H7 Forecast Update Review

Final Report

Prepared for:
The UK Civil Aviation Authority

Date:
February 2023

SKYLARK
consulting group

Contact Information

Marcus Balmforth
Founder and Managing Director

Skylark Consulting Group

Dawson House
London
EC3N 2EX
United Kingdom

Email: marcus.balmforth@skylarkcg.com
Mobile: +44 7786 381635

Mark Weighell
Senior Vice President

Skylark Consulting Group

Dawson House
London
EC3N 2EX
United Kingdom

Email: mark.weighell@skylarkcg.com
Mobile: +44 7887 931782

Skylark Consulting Group

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.

Contents

1 Introduction & Summary Findings

1.1 Overview

Skylark was selected to undertake this study by the CAA as part of the ongoing seventh quinquennial regulatory review of Heathrow ("H7") covering the period 2022 to 2026. The CAA delivered its H7 Final Proposals ("FP") in June 2022, which included a set of passenger forecasts. These proposals drew on a wide range of sources and industry forecasts and employed an assumption set deemed reasonable and appropriate at that time.

Since then, material factors have evolved including a shift in the economic environment and the addition of several months of actual passenger data for 2022. The CAA has subsequently decided to update its traffic forecasts prior to issuing the Final Decision ("FD").

This review intends to improve confidence in the forecast outputs by assessing the reasonableness of the underlying assumptions used by the CAA in the updated forecast with a specific focus on changes made since June's FP. The reasonableness of the FP forecast assumptions are not challenged or reviewed in this document as this was done as part of the FP forecast assurance process.

As well as reviewing the 'conventional' aspects of the forecast, Skylark has examined issues around the Covid-19 pandemic and economic outlook. These factors dominate the short-term forecast.

The review has been undertaken independently, with the CAA providing limited guidance such as outlining the model structure and answering specific queries. As detailed above no discussion, either verbal or written, has been entered into with HAL, airport users, or any other party.

1.2 Methodology

This report is divided into three sections:

1. A review of recent travel trends including the current economic environment and recovery from the pandemic
2. A discussion of the specific implications for traffic at London Heathrow Airport
3. A qualitative assessment of the impact of these trends on the updated CAA forecast

In the course of this work, Skylark has reviewed publicly available studies, surveys, and industry articles. Data has been gathered from a variety of sources, including airline and airport websites, annual reports, and subscription data sources, as well as sources and data provided by the CAA.

1.3 Summary Findings

In general, Skylark believes the CAA's approach to modifying the FP forecast to produce the FD forecast is reasonable and appropriate.

The general approach is broadly the same, with adjustments made in response to newly available data, and in response to the new threat to growth posed by high inflation and the associated 'cost of living crisis'.

The overall environment remains uncertain, though the threat posed by Covid-19 appears to have diminished. Inflation remains historically high but is falling as gas and oil prices reduce from their summer peak. Forecasts of UK GDP have fallen consistently since the FP forecast work was conducted, with the CAA applying the latest view from Oxford Economics, which is close to the consensus view. The CAA's approach to modifying the forecasts by recognising Heathrow's resilience compared to other London airports is considered reasonable, as evidenced by the relative impact of the 2008 economic crisis on London's airports.

The CAA forecast is an annual forecast. However, monthly values are derived from the annual using historical profiles, which are then used as a sense check of the annual forecast value. The monthly distribution of the FD forecasts in 2023 appears reasonable when compared to the pre-pandemic situation, and Skylark regards this as providing good evidence of the reasonableness of the annual forecast.

No change has been made to the shock factor. Given this is to account for *unforeseen*, non-economic events with a negative traffic impact (such as unforeseen industrial action, adverse weather, volcanic ash, epidemics, conflict, etc), and given that *known* events such as high inflation have been accounted for elsewhere in the forecast, this appears reasonable.

Business travel trends was a key assumption used in the FP forecast. As business travel data indicated a slower rate of recovery than other travel segments, the CAA adjusted downwards for this in the FP forecast. As the FP forecast data was used as a starting point for the FD forecast, this downward adjustment is still embedded in the data. Business travel data from Q4 2022 shows that it continues to recover at a slower rate than other travel segments, and so the CAA's use of this data appears reasonable.

Staffing risk has been used as partial justification for a downward adjust in 2023 traffic given the CAA's view that problems with staffing could be more widespread than purely under the control of HAL and the airlines at Heathrow. Skylark regards this view as appropriate and in line with general industry outlooks for 2023. For example, Eurocontrol has warned that staffing challenges and industrial action will be a significant risk in 2023 in the latest air traffic forecast for Europe.[1]

[1] https://travelweekly.co.uk/news/air/eurocontrol-warns-of-major-delays-to-flights-this-summer

2 Post-Pandemic Trends

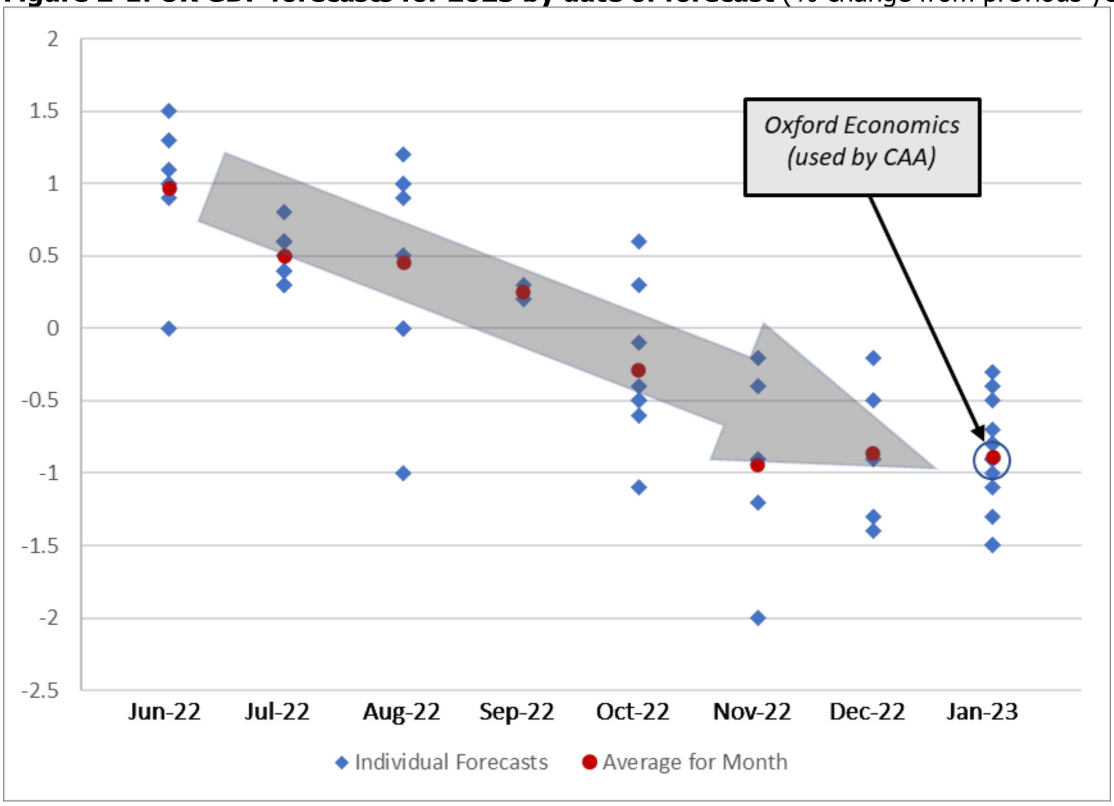
Economic Environment

Following the period of pandemic-related uncertainty, the impacts of the pandemic on ability to travel subsided in Q2 2022 and travel demand and capacity returned. However, the aviation industry still faced challenges from the global economy. The economic outlook deteriorated during H2 2022 with GDP forecasts consistently being revised downwards since the Final Proposals were issued, with several forecasters expecting a UK recession during 2023 (see chart below).

Bottlenecks in global supply chains have persisted even as the pandemic has eased; the ongoing conflict in Ukraine has increased prices across multiple sectors, particularly in energy and food. The increase in inflation resulted in central banks increasing interest rates to mitigate the rise. This has inevitably impacted consumer finances, pertinently their disposable income. As such, elevated levels of inflation and the resultant cost-of-living crisis poses a risk to the assumed traffic recovery profile across all UK airports.

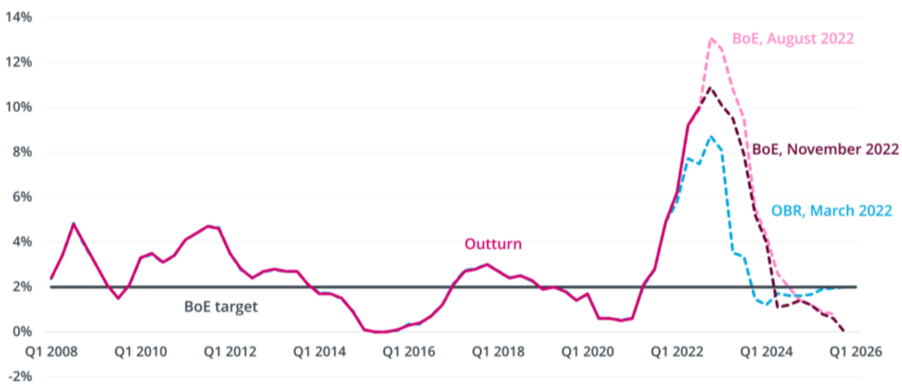
The CAA has used numerous GDP forecasts to inform the FD forecast, including forecasts by Oxford Economics, the Bank of England, and the Office for Budget Responsibility. The latest forecast from Oxford Economic predicts that the size of the UK economy will be smaller by 3.5% during the H7 period compared to forecasts issued at the time the CAA produced their FP forecast.

Figure 2-1: UK GDP forecasts for 2023 by date of forecast (% change from previous year)



Source: Various, collated by UK Government, https://www.gov.uk/government/collections/data-forecasts

The most recent Bank of England forecast[2] projects inflation to peak at 10.9% in the fourth quarter of 2022 (notably lower than the previous projection of 13% in August), driven predominantly by the 54% increase of the energy price cap from 1st April, compounded by a further increase in October. The Bank expect inflation will remain high for the next two years, anticipating inflation will not reach its 2% target until the third quarter of 2024. This level of inflation is outpacing the increases in nominal wages, so in real terms incomes will fall. The Bank of England forecasts private sector pay settlements will average 5.8% growth over 2023 while inflation is around 10%.[3]



Source: Bank of England

However, current indicators suggest that inflation is falling faster than previously forecast as energy prices continue to decline from their peak in defiance of earlier expectations as Europe reduces its reliance on Russian gas.

[2] https://www.bankofengland.co.uk/monetary-policy-report/2023/february-2023#:~:text=In%20the%20MPC's%20central%20projection,D
[3] https://www.instituteforgovernment.org.uk/explainers/cost-living-crisis

Figure 2-2: UK Gas Prices - Weekly Average of Forward Delivery Contracts

Source: Ofgem

Despite these recent reductions in gas prices, oil/fuel energy prices remain at historically high levels.

Table 2-1: Brent Crude Price (USD per barrel nominal)

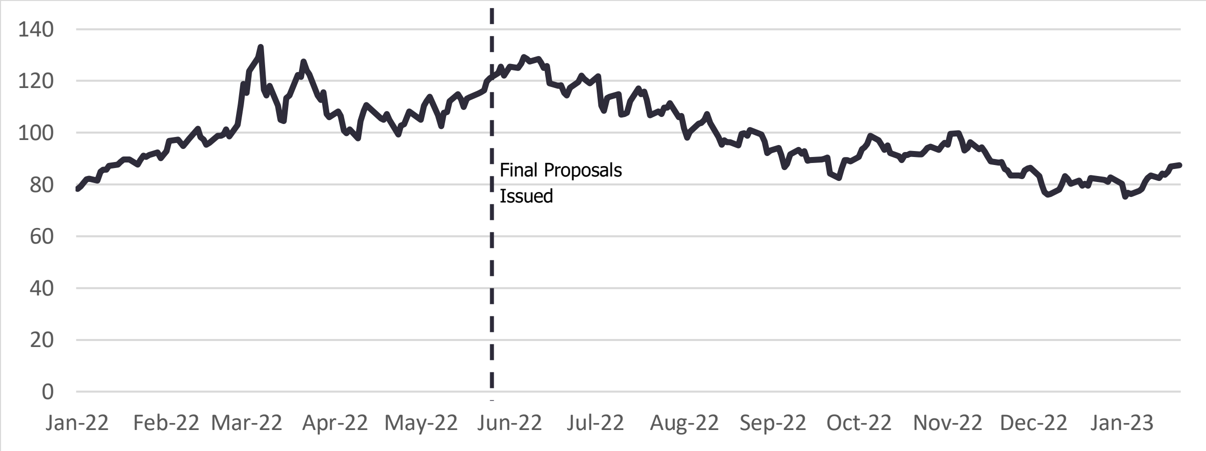
Year	Price/bbl
2017	54.1
2018	71.3
2019	64.3
2020	42.0
2021	70.9
2022 YTD	101.9

Source: US Energy Information Administration. *Note: YTD up to 12th Dec.*

Nevertheless, as visible in Figure 2-3, oil prices (and thus aviation fuel prices) are currently materially below the prices seen leading up to the issue of the FP. This should result in a reduction in airline costs[4], at least some of which is expected to be passed to the consumer. This offers some mitigation to the negative impact of inflation on discretionary spend and thus on leisure and VFR travel. However, airline fuel hedging means that fare reductions will be significantly more limited than would be case without hedging (note that hedging also protects the airline and its passengers from rising fuel prices).

[4] Fuel accounts for 15%-25% of airline costs, with the percentage for long-haul airlines being higher than for short-haul airlines

Figure 2-3: Europe Brent Spot Price (Dollars per Barrel)



Source: US Energy Information Administration

The British Chambers of Commerce ("BCC") is projecting a five-quarter recession for the UK economy from Q3 2022, forecasting the economy will not return to achieving growth until Q4 2023. Although the BCC forecast has not been used by the CAA in their latest analysis, Skylark have used the forecast to provide additional confidence in the data used to inform the CAA's view on the economic outlook, as the BCC forecast is broadly in line with the forecasts used by the CAA to build the FD forecast. The BCC anticipate 2023 GDP will fall by 1.3%, which is broadly in line with the Bank of England and OBR's predictions, though the BCC forecast is more optimistic than the Bank of England's as it anticipates modest growth of 0.7% in 2024. It is lower than that of the OBR and Oxford Economics. Forecasters are thus broadly aligned – encouraging, if not remarkable, given recent economic turmoil – and so Skylark regard the economic assumptions implemented by the CAA as reasonable.

Table 2-2: British Chambers of Commerce December 2022 Economic Forecast

Year	GDP Growth
2022	4.2%
2023	-1.3%
2024	0.7%

Source: British Chambers of Commerce[5]

However, there are some factors that may lessen the impact of the cost of living crisis on traffic growth. High levels of savings seen during the pandemic, pent-up demand, and the need to use travel vouchers accumulated during the pandemic has helped traffic recovery in 2022 in spite of rising living costs. Passenger traffic, particularly at Heathrow, has historically been resilient to economic issues. While consumers may take fewer holidays, the reduction is blunted by the tendency to save money on variable-cost elements of a trip, such as downgrading the hotel, while retaining the trip (and therefore the flight) itself. For example, the online travel company *On The Beach* reported that low-cost locations such as Turkey where customers can get more for their money are growing in popularity at the expense of more expensive destinations.[6]

---

[5] https://www.britishchambers.org.uk/news/2022/12/bcc-economic-forecast-long-road-to-recovery-after-over-a-year-of-recession

[6] https://www.theguardian.com/business/2022/dec/08/package-holiday-demand-dips-uk-cost-of-living-crisis-hits-budgets

Travel Disruptions and Staff Shortages

Alongside the recovery from the pandemic, airports across the UK and Europe faced substantial disruptions to operations as travel demand increased as travel restrictions eased. These disruptions stemmed from:

- *Staff Illness:* Whilst demand grew as travel restrictions were lifted at the start of 2022, the prevalence of Covid-19 continued to rise, resulting in record levels of staff absences for airlines, ground handling companies, and others in the aviation industry. For example, in April easyJet cancelled over 200 flights due to "the current high rates of Covid infections … easyJet [was] experiencing higher than usual levels of employee sickness".
- *Job Losses During the Pandemic:* As support from the government reduced whilst air travel remained substantially below typical levels as the crisis persisted in aviation longer than most sectors, thousands of staff across the industry were made redundant and moved on to work in other sectors. For example, Swissport cut over half of their UK ground handling staff during the pandemic.
- *UK Security Vetting:* According to a spokesperson for London Heathrow airport, it can typically take from three to six months for a new recruit to start work due to the extensive vetting process. This process is taking even longer due to a newly added vetting stage and the large volume of new hires being processed as the industry recovers.
- *Brexit:* The stringent work visa requirements introduced after Brexit has restricted the labour pool available to UK companies. easyJet CEO Johan Lundgren for example stated the company has had to reject 8,000 job applications from European workers who are no longer allowed to work in the UK.

Out of the 75,000 staff employed across Heathrow (including airlines, ground handlers, and retailers), approximately 25,000 jobs were cut during the pandemic. By October 2022, only half of those pre-pandemic posts had been filled with shortfalls being [partly] responsible for ongoing operational delays.

HAL reported in October 2022 that businesses operating at the airport need to recruit (and train) 12,500 additional staff in order to avoid a repeat of the disruptions over summer 2022 and to meet demand during peak travel periods. Heathrow has said it is establishing a recruitment task force in order to fill the large number of vacancies, with a key aim of reviewing the ground handling operations at the airport (and recruiting for if necessary), an area which has faced substantial shortages and been a significant factor in the travel disruptions. Resultingly, the CAA has considered this in the FD forecasts.

In addition to the ongoing staffing challenges, the CAA is aware of the ongoing threats of strike action from 2022 that is likely to continue into 2023 (such as the Border Force strikes seen in December 2022) and impact not only HAL, but the whole industry. Eurocontrol's most recent air traffic forecast views risks of industrial action and similar disruption from staffing in summer 2022 a significant risk to traffic in 2023.[7] To incorporate this risk into the projected traffic volume for 2023 compared to 2019, the CAA has taken a midpoint from December 2022 estimated passenger traffic (90%) and the latest booking trends (94%) to yield 92% for 2023. Skylark regards this approach as reasonable. Whilst it would appear unfair for airlines to pay for HAL's inability to recruit, and vice-versa, the forecast must reflect the most likely outturn in passenger traffic at the airport, and it seems apparent that staffing still carries a downside risk across the industry.

---

[7] https://travelweekly.co.uk/news/air/eurocontrol-warns-of-major-delays-to-flights-this-summer

Heathrow Performance over Summer 2022

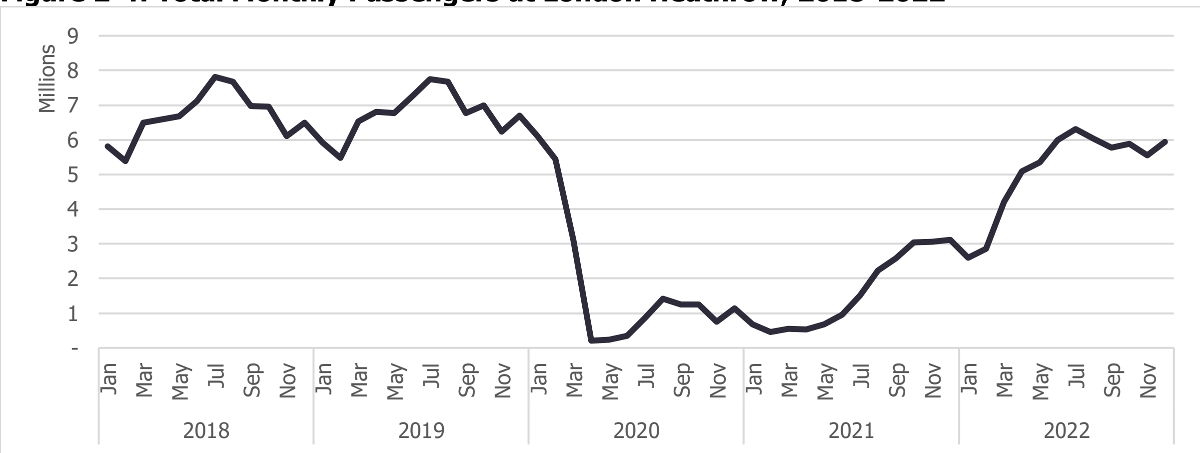
HAL have issued a statement that the airport does not expect annual air traffic to recover completely for several years despite demand improving substantially over the Summer 2022 period, citing the looming global economic crisis, remaining effects of Covid-19, and the conflict in Ukraine as factors hampering recovery. These predictions are in line with *global* projections by IATA. Nevertheless, airline forecasts indicate Heathrow and European recovery is expected to be ahead of the global recovery due to the weakness of the Asia Pacific region (as evidenced in IATA's UK and Europe forecasts).

From January to October (inclusive), Heathrow handled 50.1 million passengers, a 26% decrease compared to the same period in 2019.

Passenger traffic over H1 2022 initially saw strong recovery but slowed over the summer period due to staffing and capacity shortages resulting in difficulties meeting growing demand. Heathrow Airport Ltd ("HAL") applied the 'Local Rule A' cap on departing passengers at 100,000 per day between July and October to navigate the capacity difficulties and improve operations.

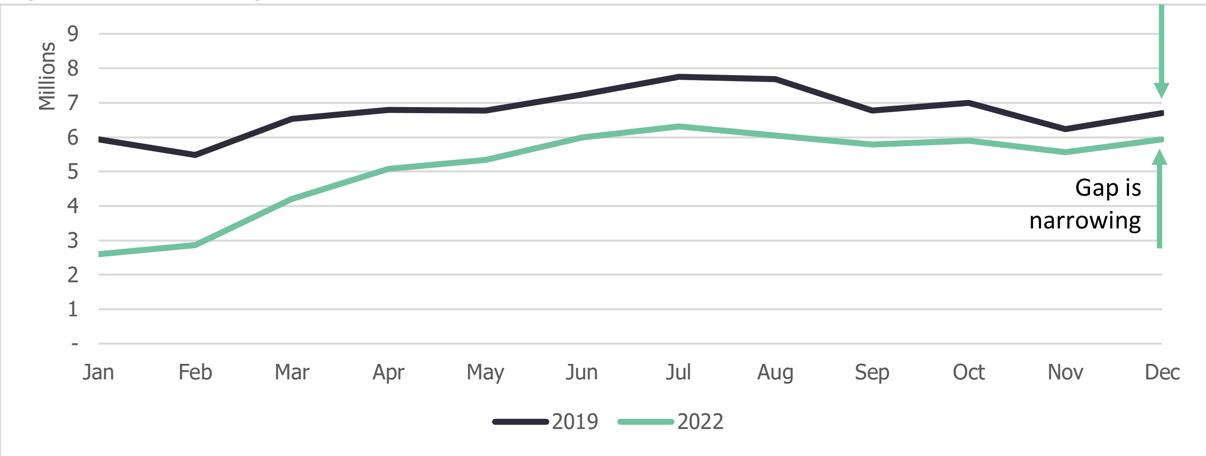
Airlines based at the airport subsequently amended summer schedules, resulting in a softening of passenger growth over these months. Demand in fact remained below the cap level due to falls in load factors over the summer period. Passenger volumes at Heathrow has since rebounded at the start of the winter season, with passenger levels reaching 89% of 2019 levels in November and December, the closest to 2019 levels since the pandemic. According to data obtained by the CAA, forward bookings are still below 2019 levels, though bookings for 2023 appear to be shifting closer to 2019 levels.

Figure 2-4: Total Monthly Passengers at London Heathrow, 2018-2022



Source: Heathrow Airport Limited

Figure 2-5: Passenger Traffic at London Heathrow, 2019 vs 2022



Source: Heathrow Airport Limited

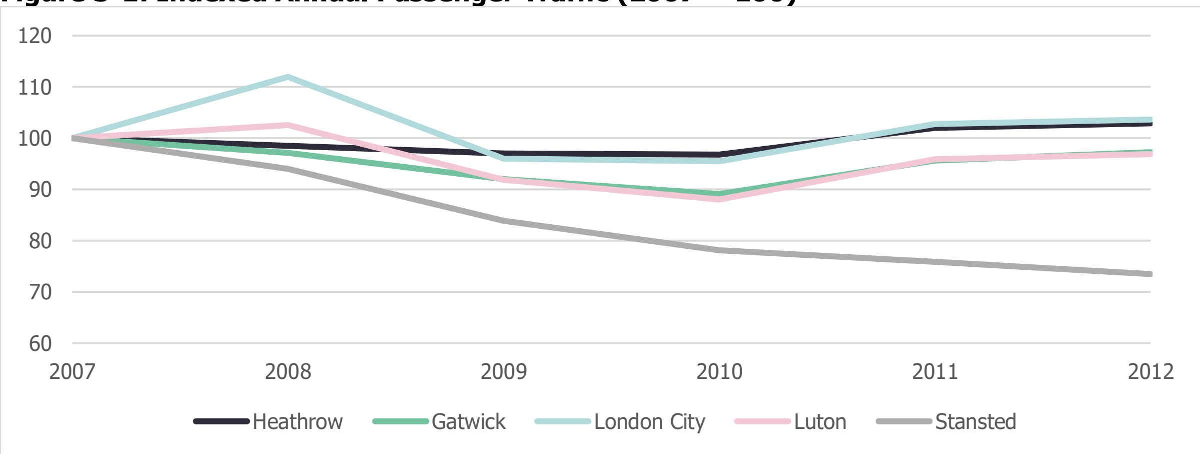
3 Impact on Traffic at Heathrow Airport

Traffic recovery following the pandemic and the impact of the cost of living crisis is inherently different for Heathrow compared to other UK airports and European hubs due to the fundamental differences in passenger and route mix. Specifically, Heathrow has a greater proportion of passengers travelling for business, more full-service carriers, and more long-haul services compared to other UK airports. Heathrow is more resilient to economic crises given its standing as a global travel hub with a substantial route network, and its historically proven ability to attract traffic from other London airports as falling demand frees up scarce capacity.

Heathrow Resilience

As shown in Figure 3-1, traffic at Heathrow remained relatively stable from 2007 to 2012 during the Global Financial Crisis and first years of recovery compared to the other airports in the London airport system. From modelling Heathrow's performance over the Global Financial Crisis, the CAA have assumed that the reduction in the size of the economy will impact demand at Heathrow by 1% from 2023 onwards over the H7 period. Whilst the economic outlook has worsened since the CAA's FP forecast, Heathrow traffic recovery has come closer to pre-pandemic levels than anticipated in the FP. Skylark also understands that the UK Government is considering resuming the 80:20 airport slot rule (which was relaxed during the pandemic) which would further strengthen airline schedules at Heathrow, likely at the expense of other London airports.

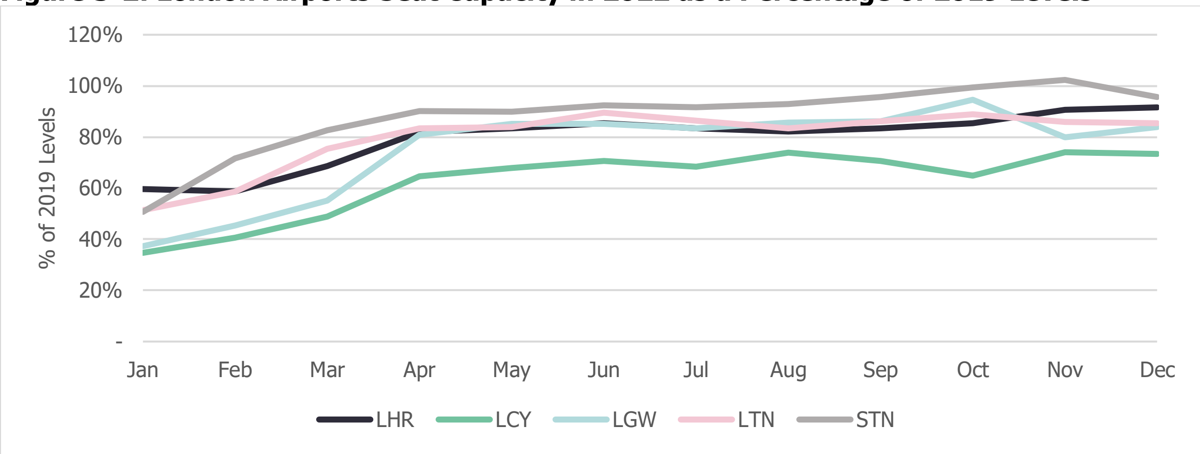
Figure 3-1: Indexed Annual Passenger Traffic (2007 = 100)



Source: CAA UK Airport Data

Heathrow's traffic recovery through 2022 has been broadly similar to the other airports in the London system with the exception of London City where the return of seat capacity relative to 2019 lags the other airports. Stansted's strong recovery is thought to stem from the return of short-haul leisure travel which makes up a significant majority of its traffic, though it is notable that Luton did not see such a robust recovery despite the airport having a similar traffic mix.

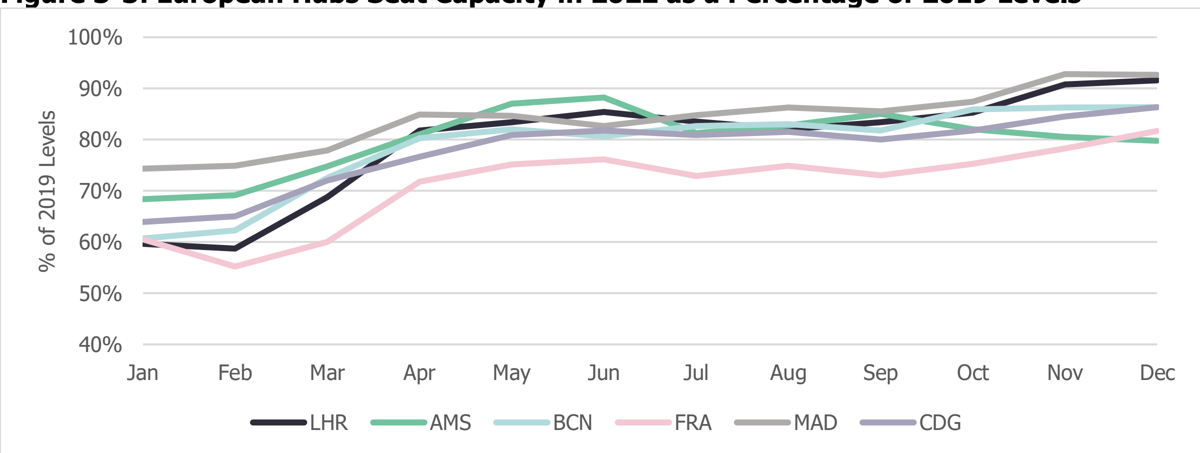
Figure 3-2: London Airports Seat Capacity in 2022 as a Percentage of 2019 Levels



Source: OAG. *Note: London Heathrow Airport ("LHR"), London City Airport ("LCY"), London Gatwick Airport ("LGW"), Luton Airport ("LTN"), Stansted Airport ("STN").*

Compared to comparable European hub airports, Heathrow achieved a rapid recovery in 2022. Heathrow started the year at a low point relative to other European hub airports due to the comparable delay in relaxation of travel restrictions in the UK, as noted in the Eurocontrol Data Snapshot #38.[8] Since the CAA produced their FP forecast, the airport recovered rapidly. By the end of the year, Heathrow has the second highest capacity compared to 2019 levels indicating the resilience of the airport operations and speed of recovery.

Figure 3-3: European Hubs Seat Capacity in 2022 as a Percentage of 2019 Levels



Source: OAG. *Note: London Heathrow Airport ("LHR"), Amsterdam Schiphol Airport ("AMS"), Barcelona Airport ("BCN"), Frankfurt Airport ("FRA"), Madrid-Barajas Airport ("MAD"), Paris Charles de Gaulle Airport ("CDG").*

The CAA believes HAL underestimate the strengthening of Heathrow's share of the London market during the recovery period after the pandemic. The CAA also disagrees with HAL's base case assumption in their December 2022 forecast that Heathrow's passenger traffic will not return to 2019 levels during H7.

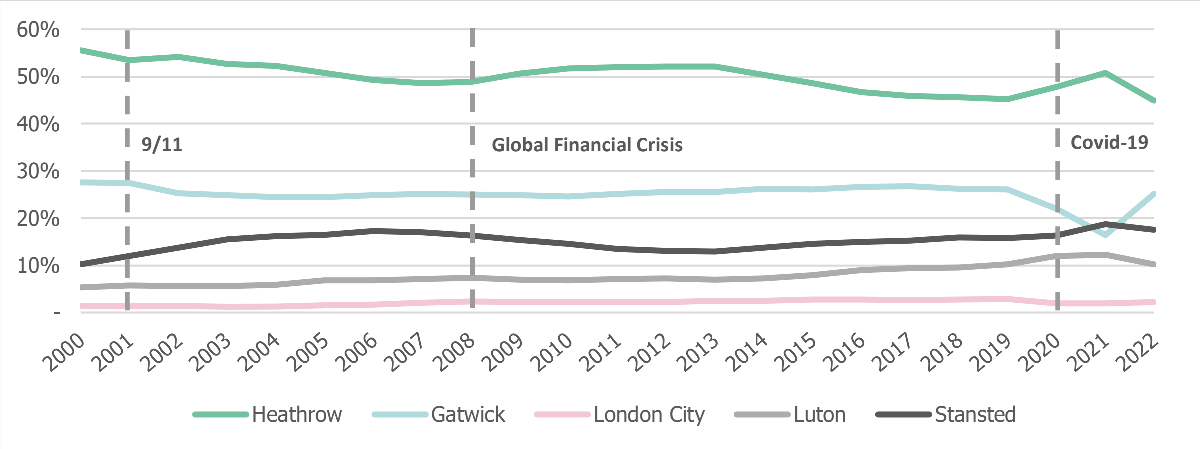
Skylark regards the CAA's views as reasonable and justified by the following evidence:

---

[8] https://www.eurocontrol.int/publication/eurocontrol-data-snapshot-38-path-recovery-intra-european-and-intercontinental-flights

- Historically, previous shocks have forced concentration on Heathrow at the expense of other airports in the London system (as visible in Figure 3-4).
- Heathrow's share of the London airport system increased in the recovery years following major crises, including the 1990s recession, 11th September 2001 attacks, and the Global Financial Crisis.
- Concentration towards Heathrow appears to be occurring again already in 2022, such as with the withdrawal of Virgin Atlantic operations from Gatwick to Heathrow.
- The ending of Norwegian's long-haul services in January 2021 has significantly reduced transatlantic capacity at Gatwick, increasing Heathrow's share of the London transatlantic market. This has been further reinforced by JetBlue's recent commencement of services at Heathrow.

Figure 3-4: London Airport System Market Share



Source: CAA UK Airport Data, Skylark Analysis

However, given the absence of additional runway capacity at Heathrow, Skylark believe in the longer term market share will decrease as the total London demand rises.

4 Forecast Implications

From the decision to provide an update to the FP forecast, the CAA decided to base the new forecast, referred to as their Final Decision ("FD"), on the FP forecast. Skylark believes this approach is suitable for the following reasons:

- The external forecasts considered in the CAA forecast did not consider passengers at Heathrow specifically. The forecasts have also been revised at different times throughout 2022 and the methodologies used are opaque. Instead, the forecasts have been used to validate the outputs.
- The CAA do not have a version of HAL's latest model.

Compared to the FP forecast, the new mid-case forecast is 4.3% higher for the H7 period, with 375.5 million passengers forecast in the update for the H7 period.

The higher growth has largely been driven by stronger-than-projected recovery in passenger traffic volumes over 2022 since the FP forecast was produced, with 2022 passengers approximately 12% higher in the FD forecast versus the FP forecast, and 2023 8.5% higher as the trends from 2022 carry through.

In spite of the economic issues discussed earlier, Heathrow has displayed resilience. Heathrow's recovery is further along at this time than anticipated in the FP. Therefore, the CAA have brought the recovery forwards to align with higher 2022 volumes (61.6 million actual passengers at Heathrow versus 54.8 million forecast in the FP forecast). Better than-anticipated passenger traffic towards the end of 2022 has been used to inform the traffic forecast for 2023, resulting in higher passenger forecasts for 2023 in the FD forecast compared to the FP forecast.

The CAA believe the economic environment will inevitably impact the recovery but will not reverse it. As shown in Table 4-2, the CAA project recovery will continue throughout H7 period, but with passenger levels in later years marginally below those expected in FP due to the materially lower GDP forecasts, with Heathrow still projected to achieve full recovery to 2019 levels by 2025.

From the OBR November 2022 forecast it appears unlikely that the downturn in economic growth will be made up by the end of the H7 period (2026). However, passenger volumes in 2025 and 2026 at Heathrow are unlikely to be affected by economic growth as the airport will be at maximum runway capacity with only limited headroom for ongoing growth through larger aircraft and higher load factor.

Skylark regards the decrease in passenger volumes in 2025 and 2026 in the updated forecast compared to in the FP forecast as reasonable, given the comparative uplift in the earlier forecast years and the economic climate. Total passenger volumes over the H7 period have been projected to be 4.3% higher in the updated forecast compared to the FP forecast. An anticipated recovery by 2025 appears reasonable, if marginally conservative given the historical resilience of Heathrow to economic crises and shocks.

Table 4-1: CAA Heathrow Final Proposals Forecast Key Outputs

	2022	2023	2024	2025	2026	H7 Total
Pax (m)	54.9	67.3	75.4	81.0	81.6	360.2
% Growth		22.7%	11.9%	7.5%	0.8%	
% of 2019	68%	83%	93%	100%	101%	

Source: CAA

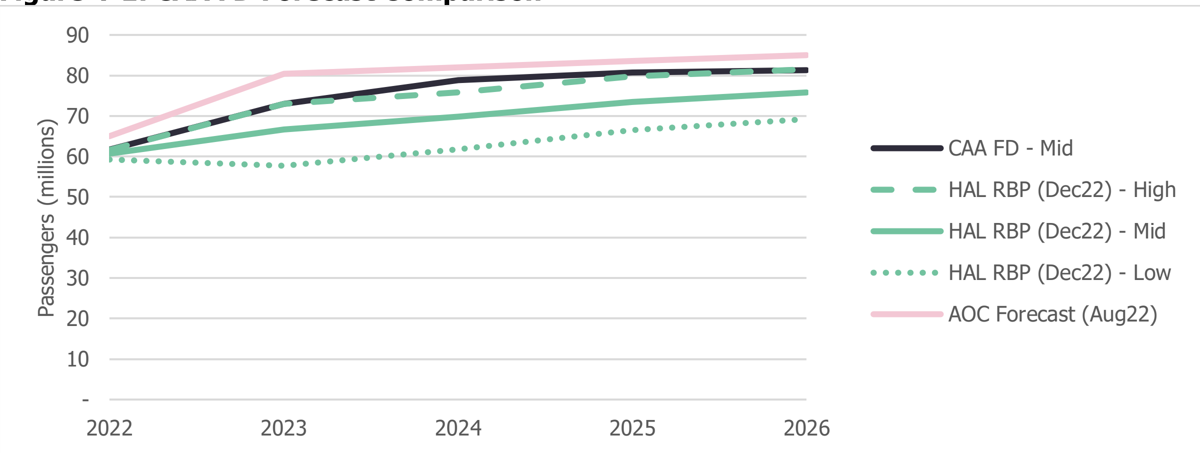
Table 4-2: CAA Heathrow Final Decision Forecast Key Outputs

	2022	2023	2024	2025	2026	H7 Total
Pax (m)	61.6	73.0	78.9	80.7	81.3	375.5
% Growth		18.5%	8.1%	2.2%	0.8%	
% of 2019	76%	90%	98%	100%	101%	

Source: CAA

As visible in Figure 4-1 the CAA FD forecast does not depart far from the HAL December 2022 forecast high case. The CAA's forecast remains slightly below that of AOC's forecast, however, this was produced in August as so does not take into account significant factors influencing GDP forecasts (a key driver of the forecasts), such as the UK mini-budget in September and the autumn budget in November, both heavily influential in economic forecasts for the UK.

Figure 4-1: CAA FD Forecast Comparison



Source: CAA

Business Travel Trends

Skylark understands the CAA have not made adjustments from the FP forecast to the FD forecast's assumptions on business travel trends. Actual data from October was that total traffic had recovered to 84% of 2019 levels. However, business travel is only forecast to recover to 75% of 2019 levels by the end of 2022, according to Advantage Travel Partnership's Global Business Travel Review.[9] Skylark believes this is due to a combination of business travel lagging the overall traffic recovery, and a structural change resulting in lower levels of business travel compared to pre-pandemic. As such, the CAA's approach to adjust business travel down from pre-pandemic levels is seen as vindicated.

Shocks

In both the FP and FD forecasts, the CAA have included a shock factor of 0.87%. In the FD forecast, the factor is applied to 2023 onwards. Note that this *excludes* pandemic risk which is dealt with elsewhere including the new Traffic Risk Sharing mechanism.

[9] https://view.publitas.com/advantage-travel-partnership/gbt-market-report-november-v3/page/1

SKYLARK
consulting group

Dawson House
London
EC3N 2EX
United Kingdom

200 Park Avenue
Suite 1700
New York, New York 10166
United States

Four Embarcadero Center
Suite 1400
San Francisco, California 94111
United States

Skylark Consulting Group Limited

skylarkcg.com