APPENDIX H

Evidence and analysis on indicators of market power – technical appendix

Introduction

H1 This appendix discusses the CAA's views on the concerns that have been raised by stakeholders on the approach and/or assumptions associated with the long-run average incremental cost (LRAIC) based price modelling and price benchmarking study referred to in appendix G.

The minded to Consultation

H2 In the minded to consultation on Stansted market power assessment (the minded to Consultation), the CAA outlined that:

- Aeronautical revenue per passenger is likely to be £1 above the average of comparable airports and about £1.5 above the subset of airport operators that are subject to lighter regulation. Leigh Fisher (LF) estimated that the margin of error of the analysis was +/- 10 per cent to 15 per cent (equivalent to £0.60 – £0.90).
- The analysis, including the price benchmarking exercise by LF, suggested that Stansted Airport Limited (STAL) was pricing above the competitive level.

H3 The CAA received six responses to the minded to Consultation, although concerns associated with the modelling were largely limited to Manchester Airports Group (MAG).[1]

CAA analysis

H4 In light of the representations from stakeholders as part of the minded to Consultation, the CAA has re-evaluated the LRAIC and benchmarking material that was used to help inform the minded to Consultation and maintains its views that:

[1] While there were six responses, this includes two responses from MAG. The responses to the minded to Consultation are available on the CAA's website: http://www.caa.co.uk/default.aspx?catid=1350&pagetype=90&pageid=14784.

- The use of LRAIC – an approach that proxies the long-term average incremental price that might emerge from a market subject to effective competition – while in theory, may be useful in assisting the CAA in its assessment of market power, there a number of issues associated with using LRAIC for airports that may limit its applicability.
- The aeronautical revenue per passenger at Stansted is marginally above the average of comparable airports.

LRAIC

Minded to Consultation

H5 In the minded to Consultation, the CAA outlined that:

- Price caps based on LRAIC have been used by some regulators as part of their regulatory duties.[2]
- The primary conceptual benefit of using this approach was that it proxies the long-term average price that might emerge from a competitive market.[3]
- While the calculation of LRAIC is relatively straight forward in methodological terms, any estimate is highly sensitive to the assumptions that are used.
- A number of stakeholders had expressed concern with the appropriateness of using such an approach to estimate the competitive price.

H6 To address these concerns, the CAA engaged Europe Economics (EE) to:

- Estimate a LRAIC for Stansted.
- Identify the advantages and disadvantages of using a LRAIC based approach to inform estimates of the competitive price for Stansted (and to set price caps).[4]

---

2 For example, in the telecommunications sector Ofcom uses a long run incremental cost approach to inform the likely level of efficient costs in the context of its price-cap regulation of mobile termination rates (MTRs). This approach is also used in a slightly different form in the regulation of fixed access charges.

3 CAA, Review of price regulation at Heathrow, Gatwick and Stansted airports ("Q6") policy update, May 2012, p. 56.

4 EE's reports are available on the CAA's website.

H7 EE examined four[5] increments for Stansted and considered that the most appropriate increment to use for LRAIC was complete airport replacement (Increment 4). Using this increment, EE determined that the LRAIC for Stansted was £6.30 per passenger[6] with a margin of error of +/- 10 per cent to +/- 15 per cent.

H8 However, while EE indicated that estimating the LRAIC was one way of assessing price in a normally competitive market, it also identified a number of concerns with using a LRAIC approach, including:

- Difficulties in determining the appropriate increment to use.
- Greater uncertainty (and loss of accuracy) due to the need to make a judgement as to the efficient levels and types of investment required rather than using historic values that were spent.
- The potential for greater uncertainty of remuneration of investment compared to a historic cost RAB-based approach.
- Sensitivity to the inputs and assumptions used.
- The relevance of an estimate of the competitive price obtained through LRAIC given the level of government involvement in planning of airport capacity, particularly in the south east of England.[7]

Stakeholders' views

H9 MAG, expressed concern with the CAA's reliance on the EE study and noted that:[8]

- In its view there was a fundamental flaw with EE's approach which invalidated the conclusions of the LRAIC study. In particular, MAG considered that EE's result (that STAL's price would be around £1 per passenger below the current level of charges) depended on the assumption that the airport would operate at full capacity (35 million passengers per annum (mppa)) from day one. MAG considered that this was an unrealistic assumption and as a result EE's conclusion was not valid. As a result, MAG considered that the minded to Consultation, based on EE's report, incorrectly concluded that STAL's charges were too high.

5 Five increments were examined if you consider that two scenarios were considered under one of the increments examined.

6 The other increments EE examined were based on SG1 plans SG2 plans and STAL's capex plans (at that time).

7 EE, Advice on the application of long run incremental cost estimates for Gatwick and Stansted.

8 MAG, Interim response of MAG to the CAA's minded to document, p. 84.

- Under a realistic approach, where demand grew progressively over time, the LRAIC based price would increase by £1 per passenger which was broadly the level of STAL's current charges.
- The margin of error in EE's analysis brought the LRIC measure outlined in the minded to Consultation within pennies of STAL's current charges.

H10 MAG also submitted, as part of its response to the minded to Consultation, a separate technical annex commenting on EE's LRAIC approach and results. The main points raised by MAG in this document were:

- MAG's agreement with EE (and the Competition Commission) that the appropriate increment should be the modern equivalent asset value of Stansted on the existing site, with a capacity of 35 mppa. However, MAG also considered that EE's Increment Two (SG2) was an appropriate increment.
- LRAIC estimates depend on the reasonableness of the assumptions used and that EE's own sensitivity tests demonstrated that estimates of LRAIC are highly sensitive.
- LRAIC estimates need to be treated with caution and that this is consistent with EE's own view.
- While it had not undertaken a detailed analysis of EE's assessment of Stansted's LRAIC, MAG reiterated its concern with EE's assumption that the airport is operated at its full capacity from day one (as it biases the result downwards by a material degree).

CAA views

H11 The CAA accepts that there are a number of concerns associated with using a LRAIC approach to proxy the competitive price for airports:

- As LRAIC is a long-term forward-looking measure, there is a risk of over and under recovery in a particular period. This means LRAIC may not be well-suited as a benchmark to indicate whether a particular price is proximate to the competitive price at any given time. Charging a flat LRAIC price over time also raises similar issues as any other 'smoothing' effect, which is that existing passengers may resist being asked to pay for future improvements where they may not benefit.

- A LRAIC approach is data intensive and requires regulatory judgement to define the increment (although this might be less for a replacement cost approach). This can lead to significant uncertainty over future price profiles and it may be possible to generate large price increases or decreases depending on the assumptions used, limiting the protection to users and introducing variability owing to regulatory judgements.
- It has been argued that it is not an effective proxy for competitive airport prices where investments are very lumpy.[9] Indeed, the Guidelines[10] state that when considering prices it is important to take account of the effects of the capital-intensive nature of airports and of the 'lumpiness' of capacity increments.[11]

H12 More fundamentally, the CAA considers that the relevance of a LRAIC-based price for airports, given the level of Government involvement in planning of airport capacity particularly in the south east of England, is substantially reduced.[12]

H13 On MAG's specific concerns, the CAA considers that the majority of these concerns were dealt with in the minded to Consultation. However, the CAA notes EE's qualification of its results:

For Increment Four our central assumption on the timing of the airport is that it is built today (ready by 2016/17) and opens at full capacity (35mppa). Given the current traffic forecasts at Stansted, this is unlikely to happen. If the building of the airport was delayed until traffic had reached 35mppa (in approximately 2030/31), the LRAIC estimate would increase by approximately 19 per cent to £7.48.

9 CAA, Review of price regulation at Heathrow, Gatwick and Stansted airports, (Q6) Policy update, May 2012.

10 See paragraph 3.17 of the Guidelines, which can be accessed via the CAA's website at: http://www.caa.co.uk/docs/5/Final%20Competition%20Assessment%20Guidelines%20-%20FINAL.pdf.

11 In principle, short-run prices in a well-functioning airport market would be expected to fluctuate around a long-term average, depending on the level of spare capacity available in the market: when capacity tightens, prices could be expected to increase with the resulting high prices triggering the development of new capacity by competing airports and subsequent fall in prices. Under such circumstances, pricing above the competitive price for a period of time might be considered a normal feature of a well functioning market.

12 EE, Advice on the application of long run incremental cost estimates for Gatwick and Stansted.

H14 However, EE also noted:

The same outcome would occur if we assumed that the new airport was opened in 2016/17 but opened to the passenger throughput based on current traffic forecasts. The latter situation might imply that the airport was overcapitalised for the current traffic, although the expectation of future growth could justify the building of the airport now.

H15 This suggests that an appropriate LRAIC calculation could be based on a lower replacement cost airport. However, this would require a number of judgements/assumptions to be made as to the suitable replacement airport value. The use of such an approach would not, however, be consistent with the replacement airport approach that has been adopted as part of EE's study.

H16 That said, MAG (as the new owner of STAL) has indicted that it intends to compete vigorously with GAL and HAL to attract long-haul carriers[13] (and other business). For example, MAG has indicated that:

- *through a combination of service improvements, operating efficiency, value for money and an increased focus on commercial revenues, we will make Stansted more competitive and return the airport to the levels of traffic it had in 2007 as quickly as possible, and then grow from there.*[14]
- *We are looking to agree long term deals with airlines to drive growth at Stansted. Our ability to offer value to airlines will depend crucially on our success in growing other sources of revenue and making efficiency savings across the Stansted business.*[15]

H17 The CAA considers that MAG's new approach to developing new business at Stansted will, if successful, increase the scope for STAL to reach the levels outlined in EE's model in a more expedient manner. However, as outlined in appendix D, there are a number of barriers that will have to be addressed, particularly for FSCs, if this is to be successful.

13 MAG, Civil Aviation Authority Stansted Market Power Assessment, Interim response of MAG to the CAA's 'minded to document', pp. 12 to 13.

14 MAG, Civil Aviation Authority Stansted Market Power Assessment, Interim response of M.A.G to the CAA's 'minded to document', p. 22.

15 MAG, Civil Aviation Authority Stansted Market Power Assessment, Interim response of M.A.G to the CAA's 'minded to document', p. 22.

H18 The LRAIC model is also built using a number of other assumptions and as the sensitivity analysis shows, movements in other variables can result in significant movement in the estimated LRAIC. Considering only one variable, passenger numbers, fails to recognise the potential offsetting effect of movement in these other variables.

Conclusion on LRAIC modelling

H19 The primary conceptual benefit of using a LRAIC approach to set price caps is that it proxies the price that might emerge from a competitive market over the long run.[16] However, the CAA continues to consider that there are a number of caveats associated with using LRAIC for airports.

H20 In addition, while different (reasonable) models could be used to try and estimate the competitive price, the CAA considers, notwithstanding the limitations associated with using LRAIC, that the methodology adopted by EE is reasonable. In particular, EE has sought to illustrate the LRAIC per passenger of different capacity increments for Stansted. The increments chosen relate to a complete airport replacement as well as capacity expansions that have either been proposed in the past or are currently being considered by Stansted. Various assumptions used were also based on information provided by STAL. Sensitivity analysis has also been undertaken to illustrate how the LRAIC may change with movement in various inputs.

H21 The CAA also considers that the LRAIC estimate produced was, if anything, at the higher end of the possible LRAIC spectrum.

H22 With respect to the LRAIC-based estimates as a proxy for the competitive price, the CAA interprets those results with caution and under the understanding that the central estimates are subject to a margin of error as indicated by EE.

H23 In relation to the central assumption for Increment 4, assuming that the airport that is built today and is ready by 2016/17 opens at its assumed full capacity of 35 mppa, the CAA is mindful of the EE's qualification of the result and the fact that the central estimate of £6.30 increases by 19 per cent to £7.48 under a phased approach. As a result, the CAA has adjusted its views accordingly to account for the sensitivity of the results and the wider margin of error.

[16] CAA, Review of Price Regulation at Heathrow, Gatwick and Stansted airports ("Q6"), Policy update, p. 56 and Europe Economics, http://www.caa.co.uk/docs/1350/Europe%20Economics,%20Advice%20on%20the%20application%20of%20long%20run%20incremental%20cost%20estimates%20for%20Gatwick%20and%20Stansted%20-%20nonconfidential%20version.pdf, p. 7.

Price benchmarking

Minded to Consultation

H24 In the minded to Consultation, the CAA indicated that an alternative way to estimate the competitive price was to consider evidence on pricing at comparable airports and that it had commissioned LF to undertake work on benchmarking airport charges at Stansted against suitable comparator airports which, where possible, were operating in a competitive market.

H25 The minded to Consultation also outlined that:

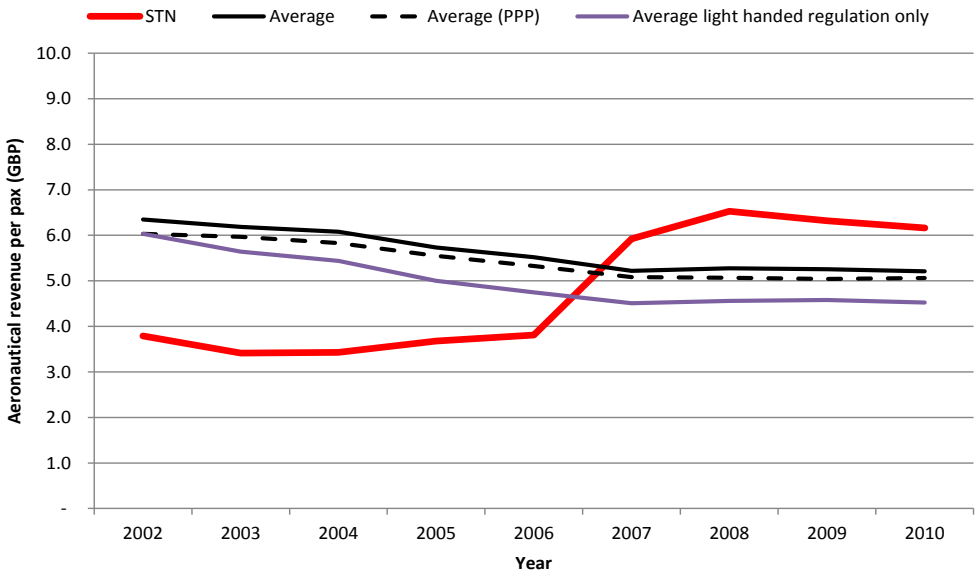
- As airports are relatively differentiated, there are some difficulties in identifying reasonably equivalent comparators.
- Many airport operators are subject to economic regulation and their pricing is likely to be a reflection of the effectiveness of the regulatory regime under which they operate and may therefore bear little resemblance to prices that would be established under competitive conditions.

H26 LF's analysis showed, as illustrated by Figure H.1 below that STAL's aeronautical revenue per passenger was approximately £1 above the average of comparable airports and about £1.5 above the subset of airport operators that are subject to lighter regulation.[17] LF also estimated that the margin of error of the analysis was +/- 10 per cent to 15 per cent (equivalent to £0.60 – £0.90).

H27 The CAA therefore considered that LF's analysis suggested that STAL's aeronautical charges are likely to be above the level of comparator airport operators. However, it also noted that given the margin of error it is difficult to be definitive about how much STAL is pricing above the competitive level.

[17] The analysis also shows that Stansted's aeronautical revenue per passenger was below the average of comparable airports over the period 2002 to 2007.

Figure H.1: STAL's aeronautical revenue per passenger compared to the basket average



Source: Leigh Fisher

H28 To cross check LF's results, the CAA considered the actual prices charged by Luton airport[18] to its main airlines under long term contract,[19] including current prices charged and the price path over the course of those contracts.[20] The CAA found that these prices were considerably lower than the prices currently charged by STAL. However, the CAA also noted that those prices were negotiated at a time when Stansted and Luton had substantial spare capacity and STAL was subject to a much stronger competitive constraint from Luton.[21]

H29 Ryanair also provided the CAA with information on its airport charges over its 15 largest bases, which include Stansted, for the five-year period commencing in 2007. This information indicated that:

- Stansted is one of the most expensive airports that Ryanair uses, with it being either the most expensive or within the top three most expensive bases over the five years commencing in 2007.[22]

18 Source: Luton Airport [✂].

19 The Guidelines state that '*the CAA considers that the terms of long-term contracts may provide useful information regarding an airport's long-term pricing*.'

20 The CAA considers Luton is a close substitute as it is in the relevant market for Stansted (see discussion on market definition). [✂].

21 CC 2008 report on Stansted, p 139, paragraph 67.

22 The costs that the CAA examined were expressed in a Pound sterling and Euros. The CAA converted the Euros into Pound Sterling using a PPP exchange rate derived from Eurostat data. The CAA did, however, consider a number of approaches to converting these charges and all of

- On average, over the five year period commencing in 2007, the per passenger charge incurred by Ryanair at Stansted was [✂];
- The increase in charges per passenger at Stansted over this five-year period was the highest of the 15 airports considered. For example, in 2007, the charges Ryanair experienced at Stansted were ([✂]) lower than those at [✂] but by 2011 this situation had reversed, with [✂] charges being ([✂]) lower than STAL's charges.[23]

H30 The CAA also obtained additional information from easyJet on the costs of operating at various airports within the UK and internationally. This information highlighted that STAL's costs per pax ([✂]) place it approximately in the middle of the top 30 airports that easyJet use both in the UK and overseas – this is below the costs it incurs at Gatwick [✂] but [✂] the costs it incurs at Luton [✂]and [✂] than the costs at Southend [✂].

H31 On the basis of the above, the CAA considered that the evidence, including the price benchmarking exercise by LF, suggested that STAL had been pricing above the competitive level.

Stakeholders' views

H32 MAG, in response to the CAA analysis noted that:[24]

- While the minded to Consultation recognises that the assessment of a competitive price is formidably difficult in this market, and this is the reason for not having carried out a full small but significant non-transitory increase in price (SSNIP) test, the CAA had inappropriately relied on the LF report to assess the competitive price level at Stansted and that this had led to the CAA concluding that STAL was pricing above the competitive level.
- The CAA's conclusion (that STAL prices above the competitive level) was different to that which the CAA outlined in the Stansted – Market Power Assessment: The CAA's Initial Views – February 2012 (the Initial Views)[25] and was based wholly or substantially on the flawed LF report.

---

these approaches generated similar outcomes.

23 Edinburgh has been selected as a comparator as this is an airport that STAL has indicated it is increasingly competing against [✂]. However, the CAA considers this to be a relatively weak constraint.

24 MAG, Interim response of MAG to the CAA's minded to document, p. 83.

25 This document is available on the CAA's website: http://www.caa.co.uk/docs/5/StanstedMarketPowerAssessment.pdf.

- Yarrow and Starkie point out in their report that to use the LF report as evidence of a competitive price is to accept that that Melbourne and Hong Kong airports belong to the same geographic market as Stansted, which MAG considered to be absurd.
- LF's report simply benchmarked STAL's revenue against other airports and that LF had accepted that it does not estimate the competitive price level. MAG therefore considered that LF's results should not be interpreted as estimates of the competitive price level.
- In terms of total revenues per passenger, LF concluded that *'...Stansted is exactly at the level that would be expected for an airport of its characteristics'.*

H33 In addition to considering it being futile to attempt to assess a competitive price in such a heavily regulated industry and that it was inappropriate to use any subsequent results, MAG considered that there were a number of other concerns with LF's methodology, including:

- That the analysis had a fundamental flaw associated with the simplistic approach to deriving summary statistics from the data. MAG considered that the approach that had been adopted gave misleading results and did not reflect the average passenger experience of charges across the sample. MAG also considered that this was at odds with the CAA's statutory duty to regulate in the interests of passengers.
- The analysis had misinterpreted the statistical noise and that the data provided a statistically significant signal that STAL's aeronautical charges were above the competitive average.
- There was a lack of available aeronautical charges data for comparator airports.
- There was a lack of disclosure about the adjustments that were made to the charges data to ensure consistency between airports.
- There was unexplained inconsistency of price data between the emerging findings and the final report, and there was an apparent bias in removing data from higher charging airports between the emerging findings and the final report.
- There was potential for multi-collinearity between the criteria used to identify comparators.
- There were inconsistencies in the approach to selecting criteria for determining comparators.
- Insignificant factors were included in the weighting of criteria.

- The approach taken on weighting airport charges data could make a significant difference to any benchmark.
- There was an inappropriate focus on single point estimates and that the analysis ignored the high level of uncertainty that is inherent with such analysis.

CAA views

H34 The CAA recognises that different approaches to a benchmarking exercise can yield different outcomes and that the use of one approach, relative to another, might generate different results. That said, the benchmarking approach used by LF, which took into account a number of stakeholders concerns, is reasonable.

H35 However, conscious of the criticisms that had been levelled against the benchmarking exercise, including from STAL, the CAA re-engaged LF to consider the concerns that had been raised.[26]

H36 LF's (additional) study noted, among other things, that:[27]

- Benchmarking is based on actual data and that reasonable inferences on competitive price, to inform the CAA's work, could be drawn from the identified ranges for each airport.
- Identification of a price range (including a band of uncertainty) is effective in countering some of the specific concerns or inevitably different views on key variables or relevant comparators.
- There was general consensus during the consultation process that there was value in the potential use of price benchmarking in the regulatory process.

H37 In terms of the specific technical and methodological concerns that MAG raised[28] the CAA notes:

- The summary statistics of the data reflects the average revenue per passenger and not the average passenger experience across airports. To assess or provide some measure of the average passenger experience across airports requires a different type of study, focusing on questions that consider both prices, quality and several other non-easily quantifiable factors.

[26] This report is available on the CAA's website.

[27] LF, Addendum Note, Comparing and Capping charges at Regulated Airports, 9 August 2013, pp. 3 to 8.

[28] LF, Addendum Note, Comparing and Capping charges at Regulated Airports, 9 August 2013, pp. 3 to 8.

- The LF study lists both the central estimates and error margins and on this basis the results can be interpreted accordingly. The CAA is mindful of the error margin of the LF's study's estimates (see conclusion further below).
- The LF study focused on benchmarking average aeronautical revenue per passenger and not the prices for the various aeronautical services offered by an airport operator. This is because actual charges may be discounted from the published tariffs. For example, at many airports, the advertised tariff bears little resemblance to what its major airline customers are paying.
- The CAA has to further the interests of all users and is therefore interested in the average charge paid by users whether the airline n which they are travelling is receiving a discount or not. The CAA has therefore placed weight on the benchmarks of aeronautical revenues rather than published charges.
- LF made a series of adjustments as set out in its report to ensure consistency of comparisons across airports. While LF accepts that its results were not sufficiently robust to draw inferences on the spot charge estimates or to use as the basis for pegging charges at regulated airports it considered that the range identified reflected the uncertainty in the estimation of the benchmarks and reasonable inferences could be drawn from identified ranges for each airport.

H38 With respect to the several other detailed comments made in relation to LF's methodology, the CAA considers that there is a range of choices that can be made when conducting a benchmarking exercise and while MAG and other stakeholders are entitled to hold to their views, the CAA maintains that LF's approach is reasonable and that reasonable inferences could be drawn from identified ranges for each airport. LF considered the comments of the various stakeholders and tried to update its methodology and results accordingly.

H39 The CAA is mindful of the various methodological caveats and aware of the qualifications and the conditions applied when interpreting those results. The CAA emphasises that both EE's LRAIC and LF's studies have been used to inform its judgement about the price that would arise under conditions of effective competition and has acknowledged on a number of occasions:

- The difficulty in estimating a proxy for the competitive price level, without however considering this a futile effort.
- The methodological issues and caveats associated with both EE's LRAIC and LF's benchmarking exercises.

Conclusion on price benchmarking

H40 After reviewing the stakeholders' responses and on the basis of discussion above, the CAA considers that the approach that LF has adopted to undertake this benchmarking study is reasonable. In particular, the CAA considers that there is merit in using a data-driven approach to compare airports. LF's approach also ensured that airport operators were involved in developing the model that was used. The CAA therefore considers that the analysis undertaken by LF can be used to make reasonable inferences on price, particularly where other analyses suggest broadly similar outcomes.

H41 In coming to this view, the CAA is, however, mindful of the limitations of LF's analysis. However, the CAA also considers that the use of the error bands is effective in countering some of the specific concerns or inevitably different views on key variables or relevant comparators.

Conclusion

H42 Taking into account the information outlined above, the CAA continues to consider that STAL's prices are either above or at the top of the range of the LRAIC-based and the LF benchmark price estimates, which may be considered to proxy the price that would arise under conditions of effective competition.

H43 However, the CAA also recognises that when allowing for the margin of error in the analysis, the extent to which STAL's prices remain above the LRAIC-based and the LF benchmark prices is reduced.