Expert Review of the CAA Approach to H7 Traffic Forecasting

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SKYLARK
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About Skylark

Skylark is a management consultancy established by senior aviation and infrastructure experts in May 2018, forming a team with decades of experience in the industry as both practitioners and advisors. As a fully independent consulting business, Skylark is one of the leading global transaction and commercial advisors for airports.

The team has established a strong track record working for government clients and regulators, airport operators, and IFIs and commercial banks for airport sale processes and developments. Skylark's approach to project execution is comprehensive, with a deep understanding of the critical drivers of, and constraints on, sectoral growth and development.

The team includes people with backgrounds in air traffic forecasting, airport and airline strategy, airport operations, airport investment, and government regulation.

Skylark's staff have extensive experience in Europe, Asia, Africa, North America and Latin America, with offices in London, New York and San Francisco and an expert network based in Boston, Washington and São Paulo.

Purpose of this Document

This note discusses the issues faced by the CAA to reach traffic forecast for London Heathrow Airport, including the methodological reasonableness. It provides a view on the completeness of the CAA's analysis as part of a high-level quality assurance on the methodology being employed by the CAA in producing a passenger forecast for the H7 control period. Skylark does not offer a view on the correctness of the outturn forecast values other than at a very high level, nor has it reviewed or audited the model(s) used to produce those values.

Introduction

Skylark was retained to provide ongoing advice and analysis in support of the CAA's work on Heathrow Airport's price control regulation (the "H7" process) from Initial to Final Proposals. As part of this, Skylark produced reports on the Initial Proposals and on trends in business travel, and have provided ad-hoc support to the CAA's traffic forecasting team including commentary and advice on their approach and methodology. The CAA has now settled on a methodological approach and produced a traffic forecast which is intended to underpin the CAA's H7 Final Proposal.

Supporting documents provided by the CAA along with related Excel spreadsheets were the primary documents reviewed by Skylark in producing this note. Other information was provided through a series of teleconference calls and email exchanges.

Background to the Forecast

Heathrow traffic has been beset by several major issues during 2020 and 2021 in the lead-up to the H7 price control period – which began in 2022 – and appears likely to be facing several more in the short term.

Looking back: the primary negative factor has been the Covid-19 pandemic, which will continue to dampen traffic levels through 2022 at least. A secondary issue was Brexit, with negative traffic impacts from lower EU VFR traffic and slower UK GDP growth. Finally, the pandemic had a sharp impact on GDP and disposable incomes in the UK destination markets. The impact of both Brexit and GDP/incomes are thought to be minimal compared to the impact of travel restrictions and low consumer confidence caused by the pandemic, although the available data does not allow a clean separation of the impact of the various factors.

Looking forward: air traffic growth is expected to be slowed by anaemic GDP growth, rises in the cost of living and a corresponding fall in disposable income, and higher fuel prices potentially feeding through to higher fares. Risks remain, in particular around new variants of Covid-19 and a broadening of the Ukraine conflict.

More positively, the UK and – increasingly – destination markets including the EU and the US are becoming tolerant of Covid and reducing or eliminating travel restrictions. Consumer confidence in travel is rising. Households have had severe restrictions on leisure spend in 2020 and 2021 and in many cases have built up savings. These savings combined with pent-up demand for leisure travel are expected to drive strong growth during Summer 2022.

UK Household Saving Ratio 2017-2021
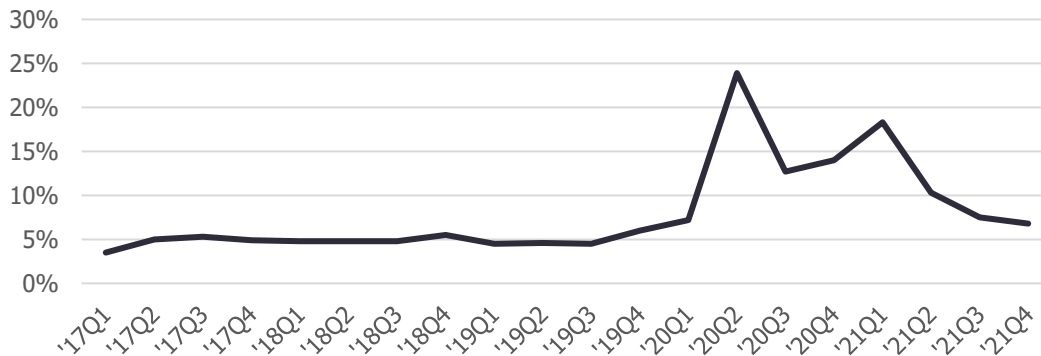
Source: ONS

The challenge is to judge the weight and duration of each of these factors. The area of particular difficulty is the short-term, when rates of passenger traffic growth are expected to be high. In the medium- to long-term Heathrow will reach its aircraft movement limit, which is expected to curtail further passenger growth, although an ongoing upward 'creep' is likely as demand feeds through to load factors and incentivises increasing aircraft size.

Summary of Approach

The underlying approach was to seek out a wide range of information, including but not limited to:

- CAA internal forecasts (primarily the adjusted HAL model, originally developed for the Interim Proposal and since subject to further adjustment and refinement)
- Third party forecasts
- Year-to-date actual traffic
- Airline schedules
- Forward bookings
- UK and overseas Covid-19 trends
- UK and overseas travel restrictions
- Ongoing geopolitical issues, including the Ukraine conflict
- UK GDP forecasts
- UK inflation and cost of living effects
- UK household savings
- Oil and aviation fuel pricing
- Skylark's review of business travel trends

The CAA forecast was then synthesised from the above by the application of CAA judgement. Additional analysis was then done, providing reassurance that the forecasts remained reasonable, and remained consistent with the full evidence base.

The current year in particular is not amenable to a 'standard' approach to traffic forecasting, and so Skylark believes this is a reasonable approach given persistent uncertainties, ongoing changes in drivers, and high rates of traffic growth. Indeed, attempting to numerically weight and model each of the material factors would be very unwieldy; in Skylark's opinion any perceived improvement in forecast accuracy would be spurious. The CAA's approach of viewing the available evidence 'in the round' is, given their in-house experience and expertise, more likely to result in a defensible and realistic traffic outlook.

Existing Forecasts

The CAA has sought out forecasts produced by third parties. These include forecasts produced by:

- Heathrow Airport Limited ("HAL")
- IATA (representing airlines)
- ACI (representing airports)
- ICAO (a specialised agency of the UN tasked with developing international aviation)
- Eurocontrol (the European air traffic management agency)
- Heathrow AOC/IATA
- Bain consultancy
- Airbus (view of leading aircraft manufacturer)

Several of the above sources provided multiple forecasts (low/mid/high or similar). The CAA also gave weight to the latest iteration of their internal forecast produced using a modified version of the HAL model.

In Skylark's view, the forecasts represent an admirably wide cross-section of sources and stakeholders, comprising airports and their representatives, airlines and their representatives, airspace controllers, aircraft manufacturers, independent consultants, and the UK regulator.

The CAA recognised that the travel situation and outlook at the time the forecasts were produced has since evolved considerably. This militated against using the forecasts as a direct foundation for the CAA's forecast, but they retain great value as a 'sense check' of the CAA outputs.

2022 Forecast

The 2022 forecast was, at the highest level, an annual forecast. The forecast value was determined with careful reference to data set described previously, with particular importance assigned to historical seasonality, scheduled capacity, and forward bookings. A seasonality pattern was then applied to the annual value as a sense check. Additional reassurance was drawn from the third party forecasts and consideration of expected passenger behaviour and macroeconomic trends.

The CAA notes that forward bookings appear stable for 2022, and are running at a relatively high proportion of the level seen in 2019 for bookings through the remainder of the year. The consistency of this value is taken as evidence of a return in consumer confidence, and a belief that periodic and unpredictable movement and travel restrictions will not return. Skylark concurs with this interpretation. The CAA forecast for the year is 68% of 2019 levels, which aligns well with forward bookings. To counter the slow start to the year, the CAA assumes that proportional levels are higher than this during peak summer months (in excess of 80% of 2019 levels in the busiest months). Anecdotal evidence from other UK airports suggests that this is not unreasonable.

The CAA applied a seasonal profile to the annual forecasts to sense-check the implied volumes of passengers over the remainder of 2022 following the slow start to the year. Skylark notes that the application of seasonality to the more bullish third-party forecasts, such as the AOC forecast, results in peak months having to exceed 2019 levels by a significant margin to realise the annual forecast. Skylark concurs with the CAA that this does not seem either reasonable or likely, especially when ongoing airport and airline labour shortages are taken into consideration.
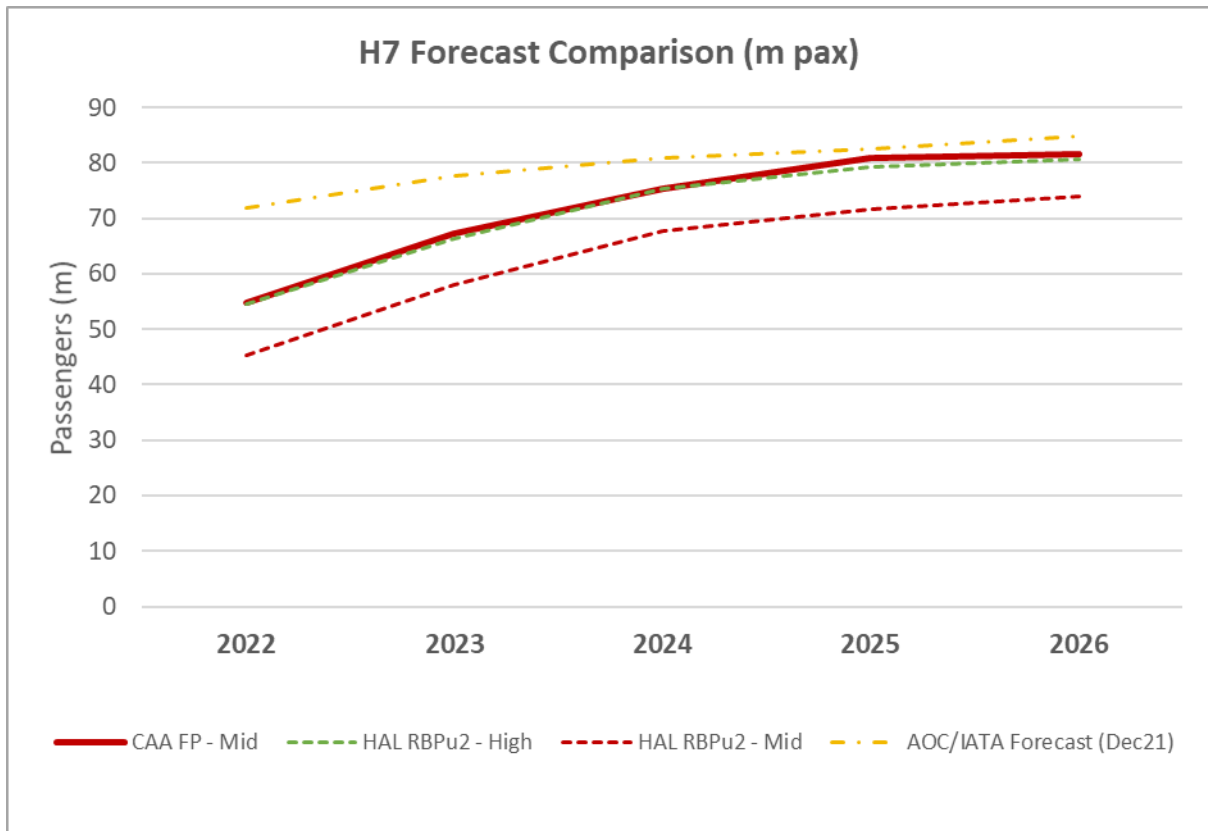
Remainder of the H7 Control Period

2023

The CAA's use of seasonality and the application of a monthly profile diminished compared to 2022 (and features only minimally in subsequent years), though this was still an important tool in sense-checking the post-Covid recovery path. More emphasis was placed on the change in annual traffic volume. The task at this point is, effectively, to judge the trajectory of growth between the forecast 2022 traffic and when LHR reaches capacity. Returning to an annual approach is reasonable as 2023 should represent a relative return to normality and a decrease in traffic volatility. To validate the forecast further, the CAA's application of the seasonal profile in 2023 considers the implied evolution in passenger numbers from the end of 2022 and through 2023 and examines the reasonableness of the annual forecast for 2023. Skylarks notes that a smooth recovery implies that Q1 of 2023 will be substantially higher than the Omicron-affected Q1 of 2022, and that considerable annual growth is achievable with minimal change in the remaining quarters of 2023. (This should not be interpreted as implying that the CAA has assumed minimal growth in Q2/Q3/Q4. As previously noted, the forecast is produced at an annual level with seasonality used only as a sense-check).

The CAA's starting point for 2023 was the output of the latest version of their model, a modified version of the HAL model. This was then subject to further adjustment to account for LHR's unique characteristics, and the latest understanding of the economic headwinds faced by the UK, in particular the cost-of-living crisis and a deteriorating GDP growth outlook.

2024-2026

The remaining years of the H7 forecast show a smooth rise to LHR's capacity limit, which is in-line with Skylark's expectations. The forecast 'shape' runs approximately parallel to the third-party forecasts and tracks very closely to the HAL high case. Skylark believes this to be reasonable given the forecast for 2022 and 2023 constrains 2024-2026 given the upper bracket imposed by LHR's annual aircraft movement cap of 480,000. Consideration was also given to terminal capacity, with HAL providing the CAA with an absolute limit of 85m passengers per year.

H7 Forecast Comparison (m pax)

Legend: CAA FP - Mid · HAL RBPu2 - High · HAL RBPu2 - Mid · AOC/IATA Forecast (Dec21)

Source: CAA

Additional Factors

Operational Problems

The CAA has reviewed the recent operational problems seen at UK airlines and airports. Long delays were experienced by passengers, including at LHR, as airports struggled to ramp-up capacity to meet demand over the Easter period. Skylark concurs with the CAA view that that this was due to a combination of airline and airport Covid absences and a difficulty in recruiting and training airport staff, with headcount having been depleted in cost-cutting programmes during the pandemic.

The risk of recurring Covid peaks remains, and the lead time for staff security checks and training will limit recruitment rates. Ongoing passenger processing delays would impact consumer confidence and willingness to travel, and shortages of flight crew would potentially result in flight cancellations.

However, Skylark – in line with the CAA – views these issues as transient and even in the worst case would not expect them to persist beyond the 2022 summer season. Mitigation can be found through both airlines and airports being highly motivated to accommodate any and all traffic growth as part of their respective recovery programmes. As well as intensifying recruitment and training, airlines have requested that the UK government grant EU aviation workers special visas to mitigate staff shortages (though the transport secretary stated this would be unlikely to be approved).

March 2022 Traffic

The CAA forecast was only able to consider actual traffic for January and February. Since then, HAL has published March traffic, which showed a 47% increase in passengers above February and the

highest monthly traffic since March 2020. For context: in 2019 traffic rose 19% between February and March with the Easter weekend occurring on a similar date[1].

Actual March 2022 traffic was materially above that implied by the CAA's applied seasonality, at 64% of 2019 levels, though below the level forecast by LHR's airlines. It may be that the unexpected March rise was partly driven by a release of pent-up demand following the relaxation of Omicron restrictions, and that future months will improve alignment with the CAA's annual forecast.

LHR Capacity

While 2019 movements already utilised the full air transport movements cap, the CAA assume that by 2026 passenger volumes will be 1% above 2019 levels. There are several countervailing factors to consider when judging the reasonableness of this assumption. Changes in the mix of widebody aircraft, in particular the retirement of 747s, is expected to result in a reduction in seats per ATM. However pressure to optimise slot use is likely to see A380 aircraft retained and this, in combination with ongoing upgauging of short-haul aircraft and scope for load factor increases during the winter, means that the impact of this on annual capacity will be limited or negligible. Skylark's judgment is that this modest increase on 2019 traffic is readily achievable by 2026.

Average Seats per ATM
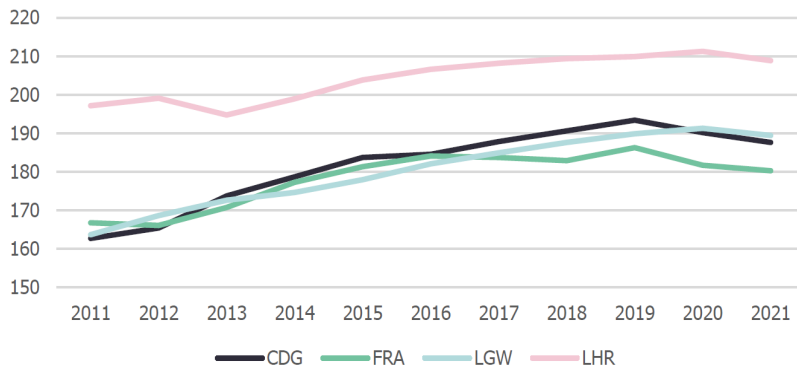
Source: Skylark Analysis

Ukraine Conflict

The ongoing war in Ukraine remains a material risk. Should the situation broaden geographically it is likely to negatively impact traffic as passenger confidence would decrease and flight routing would lengthen to at least some of LHR's eastbound destinations. In the longer term, a long-term conflict will weigh on the global economy and may result in persistently high fuel prices compared to recent norms. The impact of the conflict on UK air travel has, so far, been low or negligible, and no material adjustment to the CAA forecast has been applied.

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[1] In 2019 Easter Sunday was on the 21st April; in 2022 it was on the 17th April.

Summary

Given the rapid, ongoing changes in both traditional drivers like the economic outlook, and exogenous factors like Covid-19, the CAA reasonably relies on in-house expertise and judgement to forecast short-term traffic. The approach is more conventional in the mid-term but still relies on the CAA's deep knowledge of LHR's unique position and idiosyncrasies.

As an approach it is arguably more transparent than using a highly complex model, where assumptions would be subject to constant challenge and continual revision given the pace of change previously discussed.

The CAA view on 2022 may prove pessimistic given the divergence of traffic seen in March, but comfort can be drawn from the forward booking curve. The remainder of the forecast appears reasonable when considering the macroeconomic situation.

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