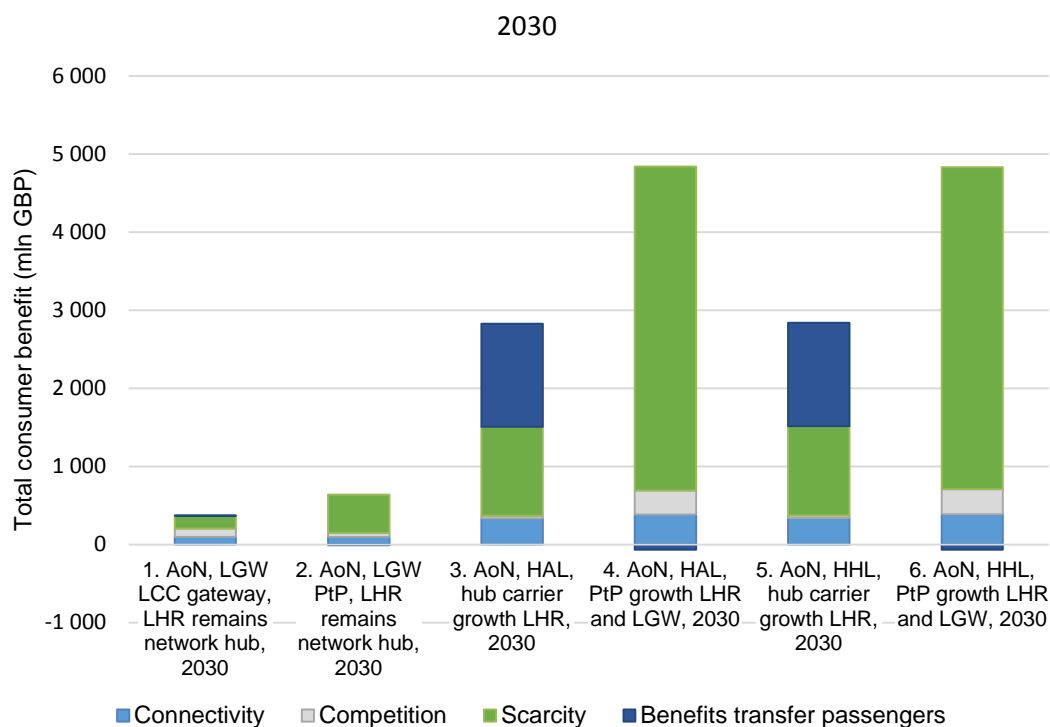
As capacity limits are reached by 2040, consumer benefits are lower than in the option where a new runway is built. In the hub carrier growth airline response, the total welfare effect is around 1 billion pounds lower than for the new runway option (6.3 billion versus 7.3 billion).

While the consumer benefits for transfer passengers were positive in the Heathrow new runway option, these are negative in 2040 in the extended runway scenario. As the latter option offers less capacity, this results in stronger decrease in transfer passengers in some destination regions.

Comparison of expansion option results

Figure 1 shows the consumer benefits for the six expansion option/airline response combinations presented in this report. On the graph, bars 1 and 2 are the results for Gatwick expansion, bars 3 and 4 show the results for Heathrow Airport Limited’s (HAL) plans for a new north west runway and bars 5 and 6 are for Heathrow Hub Limited’s (HHL) proposal to extend the northern runway. As the figure shows, the benefits resulting from expansion at Heathrow are higher than those following Gatwick expansion. In the hub carrier growth at Heathrow airline responses, consumer benefits for transfer passengers are largest. Total consumer benefits are highest in case of an airline response that sees point-to-point growth at Heathrow and Gatwick, as capacity expansion leads to a large decrease in scarcity rents for OD passengers. The highest consumer benefits for connectivity and competition are realized in this configuration too.

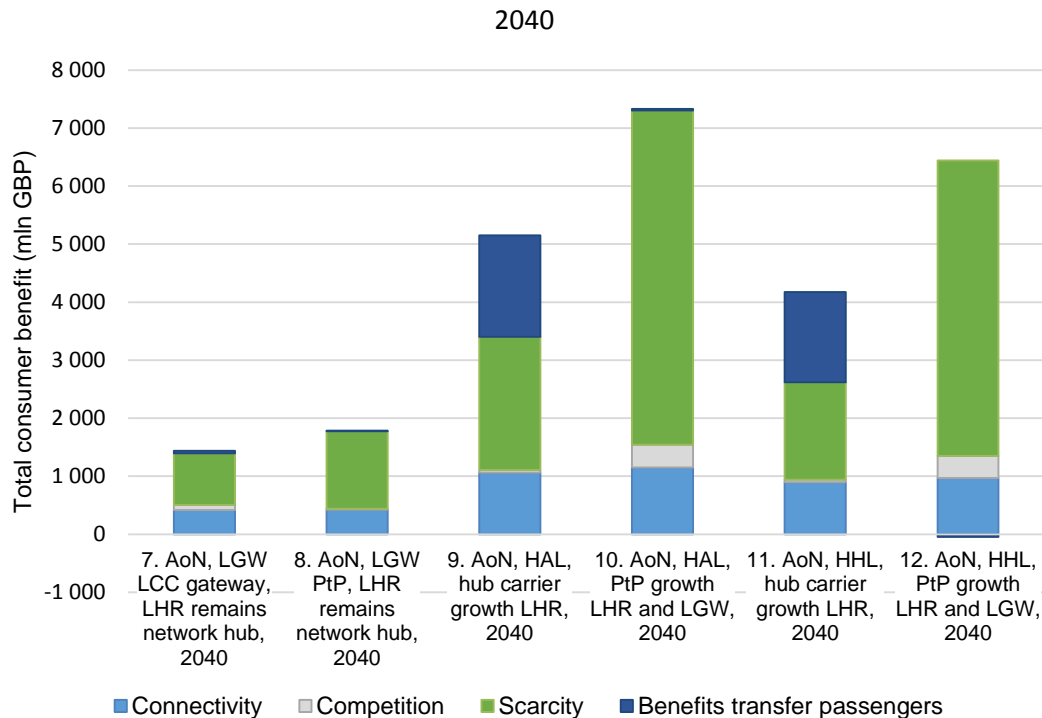
Figure 1. Consumer Benefits under the Assessment of Need Scenario in 2030



Source: SEO Netcost.

Figure 2 shows the results for the estimated consumer benefits in 2040. The aggregate benefits are higher than in 2030, but show the same general pattern. The relative increase with respect to the benefits in 2030 is largest for the Gatwick expansion options. Nevertheless, consumer benefits following a Heathrow expansion are still higher. In 2040 a stronger difference is observed between the two Heathrow expansion options. As the extended runway option (HHL) provides a little less additional capacity than the new runway option, benefits in the latter expansion option are higher.

Figure 2. **Consumer Benefits under the Assessment of Need Scenario in 2040**



Source: SEO Netcost.

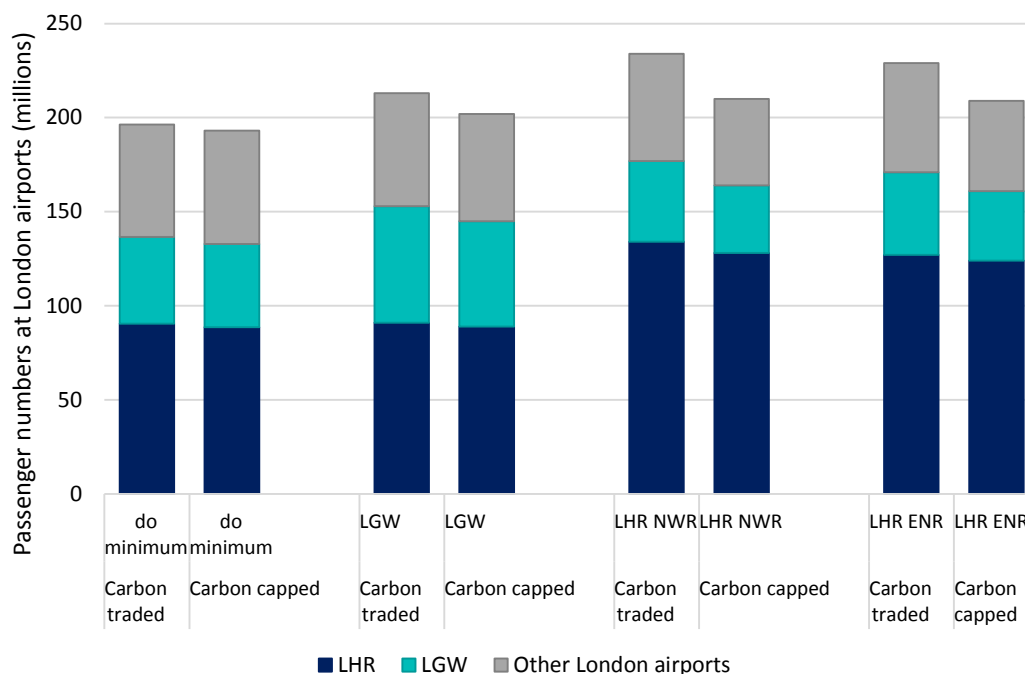
Results in the carbon capped scenario

All results presented above are developed under the scenario for a carbon traded world developed by the Airports Commission. Under its carbon capped scenario results would potentially be different. In this section we discuss the differences and what kind of impact they have on our results.

In the carbon traded scenario it is assumed that aviation participates in an emissions trading scheme and so net CO₂ emission costs are included in airfares. The AC's carbon capped scenario instead assumes that the CO₂ emissions of UK aviation in 2050 are constrained to be below the level of 2005. This results in lower passenger forecasts in the carbon capped scenarios. Lower passenger numbers would imply smaller consumer benefits.

Figure 3 shows the passenger number forecasts of the Airports Commission under the Assessment of Need scenario for 2040 for a carbon traded and a carbon capped world. (The forecasts for 2030 show the same pattern). In the Low Cost is King Scenario the difference between the carbon capped and carbon traded variants is larger as the underlying growth in passenger demand is stronger, making the carbon cap more restrictive in this scenario.

Figure 3. **Passenger Numbers in 2040 for Carbon Traded and Carbon Capped Forecasts, for Do-minimum, Gatwick and Heathrow Expansion Alternatives under the Assessment of Need Scenario.**



Source: Airports Commission Report: Strategic Fit: Forecasts; elaboration SEO

One can observe the difference between the carbon capped and carbon traded scenario is largest in the two Heathrow expansion scenarios. The Commission attributes this to the increase of long-haul flights at Heathrow: these flights cause a relatively strong increase in UK's total seat-kilometres and thus use more of UK's carbon budget.⁶ This implies that the estimated benefits following a Heathrow expansion would be reduced more in the carbon capped scenario than the estimated benefits following Gatwick expansion.

In the Heathrow expansion scenarios, passenger numbers for Heathrow remain relatively stable, while demand at other airports decreases. As transfer traffic is largely concentrated at Heathrow, consumer benefits for these passengers will be similar to those in the carbon traded scenario. The largest part of the decrease in consumer benefits will be a result of the reduction in OD passengers at the other London airports.

The results for the Gatwick expansion options will show the strongest difference in the Low Cost is King Scenario. In this scenario there are 10 million passengers less at Gatwick in the carbon capped case compared to the carbon traded case. Again, the biggest impact on consumer benefits will come from a reduction in OD passengers. Traffic volumes at Heathrow will remain relatively stable, leaving benefits for transfer passengers largely unchanged.

Passenger benefits are estimated based on relative difference between the expansion options and a do-minimum scenario. The passenger forecast in the do-minimum scenario is also lower in a carbon

⁶ Airports Commission. Strategic Fit: Forecasts. November 2014. (pp. 103)

capped world. This will generate a slight increase in passenger benefits modelled, too small to alter much the decreases in passenger numbers described above.

Although a carbon cap puts limits to the growth of the number of air passengers, there would still be significant consumer benefits following capacity expansion of Gatwick or Heathrow. For all expansion options the number of passengers is higher in comparison with the ‘do-minimum’ scenario, implying there is substantial demand for additional capacity in the London airport system. This translates into passenger benefits arising from a decrease in scarcity rents and/or an increase in competition level, potentially leading to lower fares for some passengers.

Sensitivity analysis of assumptions on transfer shares

To provide consistent results for all scenarios, we structured the airline responses under all of the Airports Commission scenarios following the scheme below. Traffic volume forecasts are taken from the Commission’s scenarios. The airline responses consider the potential shift of traffic between different airline groups at Heathrow and Gatwick.

The share of transfer traffic is also determined in each scenario. When the hub carrier is less subject to capacity restrictions transfer shares will be higher, sustaining a larger route network. When there is less room for growth for the hub carrier it will try to focus at the more lucrative OD segment, resulting in lower transfer shares. Table 6 shows the transfer shares for Oneworld carriers in the unconstrained and do-minimum cases for the Assessment of Need Scenario.

Table 6 **Transfer shares at Heathrow and Gatwick in the unconstrained and do-minimum scenario.**

			Heathrow expansion		Gatwick expansion	
			Hub carrier growth at Heathrow	PtP growth at Heathrow and Gatwick	Gatwick becomes LCC gateway	PtP growth at Gatwick
Heathrow						
ICA	60%	45%	59%	45%	45%	45%
EUR	50%	40%	49%	40%	40%	40%
Gatwick						
ICA	15%	10%	5%	5%	5%	5%
EUR	10%	5%	2.5%	2.5%	2.5%	2.5%
LCC	0%	0%	0%	0%	10%	0%
Traffic shift			25% of Oneworld traffic at Gatwick moves to Heathrow	25% of short-haul Oneworld traffic at Heathrow replaced by LCC. 25% of long-haul traffic at Heathrow and Gatwick transferred to Virgin or leisure carrier	25% of FSC-traffic at Gatwick replaced by LCCs or leisure carriers	All increased capacity is accommodated by LCC/leisure carriers; Oneworld capacity is equal to the capacity in the ‘do-minimum’ scenario

Notes: ICA – Intercontinental; EUR – Europe; LCC – Low cost carriers.

Source: SEO Economic Research.

In comparison to the ITF/SEO report of December 2014, there have been minor modifications in the modelling procedure for airline responses, leading to slight differences in the consumer benefits calculated. In particular the benefits per transfer passenger are somewhat different. The modelled airline responses common to both reports are Gatwick becomes LCC gateway following Gatwick expansion and

Hub carrier growth at Heathrow following Heathrow expansion – both for 2030. The relevant changes in assumptions are as follows.

- In the Heathrow expansion scenarios the present report uses separate passenger forecasts for the two expansion options. In the December 2014 report an average of the two forecasts was used. As the two forecasts are strongly similar, results are only marginally impacted.
- In the LCC gateway scenario the share of Oneworld transfer passengers at Heathrow does not increase with respect to the do-minimum scenario in the present report. In this airline response there is a shift of (transfer) traffic from Heathrow to Gatwick. As Heathrow is not expanded in this scenario, it is likely that the share of transfer passengers for Oneworld at Heathrow does not increase. This leads to lower benefits for transfer passengers compared to the results in the December 2014 report, where we assumed a slight increase of transfer traffic at Heathrow.
- The transfer share for Oneworld carriers at Gatwick decreases with respect to the ‘do minimum’ scenario in all four airline responses. This decrease is modelled as all four airline responses invoke point-to-point growth at Gatwick. Following a capacity expansion at either Gatwick or Heathrow, Oneworld may strive to concentrate its hub traffic at Heathrow and limit the amount of transfer traffic at Gatwick. As there are relatively few transfer passengers at Gatwick, the total passenger benefits for transfer passengers – via all London airports – are only marginally lower with respect to the results in the December 2014 report.

The extent to which transfer passengers use additional capacity influences the consumer benefits modelled. Transfer passengers are more price-elastic than OD passengers. In our analysis we assume an elasticity of -3 for transfer passengers and an elasticity of -1 for OD passengers. Given these elasticities, the price reduction needed to fill up the new capacity with transfer passengers is much lower than increasing the number of OD passengers by the same amount. The difference in elasticity also means that consumer benefits resulting from an increase in transfer passengers are lower than consumer benefits arising from an increase in OD passengers.

As a hub carrier needs a certain amount of transfer passengers to profitably operate its overall network we determined the share of transfer passengers for each carrier group exogenously. For both the unconstrained and do-minimum cases we assumed that only Oneworld members carry transfer traffic.

In this section we illustrate how these assumptions affect our results, and include a sensitivity analysis assuming higher and lower transfer shares. We include this sensitivity analysis for two combinations of expansion, Scenario and airline response options:

- 2030, Heathrow north-west runway addition, Assessment of Need Scenario, Hub carrier growth at Heathrow;
- 2040, Gatwick expansion, Low Cost is King Scenario, Gatwick becomes LCC gateway.

In the airline responses, the transfer shares at Heathrow are set to lie in between the unconstrained and constrained transfer shares. At Heathrow, we assume that the transfer share across intercontinental routes operated by all carriers decreases by 15% with respect to the unconstrained scenario. For routes within Europe we assume it is 10% lower than the unconstrained case. The sensitivity analysis in the next section examines consumer benefits when the share of transfer traffic is set at the level of the do-minimum scenario and in a case where the transfer shares are set higher than in the unconstrained scenario. In the latter case, additional capacity is used more by transfer traffic, leading to smaller consumer benefits in the OD market.

Table 7. Sensitivity to Assumptions on Transfer Traffic: Heathrow expansion with new northwest runway, Hub carrier growth at Heathrow, Assessment of Need Scenario, results for 2030

Hub carrier growth at Heathrow					
Sensitivity test case		Standard airline response	Transfers as in do-minimum case	Transfers above unconstrained case	
Transfer share ICA		59%	45%	65%	
Transfer share EUR		49%	40%	55%	
Benefit / OD passenger		£ 9.00	£ 18.95	£ 4.08	
	Connectivity	£ 1.99	£ 2.10	£ 1.95	
	Competition	£ 0.20	£ 0.14	£ 0.11	
	Scarcity	£ 6.81	£ 16.72	£ 2.01	
Benefit / transfer passenger		£ 34.73	£ 17.89	£ 40.70	
Number of OD passengers		170,569	178,719	166,400	
	Heathrow	87,097	95,248	82,929	
	Gatwick	37,749	37,749	37,749	
	City	4,558	4,558	4,558	
	Luton	10,861	10,861	10,861	
	Stansted	30,304	30,304	30,304	
OD passengers constrained		164,124	164,124	164,124	
Number of transfer passengers		38,028	29,877	42,196	
	Heathrow	37,839	29,688	42,007	
	Gatwick	189	189	189	
	City	0	0	0	
	Luton	0	0	0	
	Stansted	0	0	0	
Transfer passengers constrained		22,272	22,272	22,272	
Total passenger benefits (GBP mln.)		2,827	3,784	2,391	
	UK	1,612	2,158	1,364	
	Non-UK	1,214	1,625	1,027	
Total benefits OD passengers (GBP mln.)		1,506	3,249	674	
	Business	377	812	168	
	Leisure	1,129	2,437	505	
	Connectivity	333	360	323	
	Competition	34	23	18	
	Scarcity	1,139	2,866	333	
Benefits transfer passengers (mln GBP)		1,321	535	1,717	

Source: SEO Netcost

In the airline response ‘hub carrier growth at Heathrow’, we assume the transfer shares at Heathrow to be only 1 percent below the unconstrained level. This depicts a situation in which Oneworld operates a large hub operation at Heathrow with transfer shares comparable to other large European carriers. Assuming lower transfer shares at Heathrow (second column of Table 7) the consumer benefit per OD passenger almost doubles. On the other hand, the consumer benefit per transfer passenger halves. As the share of transfer traffic is lower, additional capacity is primarily used by OD passengers. Therefore, airfares for OD passengers decrease more strongly than fares for transfer passengers, resulting in higher benefits for OD passengers.

Conversely, when hub carrier growth at Heathrow is assumed to result in a higher transfer share the consumer benefit per OD passenger strongly decreases. In this case, only 2 million additional OD passengers are carried at Heathrow, compared to the ‘do minimum’ scenario. On the other hand, 20 million additional transfer passengers are served. Although the consumer benefit per transfer passenger is increases, total passenger benefits are lower when the transfer share is higher.

Table 8. **Sensitivity to Assumptions on Transfer Traffic: Gatwick expansion, Gatwick becomes LCC gateway, Low Cost is King Scenario, results for 2040**

Gatwick becomes LCC gateway			
Sensitivity test case	Standard airline response	Transfers as in do-minimum case	Transfers above unconstrained case
Heathrow			
Transfer share ICA	45%	45%	60%
Transfer share EUR	40%	40%	50%
Gatwick			
Transfer share ICA	5%	0%	15%
Transfer share EUR	2.5%	0%	10%
Transfer share LCC (EUR & ICA)	10%	0%	15%
Benefit / OD passenger	£ 34.12	£ 38.16	£ 24.33
Connectivity	£ 6.42	£ 6.50	£ 6.45
Competition	£ 2.87	£ 2.82	£ 2.83
Scarcity	£ 24.83	£ 28.83	£ 15.06
Benefit / transfer passenger	£ 1.29	£ 12.94	£ 26.11
Number of OD passengers	217,441	223,597	207,035
Heathrow	73,117	73,117	66,778
Gatwick	88,020	94,177	83,953
City	6,285	6,285	6,285
Luton	15,793	15,793	15,793
Stansted	34,225	34,225	34,225
OD passengers constrained	185,299	185,299	185,299
Number of transfer passengers	28,277	22,121	38,684
Heathrow	22,121	22,121	28,460
Gatwick	6,156	0	10,224
City	0	0	0
Luton	0	0	0
Stansted	0	0	0
Transfer passengers constrained	25,262	25,262	25,262
Total passenger benefits (GBP mln.)	6,907	7,515	5,784
UK	4,187	4,555	3,506
Non-UK	2,720	2,960	2,278
Total benefits OD passengers (GBP mln.)	6,871	7,801	4,773
Business	1,839	2,088	1,278
Leisure	5,031	5,712	3,496
Connectivity	1,292	1,329	1,265
Competition	578	577	555
Scarcity	5,001	5,895	2,953
Benefits transfer passengers (mln GBP)	36	-286	1,010

Source: SEO Netcost

In the standard ‘Gatwick becomes LCC gateway’ scenario low cost carriers carry a small amount of transfer traffic. In addition, it is assumed that expansion of Gatwick will result in a shift of flights from Heathrow to Gatwick. As Heathrow flights are assumed to have a higher share of transfer passengers than Gatwick flights, the overall share of transfer passengers in the London airport system decreases due to this shift.

Table 7 summarises the changes in OD and transfer passenger numbers in relation to numbers when no additional capacity is built (the ‘constrained’ case rows in the table). If Gatwick were to be expanded the total number of transfer passengers in the London airports system would change depending on what shares of transfer traffic are assumed at Heathrow and Gatwick. The first column summarises the standard airline response path, which assumes low shares of transfer traffic at Gatwick (5% for intercontinental traffic (ICA), 2,5% for European network service and 10% for low cost carriers) and a relatively high share at Heathrow (45% for ICA, 40% for EUR). The second and third columns show assumptions and results for the low and high transfer traffic variants.

In the standard case and in higher transfer case, both the number of transfer passengers and OD passengers increase, resulting in benefits for both passenger groups. In the lower transfer case (middle column), the amount of transfer traffic decreases and more capacity is available for OD passengers. In the model, airfares in the OD markets are reduced to balance supply and demand. Because of the lower elasticity of OD passengers, the price decrease required to fill up capacity in OD markets is higher than the price increase in transfer markets. Therefore, aggregate consumer benefits are higher when transfer shares are lower.

Compared to the standard ‘Gatwick becomes LCC gateway’ airline response, the higher transfer variant results in 10 million less OD passengers. There is therefore less pressure on scarcity rents and as a result, the consumer benefit per OD passenger is GBP 10 lower than in the standard response case, and total welfare benefits are lower than in the standard case.

Scarcity rents and airport charges

Scarcity rents

Gatwick and Heathrow are operating at or near capacity, either operational capacity or declared capacity, particularly during peak periods. In these circumstances, prices could be used to balance the level of demand with the capacity available. If the airport prices efficiently through its aero-charges, scarcity will be reflected in higher (peak period) charges, hence in higher costs to the airlines and, in turn, in higher fares charged to passengers for travel at peak periods. But for various reasons congested airports often charge airlines inefficiently low prices. Starkie (2004)⁷ states in relation to Heathrow that the airport operator “is prevented by the regulatory price cap from charging market-clearing prices at Heathrow and capturing the scarcity rents associated with its capacity constraints”.

The sensible airline will maintain its fares at market clearing levels. This will result in high fare yields where airport charges are capped at a level below the market clearing rate. In other words, airlines will charge what the market can bear and will make excess profits on the use of scarce slots (Starkie 1998)⁸. It does not make sense for the airlines to pass on sub-optimally low airport charges in the form of lower fares for passengers. If they were to do so service quality would deteriorate. Specifically, a growing number of frustrated customers would be unable to obtain a booking at posted prices (Starkie 1998).⁹ So airlines have no incentive to compete the low airport costs away (Forsyth 2004)¹⁰.

The impact of airport expansion on scarcity rents

From economic theory it follows that in sufficiently competitive markets, airport expansion will reduce airline scarcity rents (see figure 4), reflected in lower airfares and lower airline revenues than would otherwise arise. When capacity is added to either Heathrow or Gatwick new airlines will enter the market and add new routes and under the slot allocation rules in place at least 50% of slots have to be allocated to new entrants. Because of the increased contestability of the market, ticket prices will fall, reducing the economic rent for the airlines to the benefit of the consumer. Benefits in terms of ticket prices are likely to be highest when capacity is expanded at the airport with the largest excess demand.

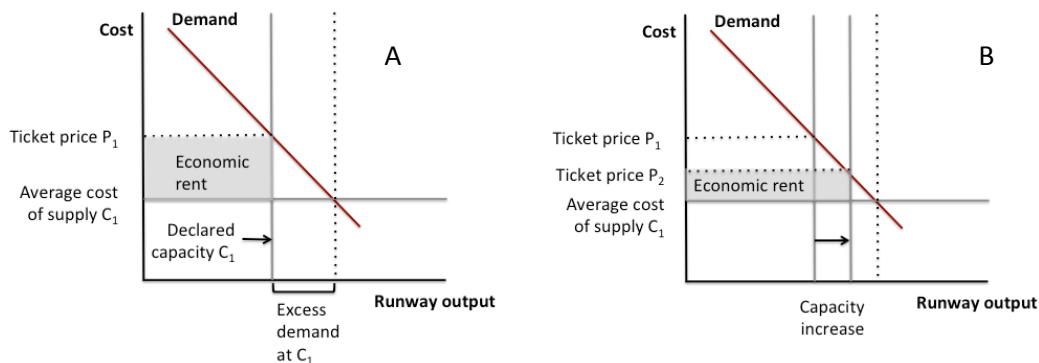
7 Starkie, D. (2004). Testing the regulatory model: the expansion of Stansted Airport. *Fiscal Studies* 25(4), 389-413.

8 Starkie, D. (1998). Allocating airport slots: a role for the market? *Journal of Air Transport Management* 4, 111-116.

9 Starkie, D. (1998). Allocating airport slots: a role for the market? *Journal of Air Transport Management* 4, 111-116.

10 Forsyth, P. (2004). Locational rents at airports: creating them and shifting them. *Journal of Air Transport Management* 10, 51-60.

Figure 4. Reduction of excess demand decreases ticket prices/airline scarcity rents



Source: ITF/SEO (2014)

The ITF/SEO study¹¹ for the Airports Commission argues that airlines at Gatwick and in particular at Heathrow generate scarcity rents due to the excess demand and the price capping of charges. Furthermore, the study shows that these scarcity rents will further increase in the future in a ‘do minimum scenario’ because excess demand increases further as demand grows but no additional airport capacity becomes available. The study assumes that any increases in aero-charges will be absorbed by the airlines through a reduction of airline scarcity rents.

The issue

The issue that follows from the stakeholder submissions in relation to scarcity rents essentially boils down to two questions: (1) to what extent do airlines benefit from scarcity rents at Gatwick and Heathrow? And (2) will airlines absorb or pass-through increases in aero-charges? We will discuss both questions, using the available literature and the relevant submission documents.

Do airlines benefit from scarcity rents?

Evidence on the existence of scarcity rents

We conclude from the submissions and the literature that the views, assumptions and findings on the existence of scarcity rents are mixed. The existence of scarcity rents, in particular at Heathrow, is supported by a number of published reports.

The CAA (2005)¹² has argued that airlines operating out of Heathrow in particular gain a significant scarcity rent. It undertook research that showed that revenues from flights to a number of destinations from Heathrow greatly exceeded those from similar flights from Gatwick. It estimated, for example, that a BA short-haul flight operating out of Gatwick would show an additional profit of £2 million per year at Heathrow. According to Starkie (2006)¹³, this difference, referred to as the Heathrow premium, does not

11 ITF (2014). Impacts of expanding airport capacity on competition and connectivity: the case of Gatwick and Heathrow. Report prepared for the Airports Commission, December 2014. <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>

12 CAA (2005). Airport regulation: price control review e consultation on policy issues. Cited by Starkie (2006).

13 Starkie, D. (2006). Investment incentives and airport regulation. *Utilities Policy* 14, 262-265.

take account of the higher operating costs experienced at Heathrow; therefore the net premium is likely to be less but probably remains substantial.

Frontier Economics¹⁴, using extensive econometric analysis, estimates a significant scarcity rent/shadow cost for Heathrow (‘the Heathrow premium’). The congestion premium at Heathrow today is around 15% or £95 for an average return trip compared to 7% or £20 for a return trip at Gatwick after accounting for the average difference in airport charges (Frontier Economics 2014, p. 47).

The Airports Commission assumes the existence of scarcity rents (shadow costs) and follows a similar line of reasoning in its economic efficiency analysis to ITF/SEO¹⁵. However, unlike ITF/SEO the Airports Commission does not necessarily assume that rents accrue to airlines. In the estimation of welfare benefits they are assumed to go to producers, which could be airlines but could equally be the airport.

In contrast, SLG¹⁶ concludes in a report for the CAA that because airline costs and fares have fallen in the last 10 years in real terms, while there has been strong growth in GDP, this suggests that airlines have not been able to capture much of the potential economic rent associated with growing demand. Instead, competitive pressure has led to cost reductions being passed through to consumers as lower fares. We note that –as far as we are aware- that SLG does not refer to evidence on scarcity rents based on econometric analysis. In addition, SLG states that the supply curve in figure 1 may actually not be vertical but upward sloping. Although airport capacity is fully constrained, airline capacity may not. Airlines still have the opportunity to increase load factors and use larger aircraft. This could imply that the excess passenger demand is more limited or at least smaller than the excess demand for airport slots.

The BA submission/CEPA submissions by BA

In its main submission BA disputes both the Commission’s and HAL’s statements that airlines at Heathrow benefit from substantial scarcity rents (BA 2015).¹⁷ Already in 2004, Starkie (2004)¹⁸ reported that BA argues that the airline scarcity rent/ fare premium does not exist. “It points out that if such a premium did exist, it would be reflected in excess profits and return on capital, which BA does not experience”. BA’s recent submission (CEPA 2015, p.3)¹⁹ underlines this view, by commenting on both the ITF/SEO and the Frontier Economics reports: “The chosen assumptions and simplifications mean that scarcity rents are overestimated in both studies, possibly by a large margin. Clearly, estimation of scarcity rents in the airline market is a very difficult undertaking due to its complex commercial constraints and interactions.”

14 Frontier Economics (2014). Impact of airport expansion options on competition and choice. A report prepared for Heathrow Airport Ltd, April 2014.

15 Airports Commission (2014). Economy: transport economic efficiency impacts. November 2014.

16 SLG (2013). Q6 review of the distribution of economic rent between airport, airlines and passengers and cargo users at Heathrow and Gatwick. A report prepared for the CAA by SLG Economics Ltd.

17 BA (2015). British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East

18 Starkie, D. (2004). Testing the regulatory model: the expansion of Stansted Airport. *Fiscal Studies* 25(4), 389-413.

19 CEPA (2015). Airport extensions and scarcity. Discussion of recent studies. Briefing note prepared for British Airways, February 2015.

A number of comments have been raised in the CEPA report with respect to the calculated scarcity rents. Among the many detailed comments, the report of CEPA can be brought back to the argument that scarcity rents in both the Frontier Economics and ITF/SEO study are overestimated because:

- Assumptions on price elasticities are crucial but the evidence as to what elasticities should be assumed is ambiguous. Various sources cite elasticities that differ from those used by Frontier and ITF/SEO. Elasticities differ by market segment, so the use of aggregate elasticities always leads to simplification and possibly bias in the model results. Furthermore, elasticities may change over time but are considered constant by ITF and SEO.
- Scarcity rents are assumed to be retained by the airlines even though they do not show up as profits in their accounts and could accumulate elsewhere in the airport value chain. “Other providers in the value chain, such as the airport itself or baggage handling and catering companies at the airport could claim a share of the rents through their charges to the airlines”. In addition, the ability to realise rents is limited because of the necessity in the network carrier business model to achieve a balanced portfolio of flights coupled with competition at the margin.
- Ticket pricing and capacity allocation by airlines is complex and far from homogeneous. Collectively airlines may be able to extract scarcity rents, but individually the airline’s pricing strategy is constrained. Many factors determine the ticket price and various factors constrain the individual airline’s pricing decisions. For example, although airport capacity as a whole may be constrained, on particular ‘popular’ routes, excess supply of seats and flights may very well exist. Other constraints to benefit from scarcity rents could include the commercial necessity to maintain certain price differentials between booking classes. Hence, “an individual airline’s ability to extract rents (as opposed to the industry collectively) depends crucially on market segmentation. This segmentation includes long-haul, short-haul, business, leisure, point-to-point and transfer, low-cost and full service, booking classes, and the capacity on individual routes”.

Review of CEPA comments

The view of BA should at least be nuanced. According to Starkie (2004)²⁰, “it is difficult to accept, in the light of the CAA evidence and more particularly in view of BA’s willingness to pay other airlines operating at Heathrow considerable sums for an exchange of their slots, that there is no Heathrow premium. A fares premium at Heathrow and the absence of excess profits for BA can be reconciled by the fact that BA has an extensive network of routes, not only at Heathrow but also out of Gatwick and other regional centres such as Birmingham, Manchester and Glasgow. On the fringes of these networks, BA probably faces strong competition; some services will be marginal and others might well operate at a short-term loss, albeit with the prospect of more profitable operations in the future. Other routes might be marginal even if competition is absent because of low levels of demand. It is possible therefore that BA uses rents from Heathrow to sustain a larger network and a greater service frequency (particularly to feed traffic to long-haul services) than it would otherwise do in the absence of those rents”. In addition, -as CEPA also states- the scarcity rents may translate into higher profits for airlines but also in other expenses. This could be due to for example, high labour costs as a consequence of strong unions.

The CEPA conclusion that rents may also accrue elsewhere in the airport chain may be valid. This means that additional trip costs may also arise in airport charges, airport parking, airport transportation and other services to passengers. However, as far as we know, there is no empirical evidence on the distribution of those rents in the value chain. Wherever rents end up, in terms of negative consumer

20 Starkie, D. (2004). Testing the regulatory model: the expansion of Stansted Airport. *Fiscal Studies* 25(4), 389-413.

welfare impacts, scarcity of airport capacity will still be reflected in higher costs for the consumer (which will further increase in the future).

CEPA correctly states that price elasticities in practice differ by individual market (segment). In addition, assumptions on price elasticities have a substantial impact on the results. The ITF/SEO elasticities have been derived from the existing literature and own analysis. A conservative cross-price elasticity of -3 for the transfer market has been chosen and an elasticity of -1 for the OD market. In individual markets and passenger segments there is a wide range of elasticities. This is something to be taken into account when interpreting the results. At the same time, making assumptions on the elasticities is inherent to long-term scenario/forecasting analysis as carried out in both the Frontier and ITF/SEO studies and also in the scenarios of the Airports Commission. This implies a certain generalization over different markets.

Frontier Economics on scarcity rents: Submission by Heathrow Airport Ltd.

Frontier Economics (2015)²¹ acknowledges the existence of scarcity rents (shadow costs), but comments on the methodology used for calculating scarcity rents in the Airports Commission scenarios. As ITF/SEO uses the AC's scenarios, the comments are relevant to the ITF/SEO study as well. The main comments can be summarized as follows:

- The Airports Commission scenarios underestimate the scarcity rents for Heathrow, as the base year in which Heathrow was still unconstrained is in fact much earlier than assumed by the AC. This means that the scarcity rents are in fact higher than produced in the AC's approach (and thus in the ITF/SEO approach).
- Substantial scarcity rents are present in long-haul markets but not in short-haul, where competitive conditions are different.
- Overall scarcity rents per passenger are higher at Heathrow than at Gatwick. This is because price elasticity is higher at Gatwick than at Heathrow. Secondly, the absolute ticket price at Gatwick is lower than at Heathrow because of network characteristics (fewer long-haul flights). "This implies that even if there was the same level of excess demand and with the same price elasticity, the absolute price increase required to balance demand and supply would be lower".
- According to Frontier, there is little basis for making a crowding out assumption for transfer traffic. Since 2000, Frontier estimates that growth in underlying demand could have added up to 10mppa to O/D traffic. Any trend towards O/D traffic driving out transfer would therefore have had a very significant impact on the proportion of transfer traffic at Heathrow, but this did not materialize in practice.

Review of Frontier Economics' comments

As far as the base year in which Heathrow and Gatwick are capacity unconstrained is concerned, Frontier may have a relevant point, as this indeed influences the amount of the scarcity rents, which would be higher in particular for Heathrow. The ITF/SEO study works with the same unconstrained base year as the AC, so this observation is relevant to the ITF/SEO study as well.

21 Frontier Economics (2015). The cost savings to UK businesses from a Heathrow expansion. A report prepared for Heathrow Airport. January 2014.

In relation to price elasticities, Frontier’s comment resembles the one of CEPA. Elasticities differ by individual route. For both the Airports Commission and the ITF/SEO scenarios, Frontier makes a valid point that long-haul elasticities are lower than short-haul elasticities. In addition, we note that the average elasticities used by Frontier and ITF/SEO in the OD market are on average higher than the elasticities those used by DfT. They are in line with the elasticities presented by IATA, Gillen and InterVISTAS, but higher than used in the DfT-models. For the transfer market, ITF/SEO uses a cross-price elasticity of -3, which is assumed to be quite conservative, as transfer passengers tend to be very price sensitive and footloose. A small price increase will result in many passengers substituting a London transfer airport for another direct or indirect travel alternative. This number is considerably higher than the elasticity used in the DfT forecasting model (-1). We do think there is convincing evidence for the higher elasticity in the transfer market. Frontier, on the other hand, does not seem to distinguish between elasticities in the OD and transfer market.

In sum, there is a wide range in price elasticities between various markets in practice and there is uncertainty regarding the ‘correct’ elasticity to use, as CEPA correctly mentions. At the same time, the elasticities are important drivers of the scarcity rent results in the AC/DfT modelling work, the ITF/SEO study and the Frontier study. This calls at least for a careful interpretation of these results and preferably a sensitivity analysis (as undertaken in the present report).

As far as the crowding out effect is concerned, we note that various factors need to be taken into account when considering transfer passenger development at Heathrow since 2000. First of all, Heathrow became a more attractive transfer airport due to T5, with shorter transfer times. Secondly, BA may have increased its transfer traffic through the acquisition of BMI. Third, the economic crisis is likely to have resulted in pressure on OD demand and as a consequence, more transfer traffic to fill the empty seats. Finally, CBI²² shows that transfer shares are lower at constrained hub airports compared to unconstrained hub airports. Hence, we see no reason for concluding that the assumption regarding the crowding out of the transfer traffic is not a valid one, taking into account the price sensitivity and yields in the transfer market.

InterVISTAS on scarcity rents. Submission by Gatwick Airport Ltd.

In reference to the ITF/SEO study, InterVISTAS questions the extent to which airline scarcity rents exist in the short haul market in particular, given the low to negative airline margins. Absence of scarcity rents in the short-haul market will have an impact on the extent to which airlines can absorb cost increases.

Furthermore, according to InterVISTAS the ITF/SEO modelling of scarcity rents appears to imply that each airport has its own distinct, closed market. Competitive impacts from neighbouring airports seem to be ignored. Therefore, in the event of Gatwick expansion, scarcity rents continue to rise at Heathrow. The modelling suggests that passengers would pay increasingly high fares at Heathrow until they are priced out and then they would not travel at all.

Review of InterVISTAS’ comments

As far as the possible absence of scarcity rents in the short-haul market is concerned, InterVISTAS comments may be valid. Frontier Economics’ confirms this point in its econometric analysis. As the short-haul Gatwick services may be more substitutable by other London airports than Heathrow, this

22 CBI (2015). Boosting capacity where it matters most- the nub is the hub. The CBI’s position on future aviation capacity.

could limit the size of the rents that could accrue to Gatwick in comparison to Heathrow. Although this observation may be correct in the current situation, it is unlikely that no scarcity rents will exist in short-haul when excess demand increases further in a ‘do nothing scenario’. If airport capacity is not expanded and excess demand keeps on rising, it is unlikely that scarcity rents will not accrue.

We note that the reduction in scarcity rents in the ITF/SEO study has been estimated by increasing the generalized travel costs until demand can be accommodated in the constrained scenarios. The basis for the scenarios is derived from the Airports Commission scenarios. This means that the ITF/SEO model reflects to a certain extent the way the AC/DfT model handles scarcity rents/shadow costs in different markets.

In relation to the airport markets and catchment areas, InterVISTAS’ comment is not correct. First of all, competition impacts are calculated by taking into account air services in the entire London airports system. We thus acknowledge that Gatwick is an effective alternative to Heathrow for many routes. Secondly, the ITF/SEO model equates scarcity rents as the difference in generalized travel costs between the AC’s ‘do minimum’ and capacity expansion scenarios. In other words, in order to match demand and supply in a ‘do minimum scenario’, the ITF/SEO model increases airline retail prices assuming that airlines will charge what the market can bear. The use of the AC’s scenarios as the basis in the ITF/SEO report means that ITF/SEO modelling procedure implicitly does take into account the impact of capacity scarcity in the overlapping catchment areas of the London airports. It also means that under- or overestimations of scarcity effects in the Airports Commission scenarios replicate themselves in the ITF/SEO results.

Pass-through of higher airport charges

The second issue is the extent to which higher airport charges as a consequence of airport capacity expansion can be passed through by the airlines to the passengers by charging higher air fares or can be absorbed by the airlines through a reduction in scarcity rents. In the submissions and the literature, we see different approaches.

From the academic aviation economic literature, it follows that - where airfares are at market clearing level- higher charges will reduce the airline’s share of the scarcity rent (Starkie & Yarrow 2000²³). As ITF/SEO (2014) put it: “at capacity- constrained airports with substantial excess demand, expansion will result in a decrease in airline scarcity rents, with potentially lower fares for consumers. On balance, airlines are unlikely to increase airfares. Instead, higher charges will lead to a fall in scarcity rents/ airline margins. In other words, the increase in airport charges following expansion leads to a further reduction in airline margins, as competition brings fares closer to a (higher) cost base”.

As for other cost types (Emission Trading System costs), Forsyth and Gillen (2007)²⁴, Forsyth (2008)²⁵ and Ernst & Young and York Aviation (2007)²⁶ and Oxera (2003)²⁷ all show that in cases of

23 <http://www.caa.co.uk/docs/5/ergdocs/starkieyarrow.pdf>

24 Forsyth, P., Gillen, D. (2007). Climate Change Policies and Impacts on Air Fares. GARS Workshop Cologne, 28-29 November 2007.

25 Forsyth, P. (2008). The impact of climate change policy on competition in the air transport industry, OECD/ITF Joint Transport Research Centre Discussion Paper 2008-18.

26 Ernst & Young and York Aviation (2007). Analysis of the EC Proposal to Include Aviation Activities in the Emissions Trading Scheme. York, June.

27 Oxera (2003). Assessment of the Financial Impact on Airlines of Integration into the EU Greenhouse Gas Emissions Trading Scheme. Oxford, UK.

constrained airport capacity and presence of economic rents, no pass through at all is likely to occur, as any additional costs would be borne by airlines in the form of reduced scarcity rents. Also the ITF/SEO (2014) estimates assume that airlines fully absorb the cost increases through a lower scarcity rent. The submission of the CAA (2015)²⁸ states that this may indeed be the case in 2030, but that the assumption needs to be checked by the Airports Commission for the period before 2030.²⁹

BA (2015, p. 16) disputes in its submission the existence/magnitude of the scarcity rents, but at the same time states that it cannot pass-through higher aero-charges to passengers, as airlines compete at the margin. BA refers to the CAA Q6 market power assessment as a confirmation of the fact that airlines are not able to pass through costs. As a consequence, if there are no scarcity rents and airlines compete at the margin, higher charges will negatively affect the network, potentially resulting in negative welfare impacts for society.³⁰

The submission reports of Gatwick Airport Ltd. (2015)³¹ and Frontier (2015)³² both state that it is unlikely that, given the low margins, that airlines will absorb the cost increases. Instead, they will ultimately pass on cost increases to passengers, in particular on short-haul routes.

NERA³³ provides a nuanced view. NERA concludes that whether charge increases affect airline pricing and output (frequency) behaviour depends upon whether airlines' marginal costs increase as a result. Increases in marginal costs are less likely if the marginal cost includes a significant element of scarcity rent. However, the incidence of such scarcity rents, even at a congested airport such as Heathrow, may vary widely between airlines, and between peak demand and off-peak periods. If an increase in passenger related charges indeed led to an increase in an airline's price relevant marginal cost, this would lead directly to an increase in fares by the airline concerned. NERA states that this is more likely in short-haul, than in long-haul markets.

In sum, there are different views and assumptions on how airlines react to increases in aero-charges at airports with excess demand. As far as we know, there is no systematic empirical evidence regarding the level of pass-through at airports with excess demand as far as increases in aero-charges are concerned. The existing studies seem to converge in agreeing that scarcity rents are likely to be lower for

28 CAA response to the Airports Commission consultation. Increasing the UK's long-term capacity. CAP 1263.

29 We note that Airports Commission scenarios/DfT model has not taken into account the impact of higher aero-charges.

30 Interestingly, we note that according to NERA, BA has also stated that: "in an industry with very low margins, or even experiencing losses, increases in costs from any source will have to be passed on to consumers in the long term. Whilst some costs may be absorbed in the short term as a result of competitive pressures and an ever present focus among companies in competition to find efficiencies, any rise in airport charges, that affects all users at an airport, would eventually be passed through to passengers in the form of higher fares or lower service levels". See also: RBB Economics (2013). Why increases in airport charges adversely affect airline passengers: a response to Compass Lexecon. A report commissioned by British Airways.
<http://www.caa.co.uk/docs/78/ba%20galfinal.pdf>

31 Gatwick Airport Limited (2015). Response to the Airports Commission Consultation. Appendix 3 Supporting traffic & competition analysis.

32 Frontier Economics (2015). Response to Airports Commission consultation on evidence. A report prepared for Heathrow Airport, January 2015.

33 NERA. The effects of increases in airport charges at congested airports on airline fares. A briefing note to the Competition Commission.
[http://www.caa.co.uk/docs/5/ergdocs/ccreportbaa/app2\(2\).pdf](http://www.caa.co.uk/docs/5/ergdocs/ccreportbaa/app2(2).pdf)

short-haul than for long-haul, which would imply that pass-through at an airport with many short-haul services like Gatwick is on average higher than at Heathrow, with an extensive long-haul network. It is likely that scarcity rents -and thus the ability for airlines to absorb higher charges- will differ strongly between airlines with different cost levels/structures, departure times and routes. The question is if – given the long-term and aggregate nature of the long-term scenarios/forecasts produced by the Airports Commission and consultants, this level of detail can be realistically achieved, in particular as very little robust empirical evidence regarding pass-through levels and scarcity rents is available.

For the AC, this means that the consumer benefits calculated by AC/DfT, ITF/SEO and Frontier represent the upper limit of consumer benefits and should be interpreted with care. In case of a partial pass-through to passengers, calculated benefits will be lower (due to higher air fares and lower demand). In case of no pass through and airlines already competing at marginal costs, aero-charges increases may lead to network deterioration/ slower network growth, with implications for passenger demand and thus impacts on consumer welfare. Finally, it is important to note that the fact the scarcity rents are *currently* low or non-existent in certain markets or for certain airlines does not mean they will be non-existent or low in 2030 in a ‘do minimum’ scenario. In other words, growing excess demand is likely to result in larger scarcity rents.

Review of submissions on competition impacts

This chapter assesses the submissions by the stakeholders in relation to competition impacts are concerned and compares them with the ITF/SEO results and the literature. Specifically, we review the following studies:

- InterVISTAS (2014). The Importance of Airport Competition on Air Fares Paid by Consumers. November 2014
- Frontier Economics (2014). Impact of airport expansion options on competition and choice. A report prepared for Heathrow Airport Ltd, April 2014.
- Gatwick Airport Ltd. (2015). Supporting Traffic & competition analysis.
- British Airways (2015). British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East. 3 February 2015.
- CAA (2015). CAA response to the Airports Commission consultation: increasing the UK’s long-term capacity.
- CBI (2015). Boosting capacity where it matters most- the nub is the hub. The CBI’s position on future aviation capacity.
- Virgin Atlantic (2015). Virgin Atlantic Response: Airports commission final consultation on shortlisted options for new capacity.
- EasyJet (2015). EasyJet response to the Airports Commission consultation.
- Heathrow Airport Main submission.

InterVISTAS on competition and air fares (submission by Gatwick Airport Ltd.)

Scope of the study

On behalf of Gatwick Airport Limited, InterVISTAS³⁴ assessed the impact of different types of airport competition on fare levels for different city pairs. The report adds to the existing literature by separating the effect of competition between airlines operating out of different airports (called ‘airport competition’) serving the same destinations from the effect of low-cost carrier operations in specific markets. The study is based on fare data from both the European and the US markets, while previous findings were largely based on the US market only.

34 InterVISTAS (2014). The Importance of Airport Competition on Air Fares Paid by Consumers. November 2014

Although not explicitly mentioned, the InterVISTAS study considers intra-European and intra-US routes only. The study considers average economy class fares between different European and US city pairs. The analysis looks at average fares of *all* airlines operating in the market (direct and indirect) and not the average fares charged per airline. The study does not consider business class fares. These are important limitations, given the strong London business market and extensive long-haul network.

The two main questions considered in the study are:

- What is the impact of different types of airport competition on air fares?
- How does the presence of low-cost carriers ('LCCs') influence overall fare levels for an origin-destination city pair?

Summary of methodology and data

InterVISTAS' econometric approach uses cross section variation to identify the parameters to be estimated in order to address the question as to whether competition between airports (and carriers and carrier types) is an important factor in explaining fare differences between markets. InterVISTAS acknowledges that this question is different from the main question the Airports Commission may be asking; that is, whether on a given route, changes in competition between airports/carriers/carrier types explains changes in fares on a given route. To answer this question, both a dataset consisting of a large number of routes that have experienced meaningful changes in competition and a more elaborate model of how carriers respond (price and capacity) to changes in a given a market would be required.

InterVISTAS' methodology permits the use of cross sectional data. Their analysis is based on the 1,000 largest airport pair markets in the US and Europe. Within this dataset there is substantial variation in competition between routes; sufficient for statistical estimation. In our view, a disadvantage of the approach is that the estimation might be biased as variables that differ between the different routes might not be controlled for, such as airport capacity scarcity at the airport of departure and/or arrival. Within the context of the work of the Airports Commission, scarcity is an important factor.

What the literature says about the impact of competition on hub fares

Concerning the academic literature, Trethewey et al. (2005)³⁵ provide a review of the evolution of the empirical research on the impact of market structure on airline fares in the United States. According to their review, early studies showed that average fares, adjusted for inflation, had decreased since the start of the deregulation. However, after some time researchers began to observe that the impact of deregulation on air fares was distributed unequally among routes. It was found that airport concentration in particular led to charging premiums to passengers with an origin or destination at a hub airport. These empirical findings raised major public policy concerns. However, still later research began to reveal that the issue was not so simple and that market concentration, by itself, was not such a significant factor in driving hub premiums. It was concluded that hub markets have innate characteristics that lead to higher average fares, even without concentration.

Another important factor affecting fares at some major airports turned out to be airport congestion. Economic scarcity, rather than market power per se, could be a source of fare premiums at hub airports. Limitations on airport capacity can generate scarcity rents that accrue to all airlines using the congested airport, not only to the dominant airlines (Trethewey et al. 2005). Furthermore, the higher fares at hub

35 Trethewey, M.W., & Kincaid, I.S. (2005). The Effect of Market Structure on Airline Prices: A Review of Empirical Results. *Journal of Air Law and Commerce*, 70(3), 466-498.

airports may also reflect the ‘quality of service, associated with higher frequencies and on-line connections’, as well as scarcity rents (Starkie 2007, p.5)³⁶. “[...] [F]or various reasons congested airports often charge airlines inefficiently low prices [...]. This will result in high fare yields; but these high yields will reflect scarcity and not monopoly rents” (Starkie 2007, p.5).

Borenstein (1989)³⁷ was one of the first authors using a sophisticated econometric approach to estimate the effects of route and airport dominance and concentration on prices. His work is regarded as one of the most influential studies in the hub premium debate. He estimated an econometric model that related the median route fare charged by each airline to a number of operational and market factors, such as route distance, unit-costs, traffic-mix, carrier identity and airport constraints, route concentration and airport concentration. He estimated the hub premium charged by the dominant airline relative to airlines without airport dominance, while previous studies estimated the degree to which the average fare at a concentrated hub airport differs from average fare at un-concentrated airports, which is not specific to the dominant airline. He found that dominance and concentration at the route level as well as at the airport level are principal determinants of price premiums of an airline, after controlling for a number of variables, such as flight frequency, distance, numbers of stops, unit-costs, carrier identity and airport constraints. In addition, he argued that frequent-flyer programs, travel agent commission override programs, and corporate discount programs are main causes of hub premiums.

Additional evidence on hub premiums in the US was provided by Evans et al. (1993)³⁸ who conclude by estimating reduced-form, fixed-effects price regressions that airport dominance contributes more than route dominance to an airline's ability to charge higher fares. Berry et al. (1996)³⁹ confirmed this, but also concluded that the hub premium mostly applies to business passengers. They estimated that these passengers paid a premium of about 20% for flying out of hubs, while correcting for other hub specific characteristics as explained before, while for non-business travellers this was only 5% or less. Their findings are confirmed by Hofer et al. (2008)⁴⁰ who also showed that especially LCC competition has a negative impact on average fare levels. His study concluded that LCCs do not charge hub premiums and FSCs' hub premiums tend to be lower when there is competition by LCCs. Vowles (2000)⁴¹ confirms the role of LCCs in determining air fares in the US. More recently, Brueckner et al. (2013)⁴² show that LCC competition indeed has a dramatic effect on fares, not only when the LCC carrier operates at the primary airport, but also from adjacent airports and even as a potential competitor. Brueckner et al. (2013) also find that competition from other full-service airlines at the same route has a

36 Starkie, D. (2007). “The dilemma of slot concentration at network hubs”. In Neiemeier et al. How to make slots work. Aldershot: Ashgate. Downloaded from <https://www.iata.org/whatwedo/Documents/economics/Starkie_Slot_Concentration.pdf>

37 Borenstein, S. (1989). Hubs and high fares: dominance and market power in the U.S. airline industry, *RAND Journal of Economics*, 20, pp. 344–365.

38 Evans, W N. and Kessides, I.N. (1993). ‘Localized Market Power in the U.S. Airline Industry’, *The Review of Economics and Statistics* 75(1), 66-75.

39 Berry, S., M. Carnall and P.T. Spiller, (1996). Airline hubs: costs, mark-ups and the implications of customer heterogeneity, NBER Working paper 5561.

40 Hofer, C., Windle, R. & Dresner, M. (2008). Price premiums and low cost carrier competition. *Transportation Research Part E: Logistics and Transportation Review*, 44(5), 864–882.

41 Vowles, T., 2000. The effect of low fare air carriers on airfares in the US. *Journal of Transport Geography* 8 (2), 121–128.

42 Brueckner, J.K., Lee, D. Singer, E.S. (2013). Airline competition and domestic US airfares: A comprehensive reappraisal. *Economics of Transportation*, 2 (2013) 1–17.

limited effect as long as it is not substantial. The authors find no effect at all when legacy competitors operate out of adjacent airports on the fares charged at flights from the primary airport.

Lijesen et al. (2001)⁴³ were the first to examine the hub premium of European carriers. By using unrestricted economy class fare data from online travel agencies they related fares to distance, route, a market concentration index (the Herfindahl Hirschman Index) and airline specific constants. The sample data included ten European origins, with eight of them being the inter-continental hubs for their home carriers. The results revealed that price mark-ups existed on flights to or from hub airports. The average fares of Lufthansa, Air France and Swissair were 15% higher than other airlines in the sample, everything else being equal. They therefore concluded that at least some of these premiums should be attributed to market power and that the magnitude of the premiums is comparable to those found by Berry et al. (1996). In addition, Lijesen et al (2004)⁴⁴ concluded in their paper ‘The Home Carrier Advantage in Civil Aviation’ that airlines on each side of the market are generally found to be preferred by most passengers in their home countries. They stated that this could partly be attributed to the fact that the home carrier simply provides the most travel options from its hub airport and partly to other factors. These could include nonlinearities in frequent flyer programs, language advantages, national pride and economies of density in advertisement in the home country. This leads to generally higher fares charged by the home carrier for flights departing at its hub airport.

Study Findings

InterVISTAS finds that the presence (or not) of an LCC in a city-pair market is the single most important driver of lower fares for consumers, which is consistent with the previous literature. In addition, it adds to the literature by providing empirical evidence for a pure airport competition effect, one that is separate from the LCC effect. This effect is smaller than the effect of LCC competition, but it is positive and statistically significant. As a result, the paper concludes that fares are on average lower for city-pairs for which carriers compete from different airports, either through V-route competition or through parallel route competition, than city-pairs for which carriers compete from the same airport. If in the latter case the competing airlines are network carriers, the fares are found to be only marginally lower than for city pairs on which one network carriers has a monopoly.

Recommendations

Based on these findings, InterVISTAS concludes that consideration should be given to where capacity will produce fare benefits for consumers and that a capacity decision that only adds capacity at the primary airport used by network carriers will have two detrimental effects from a fares point of view. First, by curtailing the growth of LCCs at secondary airports - Gatwick and eventually Stansted - InterVISTAS states that Londoners and visitors will pay higher fares in the future at all airports. Second, by inducing network carriers to serve only one airport, Londoners and visitors will forego fare competition benefits that are observed when network carrier service is available at two airports.

Review of findings and methodology

In general, the InterVISTAS study is transparent, robust and well-argued. It provides new insights into the role of LCC and adjacent competition on air fares at the European level.

43 Lijesen, M. G., Rietveld, P., & Nijkamp, P. (2001). Hub premiums in European civil aviation. *Transport Policy*, 8(3), 193-199.

44 Lijesen, M. G. & Nijkamp, P., Pels, P & Rietveld, P., (2005). The home carrier advantage in civil aviation. Tinbergen Institute Discussion Paper, No. 05-011/3.

InterVISTAS does not take into account a variable that reflects scarcity rents or excess demand, nor charges and fees at European airports. Although we appreciate the difficulty of doing so for all European airports, the expectation is⁴⁵ that expansion of Gatwick will lead to substantially higher airport charges up to the current level of Heathrow. Expansion would thus make it harder for airlines using Gatwick to compete with Heathrow carriers. The question is to what extent these higher charges will affect air fares and network development. In the capacity constrained environment of Heathrow and to a lesser extent Gatwick, this is a crucial question: to what extent will fares be moderated by reducing scarcity rents as a result of increasing capacity and to what extent will higher charges be absorbed or passed through by the airlines? The majority of capacity at Gatwick is taken up by short-haul airlines. For these airlines, airport charges form a relatively high percentage of their costs, thus charge increases may act as a disincentive to growth in Gatwick, given the other, cheaper options available at other London airports. On the other hand, airlines may absorb a large part of the higher charges through reduced scarcity rents (which would only grow in the future if no capacity is added to the market). Overall Gatwick is more substitutable (by Luton and Stansted) than Heathrow and some growth in LCC short haul flights suppressed at Gatwick may be displaced to the other airports rather than being a net loss to the London airports system as a whole.

The impact of charges and slot constraints on fares has not been taken into account in the InterVISTAS study. As the reduction of scarcity rents accounts for a significant part of consumer benefits (and the fact that scarcity rents will only increase with growing excess demand) and connectivity will be affected as well, we recommend that the Airports Commission views the InterVISTAS results for competition benefits in the context of the broader consumer benefits.

InterVISTAS studies relationships between fares and other variables in the current market, whereas the Airports Commission has a long-term horizon. Brueckner et al. (2013) find that the rise of LCCs and increases in adjacent competition has altered the way fares can be explained during the last decade. The question is will the relationships found also apply to the period from now to 2030 or 2050?

InterVISTAS assesses the impact of low-cost carriers on air fares. To do so, the low-cost carrier segment needs to be defined. The definition of LCCs will remain arbitrary to a certain extent as the lines between the full-service and low-cost business models are becoming more and more blurred. Hence, the categorisation of carriers is important. The categorisation of LCCs followed by InterVISTAS is reasonable in general, although one could debate the categorisation of certain carriers (e.g. Thomson and SunExpress as full-service carriers).

We appreciate the efforts to distinguish between a LCC-effect and the effect of competition from adjacent airports. This distinction is important in the context of the London airports. The study is an important contribution to the literature and the way policy makers need to view airline competition in multi-airport systems. The study may also be of relevance in the European context, as European airports are relatively close to one another and hence have overlapping catchment areas.

InterVISTAS discards the use of the number of airlines or the common market concentration measures (HHI). Instead, dummy variables are used to include (LCC) competition. The choice for the use of dummy variables only is not clear and not well justified. Our own econometric analysis of air fares finds significant statistical results for the HHI. It may well be that the InterVISTAS results found in the study do actually represent an underlying market concentration phenomenon. In particular, the question is how robust the conclusion is that full-service competition at the primary airport does not result in

45 See PwC analysis for the Airports Commission: PwC (2014). Cost and commercial viability: funding and financing. Study commissioned by the Airports Commission, November 2014.

lower fares. We recall Brueckner et al. (2013) who do find a fare effect of legacy carrier competition for the US, albeit smaller than in the past.

The study has a strong focus on LCC competition and the benefits for the UK consumer. However, it is not clear to what extent the use of the air fare data (source: Diio Mi) for European routes fully covers all LCC flights, e.g. from Ryanair and what the impact of partial coverage is for the results presented. Based on the content of the appendix, we conclude that typical Ryanair routes (e.g. Bergamo-Girona) have been included, which indicates that the data used include fares of all LCC carriers.

For Europe, the study uses population and GDP in the region in which the airport is located. This might bias the result due to the *Modifiable Area Unit Problem*. Variables may be distorted due to the size of the statistical region and the location of the airport within that region.

Review of recommendations

Although we think the methodology used by InterVISTAS to study determinants of air fares is fairly robust and in line with the literature, the study may give the impression that the results and recommendations following from the study are applicable for all air services, both short-haul and long-haul. However, the InterVISTAS results concern *short-haul routes* only and economy class fares only. These are important limitations to the study.

Submissions from several stakeholders challenge the assumption that LCCs are not willing to add services from Heathrow, which is currently predominantly served by network carriers. An example is EasyJet⁴⁶, which claims it would expand at Heathrow rather than Gatwick given the choice. EasyJet typically provides fares 40% below those of the legacy network airlines when it enters an airport with limited existing low-cost airline presence. On the other hand, Gatwick already has high levels of low-cost airline penetration, with 70% of short-haul flights offered by low-cost airlines. Depending on the extent to which these new LCC services from Heathrow will complement or substitute existing parallel or v-route low-cost competition from LCCs at other airports in London, the Airports Commission should not exclude the possibility that significant LCC competition benefits arise from an additional runway at Heathrow.

In sum, we acknowledge the impact of LCC competition on fares (which is also included in the ITF/SEO study for the Commission⁴⁷). However, given EasyJet's explicit interest in entering an expanded Heathrow and the broader trend of LCC's increasing their network portfolio at primary airports, we doubt the proposition that significant LCC entry will only take place following Gatwick expansion. It could well be that LCC entry also takes place after Heathrow expansion. Moreover, the extent to which new capacity at Gatwick will be taken up by LCCs – in particular because of the expected rise in aero-charges - is uncertain.

46 EasyJet (2014). Response to the Airports Commission consultation.

47 ITF (2014). Impacts of expanding airport capacity on competition and connectivity: the case of Gatwick and Heathrow. Report prepared for the Airports Commission, December 2014. <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>

Frontier Economics on the impact of airport expansion options on competition and choice (Report prepared for Heathrow Airport)

Summary of scope of the study

On behalf of Heathrow Airport, Frontier Economics (April 2014)⁴⁸ considers the relationship between airport capacity constraints and ticket prices at a single airport. Frontier states that airports relate to each other in a complex structure of differentiated competition, with location and mix of traffic explaining most of the differences in the levels of competition. By using a theoretical model the study puts forward the hypothesis that airport capacity constraints will lead to excess demand, which can be expected to lead to higher fares. An empirical analysis is used to test this hypothesis and to understand and estimate the size of the airport capacity scarcity effect. This section will focus on the empirical analysis, which is most relevant to the scarcity and competition discussion.

Summary of methodology and data

Frontier has carried out an econometric analysis to demonstrate the cost of the capacity scarcity⁴⁹ to passengers departing from Heathrow or Gatwick. By testing a wide range of variables for inclusion in the model Frontier estimates an econometric model that explains fares from the departure airports in the dataset. By trying to control for all these variables and including an airport dummy variable (for Heathrow/Gatwick), Frontier attempts to capture the average fare difference between flights from these airports and flights from other airports considered. Frontier considers this fare difference as the price premium for flying out of a certain airport.

The analysis is repeated for three different samples. The first one is based on 2010 fare data for the five London airports (sample 1), the second one is based on 2012 fare data for the five London airports (sample 2) and the third is based on 2012 fare data for five European hub airports in 2012 (Heathrow, Paris CDG, Frankfurt, Amsterdam and Madrid (sample 3)).

The following model specifications were used for the regression analysis:

$$(1) \ln(\text{Fare})_i = \beta_0 + \beta_1 \text{Distance}_i + \beta_2 \text{Long haul}_i + \beta_3 \ln(\text{Frequency_Own})_i + \beta_4 \ln(\text{Frequency_Other})_i + \beta_5 \text{Business}_i + \beta_6 \text{VFR}_i + \beta_7 \text{Transfer}_i + \beta_8 \text{LCC}_i + \beta_9 \text{LHR}_i + u_i$$

$$(2) \ln(\text{Fare})_i = \beta_0 + \beta_1 \text{Distance}_i + \beta_2 \text{Long haul}_i + \beta_3 \ln(\text{Frequency_Own})_i + \beta_4 \ln(\text{Frequency_Other})_i + \beta_7 \text{Transfer}_i + \beta_8 \text{LCC}_i + \beta_9 \text{LHR}_i + u_i$$

Regression (1) is used to estimate the price fare difference between Heathrow and the other London airports and between Gatwick and the other London airports, while (2) is used to estimate the price difference between Heathrow and the other European hub airports. The variables reflecting the shares of

48 Frontier Economics (2014). Impact of airport expansion options on competition and choice. A report prepared for Heathrow Airport Ltd, April 2014.

49 This part of the scarcity rent that is paid for by passengers and thus earned by airlines, see discussion in note on scarcity rents.

business passengers and VFR have been dropped for the second model, as no data on this variable are available for airports outside of London⁵⁰.

Summary of findings

Frontier found that in 2012 ticket fares at Heathrow were on average 18.0% higher than other London airports and 23.8% higher than other European hub airports after controlling for the variables included in the model. Based on this Frontier concluded that in 2012 the capacity constraint implied a mark-up on one-way fares of about £50. A similar analysis for Gatwick, which is constrained at peak times, is provided for 2012. This gives rise to the conclusion that average fares at Gatwick are 6.9% higher than at other London airports, which for Gatwick is equal to a £7 mark-up on average on 2012 one-way fares. Frontier repeats the analysis for Heathrow for 2010 data and concludes that no significant price premium for Heathrow existed during this year. Furthermore, a negative price premium is found for short-haul flights departing from Heathrow (compared to the other London airports). These findings are explained as being the result of much smaller excess demand due to the economic recession in 2010.

Review of findings, methodology and recommendations

In general, the Frontier Economics (2014) study is robust, and supported by extensive sensitivity analyses. A major advantage is that the study is London-specific, which increases its usefulness for the Airports Commission. Its contribution to the current body of knowledge is significant, as few studies have empirically addressed the scarcity rents/ fare premium issue in Europe.

Frontier concludes – based on the results - that the expected decrease in ticket prices will be larger for Heathrow than for Gatwick, given the larger excess demand. Not expanding will increase excess demand and thus fares at both airports, but more at Heathrow than at Gatwick. Frontier also concludes that the reduction in air fares is much larger than the increase in charges, if airlines fully pass through these charges to the passengers.

We think that the reduction in scarcity rents and ticket prices indeed form an important part of the consumer benefits of airport expansion. We refer to the scarcity rents chapter for a further discussion on excess demand, aero-charges and scarcity. Yet, we note that a reduction in scarcity rents can still be substantial following Gatwick expansion, as the ITF/SEO study shows⁵¹, as the Heathrow and Gatwick markets are partly overlapping.

The airport dummy variable reflects the fare premium for flying out of a specific airport that cannot be explained by the other variables that are included in the model. This means that the parameter for this dummy reflects all the effects of variables that are not included in the model. Examples of such omitted variables are the level of airport capacity scarcity as well the level of airline competition at the different airports. In the second model (the one with the EU hub dataset) the variables ‘share of business passengers’ and ‘share of VFR passengers’ (visiting friends and relatives) have also been omitted, because of the lack of data on business and VFR passengers at the other European airports. The omitted variables could bias the estimated parameters. When some of these variables have rather different values

50 As the systematic passenger surveys are only (publicly) available for the UK, Frontier was not able to control for trip purpose in the analysis of the European hub airports. Moreover, in 2010 trip purpose was not available for London City Airport.

51 ITF (2014). Impacts of expanding airport capacity on competition and connectivity: the case of Gatwick and Heathrow. Report prepared for the Airports Commission, December 2014. <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>

for Heathrow than for the other airports within the dataset their affect will largely be assigned to the Heathrow dummy. This is likely to be the case for airport capacity scarcity as this is much higher at Heathrow than at other airports.

It is unclear to what extent the fare premium solely reflects scarcity rents. Although, it is indeed likely that scarcity rents mainly determine the coefficient for Heathrow, it may also reflect other factors, such as the ‘share of business passengers’ in the second model, competition levels and the willingness to pay of passengers to use a high quality network (Starkie 2007)⁵². For example, it is likely that the share of business passengers at Heathrow is higher than at the competing airports (especially compared to Madrid, Paris and Amsterdam), which might partly explain why fares at Heathrow are higher than at other European hub airport. Consequently the coefficient of the Heathrow dummy will mostly be the result of both Heathrow’s high scarcity rents and Heathrow’s high share of business traffic, and possibly of other factors (such as proximity, loyalty programmes) as well.

In our opinion, the justification for use of the frequency variables and the choice of not including market concentration variables is not clear. It is not clear to us why Frontier includes a variable that represents the number of annual flights on the route at the same airport (frequency_own) as well as the number of annual flights on the route at the other airports in the same sample (frequency_other). Frontier claims that it expected that increased frequency of flights would have a negative effect on prices, but they do not control for airline competition. This makes the interpretation of the effect of the frequency variables on fares rather ambiguous. For example, a high number of flights offered from a certain airport could also be a result of one airline (or airline alliance) providing very high frequencies on certain routes as a service for time-sensitive passengers for which it charges a premium. The latter could have a fare increasing effect if competition on this route is relatively low and the airline (or alliance) has market power. If market concentration/number of airlines does not matter, the study should demonstrate this.

Review of the findings in comparison with the InterVISTAS and ITF/SEO studies

The absence of an observed price premium for Heathrow in 2010 may be in line with the fact that the Airports commission chooses 2011 as the first year in which Heathrow can be considered capacity constrained. However several studies, including Frontier Economics (2014)⁵³ have argued that Heathrow could be considered capacity constrained well before 2011. The economic recession may indeed explain the absence of scarcity rents in 2010 but the analysis does not discuss to what extent scarcity rents could already be observed before 2010 in line with its earlier conclusions.

InterVISTAS (April 2014) concluded that the presence of competition of a low-cost carrier in a city-pair market is the single most important driver of low fares for consumers, without taking into account scarcity rents as a potential determinant of air fares. Frontier also identified low-cost carrier competition as having a large negative impact on fares. But we note that InterVISTAS uses a dummy variable for the presence of low-cost carrier competition on a route, while Frontier uses the ‘percentage of passengers on the route on flights operated by low-cost carriers’. The first study is solely focused on short-haul markets while the latter analysed both short- and long-haul markets. Therefore, results are not directly comparable. Nevertheless, it can be concluded that the presence of competition from low-cost carriers is a very important determinant of air fares.

52 Starkie, D. (2007). “The dilemma of slot concentration at network hubs”. In Neiemeier et al. How to make slots work. Aldershot: Ashgate. Downloaded from <https://www.iata.org/whatwedo/Documents/economics/Starkie_Slot_Concentration.pdf>

53 Frontier Economics (2014). The cost savings to UK businesses from a Heathrow expansion.

This conclusion is acknowledged in SEO’s fare model, which incorporates a dummy to account for low-cost competition like InterVISTAS (April 2014). One difference in ITF/SEO’s price model is that it takes into account the market concentration level to control for airline competition while both InterVISTAS (2014) and Frontier Economics (2014) do not.

The SEO air fare model was estimated on an airline OD airport pair basis, excluding the impact of adjacent competition. In the ITF/SEO analysis competition from airlines at different London airports to the same destination was included by considering these flights as close substitutes. The other two studies try to take into account airport competition as a direct fare determinant to some extent. InterVISTAS assesses how fares for short-haul flights from an airport within a specific city are affected by competing airlines operating from or to another airport within the same origin or destination city. They find a pure airport competition effect that is negative and separate from the low-cost carrier effect. On the other hand, Frontier Economics (2014) tries to take into account how fares for a flight departing from an airport in London are affected by the number of services that are offered from this airport as well as from other airports in London to the same destination. Regarding their London 2010 and 2012 dataset, they find a positive effect that is statically significant at a 1% significance level for short-haul flights. For long-haul flights they also find a positive but not statistically significant effect. Frontier notes that ‘We had expected the coefficients on frequencies to be negative, as a greater supply of flights might be expected to bring down prices.’ It may be that Frontier Economics find a positive effect simply because their methodology did not encompass the full range of airline competition effects. For example, if a greater supply of flights is offered by just one airline, this actually means that this airline is expanding its market share and thus potentially its ability to raise prices.

The main difference between the methodologies is how the competition level is taken into account. The SEO methodology uses the HH-index (on top of a LCC-dummy) which is one of the most detailed approaches to the measurement of competition available. InterVISTAS uses the number of airlines that are competing (on top of a LCC-dummy). This is a significantly less accurate measurement of the competition level than the HH-index. Frontier does not account for the competition level other than including the percentage of passengers on the route on flights operated by low-cost carriers.

Gatwick Airport Ltd. – Supporting Traffic & competition analysis

Scope of the study

In its ‘Supporting traffic & competition analysis’, Gatwick Airport Ltd. reviews the Airports Commission traffic forecasts, airline supply side analysis, cargo, air fares & charges analysis and the ITF/SEO study⁵⁴. Here, we address the main finding/comments related to competition impacts.

Review of submission

Gatwick Airport Ltd. (p. 11) notes that “the Commission has stated that ‘Air fares have not been found to be a significant driving factor of airport choice...an extensive exercise. ...failed to find a statistically significant relationship between fares for particular routes and passengers’ choice of airport’”. The report acknowledges that collecting data is difficult but considers it “inconceivable that fare levels have no impact on passenger choice”. Based on the available passenger choice literature and according to our own analyses, we think this is a valid comment. Air fares do have an impact on

54 ITF (2014). Impacts of expanding airport capacity on competition and connectivity: the case of Gatwick and Heathrow. Report prepared for the Airports Commission, December 2014. <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>

passenger choice, in particular for the price elastic segments. However, in the specific case of the London market, none of the empirical studies undertaken have been able to quantify a price effect from the data available. It is not surprising therefore that the forecasts used by the Airports Commission do not model prices directly and instead reflect prices indirectly in other variables. The validity of the Commission's use of forecasts is confirmed in a separate report (ITF 2015).

The report (p. 13) states that Heathrow is fundamentally incompatible with a genuine low-cost carrier model and that 'the type of capacity provided will not be suitable for this market segment, which has been delivering UK short haul traffic growth over the last decade'. Given the explicit interest in Heathrow expressed by EasyJet, the broader trend towards LCC entry at primary airports, the expected rise in charges at Gatwick and the blurring of LCC and FSC business models, we do not think that low-cost carrier development should be completely discarded. We do think that examining the implications for consumer welfare of LCCs entering Heathrow or not is a valid question for the Commission, as the future development of the LCC business model is to some extent uncertain.

The study believes that the Commission's conclusion that yields at Heathrow are higher than at Gatwick is incorrect (p.47). Gatwick states that this result is due to the use of only a small and unrepresentative proportion of the traffic base at Gatwick and Stansted, as a database such as Sabre ADI only has a limited coverage of the low-cost carrier segment. In addition, Gatwick states that there has been no attempt to compare yields or fares on a like for like basis (correcting for sector length). Gatwick provides its own analysis of passenger survey data (IPS) for 2013 and concludes that there is a fare differential but that this differential is smaller than previously suggested.

We think these are valid points. Fare data from Sabre ADI do indeed not fully cover the LCC segment, which may result in biased results. The same holds true for traffic mix and sector length. However, Frontier⁵⁵ does correct for traffic mix in part of its analysis and makes a distinction between sector length and still finds a fare premium for Heathrow: a premium of 18% (£50 one-way) compared to other London airports in 2012. This seems to be more or less in line with Gatwick's own findings based on IPS data (p. 48). Yet, it is unclear to what extent its IATA fare data source is able to cover the LCC segment.

The report states that it is incorrect that Gatwick fares are lower than at Stansted. Although we do not have their fare data at our disposal, this may be a valid point given the study by Frontier Economics⁵⁶. Frontier finds a fare premium of Gatwick over the other London airports of about 7% (£7 one-way).

Gatwick Airport disagrees with the findings of the ITF/SEO-study that low-cost carriers account for over 30% of the short-haul scheduled market from and to the UK within Europe. CAA data indicates that LCCs take account of 61% of the short-haul market. This depends on how LCCs are categorized. Using a narrow definition, we find a 30% share, which may very well be higher when additional carriers are added to the low-cost segment. However, definition of LCCs is to some extent arbitrary as the lines between the FSC, LCC and leisure business models are becoming increasingly blurred.

Gatwick Airport disputes the fact that the low-cost market in the UK is becoming saturated given the growth figures of LCCs in recent years. ITF/SEO does not conclude that the LCC segment is not

55 Frontier Economics (2014). Impact of airport expansion options on competition and choice. A report prepared for Heathrow Airport Ltd, April 2014.

56 Frontier Economics (2014). Impact of airport expansion options on competition and choice. A report prepared for Heathrow Airport Ltd, April 2014.

growing anymore, but that 1) growth levels are not as high as in the past and 2) that LCCs are searching for new market opportunities (longer routes, lower frequency routes, primary airports) in response to saturation of the markets they traditionally operate in.

Gatwick states that ITF/SEO⁵⁷ competition benefits merely relate to concentration levels and not carrier types and airport competition (p.59). We agree that different types of carriers should be taken into account. Hence, we do take into account the additional fare effect of LCCs, which is confirmed by our own econometric analyses. We think that the comment on airport competition is a valid one, given the recent evidence in relation to V-route and parallel competition⁵⁸ in Europe. This effect has not been separately modelled. However, the ITF/SEO model does consider routes from other London airports as close substitutes for the primary route.

Gatwick questions the airline response of low-cost carriers establishing a significant operation base at Heathrow, which impacts competition levels and fares. We refer to our earlier comments in this note that this scenario should not be excluded, in particular because the LCC model is quickly evolving and the fact that Gatwick charges are also expected to rise significantly after expansion (to a level comparable to Heathrow today)^{59 60}. The fact that Gatwick's charges are expected to rise substantially is not mentioned in Gatwick's response but is a relevant issue to consider in relation to consumer welfare impacts.

Gatwick Airport disputes the way ITF/SEO handle the calculation of scarcity rents: the analysis does not consider that excess demand can be largely accommodated by alternative airports. It is not realistic to assume that passengers squeezed from one airport will not fly instead of using an alternative airport. We do not think this comment is valid. ITF/SEO uses the constrained and unconstrained Airports Commission scenarios as a basis for its analysis. The Airports Commission scenarios already take into account the fact that passengers that cannot be accommodated at one airport, may travel from another airport, use alternative modes or may not travel at all. So redistribution of demand is taken into account.

The report states that the reduction of airline economic rents at Heathrow and downward pressure on Heathrow fares has not been adequately considered in the ITF/SEO quantitative analysis. We think this comment is not valid. Capacity expansion at Gatwick does affect economic rents, as in the modelling framework fares have to increase less to equate airport capacity and passenger demand, compared to a future situation without capacity expansion. In addition, the impact of additional competition from Gatwick on fares has been taken into in the modelling procedure. As discussed earlier, the model does not include the additional impact of V-route and parallel airport competition, but does consider the fact that services to the same destination from other London airports are substitutes for the services from the primary airport.

57 ITF (2014). Impacts of expanding airport capacity on competition and connectivity: the case of Gatwick and Heathrow. Report prepared for the Airports Commission, December 2014. <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>

58 InterVISTAS (2014). The Importance of Airport Competition on Air Fares Paid by Consumers. November 2014

59 See PwC analysis for the Airports Commission: PwC (2014). Cost and commercial viability: funding and financing. Study commissioned by the Airports Commission, November 2014.

60 British Airways (2015). British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East. 3 February 2015, p.3.

According to the report, the assumption that airlines will absorb most of the charge increases is not valid. We do think there is quite some evidence that supports the existence of scarcity rents. There are different views and assumptions as to how airlines react to increases in aero-charges at airports with excess demand. As far as we know, there is no systematic empirical evidence regarding the level of pass-through at airports with excess demand as far as increases in aero-charges are concerned. It is likely that scarcity rents - and thus the ability of airlines to absorb higher charges - will differ strongly between airlines with different cost levels/structures, with times of the day and by route in practice. For the AC, this means that the consumer benefits calculated by AC/DfT, ITF/SEO and Frontier represent the upper limit of consumer benefits. In case of a partial pass-through to passengers, calculated benefits will be lower (due to higher air fares and lower demand). As the relative rise in charges is expected to be higher for Gatwick than for Heathrow, partial pass-through may affect consumer welfare more in case of Gatwick expansion. In case of no pass through and airlines already competing at marginal costs, aero-charges increases may lead to network deterioration/ slower network growth, with implications for passenger demand and thus impacts on consumer welfare. See the chapter on scarcity rents for an extensive discussion.

Gatwick Airport Ltd. casts doubt on the extent to which expansion of Heathrow will generate hub carrier growth, which could enhance connectivity. Gatwick argues that BA's fleet expansion would need to be much higher than historical rates and that the carrier would need to grow significantly in the highly competitive European traffic segment. This would be a major change from the carrier's current strategy. Gatwick therefore believes that traffic forecasts for an expanded Heathrow contain significant risk in relation to hub traffic development. We think this is a valid issue for the Commission to consider in relation to the feasibility of its scenarios and potential airline responses. At the same time, we note that the historical fleet expansion levels and share in the European market are partly the result of the capacity restrictions at Heathrow. Additional capacity may very well change the hub carrier's strategy in the direction of those of other European hub carriers.

British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East⁶¹

Scope of submission

In its main response, British Airways (BA) summarizes its position regarding the shortlisted schemes. We will review BA's comments as far as competition impacts are concerned.

Review of submission

BA states that under the current slot guidelines, BA could be paying for 50% of the costs of the scheme of Heathrow expansion, but only receiving 25% of the new capacity. In our opinion, this is a valid point to consider for the Airports Commission. Are there any opportunities for flexing of the slot regime to strike a better balance in terms of the additional slots allocated? Chapter 5 on the options that may exist to flex the slot regime addresses this point. We also refer to the review of the Virgin Atlantic submission below.

BA concludes that the competition benefits of Gatwick expansion are overstated. One reason is the fact that there is already healthy competition between airlines at Heathrow, both in local markets and transfer markets. We think BA's point regarding competition in transfer markets is a valid one. In fact,

61 British Airways (2015). British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East. 3 February 2015

our own research shows that BA at Heathrow is among the hub carrier that faces the most competitive constraints of all European hub carriers⁶². With respect to the local market, we have not studied market concentration levels of Heathrow in comparison to other large European airports and cannot therefore draw conclusions. It could be important for the Airports Commission to gain insight on this point, in particular because Virgin Atlantic’s submission⁶³ stresses a similar point: ‘Having two home-based long-haul carriers at the hub is a unique feature of the UK aviation market and has demonstrably provided significant benefits to passengers’.

BA states that it will be unable to pass on higher charges to its consumers (p.16) and that there are no scarcity rents. Hence, a rise in charges as a result of Heathrow expansion poses a significant risk for the connectivity of London, as in particular short-haul services may not be viable. See the chapter on scarcity rents for an extensive discussion.

CAA (2015). CAA response to the Airports Commission consultation: increasing the UK’s long-term capacity⁶⁴

Scope of the submission

In its response, the UK Civil Aviation Authority (CAA) outlines its views on the consultation paper of the Airports Commission and the questions asked to the stakeholders. We review CAA’s comments as far as competition impacts are concerned.

Review of submission

The CAA supports the Airports Commission conclusions that expansion of airport capacity will generate considerable consumer benefits compared to no expansion of capacity, but that the differences between the capacity expansion options are smaller than the costs of doing nothing. Hence, the CAA does not express a preference of any scheme over the others.

The CAA states that the assumption in the ITF/SEO study that airport charges will be absorbed by the airlines through a reduction of scarcity rents may be true for the year 2030, but the commission should verify if it also holds for the period up to 2030. If not, this may have an effect on the business case for airport expansion. We think this is a valid comment and we refer to our note on scarcity rents and aero-charges for an extensive discussion.

The CAA also states that whilst all ‘scarcity rents’ are experienced in terms of higher fares in the ITF/SEO analysis this may not necessarily be the case, as they can also be experienced as (for example) poor reliability or resilience at the airport. We think this is a valid point. This means that the reduction in generalized costs may also reflect a reduction in (for example) delay costs, besides reduction in scarcity rents, competition impacts and connectivity impacts.

62 Lieshout, R. and G. Burghouwt (2013). Airline competition in connecting markets. In: P. Forsyth et al. (eds). *Liberalization in aviation: competition, cooperation and public policy*, 73-90. Aldershot: Ashgate.

63 Virgin Atlantic (2015). *Virgin Atlantic Response: Airports commission final consultation on shortlisted options for new capacity*, p.4.

64 CAA (2015). *CAA response to the Airports Commission consultation: increasing the UK’s long-term capacity*. CAP 1263.

Boosting capacity where it matters most - the nub is the hub. The CBI's position on future aviation capacity⁶⁵.

Review of submission

CBI states that strong hub airports are important as a catalyst for new routes, for example to emerging markets. Hubs that are constrained 'tend to draw fewer transfer passengers, thus limiting the catalytic effect that makes them a national asset'. Hubs make new routes viable much earlier, because demand is drawn from an 'extended catchment area'. Additional hub capacity should be therefore the goal, according to CBI.

As far as competition impacts are concerned, airport competition is important as it provides choice and reduces air fares. Hence, 'to provide optimal connectivity, upgrades to hub capacity must be complemented by a thriving network of competing airports to maximise the UK's connections'.

The CBI does not recommend a specific capacity expansion option, but leaves this up to the Commission.

In our view, CBI rightly underlines both the impact that additional hub capacity may have on connectivity as well as the value of sufficient competition for choice and fares. However, CBI seems to implicitly assume that the net economic benefits are largest when additional hub capacity is added instead of point-to-point capacity. No evidence is provided to show this should be the case. In our view, this cannot be concluded without analysis.

Virgin Atlantic Response to the Airports Commission final consultation⁶⁶

Review of submission

Virgin Atlantic (VAA) concludes that it is the UK's chronic hub capacity shortage that needs to be addressed and therefore expansion at Heathrow is likely to offer the greatest economic benefits. It states that this conclusion is backed by the analysis of the Airports Commission.

It also states that new capacity should enhance competition and choice for passengers, not lock in historical dominance. VAA stresses the fact that Heathrow expansion will strengthen IAG's dominance at the airport under the current slot allocation rules. Hence, VAA believes it is necessary to review slot allocation rules in order to encourage effective competition. We think this is a valid point and therefore encourage the Commission to look into the slot allocation regime. However, we also remark that there may be incompatible objectives when flexing the slot regime: BA⁶⁷ states in its submission that an un-level playing field is created when the airline that pays 50% of the capacity expansion costs gets 25% of the additional capacity and that therefore slot allocation needs to be reconsidered. In contrast, Virgin Atlantic states that under the current slot regime, IAG will become more dominant to the detriment of the consumer.

65 CBI (2015). Boosting capacity where it matters most- the nub is the hub. The CBI's position on future aviation capacity.

66 Virgin Atlantic (2015). Virgin Atlantic Response: Airports commission final consultation on shortlisted options for new capacity

67 British Airways (2015). British Airways response to the Airports Commission Public Consultation on new runway capacity in the South East. 3 February 2015

VAA disagrees strongly with the label ‘legacy carrier’ in the ITF/SEO study and states that it is not a ‘home-based legacy point-to-point carrier’⁶⁸ as it was never a nationalised carrier and has brought competition to the London market. The ITF/SEO report used the label ‘legacy carrier’ to distinguish VAA from low-cost carriers, without aiming to categorize VAA as a former ‘flag carrier’.

VAA (p. 20) states that expansion of airport capacity will lead to an increase in airport charges and therefore the average cost of supply. This means that the impact on moderating fares ‘could be lower than outlined’. We think this is a valid point. The Airports Commission and ITF/SEO calculations are likely to represent the upper bound of consumer benefits. The chapter on airline scarcity rents for an extensive discussion.

EasyJet response to the Airports Commission consultation⁶⁹

Review of submission

EasyJet supports the case for an additional runway at Heathrow stating that Heathrow expansion ensures that a runway is built where there is greatest passenger demand for one. Heathrow expansion will lead to an increase in choice and competition, and thus lower fares and more routes. Furthermore, it ensures growth of the long-haul network and maximises economic and consumer benefits.

The limited capacity at Heathrow currently results in very limited low-cost services from Heathrow. Lack of LCCs limits competition at the airport and the number of (short-haul) routes. EasyJet states that it would operate from Heathrow if a runway is built. Currently, there are simply not the slots available to make an EasyJet operation viable.

EasyJet therefore disagrees with the earlier conclusions from the Airports Commission and ITF/SEO that low-cost entry at Heathrow is relatively unlikely. We agree with EasyJet that LCC entry at Heathrow is possible, which is also acknowledged in ITF/SEO’s airline responses⁷⁰, which assumes strong low-cost growth at Heathrow in the Low Cost is King scenario. The question is how feasible large-scale low-cost entry is in other Airports Commission scenarios.

EasyJet expects fares at Heathrow to decrease because of increased competition and a relatively low increase in charges in proportion to current charges, whereas it expects its own fares at Gatwick would have to rise in case of expansion of Gatwick airport because of the substantial increase in aero-charges (+100%) and the already high share of low-cost at the airport. In our view, this is an important notion. The net effect of extra capacity, higher charges and more competition at Heathrow is a reduced average fare level, whereas at Gatwick the net effect would be a rise in average fare levels.

EasyJet casts considerable doubt on the feasibility of the long-haul low-cost model, which could add competition and connectivity in the long-haul segment after Gatwick expansion. The long-haul low-cost model is unproven. Amongst other things, the potential cost advantage compared to network carriers is much narrower and there are few successful examples to date. Moreover, EasyJet concludes that even if long-haul low-cost becomes successful, it is not clear why it could not use Heathrow instead of Gatwick.

68 ITF (2014). Expanding airport capacity: competition and connectivity. The case of Gatwick and Heathrow. <http://www.internationaltransportforum.org/Pub/pdf/14Airports.pdf>

69 EasyJet (2015). EasyJet response to the Airports Commission consultation.

70 ITF (2014). Expanding airport capacity: competition and connectivity. The case of Gatwick and Heathrow. <http://www.internationaltransportforum.org/Pub/pdf/14Airports.pdf>

We think that EasyJet’s point is valid and should be taken into account by the AC. The same point was made by several other stakeholders⁷¹: there is at least considerable uncertainty with respect to the development of long-haul low-cost and its associated increase in long-haul connectivity.

Heathrow Airport Main submission

Review of submission

Heathrow Airport Limited casts considerable doubt on the feasibility of the long-haul low-cost model and low-cost feeder, which could add competition and connectivity in the long-haul segment after Gatwick expansion. This comment is in line with other stakeholder’s comments (see e.g. EasyJet, but also the ITF/SEO study). There is considerable uncertainty over whether low-cost hubbing and long-haul low-cost will actually take a major share of the market.

Heathrow Airport Limited stresses the impact of capacity expansion on fares, as outlined in the ITF/SEO report.

Conclusions from the review of submissions

From the reviewed submissions it follows that all stakeholders see the necessity of expansion of airport capacity. HAL, HHL, BA, Virgin Atlantic and EasyJet all favour an expansion option at Heathrow, backed by their consultancy reports. However, BA concludes that while Heathrow is the right location to deliver hub capacity, the proposal as it stands does not provide a sufficiently strong business case to win the full support of BA. Gatwick Airport Ltd. favours expansion of Gatwick Airport. CBI and CAA do not explicitly favour a certain capacity expansion option, but acknowledge the need for expansion.

Our review of competition impacts connectivity and scarcity finds that there are divergent views for credible reasons on the following topics, and this reflects in our view genuine elements of uncertainty over the expected impact of each scheme.

- The extent to which new capacity at Heathrow will be used by the hub carrier and the potential for development of the network carrier business model and the competitive position of European network carriers (and in particular BA) in relation to other network carriers. The potential for Heathrow expansion to significantly increase connectivity in the London airports system depends to large extent on the development of network carrier markets.
- The extent to which competition can only increase by expanding Gatwick or will also be increased by expanding Heathrow. The further development of the low-cost carrier business model and its preference for Gatwick or Heathrow after expansion is an important factor. The feasibility of the long-haul low-cost model carries an important question mark.
- The extent to which airlines benefit from scarcity rents, now and in the future.
- The extent to which airlines can absorb higher aero-charges through a reduction in scarcity rents or will need to (partly) pass-through higher aero-charges to the consumer. The latter will negatively affect consumer welfare benefits and/or connectivity growth.

In all these respects the Airport’s Commission scenarios cover a reasonable range of outcomes even if sensitivity to these uncertain factors is not always fully tested.

71 See for example HAL’s main submission

Mechanisms to influence connectivity outcomes in the UK

The Airports Commission has considered the UK's long-term connectivity needs and concluded that, while the UK remains one of the best connected countries in the world, problems are starting to emerge and they are likely to get worse. It appears that the UK is approaching the limits of what can be achieved within its existing airport infrastructure. The problems are particularly visible at Heathrow. In terms of connectivity, while Heathrow continues to have a dominant position amongst European hubs on routes to North America and other established aviation markets, it has not been able to build on this and establish a similar position of strength in routes to emerging-market economies. Moreover, the number of domestic routes to the airport is declining, restricting access from other UK regions to Heathrow's network of international services. The Airports Commission concluded in its Interim Report published at the end of 2013¹, that addressing these problems will require building at least one net additional runway in London and the South East by 2030 and short-listed two potential locations for the additional runway: Gatwick and Heathrow.

The Airports Commission asked ITF/SEO to assist the Commission with reviewing any mechanisms that may help enhance the regional and long-haul connectivity outcomes in case of expansion, drawing on the current European framework within which the connectivity is provided at UK airports and commenting on any relevant European examples of how such mechanisms have been used and whether they have proved to be effective. In particular, the Airports Commission is keen on exploring to which extent there is flexibility in the slot allocation regime to be able to improve domestic connectivity and stimulate new long-haul routes. In this chapter, we outline the different instruments and measures that could be taken and assess opportunities and potential problems.

Demand management measures

In the literature, the question addressed in this note relates to the topic of *demand management*: any set of measures intended to influence demand at an airport for the purpose of alleviating congestion and/or achieving some other objective' (De Neufville & Odoni 2003, p.461⁷²). These measures can be administrative/regulatory (e.g. local rules, Traffic Distribution Rules), market-based (e.g. incentives, charges differentiation, congestion pricing) or a mix of both.

In the context of this note, we focus on the administrative measures and market-based measures that may be used to influence certain connectivity outcomes: the rules & guidelines for allocation of slots, Public Service Obligations (PSOs), Traffic Distribution Rules (TDRs), differentiation in airport charges, airport marketing incentives and start-up aid. We will briefly outline the legal context of the measures and discuss their advantages and disadvantages for influencing connectivity outcomes in the UK (domestic and long-haul).

72 R. De Neufville & A. Odoni (2003). Airport systems. Planning, design and management. New York: McGraw Hill

Local rules and guidelines in the slot allocation mechanism

Slot allocation process

A slot is the right to use a bundle of airport infrastructure at a certain date and time to operate an air service. The mechanism currently used to allocate slots at Europe's congested airports (the slot-coordinated airports) is governed by an EU regulation on Common rules for the allocation of slots at Community airports.⁷³ The EU regulation for the primary allocation of slots is broadly based on the IATA *Worldwide Slot Guidelines*⁷⁴. The European Commission proposed changes to the current Regulations in its so-called Airport Package⁷⁵ in 2011 in order to enhance the efficient use of scarce airport capacity, including the possibilities for secondary slot trading. The European Commission's proposal has yet to be adopted.

The objective of the slot allocation process is to encourage efficient use of airport capacity through optimal allocation of slots. When demand exceeds supply at an airport, this airport may be designated as a slot-coordinated airport, for which the slots are then allocated by the slot coordinator according to the EU slot-allocation rules⁷⁶. According to the EU regulation, the Member State appoints a coordinator, a 'qualified natural or legal person' after having consulted air carriers, representative organisations and the airport's managing body. The coordinator should handle the slot-allocation task in a neutral, non-discriminatory, and transparent way. A coordination committee assists and advises the coordinator. The coordination committee is open to at least the air carriers or their representatives, the airport authority, and representatives of air traffic control.

The general principles of the primary slot allocation process in the EU

If not all slot requests can be accommodated at the airport, the slot coordinator gives preference to:

1. Historic or grandfather rights. Slots are allocated through 'grandfathering', based on historic precedence and a 'use-it-or-lose-it' rule: the incumbent has a grandfather right if the slot was used in the previous equivalent season for at least 80% of the time. If the slot is not used for 80% of the time in the specific season, the slot is returned to the 'slot pool'.
2. The most valuable services: commercial, all-year-round services, in particular scheduled and programmed non-scheduled services.
3. Priorities set in the so-called local rules or guidelines.

The 'slot pool' also contains newly created slots (for example after capacity expansion), slots returned voluntarily, and slots otherwise unclaimed. Slots in the pool are allocated free of charge by the slot coordinator in a twice-yearly coordination process. In order to encourage competition and new entry, up to 50% of the slot pool is first set aside for new-entrant airlines. Incumbent airlines can apply for the other 50% of the slot pool and slots not taken up by new entrants.

73 Council Regulation No 95/93 of 18 January 1993, which was amended by Regulation 793/2004

74 Worldwide Slot Guidelines. Effective August 2014. www.iata.org/wsg

75 Airport package. Proposal for a Regulation of the European Parliament and of the Council on common rules for the allocation of slots at European airports. EC COM (2011) 827 final.

76 The primary allocation of slots

Local rules

Local guidelines or local rules can be developed in the UK, as in any other EU country, to provide specific guidelines that the coordinator should take into account in the slot allocation process, provided that such guidelines do not affect the independent status of the coordinator, comply with Community law and aim at improving the efficient use of airport capacity.

Local rules are initiated by the slot coordinator or slot coordination committee. At the request of the coordinator, the coordination committee discusses and agrees on any local guidelines suggested. Any member of the coordination committee may propose local guidelines. The local rules have to be approved by the Member State⁷⁷ and communicated and approved by the Member State to the European Commission.

At both Heathrow and Gatwick local rules are in place⁷⁸ but none of these are intended to influence connectivity outcomes. The three local rules at Gatwick relate to the allocation and distribution of night movements and night noise quota, late hand-back of slots and procedures with respect to time-critical operations (State flights⁷⁹, emergency landings, humanitarian flights, recovery flights). The four local rules at Heathrow relate to the allocation and distribution of night movements and night noise quota, ad hoc operations, administration of the Heathrow movement cap and procedures for temporarily reduced capacity.

German slot guidelines: applications of equal status

The new runway at Frankfurt has resulted in the allocation of a considerable number of new slots to both incumbents and new entrants⁸⁰. For competing slot requests from ‘applicants of equal status’ under the EU principles for slot allocation the German slot coordinator has drafted locally specified slot allocation guidelines⁸¹. These are used to ensure decisions are consistent with policy towards promotion of Frankfurt as a location of international hub operations.

The aspects taken into account in the slot allocation guideline partly mirror the additional slot allocation criteria in the IATA WSG⁸² (par. 8.4.1), which provide for the coordinator to give consideration to factors such as the development of the airport’s route network and markets (domestic, short-haul and long-haul) as well as competition. The German guidelines on route development specify several factors relevant to the hub function of Frankfurt Airport. The Frankfurt guidelines specify that the following factors should be taken into account:

- Best possible utilisation of scarce resources by daily services in comparison to services of lower frequency and in relation to type and availability of the aircraft to be used, creation of routes to new locations and optimising the mix of long-haul, medium-haul and short-haul routes to preserve or *improve the hub function*.

77 Or any other competent body responsible for air transport in question

78 See www.acl-uk.org

79 “The Queen’s Flight and flights carrying Government Ministers or visiting Heads of State or dignitaries from abroad on an official visit, as confirmed by the Foreign and Commonwealth Office” (Source: Gatwick local rule 3).

80 According to German slot coordination, maximum peak-hour capacity at Frankfurt will be 114 movements per hour (57 arrivals+ 57 departures) in summer 2015, http://www.fhkd.org/images/pdf/hp_eckwerte_13.pdf. Capacity will eventually grow stepwise to 120 movements per hour.

81 Guideline for the allocation of scarce slots at coordinated German Airports

82 <https://www.iata.org/policy/slots/Documents/wsg-6.pdf>

- Service quality of the planned service (direct or connecting services, membership in an airline alliance).
- User-friendliness (creation of possibilities of choice among several airlines in certain individual markets, accessibility of transport services, optimisation of a route in heavy demand e.g. as a connection to a region or capital).
- Ensuring a balanced range of services across charter and scheduled services for holiday and business travellers, while taking account of the requirements of freight transport.
- Paying attention to fair competition by providing opportunities for potentially interested parties to enter the market for a certain service (new regional connection, heavy demand etc.), taking already existing services, their load factor and operation into consideration.
- Taking environmental concerns into account (arrival and departure times, size of the aircraft employed, noise and pollutant emissions).
- Safeguarding the public interest (significance of the service for the national and European location, for the competitive situation in individual markets, for the consolidation of the airlines operating in the market).

In line with the IATA WSG, the German guidelines state that there is no order of precedence for the individual decision criteria. Depending on slot supply and demand and current number of transport connections, as well as of the airlines operating them, the criteria shall be weighed in each individual case.

In practice, the local guidelines in Frankfurt are used so that when both the hub carrier and another airline apply for the same slot at FRA, alternative timings for the non-hub applicant are sought (e.g. within an hour from the requested time slot). This allows Lufthansa to maintain and enhance its hub operation and arrival/departure wave system at FRA.

Influencing connectivity outcomes with local rules: opportunities

- The Frankfurt case shows that a certain flexing of the slot allocation regime can be achieved through local guidelines that build on EU Regulation and IATA guidelines, at least for competing slot requests. Primary criteria still hold for the initial slot allocation (historic users, use-it-or-loose-it, new entrant rule), but a local specification has been made for the additional criteria to preserve or strengthen the hub function in case of applicants of equal status. It is not entirely clear to what extent implementation of these guidelines is in accordance with the EU Regulation but no decisions have been challenged so far.
- In case of Gatwick or Heathrow, one could imagine a local rule that determines the use of particular piers, terminals and slot timings to facilitate or enhance certain connectivity outcomes. Another example could be an explicit local specification in the guidelines that favours applications for scheduled services to new long-haul destinations over short-haul international destinations or services on new long-haul destinations over services on existing long-haul destinations in case of applicants of equal status. Such a specification would be in line with the current IATA WSG (par. 8.4.1b) that states that “The balance of the different types of services (scheduled, charter and cargo) and markets (domestic, regional and long haul), and the development of the airport route network should be considered”.

Influencing connectivity outcomes: potential problems

- It is not possible to earmark or reserve slots for a certain use of newly created slots except for the use of services covered by Public Service Obligations. Carriers can apply for a slot, with a certain intended use, before deciding to use the slot for a different type of service or exchange the slot with another airline. In other words, the use to which a slot is put and even the airline by

which the slot is held can and often does change after the slot is awarded. Such changes are determined by the slot holder not the coordinator or the government.

- Any local rules would only apply to the allocation of newly allocated slots, not to existing slot use. Existing slots, subject to historical precedence cannot be forcibly removed from carriers to make them available for other use.
- The Member State (e.g. UK government) itself cannot propose local guidelines or local rules but is dependent on the slot coordinator and the slot coordination committee for any proposals for local rules/guidelines.
- The use of local guidelines is currently subject to policy uncertainty. Local rules and guidelines are required to be compatible with EU Regulations on the allocation of slots. A revised EU Regulation has been proposed that would restrict the use of local guidelines.⁸³
- It appears unlikely that in the context of the strong demand for airport capacity in SE England a coordination committee, coordinator or the European Commission would accept a local guideline that favours a single carrier or carrier group.
- Local rules may undermine the most efficient use of airport capacity from an economic point of view. A local rule is an administrative criterion applied by the slot coordinator. It is an administrative intervention in the market that will not necessarily result in use of a slot by the airline that attaches the highest value to the slot.

Conclusions

Local rules might be a useful instrument in influencing connectivity at the margin, as the Frankfurt example shows. However, the fact that slots –apart from use for PSOs and use by new entrants- cannot be earmarked and the fact that the UK government will depend on initiatives from the coordination committees or slot coordinators for implementation are potential barriers to the effectiveness of the instrument. There is also uncertainty regarding the future of local rules, although it is unclear if, when and in what form a new EU proposal on slot regulation will be adopted.

Public Service Obligations

The UK government may establish services under Public Service Obligations in order to maintain scheduled air services on routes considered to be vital for the economic development of the region they serve but unprofitable for any airline to operate under competitive market conditions. Governments, public transport or regional authorities procure such transport services under contract (or could produce them internally). In Europe, procurement of air services under a Public Service Obligation (PSO) is governed by EU Regulation 1008/2008 on the common rules for operation of air services in the

83 Local guidelines/rules not only have to be notified to the European Commission by the Member State as in the current Regulation but also would need to be pre-approved by the European Commission in the EC's "Proposal on common rules for the allocation at slots at European Union Airports (COM 2011 827 FINAL). In addition, the proposal states that "the option of resorting to local rules should be restricted" because "experience has not shown that local rules are useful" and "it cannot be excluded that such rules lead to discrimination". The proposal states that local guidelines may only concern "the supervision of the use of slots allocated" or "the amendment of the definition of the series of slots". The European Commission states that environmental aspects can be fully covered in the coordination parameters, whereas regional connectivity can be ensured in the context of Public Service Obligations. It is difficult to predict if the proposal for a new slot regulation will be accepted any time soon in its current form.

Community⁸⁴. The general approach is to procure services under a PSO through competitive tendering (art. 17). PSO carriers can either receive financial compensation to cover operational losses or be granted a route monopoly to protect them from price competition for a period up to four years, after which the situation shall be reviewed.

Criteria for introducing PSOs

Criteria for introducing PSO routes have been relatively loosely defined in European law. Article 16 of Regulation 1008/2008 states that Member States may impose a PSO with respect to scheduled air services:

- Between any airport in the Community and an airport serving a peripheral region in its territory;
- Between any airport in the Community and an airport serving a development region in its territory;
- Or for serving a thin route to any airport on its territory, when the route is considered vital for economic and social development of the region which the airport serves.

The Member State shall only use the PSO to ensure a minimum provision of scheduled air services, which no air carrier would operate if they were solely considering commercial interests. When a Member State wishes to impose a PSO, it must communicate the text of the envisaged PSO to the European Commission, to the other Member States concerned, to the airports concerned and to the air carriers operating the route in question.

Guidance on the Protection of Regional Air Access to London

For the UK, a test of “necessity and adequacy” has been laid down and specified in the DfT’s *Guidance on the Protection of Regional Air Access to London* (19 December 2013)⁸⁵. The *Guidance* for example defines ‘peripheral regions’ (Article 42): “A peripheral region is defined if the total journey time to London Zone One by public surface transport from the main urban centre(s) is more than three hours”. A development region (Article 46) has been defined as: “An airport shall be considered as serving a development region if its catchment area includes areas in receipt of UK regional aid”. The catchment area of an airport concerns “the area within an average one-hour travel time radius, unless the area is one of unusually sparse population. This would provide a means of judging which airports serve regions most in need of the economic and social benefits, which an air link can potentially bring” (Article 45). And a route (Article 48) “[...] shall be considered as a thin route if, at the time that a PSO application is received, fewer than 50 000 passengers a year use the route”. Furthermore, a Value of Money assessment (based on a cost-benefit analysis) is needed to prove the PSO case. Specific requirements for the CBA have been laid down in an Annex to the *Guidance*.

In evaluating the necessity and adequacy of the PSO, the EU regulation requires that the Member state should take into account:

- Proportionality between the PSO and economic development of the region concerned.
- Alternative modes of transport, in particular when existing rail services serve the envisaged PSO route with a travel time of less than three hours.

84 EC Regulation No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community

85 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/266383/ps0-policy-guidance.pdf

In sum, the Member States must respect the conditions and requirements set out in Article 16 of the Air Services Regulation 1008/2008, but the interpretation of the ‘air service adequacy’ largely depends on the judgement of the authority introducing the PSO.

PSOs and slot allocation

Under EU Regulations, where PSOs have been imposed on a route serving a coordinated airport a Member State may reserve the slots required for the operations envisaged on that route, assuming there are available slots in the pool. If no carrier wants to operate the route under a PSO or the Member State does not issue a call for tender, the slots shall be either reserved for another PSO route or returned to the pool.

Influencing connectivity outcomes with PSOs: opportunities

- PSOs are fully compatible with the slot allocation regime in the sense that slots may be reserved for PSO routes at congested airports, assuming there are available slots in the pool.
- The UK government has direct influence on connectivity outcomes, as it can impose PSOs according to Regulation 1008/2008. PSOs are well established in UK aviation policy, including specific UK guidelines. The UK government may impose PSOs on dedicated routes, if it judges that air services are vital for the economic and/or social development of the regions these routes serve and that without subsidies and/or regulatory measures to protect them no satisfactory scheduled air services to these regions would be maintained. In case of Heathrow and Gatwick (before and after expansion), one could argue that airport charge levels, slot prices on the secondary market and airport capacity scarcity do not make it commercially attractive for airlines to operate thinner domestic services to the regions out of Gatwick and in particular out of Heathrow whilst the connection to central London airports as well as the onward connectivity they deliver is of considerable economic importance to the regions.
- Although EU Member States have to communicate the text of an envisaged PSO to the European Commission, no approval by the European Commission is needed.

Influencing connectivity outcomes with PSOs: potential problems

- PSOs can only be implemented on routes between Community airports and airports within the territory of a Member State. This means they are not suitable for long-haul routes.
- PSOs are intended to be imposed on routes serving peripheral regions, development regions and on thin routes deemed vital for socio-economic development. This means they may be suitable for services from Gatwick/Heathrow into the smaller UK regional airports but not to large UK cities. The UK *Guidance* for PSO routes clearly defines which regions/cities may be considered for PSO service.
- The UK *Guidance* currently rules out PSOs on an airport-to-airport basis. In its *Guidance on the Protection of Regional Air Access to London* (19 December 2013), the DfT states that the government needs to consider the adequacy between two cities or regions, not between a city or a region and a specific airport. Article 23 of the *Guidance* states that “If an airport or another airport within 60 minutes journey time of the same urban centre provides services to any one of these airports, it will be considered as having a service to London. This means that the withdrawal or reduction of a service to, for example, Heathrow will not be enough to trigger the consideration of a PSO as long as it is considered that there is an adequate service provided by the combined services offered to the London airport system as a whole”. As a consequence

(Article 24), “interconnectivity opportunities or the final onward destination of passengers are not relevant to the consideration of adequacy under the Regulation”.

However, based on Regulation 1008/2008, PSOs *can* be imposed on an airport-to-airport basis. According to Article 16.1 Member States “may impose a public service obligation [...] between an *airport* in the Community and an *airport* serving a peripheral or development region in its territory [...]”. This would mean that Gatwick or Heathrow could be specified within the PSO under EU rules, if UK guidance were to change.

- PSOs may undermine the most efficient use of airport capacity from an economic point of view. The use of scarce airport slots by PSO routes does not necessarily represent the optimal use of scarce airport capacity, i.e. it undermines use by the airlines that attach the highest value to those slots.

Conclusion

Currently PSO routes in the UK are found only to its peripheral regions. Given experience elsewhere in Europe (e.g. Italy, Paris) and the room for interpretation of Article 16 by Member States, it would be possible to impose PSOs on domestic routes out of the London airports. However, revision of DfT’s Guidance on PSO routes would be needed to allow for airport-specific PSOs.

Traffic Distribution Rules

The UK government may, as any EU Member State, impose Traffic Distribution Rules (TDRs) to regulate the distribution of air traffic between airports based on Council Regulation 1008/2008 on the common rules for operation of air services in the Community (Article 19). TDRs shall meet the following criteria:

- Airports serve the same city or conurbation.
- The airports are served by adequate surface transport infrastructure providing a direct connection to the city within 90 minutes.
- The airports are linked to one another and to the city or conurbation they serve by frequent, reliable and efficient public transport services.
- The airports offer necessary services to air carriers and do not unduly prejudice their commercial opportunities.
- TDRs shall not discriminate among destinations inside the Community or on grounds of nationality or identity of air carriers.
- TDRs shall respect the principles of proportionality and transparency and shall be based on objective criteria.

The Member State has to inform the European Commission of its intention to impose TDRs or to change any TDR. The European Commission will evaluate and decide whether the Member State may apply the measures. TDRs are or were effective in a range of cities across the EU (Paris, Lyon, Rome, Milan, London⁸⁶), albeit under the old Regulation 2408/92 on access for Community air carriers to intra-

86 The London TDRs were already in place before Regulation 2408/92 was effective.

Community air routes⁸⁷. As far as we know, to date no TDRs have been implemented under the new Regulation 1008/2008.

Traffic distribution rules in Paris

According to the French traffic distribution rules for Paris⁸⁸, an EU airline cannot operate routes to Community airports with a frequency of more than 4 times per day to and from Orly, with specific conditions for the capacity used during peak periods. If an airline wants to operate more than four return flights daily it must use, for flights between 7.00-9.30am and 6.00-8.30pm, planes of a minimum capacity that is calculated on the basis of the annual number of passengers carried. There are five categories ranging from 40 to 200 seats and based on annual numbers of passengers ranging from less than 100 000 to more than three million.⁸⁹ The objective of the TDR is to promote the use of Paris CDG as the international gateway, to restrict traffic at congested Orly and only use it as a ‘gateway to Paris’.

The TDRs have been changed several times since 1994 after European Commission decisions and complaints by Viva Air, TAT European Airlines and UK authorities. Amongst other things, the European Commission judged that the French state was not allowed to discriminate among the EU destinations that could be served from Orly, which was originally the case in the TDR. The UK complaint argued that the system is discriminatory and disproportionate. It would discriminate against companies with smaller aircraft, which cannot meet the conditions of the decree, and makes it more difficult for new entrants to penetrate the market. The European Commission did not find that the rules discriminate specifically in favour of French carriers, nor against British carriers or new entrants as such. However, the European Commission concluded that the rules are not proportionate to their objective, that is to direct traffic from Orly to Charles-de-Gaulle, since the minimum aircraft size on the different routes is fixed as a function of the traffic volume from all Paris airports, rather than only on the traffic to and from Orly. The European Commission's decision therefore obliged the French government to modify the rules.

Most TDRs are imposed to ensure that certain types of traffic do not use an airport for reasons of congestion or environmental concerns (e.g. noise nuisance at an inner-city airport) and to stimulate carriers to use other airports serving the same conurbation. In case of Milan, TDRs were implemented in order to force carriers to move their operations from Milan Linate to Milan Malpensa.⁹⁰ TDRs in London were used to exclude full-freighter traffic from using Gatwick and Heathrow at peak hours.⁹¹ In particular the TDRs for Paris and Milan were strongly opposed by some carriers as they were considered to be discriminatory.

87 EC Council Regulation No 2408/92 of 23 July 1992 on access for Community air carriers to intra-Community air routes.

88 “Arrêté relatif à la répartition du trafic intracommunautaire au sein du système aéroportuaire parisien” of 15 November 1994, last amended in 1999. See: <http://www.admi.net/jo/19990421/EQUA9900496A.html>

89 See http://europa.eu/rapid/press-release_IP-95-237_en.htm

90 Redondi (2013). Traffic distribution rules in the Milan airport system: effects and policy implications. *Journal of Transport Economics and Policy* 47(3), 493-499.

91 http://www.acl-uk.org/UserFiles/File/BAA%20TDR%20consultation%20paper%20_LHR.pdf

Traffic Distribution Rules for Milan

In 2000, after the opening of the new terminal in Malpensa, the *Bersani Decree* introduced Traffic Distribution Rules for Milan's airports. The objective of these Traffic Distribution Rules was to steer traffic away from Linate in favour of the new Malpensa International airport and turn it into a second hub for Alitalia (Redondi 2013).⁹² For each Community carrier, it limited the frequency of scheduled services from Milan Linate to each European airport system or individual airport according to size of the destination, based on passenger traffic in 1999. The European Commission allowed the Italian government to apply the TDRs as laid down in the *Decree*.

The frequency limitations for Linate were as follows (Redondi 2013, 494-495):

1. One daily return service to destinations with traffic between 350 000 and 700 000 passengers per year.
2. Two daily return services to destinations with traffic between 700 000 and 1,4 million passengers.
3. Three daily return services to destinations with traffic between 1.4 million and 2.8 million passengers.
4. No limit for services to destinations with traffic higher than 2.8 million passengers.
5. One daily return service to 'Objective 1 regions' and European capitals
6. Carriers operating from Linate to Community airports with annual traffic of more than 40 million passengers in 1999 were allowed two daily return services.

To meet the TDR conditions, the Italian and regional governments made large investments to improve access to Malpensa by surface transport and extend the catchment area of Malpensa. A train connection, the Malpensa Express, was introduced to Milan central station and several improvements in the highway system in the Malpensa area were undertaken.

The TDRs did not achieve their objective. Allowing Linate to continue to operate to the main Italian and European destinations (instead of closing the airport) caused the undoing of Malpensa as and contributed to its de-hubbing: business passengers for larger European destinations disliked the long access times to Malpensa and preferred nearby Linate, cannibalizing demand and yields for feeder flights to Malpensa. For long-haul destinations, passengers preferred transferring at another European airport over a direct flight (with a longer access time) from Malpensa. The limited market potential of Malpensa and restrictions at Linate forced airlines to search for new market opportunities: as such, the TDRs stimulated the growth of low-cost airport Bergamo-al-Serio, located 40 kilometres east of Milan. Interestingly, Redondi (2013) concludes that –even including the low-cost growth at Bergamo-al-Serio, the TDRs resulted in a lower air traffic growth in the Milan area than would have been possible without the TDRs.

Finally, the Milan TDRs incentivized airlines to search for loopholes in the TDRs. By employing multiple carrier code assignments, several airlines were able to increase their frequencies from Linate and circumvent the TDRs. For example, Alitalia increased its flight frequency to London Heathrow and Paris Charles de Gaulle by using the assignments given to subsidiaries and carriers it had previously acquired: Air One, Volare Airlines, and Alitalia Express. In the same way, Lufthansa, by using its subsidiary, Air Dolomiti, increased its frequency to Frankfurt well above its formal limit of two daily return services.

92 Redondi (2013). Traffic distribution in the Milan airport system: effects and policy implications. *Journal of Transport Economics and Policy*.

Influencing connectivity outcomes with TDRs: opportunities

- The advantage of TDRs is that –using traffic criteria- certain traffic segments can be given access to certain airports serving the same conurbation and not to others. Examples of such criteria are passenger volumes by route, frequencies or segment (for example, passenger versus full-freighter aircraft).

Influencing connectivity outcomes with TDRs: potential problems

- TDRs do not guarantee or stimulate the development of certain connectivity outcomes. They merely tend to redistribute connectivity over a set of airports serving the same city or conurbation. There is no obvious way TDRs can strengthen long-haul or domestic connectivity at Gatwick or Heathrow, in particular because Regulation 1008/2008 explicitly states that TDRs shall not discriminate between destinations.
- TDRs pose risks in terms of government failure in correcting any perceived market failure. TDRs are static and focused on the status quo, while the market is changing fast. As they override the market, TDRs may lead to suboptimal welfare outcomes.
- The performance of TDRs in Europe has been poor. Airlines tend to search for loopholes in the TDRs as the Milan case demonstrates.⁹³ More generally, TDRs have been opposed by the airlines because of their *de facto* discriminatory nature.
- There is no direct linkage between the TDR Regulation (2008/1008/EC) and the slot allocation regulation (2004/793EC). Even under a TDR that forces an airline to use a specific airport, the airline would still need to acquire a slot through the regular slot allocation procedure.

Conclusion

In sum, TDRs may be useful to ensure that certain types of traffic –based on objective and transparent criteria which are not discriminatory towards destinations, identity or nationality of the carriers- do not use specific London airports and search for alternatives elsewhere/ do not serve the London airports at all. But, apart from the many practical problems with TDRs in practice, they are not well equipped to stimulate domestic or long haul connectivity at Gatwick or Heathrow.

Differentiation in airport charges and taxes

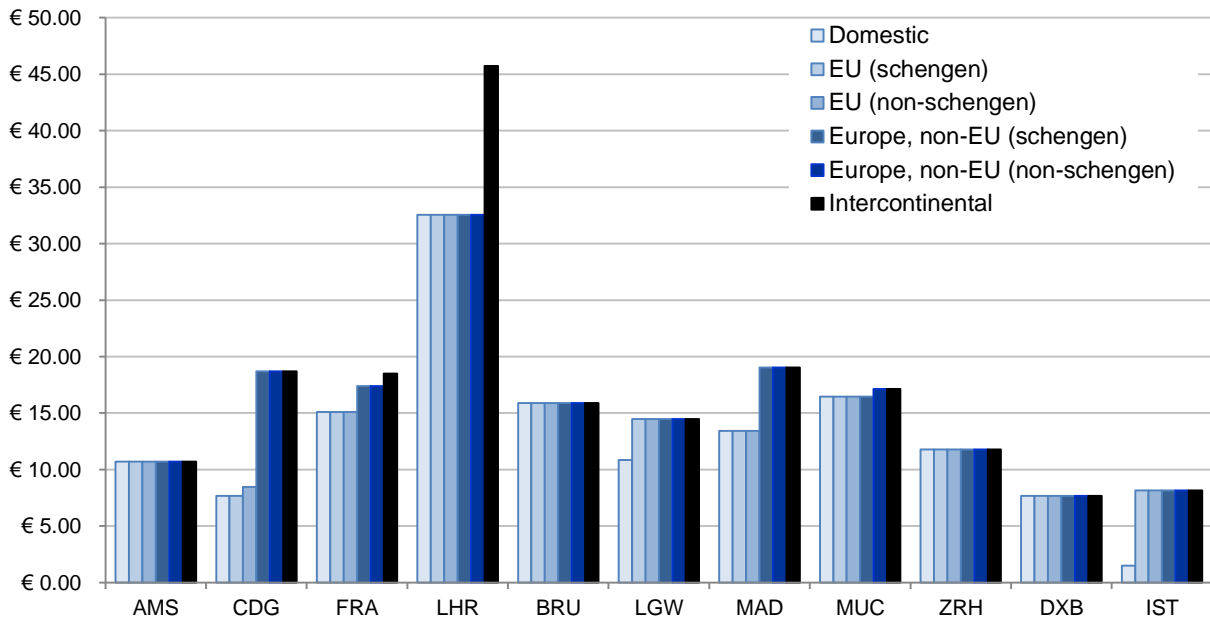
Airport charges –all costs charged to the airport users for the use of the airport facilities- are governed by EU Directive 2009/12/EC. The Directive defines the common framework for the regulation of airport charges in order to ensure that charges set by the airport are not discriminatory towards airport users. Airport users or representatives of airport users have to be consulted regularly with respect to the airport charges system, the level of charges and the quality of services provided. Charges may be modulated for reasons of environmental and public interest. As such, Gatwick and Heathrow can use charges to influence connectivity outcomes.

As Figure 5 shows, a number of airports apply different passenger charges for different types of destinations. In general, domestic per passenger charges are lower than international charges. In other words, charges can be used to influence connectivity outcomes.

93 Redondi (2013). Traffic distribution in the Milan airport system: effects and policy implications. *Journal of Transport Economics and Policy*.

However, as Gatwick and Heathrow are both privately owned, the instrument is not within the direct reach of the UK government, with the possible exception of further differentiation of Air Passenger Duty (APD), the UK departure tax.

Figure 5. **Passenger Charge Differentiation (tariff per departing passenger) by type of Destination: Domestic, EU (Schengen/ non-Schengen), Europe and Intercontinental**



Source: SEO benchmark airport charges 2014; figure only includes airport charges (landing and take-off charges), APD is not included. <http://www.seo.nl/pagina/article/benchmark-luchthavengelden-en-overheidsheffingen-1/>

Heathrow's pledge to reduce charges for domestic flights

Heathrow Airport recently announced lower airport charges for domestic flights to stimulate domestic connectivity and gain passengers back from competing European hubs. Heathrow proposes to reduce passenger charges by 10 GBP per passenger.⁹⁴ The airport argues that this is not only to the benefit of the domestic passenger as it will enhance access to onward long-haul destinations and increase the traffic base for new long-haul flights.

Differentiation of airport charges in an airport network

The introduction to the Directive 2009/12/EC on airport charges states explicitly that for reasons of traffic distribution, Member States are able to allow a managing body for airports serving the same city or conurbation to apply a common charging system (Article 4 and 5) and differentiate charges. By varying airport charges at different airports, airports can try to increase/decrease the use of airport infrastructure or reduce environmental impacts. Member States are required to inform the European Commission of any such arrangements.

As the London airports have different owners, there is no single/common airport managing body to achieve coordinated differentiation of charges between the different airports in the London airport

94 FT, 2 April 2015; see also <http://your.heathrow.com/reducingdomesticpassengercharges/>

system. Lower charges to stimulate certain connectivity outcomes (e.g. to domestic destinations) depend on the strategies of each individual airport operators and outcomes are not guaranteed.

Influencing connectivity outcomes with charges and taxes: opportunities

- In theory, Directive 2009/12/EC would allow airport operators to influence connectivity outcomes based on the charges levied to the airlines/other airport users at the London airports.
- An analysis by Mendes de Leon⁹⁵ shows that Member States have much greater autonomy in influencing airport connectivity through the coordination of charges, where a single company or authority sets charges for multiple airports, than through TDRs. Amongst other things, EU Regulations state that TDRs may not discriminate among destinations. No such restriction applies to an airport network for airport charges differentiation. Moreover, approval by the European Commission is not needed for the differentiation of charges, only notification is required.

Influencing connectivity outcomes with charges and taxes: potential problems

- Gatwick and Heathrow are not government owned or operated. Hence, this means that the UK government cannot directly influence the charge levels or differentiation of charges. Only APD, the passenger departure tax, can be determined by government. The current APD is already differentiated according to distance class. Further differentiation might be used to stimulate domestic connectivity out of the UK airports.
- No differentiation is currently possible of APD by UK airport. Further differentiation of APD might therefore enhance conditions for the development of domestic connectivity in the UK in general but could not target *specific* London airports. Moreover, it is not clear if any differentiation in APD would provide sufficient incentive to influence connectivity outcomes.

Conclusion

Differentiation of charges can be an effective instrument –within the boundaries of Community law– to influence connectivity outcomes. However, the possibilities for the UK government will be limited in practice. Gatwick and Heathrow are not government owned or operated, so the UK government cannot directly influence charge structure and level. As the London airports have different owners, no airport management body is available to coordinate differentiation of charges between airports. As APD is not an airport-specific tax, while it might be used for creating more favourable conditions for domestic connectivity growth in general, it could not be used to stimulating domestic connectivity at specific London airports.

Start-up aid/incentives

Airlines are not always prepared to run the risk of opening new routes from unknown and untested airports. Therefore airports or government authorities sometimes provide airlines with start-up aid as an incentive to offer flights to specific destinations or regions.

95 See SEO (2013), Incentive Policy and Traffic Distribution Rules. SEO report nr. 2013-18 (in Dutch).

Many airports in Europe are to a greater or lesser extent government owned/operated. To ensure a level playing field, EU *Guidelines on State Aid to Airports and Airlines*⁹⁶ set out the conditions under which government funded start-up aid/incentives are allowed. As both Gatwick and Heathrow are private entities, the Guidelines do not directly apply to these airports unless they are allocated state resources. The regulations may, however, apply to regional UK airports with public sector stakes (e.g. Luton, Birmingham, Manchester Airport Group). The regulations also apply to start-up aid from the UK government to airlines under the *Regional Air Connectivity Fund* (see below).

Two main types of incentives to airlines can be distinguished:

- Airport/airline arrangements considered as ‘State aid granted to airlines for launching a new route with the aim of increasing the connectivity of a region’, complying with Article 107(3)(c) of the Treaty.
- Airport/airline arrangements not considered as state aid, complying with the *Market Economy Operator* principle.

The first type of arrangement is only allowed for routes linking:

- An airport located in a remote region to another airport (within or outside the Common European Aviation Area).
- An airport with fewer than 3 million passengers per annum (regardless of its region) to another airport within the Common European Aviation Area. An airport with more than 3 million passengers per annum and less than 5 million passengers per annum not located in remote regions can be considered only in exceptional cases, but airports with more than 5 million passengers per annum not located in remote regions, such as Heathrow and Gatwick, are excluded.

Support to airlines serving such airports can be provided up to a maximum of 56 months and is not allowed to cover more than 50 percent of the airport charges.

The second type of arrangement is allowed when the relationship between the airport and the airline complies with the *Market Economy Operator Principle*. This is normally the case if:

- The price charged for airport services corresponds to the market price.⁹⁷
- It can be demonstrated through an ex-ante analysis that the airport/airline arrangement will lead to a positive incremental profit contribution for the airport.

At present the European Commission considers the latter test, the ex-ante incremental profitability analysis, to be the most relevant criterion for the assessment of arrangements concluded by airports with individual airlines. In this respect, the European Commission considers that price differentiation is a standard business practice, as long as it complies with all other relevant competition and sectoral

96 Guidelines on state aid to airports and airlines. C(2014) 963. See for details the Communication from the Commission — Guidelines on State aid to airports and airlines <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2014:099:FULL&from=EN>

97 European Commission Guidelines on State aid to airports and airlines (2014). Section 3.5.1.

legislation. Nevertheless, such differentiated pricing policies should be commercially justified to comply with the *Market Economy Operator Principle*.⁹⁸

To satisfy the positive incremental profit contribution test, the airport must demonstrate that over the duration of the arrangement it is capable of covering all costs stemming from the arrangement with an airline (for example, an individual contract or an overall scheme of airport charges) with a reasonable profit margin on the basis of sound medium-term (24 months) prospects. In order to assess whether an arrangement concluded by an airport with an airline complies with the *Market Economy Operator Principle*, expected non-aeronautical revenues stemming from the airline's activity are taken into consideration along with airport charges, net of any rebates, marketing support or incentive schemes. Similarly, all expected costs incrementally incurred by the airport in relation to the airline's activity at the airport are taken into account. Such incremental costs could encompass all categories of expenses or investments, such as incremental personnel, equipment and investment costs induced by the presence of the airline at the airport. Finally, when assessing airport/airline arrangements, the European Commission will also take into account the extent to which the arrangements under assessment can be considered part of the implementation of an overall strategy of the airport expected to lead to profitability at least in the long term. If the agreement turns out to be unprofitable for the airport the aid (i.e. the discounts on airport charges provided) is to be considered illegal and the beneficiaries have to pay it back.

Start-up aid under the Regional Air Connectivity Fund (RACF)

The Regional Air Connectivity Fund is a UK government initiative for start-up aid to airlines to stimulate connectivity from and to regional airports. It has to meet the conditions of the EU guidelines on state aid. The Fund is intended for PSO routes and for the launch of new routes from regional airports that handle fewer than five million passengers a year.⁹⁹ Bids for funding need to come from consortia (route promoters) consisting of at least an airport and an airline and where applicable a local authority. The new routes need to create net economic benefits for the region. New services should be expected to be profitable after three years. Funding can cover up to 50% of the aeronautical charges. Funding is only available for routes within the Common European Aviation Area. The initiative was launched in 2013 and by March 2015, the Department for Transport had received 19 bids for new routes.

Influencing connectivity outcomes through airline start-up aid and incentives: opportunities

- Start-up aid offers airport operators and regions an effective tool to influence connectivity outcomes, as it can provide incentives (e.g. discounts on airport charges) to airlines to fly to specific destinations or regions.
- The Regional Air Connectivity Fund provides a government-led incentive to develop regional routes in the UK, meeting the conditions of EU state-aid guidelines.

98 This test should be based on available information and foreseeable developments at the time when the public funding was granted and it should not rely on any analysis based on a later situation. See European Commission Guidelines on State aid to airports and airlines (2014). Section 3.4

99 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/397875/start-up-aid-initial-application-guidance-2a.pdf

Influencing connectivity outcomes through airline start-up aid and incentives: potential problems

- As Heathrow and Gatwick are privately operated, the UK government has no direct influence on what kinds of incentive programmes might offer airlines. The interests of the airports are likely to differ from those of the government.
- Route development under the Regional Air Connectivity Fund is also ultimately dependent on initiatives from airlines and regional airports.
- Start-up aid can only be provided where no air service already exists between the two airports under consideration or any airport within a 60 minute journey time radius of the airports. This means that it will not be possible to provide start-up aid for airlines operating out of Gatwick or Heathrow when an alternative service exists from another London airport within the 60 minute radius.

Conclusion

The operators of Heathrow or Gatwick (as well as other airports) may provide incentives to airlines for offering services to specific destinations or regions. However the government has no direct influence on the incentive programmes of these private airports. Through the RACF, the UK government has an effective instrument for regional route development although it is the market that decides how connectivity eventually evolves.

Synthesis

Table 9 provides a summary the different instruments and their qualitative performance on the following criteria:

- Effectiveness: how well targeted is the mechanisms? Does it achieve its objective to influence connectivity outcomes in the short- and medium-term? Does it have unintended consequences?
- Applicability: is the instrument within the scope of policy-makers authority and ability to determine outcomes?
- Experience: has the instrument been successfully applied before?

With respect to domestic connectivity we conclude that PSOs would be suitable for developing connectivity to smaller UK destinations from either Gatwick or Heathrow if DfT guidelines were to be revised to allow for specifying specific London airports. The Regional Air Connectivity Fund is a useful government incentive for increasing domestic connectivity but, as with the differentiation of airport charges and airport marketing incentives, they depend on airlines and airports to take the initiative.

With respect to long-haul connectivity, possibilities are clearly smaller, not only because most administrative measures apply to the intra-EU market only, but also because potentially suitable instruments (airport marketing incentives, airport charges differentiation) are largely outside the sphere of influence of the UK government.

Table 9. Summary of the instruments to influence connectivity outcomes

	Effectiveness	Applicability	Experience
Local rules & guidelines	Can influence connectivity outcomes at the margin. No earmarking of slots possible.	No direct influence of UK government. Policy uncertainty with respect to future of local rules. Approval by EC needed.	Frankfurt case indicates that some ‘flexing’ of slot regime may be possible.
PSOs	Effective in stimulating regional connectivity. Compatible with slot regime. Applies only to intra-Community routes.	Within UK policymakers’ responsibility. Revision of DfT guidelines would be required to apply to specific airports. No approval by EC needed.	Many successful examples in the UK and elsewhere in Europe.
TDRs	Can influence distribution of connections in an airport system. Risk of unintended side-effects; airlines search for loopholes.	Within UK policymakers’ responsibility. Approval by EC needed.	Various TDRs under the old EU Regulation. No new TDRs under the new EU Regulation.
Differentiation of charges	Charges can be effective incentives to influence (but not guarantee) certain connectivity outcomes. APD can be differentiated to affect connectivity across the whole network but cannot be differentiated by airport.	Except for APD, not within UK policymakers’ reach. Differentiation of charges between London airports cannot be coordinated as now in separate ownership.	Differentiation used by many airports in Europe.
Airport marketing incentives & start-up aid	Incentives and start-up aid can be an effective policy for airports to develop new routes.	RACF within UK policymakers’ reach but effectiveness lies eventually with airports and airlines.	RACF currently in place.

BIBLIOGRAPHY

- Airports Commission (2014), *Strategic Fit: Forecasts*
<https://www.gov.uk/government/publications/additional-airport-capacity-strategic-fit-analysis>
- ITF/SEO (2014), *Expanding Airport Capacity: Competition and Connectivity. The case of Gatwick and Heathrow*, <http://www.internationaltransportforum.org/Pub/pdf/14Airports.pdf>
- ITF/SEO (2014), *Impacts of Expanding Airport Capacity on Competition and Connectivity: The Case of Gatwick and Heathrow*, <http://www.internationaltransportforum.org/Pub/pdf/14Impacts-Airport-Capacity.pdf>
- ITF (2015), *Forecasting Airport Demand: Review of UK Airports Commission Forecasts and Scenarios*, <http://www.internationaltransportforum.org/Pub/new.html>

Expanding Airport Capacity: Competition, Connectivity and Welfare

Discussion of Options for Gatwick and Heathrow

The Airports Commission was set up by the government of the United Kingdom in 2012 to take an independent look at the UK's future airport capacity needs. It was tasked with setting out the nature, scale, and timing of steps needed to maintain the UK's status as an international hub for aviation, setting out recommendations on how to meet any need for additional airport capacity by the summer of 2015. Its recommendations are underpinned by a detailed review of the evidence as to how demand is likely to develop and the expected future pattern of the UK's requirements for international and domestic connectivity.

The Airports Commission asked the International Transport Forum for support in assessing the options with a quantitative analysis of the likely airline responses to capacity expansion. Two reports assessing impacts on competition and connectivity were published in 2014. The present report extends the analysis and deepens the assessment of welfare and competition effects in response to comments from stakeholders consulted by the Airports Commission. It also reviews potential options for steering the development of connectivity in an expanded London airports system.

This report is part of the International Transport Forum's Case-Specific Policy Analysis series. These are topical studies on specific issues carried out by the ITF in agreement with local institutions.

International Transport Forum

2 rue André Pascal
75775 Paris Cedex 16
France
T +33 (0)1 45 24 97 10
F +33 (0)1 45 24 13 22
Email : itf.contact@oecd.org
Web: www.internationaltransportforum.org