



Comparator Analysis of Aeronautical Revenue

Report for Heathrow
Airport Limited



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HAL has commissioned KPMG to undertake an analysis of Heathrow Airport's aeronautical revenue to assist HAL in its considerations regarding the UK Civil Aviation Authority (**'CAA'**)'s H8 regulatory control period and the CAA Consultation on Working paper on regulatory models (CAP 3195).

The agreed scope of work is included in Annex 1 of this Report. HAL should note that KPMG findings do not constitute recommendations as to whether or not HAL should proceed with any particular course of action.

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Executive summary

Heathrow Airport Limited (HAL) commissioned KPMG LLP to undertake a comparative benchmarking analysis of aeronautical revenue per passenger at Heathrow, comparing Heathrow with thirteen major international airports for the year 2024. The purpose of the report is to illustrate why Heathrow's aeronautical revenue per passenger differs from other major airports, using a structured, evidence-based comparison that supports HAL's engagement with the UK Civil Aviation Authority (CAA) during the H8 regulatory control period and the CAA's consultation on regulatory models (CAP 3195). The analysis is strictly comparative and does not assess efficiency, service quality, allowed returns, or the appropriateness of any airport's charging outcomes.

Purpose and scope

The analysis is designed to provide a meaningful, evidence-based comparison of aeronautical revenue per passenger and to identify the external drivers that explain differences in the headline figures across airports. External drivers are defined as factors that are broadly outside the control of airport management. These include local input costs, tax and policy settings, operating restrictions, and differences arising from airline network choices, including load factors, seat configuration and proportion of widebody aircraft movements. For the purposes of this benchmarking, load factors, seat configuration and proportion of widebody aircraft movements are treated as external drivers because they are primarily outcomes of airline network, fleet, and scheduling decisions.

The scope is limited to aeronautical revenue as publicly reported in company accounts for 2024, alongside published operational data used to calculate aeronautical revenue per passenger. The study does not seek to provide an assessment of each airport's actual published tariffs, nor does it quantify aviation taxes or other charges that are not reflected in airport company accounts. Findings are presented as indicative estimates under a consistent hypothetical scenario and a set of stated assumptions, rather than precise airport-by-airport recalculations.

Approach and methodology

Headline aeronautical revenue per passenger figures are not directly comparable across airports because airports operate in different cost environments, under different policy and regulatory settings, and with different airline operating models. To make the comparison more meaningful, the analysis applies a structured 'like-for-like' approach:

- 1 Baseline calculation:** The study first establishes a baseline aeronautical revenue per passenger for Heathrow and each comparator airport using published financial statements and consistent operational metrics for 2024.
- 2 Normalisation for external differences:** The analysis then applies adjustments to comparator airports, where evidence and sufficiently consistent data are available, to reflect a hypothetical scenario in which each comparator operates in West London under Heathrow-like operating restrictions and a similar airline operating model. In practical terms, the analysis asks what each comparator airport might recover in aeronautical revenue per passenger if it faced Heathrow-type external conditions and airline-driven operating characteristics.
- 3 No adjustment to Heathrow:** Heathrow itself is not adjusted, as it already operates under the relevant local conditions, regulatory and policy environment, and airline operating context being tested in the counterfactual.

Comparator airports were selected based on scale, data availability, operational relevance, and geographic diversity. Adjustments are applied only where the evidence base is sufficiently robust and comparable across the sample.

External drivers considered

The analysis identifies and applies seven adjustments for the following external drivers, subject to data availability and evidential support:

- **Cost of construction:** Airports located in lower-cost construction environments are adjusted to London cost levels. This raises the implied asset base and the associated depreciation and return requirements. This is a major driver of differences relative to several European comparators.
- **Rail investment:** Heathrow's participation in wider rail infrastructure influences its asset base, operating costs and revenue mix. Comparator airports are adjusted, where appropriate, to ensure a consistent treatment of rail participation and its financial impacts.
- **Differences in prices between countries:** The cost of goods, services and labour varies materially across countries, affecting both operating costs and non-aeronautical revenues. To enable robust international benchmarking, these differences are normalised.
- **Tax environment:** Selected differences in national tax regimes and policy settings are normalised where evidence allows. Adjustments include items such as social security contributions, property-related charges and the removal of VAT-free shopping.
- **Operating restrictions:** Airports are subject to varying regulatory constraints that limit activity and capacity. Heathrow's night restrictions are a prominent example. Comparator airports without such limitations are adjusted to reflect operating restrictions and their effects on asset utilisation and throughput.
- **Other revenue:** Airports generate revenue from a range of activities beyond core aeronautical and retail operations. Comparator airports are adjusted to reflect a Heathrow-level of other revenue in a Heathrow-type operating scenario.
- **Airline operating model (treated as external):** Comparator airports are aligned to the airline business model characteristics observed at Heathrow, including a higher proportion of premium and transfer passengers and a higher share of wide-body operations. These elements are treated as external because they are driven by airline network, fleet and scheduling decisions. They influence infrastructure needs, passenger throughput, operating costs and the profile of commercial and aeronautical revenues.

Other drivers, including quality of service, efficiency, and allowed or expected rates of return, are discussed as contextual factors but are not quantified as adjustments within the analysis.

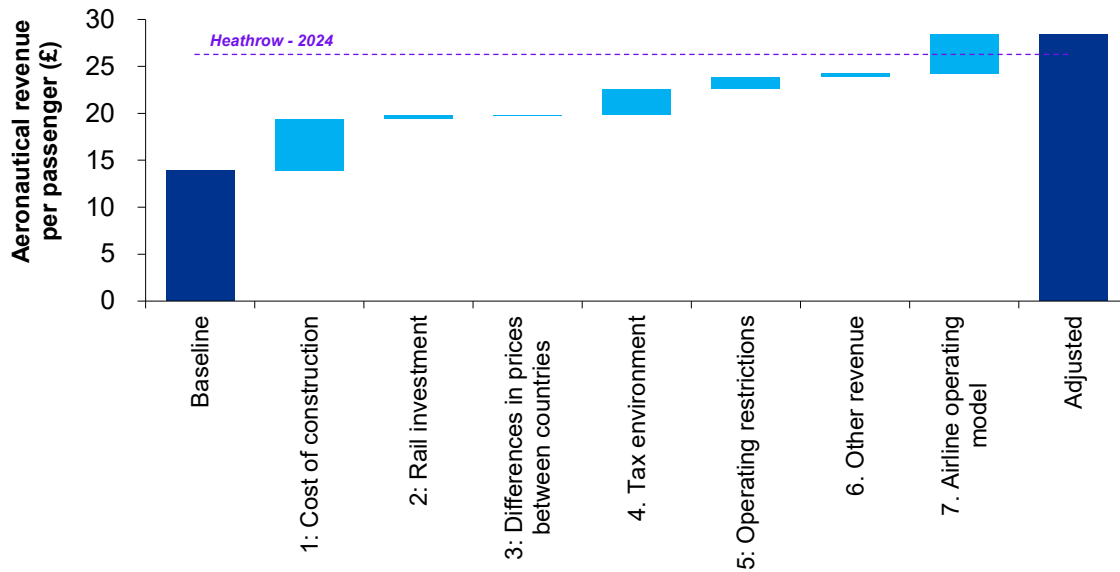
Baseline and adjusted results

Heathrow's aeronautical revenue per passenger in 2024 was £26.57 as reported in published regulatory accounts. The comparator group average, prior to adjustment, was £13.94 per passenger, with individual airports ranging from £7.27 to £19.19. On a simple headline comparison, Heathrow appears materially above the comparator average.

After applying evidence-based adjustments to comparators to reflect Heathrow-like external conditions and airline-driven operating characteristics, the comparator group average increases to £28.44, which is marginally above Heathrow's observed figure. The range of adjusted aeronautical revenue per passenger across the comparator group is £20.47 to £34.32, with European airports and those handling more than 50 million passengers per year tending to sit in the higher range.

Figure 1 provides a breakdown of impacts by driver, averaged across all airports in the sample.

Figure 1: Breakdown of average driver impact (2024 prices)



The largest effects are associated with construction costs and airline operating model. Tax environment and operating restrictions are the next most significant drivers. This reinforces the importance of cost environment, infrastructure intensity, operating constraints, and airline network strategies when interpreting aeronautical revenue per passenger comparisons.

Conclusion

This report provides an evidence-based explanation of why Heathrow’s aeronautical revenue per passenger differs from other major airports. By normalising for key external drivers, including local costs, policy and operating constraints, and airline-driven operating characteristics (load factors, seat configuration, proportion of widebody aircraft movements and passenger mix), it offers a benchmark for interpreting Heathrow’s aeronautical revenue performance in an international context, while maintaining clear boundaries on what is not assessed by the study. Once these external factors are normalised, Heathrow’s aeronautical revenue per passenger is broadly in line with its international peers. This alignment arises from the normalisation framework and should not be interpreted as evidence regarding efficiency, service quality, allowed or expected returns, or the appropriateness of Heathrow’s charging outcomes.

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1 Introduction

1.1 This report

This report presents the findings of a benchmarking analysis of aeronautical revenue per passenger at Heathrow Airport and thirteen comparator airports for the year 2024. The primary objective is to identify and explain the external drivers of differences in aeronautical revenue per passenger between Heathrow and comparator airports.

The study was commissioned by Heathrow Airport Limited and undertaken by KPMG LLP. It is intended to provide an evidence-based, illustrative comparison to inform understanding of the factors influencing aeronautical revenue across major international airports. The analysis is strictly comparative and does not assess airport efficiency, service quality, allowed or expected rates of return, or the appropriateness of individual charging outcomes.

1.2 Scope and purpose

The analysis focuses exclusively on aeronautical revenue per passenger as reported in company accounts for the year 2024, the most recent period for which full data is available for all airports in the sample.

The study does not seek to replicate each airport's published tariffs or charging structures, nor does it quantify aviation taxes or other charges that are not reflected in airport company accounts (for example passenger taxes such as Air Passenger Duty). The findings are therefore intended to be indicative, supporting interpretation of underlying drivers rather than providing precise airport-by-airport recalculations.

1.3 Approach

The benchmarking approach is structured as follows:

- Section 2 summarises the context for aeronautical revenue, including the regulatory 'building blocks' at Heathrow and observed trends since 2014.
- Section 3 describes the methodology for benchmarking, including the purpose of the analysis, challenges of making like-for-like comparisons across airports and the framework that underlines the approach.
- Section 4 details the selection of comparator airports, approach to data collection and the baseline aeronautical revenue per passenger.
- Section 5 discusses the key quantified drivers of difference, supported by evidence and the rationale for adjustments made in the analysis.
- Section 6 provides details on the adjustments included within the analysis reflecting the evidence along with a discussion of interacting impacts associated with changing passenger numbers.
- Section 7 discusses additional drivers of difference that are likely to influence aeronautical revenues but have not been included in the analysis including efficiency, service quality and rate of return.
- Section 8 summarises findings, insights and conclusions.

The analysis follows a '**West London, Heathrow-like scenario**' approach. In summary, the analysis starts with reported 2024 aeronautical revenue per passenger for each airport and then applies a consistent set of adjustments to comparator airports to reflect Heathrow-like conditions. No adjustment is made to Heathrow.

1.4 Key features and limitations

The following important features and limitations of this analysis should be noted:

- **Illustrative nature:** The analysis is intended to be illustrative, providing comparative insights rather than definitive conclusions. Airports have evolved over time in response to local conditions which may not be fully captured in a benchmarking exercise.
- **Data consistency:** The study relies on published financial and operational data. Definitions, reporting standards and data availability vary across jurisdictions, which may affect comparability. KPMG has relied on public sources without independent verification. Where direct data are unavailable, documented assumptions and proportional allocations have been applied. Adjustments are applied only where evidence and sufficiently consistent data are available across the sample.
- **Single-year focus:** The analysis covers only the year 2024. Findings may not be representative of other periods or future trends.
- **Comparator selection:** The airports included were selected for their relevance, scale, and data availability. The sample may not capture the full diversity of global airport operations, and some airports are part of larger groups, complicating the isolation of individual cost and revenue figures.
- **Interpretation of analysis:** The analysis and findings should be interpreted as indicative only.

2 Context

2.1 Introduction

This section sets out the context for interpreting aeronautical revenue at airports, focusing on Heathrow. It describes the principal sources of airport revenue, the regulatory framework shaping Heathrow's aeronautical revenue, and recent trends. The section concludes with the implications for the benchmarking exercise.

2.2 Overview

Airport revenue is typically divided into two main categories:

- **Aeronautical revenue:** Revenue derived from aviation services, including landing fees, aircraft parking, stand usage, and terminal access. These charges are generally applied on a per-passenger or per-aircraft basis and may vary according to aircraft weight, time of day, use of airside infrastructure, and environmental or noise considerations.
- **Non-aeronautical revenue:** Revenue from passenger-related activities such as car parking, retail concessions, and advertising, as well as non-passenger activities including property and commercial developments.

Reporting practices for these categories differ across airports and jurisdictions, affecting the comparability of financial data.

2.3 Building blocks of aeronautical revenue at Heathrow

Heathrow is deemed to have sufficient market power to be subject to economic regulation by the CAA. Aeronautical revenue is therefore determined as part of a price control process, which sets the amount that can be recovered from charges. The basis for the regulatory approach is the Regulated Asset Base (RAB) model with a single till.

The Heathrow regulatory framework is built on six key components, or 'building blocks':

- Depreciation
- Return on investment
- Operating costs
- Tax and subsidy
- Non-aeronautical revenue
- Passenger numbers

Each of these building blocks is subject to scrutiny during the regulatory process. Their interaction determines the annual aeronautical revenue allowance for Heathrow. For example, in 2024 the gross revenue requirement was £3,446 million, with commercial and cargo revenues deducted to arrive at a net revenue requirement of £2,122 million (Table 1). Percentages shown for individual cost and return components are expressed relative to the net revenue requirement and therefore do not sum to 100% because they are offset by non-aeronautical and other revenues under the single till framework.

This report uses Heathrow's regulatory building-block structure as a conceptual framework for interpreting reported aeronautical revenue per passenger across the comparator set, recognising that other airports may operate under different regulatory and ownership arrangements.

Table 1: Net Revenue Requirement (NRR) for Heathrow Airport¹ (2024 Prices)

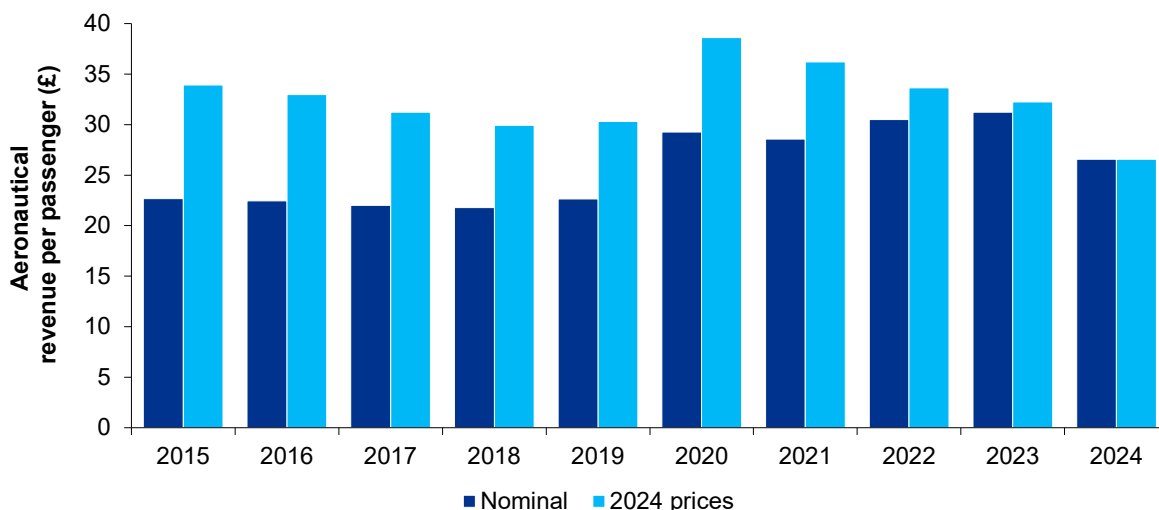
	2024	% of NRR
Operating cost (£m)	1,487	70%
Depreciation (£m)	1,131	53%
Asymmetric risk allowance (£m)	23	1%
Allowed return Inc. Tax (£m)	805	38%
Gross Revenue Requirement (£m)	3,446	
Commercial revenues Inc. Other Regulated Charges (ORC)s (£m)	-1,307	-62%
Cargo revenues (£m)	-17	-1%
Net Revenue Requirement (NRR) (£m)	2,122	
Passengers (m)	79	
Unprofiled charge (£/Pax)	26.92	
Profiling and other adjustments (£/Pax)	0.35	
Actual charge (£/Pax)	26.57	

Note: The regulatory context described here is specific to Heathrow. Other airports in the comparator set may operate under different regulatory regimes, which can affect the comparability of results. Accordingly, the benchmarking analysis does not assume that Heathrow’s regulatory model applies at comparator airports. Instead, it adjusts comparator outcomes to illustrate what they might look like under a Heathrow-like (West London) scenario, subject to the data limitations described in Section 1 and Section 3. The actual charge covers both passenger and cargo revenue.

2.4 Trends in aeronautical revenues per passenger

Figure 2 shows, over the past decade, aeronautical revenue per passenger at Heathrow has fluctuated in response to regulatory settlements, passenger growth, and external shocks (COVID-19).

Figure 2: Aeronautical revenue per passenger at Heathrow (2015-2024)²



Source: Heathrow Annual Accounts

¹ CAA H7 Regulatory settlement – figures adjusted to 2024 prices using ONS CPI Index.

² Real prices have been estimated using the ONS RPI Index up to 2022, and then the ONS CPI Index after 2022.

Aeronautical revenue per passenger at Heathrow declined between 2015 and 2018 in both real and nominal terms, reflecting the Q6 regulatory settlement and a period of steady passenger growth. In 2019, the airport's expansion programme began to influence financial performance, but the most significant impact came from the COVID-19 pandemic, which sharply reduced passenger numbers. Since 2023, aeronautical revenue per passenger has fallen with passenger growth and in accordance with the Civil Aviation Authority's H7 regulatory settlement.

2.5 Implications for the benchmarking study

The structure of aeronautical revenue at Heathrow is shaped by a combination of regulatory requirements and local factors. Comparator airports will be subject to different drivers, including local economic conditions, operating restrictions and airline operating models. These differences mean that direct comparisons between airports should be approached with caution. The benchmarking analysis therefore seeks to identify and, where possible, adjust for these external drivers of difference using the West London, Heathrow-like scenario approach, to provide a more meaningful comparison of aeronautical revenue per passenger.

3 Methodology

3.1 Introduction

This section describes the methodology adopted for the benchmarking of aeronautical revenue per passenger across Heathrow and comparator airports. It sets out the purpose of the work, identifies the inherent challenges in making meaningful comparisons, presents the conceptual framework for the analysis, and sets out the step-by-step approach used to ensure results are as robust and transparent as possible.

3.2 Purpose

The purpose of the analysis is to provide a meaningful, evidence-based comparison of aeronautical revenue per passenger between airports by quantifying the contribution of a defined set of external drivers to observed differences in the headline metric.

In this report, 'external drivers' are factors that are broadly outside the control of airport management and are expected to influence cost recovery requirements and revenue per passenger. These include local input costs, local taxes and policy settings, operating restrictions, and airline-driven operating characteristics (including load factors, seat configuration, passenger type and aircraft mix). For the purposes of this benchmarking, differences in hub operations and passenger mix are treated as external because they are primarily outcomes of airline network, fleet and scheduling decisions.

The analysis tests a clear counterfactual: what would comparator airports' aeronautical revenue per passenger look like if they faced Heathrow-like external conditions and airline-driven operating characteristics. This provides an adjusted benchmark that helps isolate the effect of the external drivers quantified within the study.

Other drivers are deliberately excluded from quantitative adjustment, including efficiency, service quality and allowed or expected rates of return. Any residual differences after applying the external adjustments should therefore be interpreted as potentially reflecting these excluded internal drivers and or data and reporting limitations, rather than forming part of the quantified results.

3.3 Principles

Three principles inform the approach to developing an adjusted benchmark; these are:

- **Evidence-based adjustments:** Each adjustment within the analysis needs to be supported by evidence, and if evidence is not available adjustments cannot be made.
- **Link to cost, assets and revenue drivers (building-block logic):** The analysis assumes that contextual differences between airports primarily affect operating costs, asset requirements (and therefore depreciation and return), taxation and subsidies, passenger numbers, and non-aeronautical revenue, rather than directly affecting aeronautical revenue. This reflects the Heathrow 'building blocks' framework described in Section 2.3.
- **Consistent 'adjusted' scenario:** Adjustments are applied to comparator airports to reflect a consistent reference point, namely a 'West London, Heathrow-like scenario', to support comparability.

These principles inform both the design of the framework and the selection of adjustments.

3.4 Challenges in making like-for-like comparisons

Recognising there are differences between airports, there are additional challenges when undertaking benchmarking analysis between airports; this includes:

- **Inconsistent reporting:** Financial reporting requirements differ by jurisdiction, leading to variations in the availability, granularity, and definitions of reported data. Reporting periods may also differ.
- **Ownership structures:** Many airports are part of larger groups or are government-owned, making it difficult to isolate the financial performance of individual airports and raising the possibility of cross-subsidisation.
- **Other activities:** Airports may undertake a wider set of activities than just passenger operations, for example freight, property, and ground handling. Certain airport reporting does not always allow for differentiation of activities.
- **Regulatory models:** Airports may operate under single till or dual till regimes, or other regulatory and commercial arrangements. This can influence reported aeronautical and non-aeronautical revenue and the extent of cross-subsidy, affecting comparability.
- **Step changes in capacity:** Airport infrastructure is typically expanded in large increments, resulting in significant one-off changes in the asset base rather than gradual year-on-year variation. This affects the value of the asset base across comparators which can be relatively high where new assets have been delivered or low where assets are highly depreciated. Passenger numbers can also become constrained until a step change in capacity is unlocked meaning marginal changes in asset utilisation are not feasible. An example of this step change profile is Singapore Changi opened Terminal 4 in 2017 which provided an additional 16 million passenger per year capacity³.
- **State support for capital investment:** The extent and transparency of government support for airports investment in new infrastructure and the relationship of this on ongoing aeronautical revenue requirements is complex and challenging to assess.
- **Complex interactions:** The interplay between internal and external factors is often non-linear, and second-order effects may arise if airports were to operate under different circumstances. For example, if the cost of construction was high in a given jurisdiction it may impact the design of terminals with a corresponding impact on operating costs.

These complexities mean that benchmarking results should be interpreted with caution. The analysis addresses this by **being explicit about assumptions and applying adjustments consistently**, and only where supported by evidence.

3.5 Framework for considering differences

Recognising the purpose of the benchmarking, principles of approach, and the challenges outlined, the analysis is structured around making adjustments in relation to three main themes, each linked to the regulatory building blocks of aeronautical revenue:

- **Theme 1: Differences in the type and value of assets** (e.g., cost of construction, investment in rail infrastructure)
- **Theme 2: Differences in the operating environment** (e.g., local price levels, tax environment, operating restrictions, other revenue streams)
- **Theme 3: Differences in the airline operating model** (e.g., mix of carriers, aircraft types, passenger profiles)

These themes are mapped to the building blocks (depreciation, return on investment, tax and subsidy, operating costs, non-aeronautical revenue, and passenger numbers) to identify where adjustments provide a way to make more meaningful comparisons (Table 2). For example, a higher cost of construction in one location will increase depreciation and return on investment requirements, while a

³ Singapore Changi, 2017, Taking Flight: The Changi Airport Terminal 4 Story ([Link](#))

different airline operating model may affect both asset requirements and passenger spending patterns.

Table 2: Mapping of themes to the regulatory building blocks

	Depreciation	Return on investment	Tax and subsidy	Operating costs	Non-Aeronautical Revenue	Passenger numbers
Theme 1 Differences in type and value of assets	✓	✓				
Theme 2 Differences in operating environment			✓	✓	✓	✓
Theme 3 Differences in airline operating models	✓	✓		✓	✓	✓

Note the mapping above provides the key interactions, however there are potentially additional secondary impacts, for example a change in assets can impact operating costs.

3.6 Analytical approach

The benchmarking analysis follows a structured four-step process:

- **Step 1: Selection of comparator airports.** Identify a sample of airports broadly comparable to Heathrow in terms of scale, geography, and data availability.
- **Step 2: Identification of drivers of difference.** Identify the external drivers expected to influence aeronautical revenue per passenger and define how each driver maps to the building blocks.
- **Step 3: Application of adjustments.** Apply evidence-based adjustments to comparator airports to reflect a hypothetical ‘West London, Heathrow-like scenario’. Adjustments are applied to the relevant building blocks and related inputs (for example costs, assets, passenger throughput and non-aeronautical revenue), and the implied aeronautical revenue per passenger is then recalculated. Heathrow is not adjusted.
- **Step 4: Presentation of findings.** Calculate and present the adjusted aeronautical revenue per passenger for each airport, supported by sensitivity analysis and discussion of key insights.

The adjusted results are not intended to suggest that Heathrow’s regulatory regime applies to other airports, nor to restate charges under a Heathrow price control. The ‘West London, Heathrow-like scenario’ is a benchmarking construct used to isolate the effects of quantified external drivers under a consistent set of assumptions.

The analysis builds on publicly available annual reports. These are used to construct a baseline reflecting the six building blocks. The analysis then applies different drivers of the difference the baseline to develop an adjusted aeronautical revenue per passengers.

A driver may require an adjustment that increases a given building block, for example an increase in operating costs, would then increase the aeronautical revenue requirements. Conversely, a driver may decrease the building block, which would then reduce the aeronautical revenue requirement. The analysis applies each of these drivers, and the cumulative effect of these is the adjusted aeronautical revenue per passenger. Certain drivers have more complex interactions, particularly where they affect passenger throughput. Where passenger numbers change, the analysis applies stated elasticities to reflect consequential impacts on operating costs, non-aeronautical revenue and asset requirements. This is discussed in Section 6.

4 Comparator airports

4.1 Introduction

This section describes the selection of comparator airports, the approach to data collection and normalisation, and the establishment of baseline aeronautical revenue per passenger figures. The aim is to ensure that the benchmarking analysis is grounded in a robust and transparent dataset.

4.2 Comparator airports

The purpose of the study is to explore the differences in aeronautical revenue per passenger by comparing Heathrow and a defined set of comparators. Comparator airports were selected to ensure relevance and comparability with Heathrow, while also providing sufficient variation in geography and operating context. The selection criteria were:

- **Scale:** Airports with high passenger volumes and air traffic movements (ATMs) were prioritised.
- **Geographical Variation:** The sample includes both European and non-European airports to capture a range of operating environments including in North America, Asia and Australia.
- **Data Availability:** Airports were required to have published financial and operational data for the year 2024. This needs to be supported by data to enable the adjustments to be applied, for example being included within relevant indices (i.e. international cost of construction index).
- **Operating Activities:** Airports where non-airport activities form a significant part of the business were excluded to maintain focus on core airport operations.
- **International focus:** Airports with a predominantly domestic passenger base were not prioritised, to maintain relevance to Heathrow’s internationally focused traffic mix and hub-related operating characteristics.
- **Economic conditions:** High volume airports exist in China, India, Thailand and Turkey but were not considered due to observed significant differences in economic fundamentals, for example GDP per capita which is significantly lower in each. Given these significant differences we may expect additional challenges in trying to draw comparisons around costs, retail spending and production functions.

The airports selected for comparison are shown in Table 3.

Table 3: Comparator airports

European	Rest of World
Amsterdam (AMS)*	Los Angeles (LAX)
Frankfurt (FRA)*	Hong Kong (HKG)
Madrid (MAD) *	Melbourne (MEL)*
London Gatwick (LGW)	New York (JFK)
Dublin (DUB)*	Toronto (YYZ)
Zurich (ZRH)	Singapore (SIN)
Copenhagen (CPH)	

Note: * Group airport

As part of the wider screening, additional airports were considered including Paris Charles de Gaulle (CDG), Sydney (SYD), Tokyo (HND), Doha (DOH), Dubai (DXB), Denver (DEN) and Atlanta (ATL). These were not prioritised due to one or more of: the unavailability of comparable 2024 airport-level accounts, exclusion from indices required for key adjustments, a very high domestic passenger share, complex ownership and group structures, or the inability to isolate airport-level financial performance for the purpose of this study.

The use of thirteen comparators in this study is broadly reflective of the scale of other regulatory comparisons undertaken in the UK. Ofwat monitor and compare the sixteen water and waste companies in England and Wales.⁴ ORR undertake ongoing monitoring across maintenance and renewals expenditure for the five network rail regions and 35 maintenance delivery units,⁵ whilst a recent study from the ORR on comparing operation and support costs for Network Rail relied on seven international comparators.⁶

4.3 Data assembly

Data for the selected airports were assembled from a range of publicly available sources, with each key variable collected as follows:

- **Financial data (aeronautical and non-aeronautical revenue):** Sourced from published annual reports and audited financial statements of each airport operator.
- **Passenger numbers:** Extracted from annual reports and official airport traffic statistics, typically published on airport websites.
- **Aircraft movements and types:** Obtained from industry databases (iba.aero), supplemented by airport annual reports and regulatory filings.
- **Operating hours:** Collated from FlightStats.com and verified against information provided on airport websites.
- **Number of airport lounges:** Determined through direct review of airport websites and publicly available terminal maps.

All financial figures were initially converted to GBP for comparability and normalised to a consistent price basis.⁷ The report documents the conversion assumptions (including exchange rate basis and price year) and the treatment adopted where reporting definitions differ between airports. There is recognition that using a foreign currency exchange rate at specific point in time has limitations, notably because the rate fluctuates over time, and the profile of airport investment will have varied by comparator.

A summary of key statistics is set out in Table 4, which highlights the range within the sample. Heathrow is slightly larger than the largest comparator by passengers in 2024, and the comparator set therefore provides a relevant peer group while recognising Heathrow's position at the upper end of the scale distribution.

⁴ Ofwat, 2025, Water company performance report 2024-25 ([Link](#))

⁵ ORR, 2024, Cost Benchmarking of Network Rail's maintenance and renewals expenditure ([Link](#))

⁶ ORR, 2023, Benchmarking Network Rail Operations & Support Costs ([Link](#))

⁷ HMRC: Foreign Currency Exchange Average Rate between 1 January 2024 and 31 December 2024 was applied with the following: AUD 0.52, CAD 0.57, CHF 0.89, DKK 0.11, EUR 0.85, HKG 0.10, SDG 0.59, USD 0.78.

Table 4: Summary of comparator airport key statistics (2024)

Key statistic	Heathrow	Min	Average	Max
Annual Passengers (millions)	84	30	52	77
Annual Air Traffic Movements (thousands)	476	240	362	514
Aeronautical Revenue (£m)	2,208	274	742	1,557
Non-Aeronautical Revenue (£m)	1,351	261	557	1,088
Operating costs exc. Depreciation (£m)	1,571	200	649	1,066
Total Assets (£m)	13,774	1,308	6,154	21,603

Source: Airport Annual Accounts, Official Airport Traffic Statistics, Heathrow Regulatory Accounts

Note: (1) Heathrow's figures in Table 4 are taken from published Regulatory Accounts for 2024. There is difference between these actual figures and the building blocks figures as set out in Table 1. This is because Table 1 provides forecasts from the regulatory settlement which have been uplifted for inflation. (2) For Total Asset values, Heathrow's net Fixed Assets are included, recognising this differs from the Regulatory Asset Base (RAB).

4.4 Treatment of airport groups

Five airports in the sample are part of larger airport groups. In cases where group financial accounts did not provide a breakdown for individual airports, revenues were allocated in proportion to each airport's share of group passengers, and costs were allocated according to the share of group employees. This approach assumes that aeronautical revenue per passenger is broadly consistent across the group, although it is recognised that this introduces a degree of uncertainty.

The implications of this approach should be read as follows:

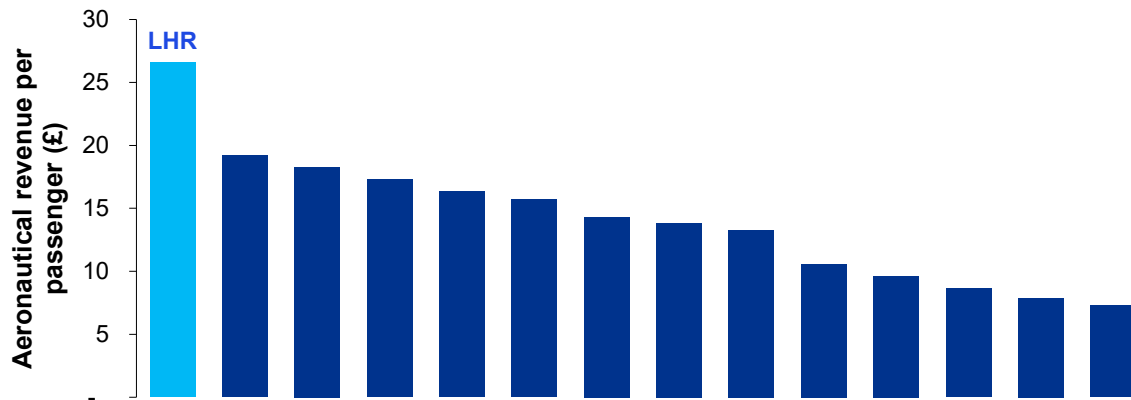
- The allocation method is a pragmatic approach to enable inclusion where airport-level accounts are not published.
- It is likely to be more reliable for aeronautical revenues than for non-aeronautical revenues, where commercial mix and property activities may differ materially across airports within a group.
- Cost allocation by employee share provides a proxy for the operating cost base, but it may not reflect differences in outsourcing, wage levels, or the extent of shared services.

Given these limitations, results for group airports should be interpreted with additional caution, and residual differences after adjustment may partly reflect allocation effects rather than underlying operating differences.

4.5 Baseline aeronautical revenue per passenger

The baseline aeronautical revenue per passenger for each airport was calculated using the normalised financial data for 2024. Heathrow's baseline aeronautical revenue per passenger is highlighted in Figure 3 for reference, while comparator airports are anonymised for confidentiality.

Figure 3: ‘Baseline’ Aeronautical Revenue per Passenger in 2024 (2024 prices)



Source: Airport Annual Accounts

Note: The airport comparators are anonymised with Heathrow highlighted

Heathrow’s aeronautical revenue per passenger was £26.57, compared to an average of £13.94 across the comparator group (a difference of 48%). When excluding the five group airports the average is £15.39 (a difference of 43%). The closest comparator recorded £19.19 per passenger, 28% lower than Heathrow.

These baseline figures provide the foundation for the subsequent benchmarking analysis of the factors potentially contributing to the differences in aeronautical revenue per passenger.

5 Drivers of difference

5.1 Introduction

This section identifies the quantified external drivers of differences in aeronautical revenue per passenger, grouped under three themes: differences in the type and value of assets, differences in operating environment, and differences in airline operating models. Each driver is linked to one or more of the Heathrow ‘building blocks’ to show the channels through which the driver is expected to affect costs, assets, passenger throughput and the resulting aeronautical revenue per passenger.

For the avoidance of doubt, this does not assume Heathrow’s regulatory regime applies at comparator airports. The building-block structure is used as an organising framework to support a consistent interpretation of how external drivers affect aeronautical revenue per passenger.

5.2 Summary of the drivers

Table 5 summarises the seven principal drivers quantified in this analysis, grouped under three overarching themes. For each driver, the table shows a brief description of the driver and indicates its relevance to the benchmarking adjustments. The purpose of this framework is to make clear (a) which external factors are being normalised for, (b) the evidence base used to support each adjustment, and (c) the extent to which baseline differences remain after these adjustments are applied.

Table 5: Quantified Drivers of Aeronautical revenue

Theme	Driver	Description
Theme 1: Differences in type and value of assets	1. Cost of construction	Local construction costs drive asset values, depreciation, and returns.
	2. Rail investment	Inter-terminal and onward rail assets add to the asset base and operating costs (with offsetting impacts on the wider revenue mix where relevant).
Theme 2: Differences in operating environment	3: Price differences	PPP normalises operating costs and non-aeronautical revenue across jurisdictions.
	4: Tax environment	Social security and property tax impacts; treatment of VAT-free shopping.
	5: Operating restrictions	Operational caps and night restrictions affect asset utilisation and passenger throughput.
	6. Other revenue	Non-aeronautical revenue outside retail, for example property and other commercial income, where separable.
Theme 3: Differences in airline operating models	7: Operating model	Hub vs point-to-point mix affects aircraft type, seat density, load factors and in-terminal spend. These are treated as external drivers because they are primarily outcomes of airline network, fleet and scheduling decisions.

In addition to the above drivers, there are other difference that may exist, these are recognised but not quantified. These factors may contribute to any residual variation between airports following adjustment for external factors. These drivers include, for example:

- Quality of service
- Efficiency
- Rate of Return

A discussion of the approach to adjusting for the quantified drivers is set out in the following sections, whilst a discussion of the non-quantified drivers is set out in Section 7.

5.3 Driver 1: Cost of construction

Airports are capital intensive. The delivered cost of airfield and terminal infrastructure varies materially by location and is typically higher in London than in most comparator cities. Higher construction costs tend to increase the value of construction-related assets and, in turn, increase depreciation and the return component associated with that asset base. To reflect a West London scenario, the analysis adjusts comparator airports' construction-related asset bases using a recognised construction cost index and then recalculates the affected building blocks, including depreciation and the return on investment.

5.3.1 Evidence of construction costs

The persistently high cost of construction in the UK is well documented. For example, the National Infrastructure Commission's review of cost drivers in UK projects concluded that 'infrastructure costs are too high'.⁸ The Farmer Review highlighted persistent challenges in the labour market and productivity.⁹ HM Treasury and Infrastructure UK's Infrastructure Cost Review found that the UK is 'more expensive than its European peer group', with cost differences ranging from 10% to over 100% for major infrastructure projects.¹⁰

To assess differences in construction costs between Heathrow and comparator airports, the analysis considers two widely recognised and publicly available indices:

- **Arcadis International Construction Cost (ICC) Index:** The Arcadis ICC Index compares the relative costs of delivering equivalent building functions across 100 cities worldwide. It covers 20 building types across four categories: (i) Industrial and logistics (ii) Commercial office and retail (iii) Health and education, and (iv) Residential and hotels. The index is based on a survey of construction costs.
- **Turner & Townsend International Construction Market Survey (ISMC):** The ISMC reports average construction costs per square metre for 11 building types, including residential (e.g., townhouses, apartments) and commercial (e.g., CBD offices, hotels, distribution centres). While comprehensive, its coverage is more focused on residential and commercial projects and does not include all cities in the comparator set.

Table 6 sets out the 2024 index values for each airport location, relative to London.

⁸ National Infrastructure Commission, 2024, Cost drivers of major infrastructure projects in the UK [Link](#)

⁹ The Farmer Review of the UK Construction Labour Market, 2016 [Link](#)

¹⁰ HM Treasury and Infrastructure UK, 2010, Infrastructure Cost Review [Link](#)

Table 6: International construction cost indices, relative to London

City	Arcadis ICC Index (2024)	Turner & Townsend ISMC (2024)
London	100	100
Zurich	90	113
New York	88	128
Copenhagen	81	N/A
Hong Kong	81	101
Los Angeles	72	109
Dublin	73	84
Singapore	65	70
Toronto	61	67
Frankfurt	60	77
Melbourne	52	59
Amsterdam	45	75
Madrid	35	49

London is ranked first globally for construction costs in the 2024 Arcadis ICC report. The Turner & Townsend ICMS provides an alternative perspective using a different methodology and market coverage, and indicates that several markets, particularly in the United States and Switzerland, can exhibit higher build costs than London depending on the building type and metric used.

The Arcadis ICC Index is adopted as the primary evidence base for this study because:

- It includes all international cities in the comparator airport sample, whereas the Turner & Townsend ISMC does not.
- It covers a broader range of building types, including public infrastructure across health and education, making it more applicable to airport developments.
- The Arcadis index has shown consistent relative rankings over time; for example, the 2016 edition also placed London, New York, Hong Kong, and Copenhagen among the most expensive cities, with Madrid, Amsterdam, and Melbourne significantly lower.

For intra-UK comparisons, such as between Heathrow (London) and Gatwick (South East), the analysis also references the BCIS Index location factor, which consistently shows London as having the highest construction costs within the UK.¹¹

5.3.2 Application of the construction cost adjustment

The analysis assumes that if comparator airports were located in West London, they would also face the higher construction costs observed in London. To reflect this, each comparator airport’s asset base is adjusted using the Arcadis International Construction Cost Index, scaling it pro-rata relative to London.

Importantly, the uplift is applied to 85% of the reported asset base, recognising that not all assets are directly related to construction costs (for example, plant and certain equipment are excluded from this adjustment).¹²

This adjustment has two principal effects:

- **Depreciation:** The increased (adjusted) asset value results in a higher annual depreciation charge, calculated using the airport’s reported asset lives.

¹¹ BCIS, 2019, New BCIS quarterly review of building prices ([Link](#))

¹² Based on Heathrow’s reported assets including Terminals, Airfields, and Assets in the Course of Construction and Investment Properties.

- **Return on investment:** The uplifted asset base also increases the return component associated with the asset base within the building-block framework. To avoid introducing assumptions about different allowed or expected rates of return, the analysis holds each comparator’s reported return rate constant and scales the absolute return amount in line with the uplifted asset value.

This approach makes sure that both the cost recovery for asset depreciation and the required return on capital are benchmarked on a consistent, London-equivalent basis across all comparator airports, while acknowledging that not all assets are subject to construction cost differentials.

It is important to recognise the limitations of this adjustment, notably that construction costs will only impact a proportion of assets, and over time construction costs may vary within a specific location. This is important as airports develop in step changes and the age of assets at a given airports differs. The consistency in the Arcadis index over time provides some mitigation to this given the comparators have broadly stayed in relative order in the Index but this challenge should be noted.

5.4 Driver 2: Rail investment

Rail at airports comprises two distinct elements: (i) inter-terminal systems that move passengers between terminals airside/landside, and (ii) onward rail connections that link the airport to the wider city or region. Heathrow’s participation in rail is more extensive than most comparators. It owns and operates Heathrow Express, contributed financially to the Elizabeth line, and runs an airside track transit system (Table 7). These assets increase the operating asset base and add ongoing operating costs, but they also generate non-aeronautical revenue. In a West London scenario, comparator airports would be expected to make similar contributions to onward rail connectivity.

Table 7: Summary of Heathrow’s rail systems

Rail type	System	Summary
Interterminal rail system	Airside Track Transit System	Rail connectivity system that links up all Terminals.
Onward rail connection	Heathrow Express	Heathrow owns and operates the Heathrow Express as a non-franchised, non-subsidised private rail company.
	Elizabeth line	Heathrow pledged £70m to delivery of this new rail connectivity and this was added to the airport’s asset base.
	Piccadilly line	London Underground line owned and operated by TfL linking Heathrow with Central London.

Source: Heathrow Airport Ltd – Network Statement

5.4.1 Evidence of rail investment

The extent and ownership of rail infrastructure at major airports varies considerably.

Table 8 summarises the presence and ownership of inter-terminal and onward rail systems at each comparator airport. It also indicates whether the onward rail connection is owned or operated by the airport itself or by an external party (such as a national or municipal rail operator).

Table 8: Comparison of rail assets at comparator airports

Airport	Inter-terminal rail system	Onward rail connection	Owner(s) of onward rail connection
Heathrow	Yes	Yes	Heathrow Airport, Network Rail and TfL
Zurich	Yes	Yes	Swiss Federal Railways (SBB)
New York	Yes	Yes	MTA
Copenhagen	No	Yes	Danish State Railways (DSB) & Banedanmark
Hong Kong	Yes	Yes	MTR Corporation
Gatwick	Yes	Yes	Govia Thameslink & Network Rail
Los Angeles	<i>In development</i>	Yes	LA Metro
Dublin	No	No	-
Singapore	Yes	Yes	LTA
Toronto	Yes	Yes	Metrolinx
Frankfurt	Yes	Yes	Deutsche Bahn (DB) & VGF
Melbourne	No	No	-
Amsterdam	No	Yes	ProRail & Dutch Railways (NS)
Madrid	Yes	Yes	Metro de Madrid & Renfe Operadora

Source: Review of public company information

This comparison highlights that, while many airports benefit from rail connectivity, few directly own or operate these assets to the same extent as Heathrow. As a result, Heathrow's asset base, and associated depreciation and operating costs, reflects a higher degree of direct rail investment. In the context of this benchmarking analysis, an uplift to comparator airports' asset bases is applied to reflect the additional investment that would be required if they were to provide similar rail infrastructure under a West London scenario.

5.4.2 Application of rail investment adjustment

The analysis recognises that Heathrow's direct investment in rail infrastructure is more substantial than at most comparator airports. To ensure a more meaningful comparison under a West London scenario, the asset base of comparator airports is adjusted to reflect the additional investment that would be required if they were to provide similar rail infrastructure.

The adjustment is applied as follows. For comparator airports that do not currently own or operate onward rail assets, their operating asset base is increased by around 2.5%. This figure is derived from Heathrow's experience, where total rail assets account for approximately 5% of the total asset base. However, as the uplift split in asset value at Heathrow between inter-terminal and onward rail systems is not available, the analysis assumes an even-split. By applying the uplift to the comparator airports without airport-owned onward rail assets, the adjustment focuses on the incremental balance-sheet exposure associated with Heathrow-style onward rail participation, rather than the presence of rail connectivity alone.

Following the asset base adjustment, annual depreciation is recalculated using the airport's reported asset lives. The return on investment component is also increased, holding the airport's reported return rate constant, so the absolute return rises in line with the higher asset value.

In addition, the analysis includes rail-related non-aeronautical revenue and a corresponding operating cost for those comparator airports receiving the uplift. These figures are benchmarked against Heathrow Express and scaled proportionately to passenger volumes. This approach recognises that

direct rail investment not only increases costs but can also provide an alternative revenue stream, which can offset the net aeronautical revenue requirement. In 2024, there was a slight operating surplus on the Heathrow Express as set out in the annual accounts which reduces the aeronautical revenue requirement¹³.

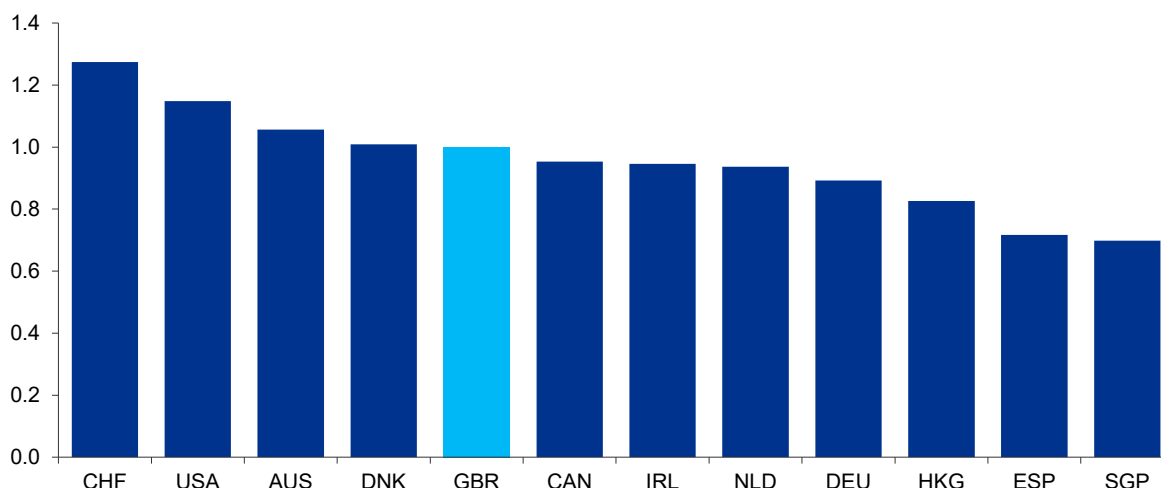
5.5 Driver 3: Differences in prices between countries

The cost of goods, services, and labour varies significantly between countries, influencing both the operating costs and non-aeronautical revenues of airports. To enable meaningful international benchmarking, it is essential to normalise these differences so that comparisons reflect underlying efficiency and business models rather than local price levels. In this analysis, Purchasing Power Parity (PPP) is used as a practical proxy for differences in local price levels across jurisdictions.

5.5.1 Evidence of price differences between countries

Figure 4 presents PPP conversion factors for each comparator country, indexed to the United Kingdom (UK = 1). PPP provides a standardised measure of the relative cost of goods and services across countries, allowing for meaningful comparison of financial data by removing distortions caused by local price levels.

Figure 4: Comparison of 2024 purchasing power parity (UK=1)



Source: World Bank

As illustrated, there is considerable variation across the countries represented in the benchmarking sample. Switzerland and the United States exhibit higher relative costs compared to the UK, while Hong Kong, Spain, and Singapore have lower values, indicating a lower cost environment. Other countries, such as Australia, Denmark, Canada, Ireland, the Netherlands, and Germany, are broadly comparable to the UK.

PPP is an economy-wide measure and is applied at national level; it may not fully reflect the cost-base faced by an individual airport, which can be influenced by city-level labour markets, local procurement conditions, and regulated utilities. The adjustment is therefore intended to improve comparability in a transparent manner, rather than provide a precise location-specific cost index.

5.5.2 Application of price difference adjustment

The PPP adjustment is applied as follows. For each comparator airport, operating costs and non-aeronautical revenues are multiplied by the relevant PPP conversion factor, indexed to the United

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Kingdom. This process ensures that the benchmarking analysis reflects underlying efficiency and business models, rather than variations in local wage rates, utility costs, or retail spending power.

It is important to note that PPP adjustments are not applied to asset values or depreciation, as these are already addressed through the construction cost index in Driver 1. By limiting the scope of the PPP adjustment to operating costs and non-aeronautical revenues, double counting is avoided.

5.6 Driver 4: Tax environment

Airports operate in a tax environment determined by national and local governments. This environment encompasses not only the overall level of tax that airports are required to pay, but also specific policies such as the treatment of VAT-free shopping, which can materially affect airport revenues. Taxation forms a key component of the 'Tax and Subsidy' building block within the benchmarking framework. Separately, there are other taxes associated with aviation – such as Air Passenger Duty (APD) in the United Kingdom, Air Passenger Tax in the Netherlands, and the Passenger Movement Charge in Australia – which are paid directly to government and do not appear in airport aeronautical revenue reporting within company accounts. As a result, these types of taxes are not considered within the scope of this benchmarking analysis.

5.6.1 Evidence on tax differences

Comparing tax regimes across countries is complex, as headline rates often mask significant differences in allowances, reliefs, and sector-specific treatments. To provide a consistent basis for comparison, this analysis draws on OECD statistics showing the proportion of Gross Domestic Product (GDP) collected through various tax categories relevant to airports. These categories include corporate income taxes, employer social security contributions, and property-based taxes, which together represent the main fiscal burdens faced by airports in different jurisdictions. For completeness, the study also reviewed the OECD data for 'Other taxes' that are paid by businesses, however for no country in the comparator set was the share more than 0.5% of GDP, so no further adjustment was considered.

The Office of Budget Responsibility uses tax as a percent of GDP when making international comparison of tax burden.¹⁴

Table 9 summarises the latest available OECD data for each comparator country, highlighting the share of GDP attributable to each tax type as well as the combined total. This provides context on the relative fiscal environments in which airports operate but does not on its own determine the tax charges recorded in airport accounts.

Notably, Spain stands out with the highest combined tax burden among the countries considered, while the United Kingdom's combined level is broadly similar to Canada, Germany, and the Netherlands. In contrast, countries such as Singapore, Denmark, Ireland, the United States, Australia, Switzerland, and Hong Kong generally show lower combined burdens on this measure. These differences are important contextual factors when interpreting reported aeronautical revenues between airports.

¹⁴ OBR, 2023, The UK's tax burden in historical and international context ([Link](#))

Table 9: Comparison of key taxes

Country	OECD Tax Database – % of GDP			
	Income, profits and capital gains of corporations	Social security contributions (SSC) by employers	Property	Combined
UK	3.5%	4.1%	3.7%	11.3%
Australia	5.8%	0.0%	2.9%	8.7%
Canada	4.6%	2.9%	3.4%	10.9%
Denmark	4.2%	0.1%	1.4%	5.7%
Germany	2.2%	7.0%	0.9%	10.1%
Hong Kong	6.1%	0.0%	3.2%	9.1%
Ireland	5.0%	2.1%	0.9%	8.0%
Netherlands	4.3%	5.2%	1.2%	10.7%
Singapore	3.6%	0.0%	1.6%	5.2%
Spain	3.0%	9.5%	2.2%	14.7%
Switzerland	3.5%	3.2%	2.1%	8.8%
USA	2.2%	2.9%	2.9%	8.0%

Note: Information provided for latest tax year available which is 2024 for the majority, 2023 for Australia and 2022 for Hong Kong and Singapore

Source: OECD

In addition to direct taxes, VAT policy can have a significant impact on airport revenues, particularly in relation to retail activities. HAL estimates that the United Kingdom’s removal of VAT-free shopping for international travellers has reduced Heathrow’s retail revenue by approximately £100 million per year.¹⁵ This policy is unusual within the comparator set and illustrates how indirect tax policy can influence airport commercial performance independently of passenger numbers or spending patterns.

5.6.2 Application of tax adjustment

Within the analysis, tax adjustments are applied to support comparability between airports operating in different fiscal environments. The adjustments focus on tax items that affect the airport cost base and are expected to be reflected within operating costs or property-type charges. Corporate income tax is not adjusted, as it is paid on profits and does not form part of the operating cost base relevant to aeronautical revenue.

For employer social security contributions, costs are brought into line with the UK benchmark. Where these costs are not explicitly reported in airport accounts, an estimated value is introduced to maintain consistency across the dataset. Similarly, property-based taxes (such as business rates) are uplifted to match the UK benchmark where reported or estimated where such payments are absent.

In addition, the analysis takes account of VAT policy differences affecting non-aeronautical revenue. For non-UK airports, a pro-rata adjustment is made to retail revenues to reflect the effect of the UK’s removal of VAT-free shopping. This adjustment is capped at HAL’s estimated maximum impact of £100 million, scaled according to each airport’s passenger numbers. This is an illustrative adjustment intended to reflect the UK policy environment under the West London scenario; it does not attempt to model airport-specific retail mix, passenger composition, or retailer pricing responses, which are not consistently observable across the sample.

¹⁵ Assumption on forgone revenue has been provided by Heathrow – this has not been assessed or verified.

5.7 Driver 5: Operating restrictions

Airport operations are frequently subject to regulations that impose limitations on activity and capacity. These restrictions typically fall into two broad categories (i) operating caps on flights, passengers or slots, such as the operational limit of 483,000 flights at Amsterdam Schiphol¹⁶ and (ii) night-time and noise restrictions, exemplified by Heathrow’s cap on take-offs and landings between 23:30 and 06:00.¹⁷ Such operating restrictions are designed to mitigate the external impacts of aviation, particularly noise and congestion, by constraining asset utilisation and shaping the operational environment of each airport.

5.7.1 Evidence on operating restrictions

Several studies have examined the economic impact of operational restrictions at airports. For example, a 2017 study commissioned by the Department for Transport (DfT) concluded that night flight restrictions can have significant economic consequences for airports, airlines, passengers, and public finances.¹⁸ Similarly, research commissioned by Airlines UK in 2021 found that various night restriction scenarios could result in between 4.0 and 20.7 million fewer passengers across UK airports.¹⁹ The Dublin Airport Authority (DAA) also commissioned an economic impact assessment in 2021, which estimated that operating restrictions would reduce passenger traffic by 6.6% between 2022 and 2025.²⁰

Reflecting these findings, the analysis has reviewed the extent of operational restrictions across the comparator airports. Of the airports considered, nine are subject to some form of operational restriction, while four operate with relatively few constraints. For those airports without significant restrictions, the analysis has also considered their daily operating hours in comparison to Heathrow. A summary of the operational restrictions (either night restrictions or operating cap) and estimated operating hours for each comparator airport not subject to restrictions is provided in Table 10.

Table 10: Summary of operating restrictions and indicative operating hours

Airport	Operational restrictions	Estimated operating hours (based on periods with more than 10 flight departures per hour)
Heathrow	Yes – Night restrictions	17 hours (06:00 – 23:00)
Zurich	Yes – Night restrictions	
New York	Yes – Operating cap	
Copenhagen	Yes – Night restrictions	
Hong Kong	No	20 hours (07:00 – 03:00)
Gatwick	Yes – Night restrictions	
Los Angeles	Yes – Operating cap	
Dublin	Yes – Operating cap	
Singapore	No	23 hours (05:00 – 04:00)
Toronto	Yes – Night restrictions	
Frankfurt	Yes – Night restrictions	
Melbourne	No	19 hours (06:00 – 01:00)
Amsterdam	Yes – Operating cap	
Madrid	No	20 hours (05:00 – 01:00)

Source: Flightstats.com

Note: (1) Operational restrictions have been identified through a review of airport websites along with government and regulator studies – however further restrictions may exist that have not been identified. (2) For airports subject to formal operating restrictions, no additional adjustment is made based on observed operating hours, as these constraints are

¹⁶ Amsterdam Schiphol, 2023, Room for 483,000 flights in 2024 ([Link](#))

¹⁷ Heathrow Airport, 2024, Night Flights ([Link](#))

¹⁸ Systra for Department for Transport, 2017, Economic Impacts of Night Flights: Research Study ([Link](#))

¹⁹ York Aviation for Airlines UK, 2021, The Economic Impact of Night Flying in the UK ([Link](#))

²⁰ IntervISTAS Consulting for Dublin Airport Authority, 2021, Dublin Airport Economic Impact of Operating Restrictions ([Link](#))

assumed to bind capacity. (3) 10 flights per hour has subjectively been chosen as a threshold to understand if an airport is fully operational in a given period.

Among the comparator airports, four operate without significant operational restrictions. During the period 12 to 18 December 2025, Heathrow's daily operating hours were estimated at around 17 hours. By comparison, Hong Kong, Melbourne, and Madrid each benefited from one to three additional hours of operation, while Singapore operated for approximately six hours longer than Heathrow. These extended operating hours enable airports to handle more flights using the same asset base and provide greater flexibility in managing demand throughout the day. As a result, airports with longer operating windows can reduce peak pressures and may require fewer assets per passenger, enhancing overall efficiency.

5.7.2 Application of operating restriction adjustment

In the analysis, airports that are currently subject to operational restrictions, such as night restrictions, or operating caps, are not adjusted further, as these constraints are already reflected in their reported capacity and throughput. This assumption is conservative reflecting some of these airport constraints may be less strict than Heathrow's however assessing the impact and effectiveness between different restrictions is challenging.

For airports without significant operational restrictions, the analysis considers the potential effect of differences in daily operating hours compared to Heathrow. Where an airport benefits from longer operating hours than Heathrow, it is assumed that this enables the airport to accommodate more flights and passengers with the same asset base, or to manage demand more efficiently throughout the day. Conversely, if an airport has shorter operating hours, a proportional reduction in the number of flights and passengers is applied within the analysis.

The adjustment assumes a proportionate relationship between passenger numbers and airport operating hours. In reality, demand is likely to have peaks and troughs within a given day, but this information is not available for all the airports in the sample.

To help ensure consistency, the methodology models the impact of these changes in passenger numbers across key financial and operational metrics. Specifically, a reduction in passenger volume leads to corresponding adjustments in operating costs, commercial revenues, and asset requirements, based on established relationships set out in Section 6. For example, the analysis assumes that a 1% change in passenger numbers results in a 0.40% change in operating costs and a 0.80% change in commercial revenues. Asset requirements are also adjusted in line with changes in passenger throughput, reflecting the relationship between airport scale and asset utilisation.

5.8 Driver 6: Other revenue

Airports can generate revenue from a variety of sources beyond their core aeronautical and retail activities. This 'other revenue' category typically includes earnings from property development, warehousing, ground handling, consultancy services, and international operations. Such revenue streams can play a significant role in an airport's overall financial position, as they may help offset the need for higher aeronautical charges by increasing the non-aeronautical revenue component within the regulatory framework.

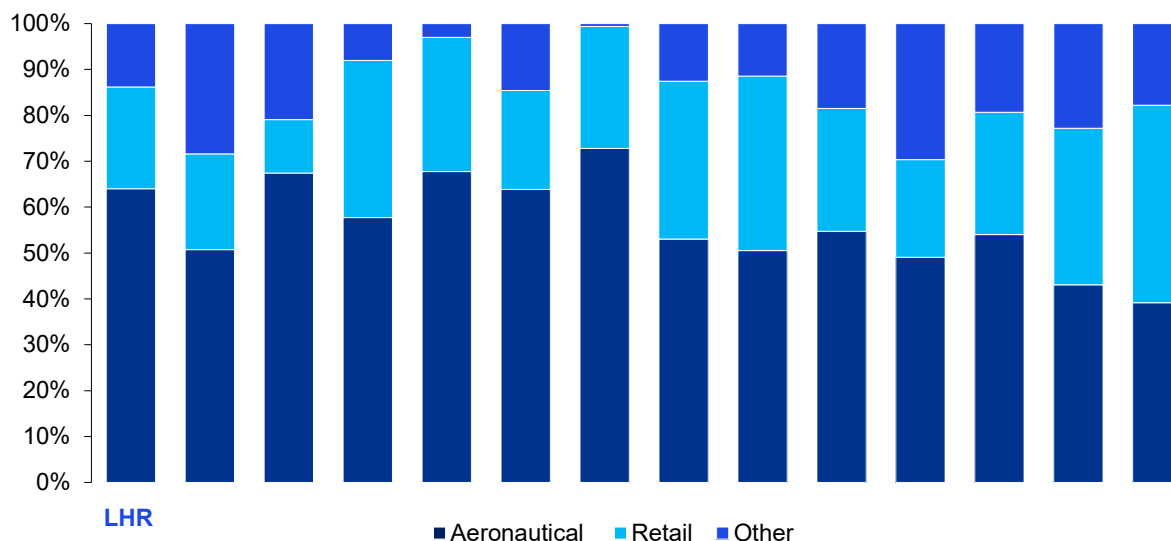
5.8.1 Evidence on other revenue

The majority of comparator airports report other revenue between 10% and 25% of total revenue. Heathrow's accounts indicate that approximately 14% of its revenue is generated from non-aeronautical (other) activities, compared to an average of 17% across the comparator group, though there is variation within the sample (Figure 5).

A few airports report a significant share of revenue from other activities. For example, the analysis shows that two comparator airports receive more than 25% of their total revenue from 'other' sources.

This includes Frankfurt and Zurich who earn a significant revenue through ground handling and facilities management respectively.

Figure 5: Revenue split into aeronautical, non-aeronautical (retail) and non-aeronautical (other)



Source: Airport publicly available company accounts
 Note: The airport comparators are anonymised with Heathrow highlighted.

This diversity reflects differences in business models, local market opportunities, and regulatory environments. For this study it is assumed these external factors are creating these differences between the airports regarding other revenue. In some cases, airports may be able to cross-subsidise aeronautical activities with revenue from other ventures, potentially reducing the pressure to increase charges for airlines and passengers.

5.8.2 Application of other revenue adjustment

For this study, the analysis assumes that the airports operating in West London in a similar model to Heathrow would earn a similar amount of ‘other revenue’ to Heathrow. As such, the analysis proportionally adjusts airports with higher ‘other revenue’ down and adjust airports with lower ‘other revenue’ up. An elasticity of 0.27 has been applied to the change in ‘other revenue’ and operating costs.²¹

Given the limited transparency and consistency in how ‘other revenue’ is reported and the lack of detailed information on the underlying sources a degree of caution should be noted with this adjustment. However, it’s important to consider as the potential for cross-subsidisation is an important contextual factor when interpreting differences in aeronautical revenue per passenger across airports.

5.9 Driver 7: Airline Operating Model

Airports support a range of airline business models, including low-cost carriers (LCCs) and network carriers, with many airlines operating hybrid strategies. Evidence for this spectrum is discussed in industry literature, including IATA’s ‘One Size does not Fit All’ study on the evolution of airline business models in Europe.²²

The Department for Transport recognises Heathrow as the UK’s only true hub airport, defined by its large numbers of transfer passengers as well as travellers for whom the UK is their final destination.²³

²¹ KPMG (2025) Airport Operating Cost Efficiency Benchmarking, Report for Heathrow Airport Limited

²² IATA, 2022, One Size does not Fit All: A Study of how Airline Business Models have evolved to meet Demand in Europe ([Link](#))

²³ Department for Transport, 2025, Government update on airport expansion ([Link](#))

For the purposes of this benchmarking, load factors, seat configuration, passenger mix (including premium and transfer shares), and fleet mix are treated as external drivers because they are primarily shaped by airline network, fleet and scheduling decisions rather than airport management choices.

Differences in airline operating model matter for aeronautical revenue per passenger because they affect both the numerator (through cost recovery requirements and the extent of cross-subsidy under different revenue mixes) and the denominator (passengers). In particular, the operating model impacts:

- 1 Passenger throughput per aircraft movement
- 2 Asset intensity and infrastructure requirements
- 3 Commercial yield per passenger.

These impacts interact, which is why headline comparisons of aeronautical revenue per passenger can be misleading when airports serve different airline business models.

There are three main channels through which airline operating model affects aeronautical revenue per passenger:

- **Aircraft mix, seat density and utilisation (throughput per movement):** LCC-heavy airports typically operate a high share of narrowbody aircraft on point-to-point routes, often with higher load factors and higher seat density. Network carriers at hub airports operate a wider mix of narrowbody and widebody aircraft and typically have a higher prevalence of premium seating, which reduces average seat density. These differences mean that, for a given number of aircraft movements, passenger throughput can vary materially across airports.
- **Infrastructure and asset intensity:** The business model influences the level and type of assets required per passenger. Hub airports, which accommodate a higher proportion of widebody aircraft, require longer runways, wider taxiways, larger parking stands, and multiple air bridges. Widebody aircraft also occupy airport assets for longer periods, with turnaround times averaging 95 minutes more than short-haul flights.²⁴ Long-haul and transfer passengers spend 18-30% longer in terminals than short-haul passengers, necessitating additional facilities and more complex infrastructure, such as baggage systems, security for transfer flows, and inter-terminal transport.²⁵ These requirements are reflected in airport development guidance, such as that provided by the Federal Aviation Administration (FAA) and Transportation Research Board (TRB) in the United States, which emphasise that terminal design must be tailored to the market served, whether origin-destination or hub traffic, domestic or international.²⁶ An example of this having a bearing on financial outcomes is Copenhagen airport, where a specific pier (CPH Go)²⁷ has been developed to meet the needs of LCCs. Aircraft using this pier must have a maximum turnaround time of 30 minutes and at least 90% of its passengers must check-in online, via mobile phone or at the self-service kiosks. The charging model for this pier is differentiated relative to the rest of the airport. At the same time, airports benefit from economies of scale: as passenger numbers increase, the level of assets required per passenger can decrease, up to the point of capacity constraints. These effects interact as airport scale and complexity evolve.
- **Passenger mix and spend (commercial yield):** Passenger mix influences commercial revenue per passenger because different segments exhibit different spending propensities and time-in-terminal requirements. Airports with a higher share of premium and long-haul passengers may see higher retail spend per passenger, while also allocating more space to premium facilities (such as lounges), which can reduce retail trading space.

²⁴ Figure on turnaround times has been provided by Heathrow for context – this has not been assessed or verified – neither does it directly impact the analysis

²⁵ Figure on time in terminal has been provided by Heathrow for context – this has not been assessed or verified – neither does it directly impact the analysis

²⁶ Transportation Research Board, 2010, Airport Passenger Terminal Planning and Design ([Link](#))

²⁷ CPH Go ([Link](#))

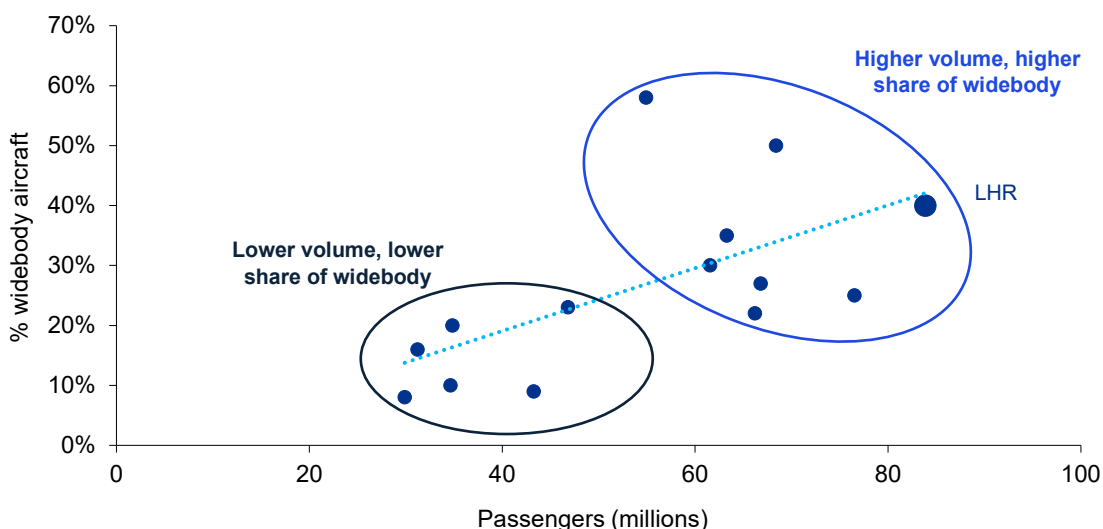
5.9.1 Evidence of operating model impacts

The impact of airline operating models on airport performance can be understood by examining three interrelated areas: (a) aircraft mix, load factors and seat density, (b) infrastructure and asset intensity, and (c) passenger mix and spend. The following subsections present evidence for each, drawing on comparative data and relevant charts.

(a) Aircraft mix, load factors and seat density

The comparator airports in this study serve different airline mixes and traffic patterns, which is reflected in aircraft mix, load factors and seat configurations. The widebody share is a practical proxy for hub and long-haul intensity and varies materially across the sample.

Figure 6: Relationship between passengers and share of widebody aircraft ²⁸



Source: iba.com for % widebody, public reporting from airport or regulator for passengers (millions)
 Note: The airport comparators are anonymised with Heathrow highlighted.

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Figure 6 shows that some airports handle high passenger volumes with a significant share of widebody operations, while others support fewer passengers and a lower widebody share. Heathrow stands out, accommodating the highest passenger numbers and a relatively high widebody share among the comparators.

It is important to note, however, that passenger scale and widebody share are correlated but not synonymous. Airports with similar passenger volumes can have materially different proportions of widebody aircraft, reflecting differences in airline network structure and traffic mix rather than scale alone. For example, there are two higher volume, higher share of widebody comparators with 66 million and 68 million passengers respectively, but one has a widebody share of 50% and the other has a widebody share of 22%. An example from the lower volume, lower share of widebody comparators, highlights two airports both with around 34 million passengers but one has 20% widebody and the other has 10% widebody. These comparisons demonstrate that fleet mix is not determined by passenger scale alone and therefore should not be assumed to be fully captured by a passenger-scale elasticity estimated across airports.

²⁸ % widebody aircraft in relation to total passenger ATMs is used as a proxy for hub operations as there are likely geographic reasons why numbers of transfer and international passengers vary.

For the purposes of the ‘West London, Heathrow-like scenario’, the key implication is that if comparator airports operated with airline-driven characteristics similar to Heathrow, two changes would typically occur **at the same time**:

- Passenger throughput per movement would fall, because Heathrow’s operating model is associated with lower average load factors and lower average seat density (reflecting a greater prevalence of premium seating).
- The share of widebody movements would rise, reflecting the higher long-haul and hub operations typical of Heathrow-like airline networks.

These two effects are distinct, and they work through to asset requirements in different ways, which is set out below.

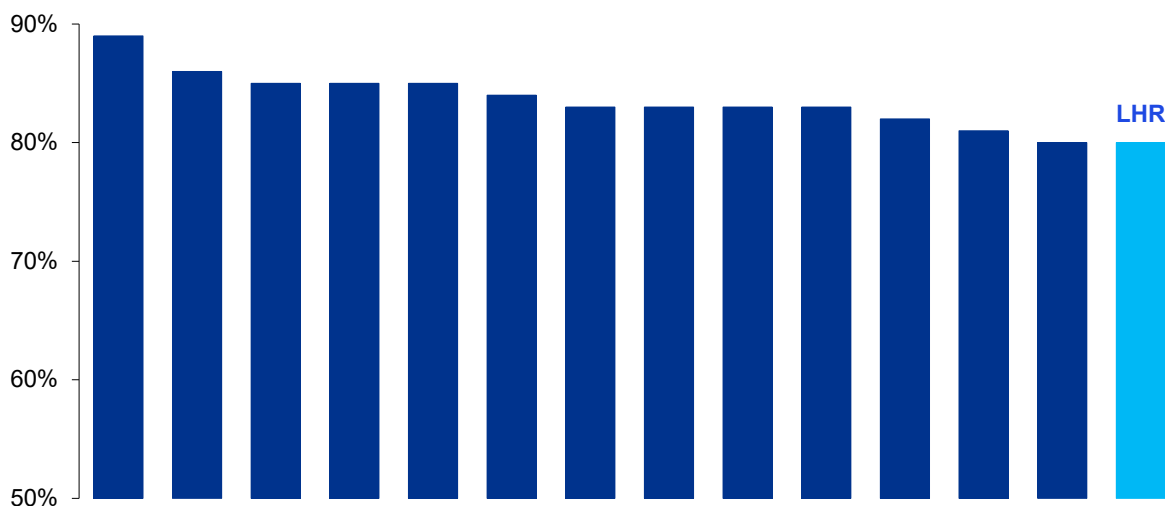
Passenger throughput per movement is driven by:

- Load factor: the proportion of available seats occupied on average; and
- Seat density (configuration): the number of seats installed on aircraft, which varies by airline strategy and the prevalence of premium seating.

A Heathrow-like operating model tends to imply lower load factors and lower seat density than airports dominated by high-density point-to-point operations. The point for this benchmarking is not whether this is ‘better’ or ‘worse’, but that it changes the passenger denominator: for a given number of aircraft movements, lower load factor and or lower seat density results in fewer passengers.

Figure 7 shows that narrowbody load factors across the comparator airports range from 80% to 89%, with an average of 84%. Heathrow, notably, has the lowest load factor in the group.

Figure 7: Narrow body load factors at comparators airports



Source: iba.com

Note: The airport comparators are anonymised with Heathrow highlighted.

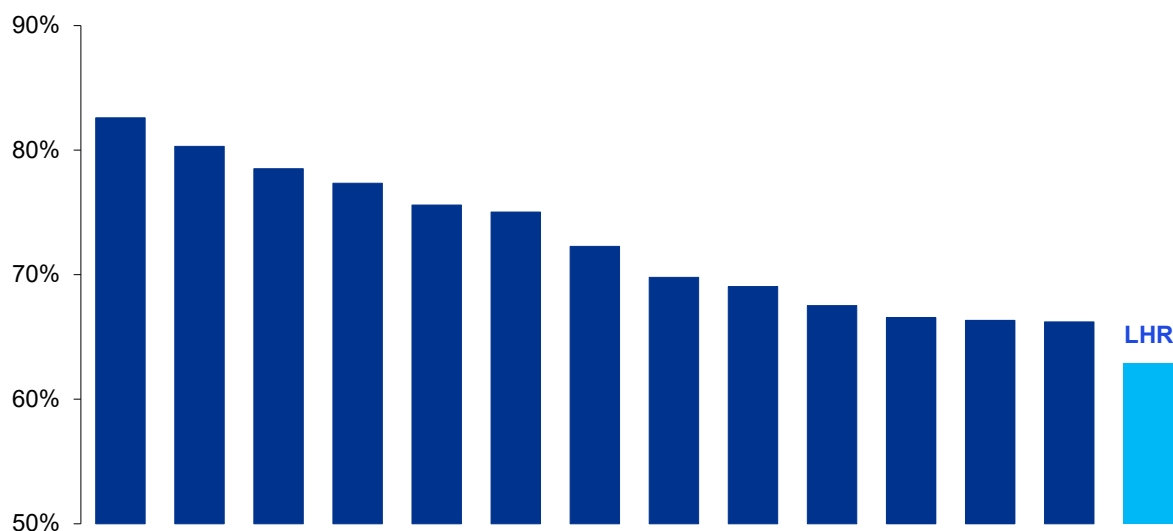
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For example, Boeing provide a range of different options for the 777-200 depending on number of classes.²⁹ Figure 8 shows that the average seat configuration across the comparator group is 72% of

²⁹ Boeing, 777-200, 777-200ER, and 777-300 general arrangement, ([Link](#))

maximum capacity, while at Heathrow it is 63%. This difference highlights the impact of premium seating on passenger throughput and asset utilisation.

Figure 8: Estimated average aircraft seat configuration relative to maximum seat configuration



Source: iba.com

Note: Application of Average Seat Kilometres relative to Equivalent Seat Kilometres. The airport comparators are anonymised with Heathrow.

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(b) Asset requirements

Comparing asset requirements across airports presents challenges, primarily because financial reporting differs across jurisdictions and some accounts include non-aeronautical assets. To improve comparability, the asset values are first normalised using the Arcadis construction cost index to remove differences driven by location-specific construction costs. Against this normalised baseline, the airline operating model affects asset requirements through two countervailing mechanisms when asking what a comparator airport’s asset needs would look like if it operated with Heathrow’s airline business model.

(i) Passenger throughput effect (scale)

A Heathrow-like airline model is characterised by lower average load factors and lower average seat density (more premium seating). For a given number of aircraft movements, this combination typically results in fewer passengers than would be observed at an airport dominated by high-density, high-load-factor operations. In the benchmarking construct, when comparators are aligned to Heathrow’s load factors and seating configurations, their implied passenger throughput falls relative to the baseline.

Lower passenger throughput reduces the total scale of assets required, but not one-for-one because airports exhibit economies of scale. Empirical evidence indicates that for large airports (around 50 million passengers), the elasticity of asset scale with respect to passenger numbers is approximately 0.74.³⁰

The passenger-scale elasticity applied in this analysis is taken from Martín and Voltes-Dorta (2011), which estimates airport cost elasticities using a hedonically adjusted aircraft movement measure that incorporates Maximum Take-Off Weight. As a result, the elasticity reflects how airport costs respond

³⁰ Martín, J.C. & Voltes-Dorta, A. (2011). The econometric estimation of airports’ cost function. *Transportation Research Part B*, 45(1), 112–127.

to changes in passenger output conditional on the observed aircraft weight mix across airports, including the empirical tendency for larger airports to accommodate heavier aircraft. However, this elasticity captures average cross-sectional scale effects and does not distinguish between differences in passenger throughput per movement arising from airline operating choices, such as load factors and seat density, and differences in asset intensity arising from fleet mix. In the benchmarking framework, the scale elasticity is therefore applied specifically to reflect how total asset requirements adjust when passenger volumes change due to Heathrow-style load factors and seating configurations, rather than to capture differences in widebody share.

(ii) Fleet mix effect (widebody intensity)

A Heathrow-like airline model is also associated with a higher share of widebody movements. Widebody aircraft are substantially heavier and more demanding in infrastructure terms than narrowbodies, while only moderately larger in passenger capacity. As the share of widebody operations increases, average asset requirements per passenger tend to rise.

Aircraft weight and the proportion of widebody movements are correlated, because widebody aircraft dominate the upper end of the MTOW distribution. However, as noted above, comparator evidence shows that airports with similar passenger volumes can operate with materially different widebody shares. The widebody adjustment is therefore retained separately to capture cross-sectional differences in asset intensity associated with fleet mix at a given passenger scale, over and above the average MTOW effects embedded within the passenger-scale elasticity.

We estimated the elasticity of asset requirements per passenger with respect to widebody share is approximately 0.23 (based on the implied increase in airside 'asset scale per passenger' as widebody share increases from 20% to 30%).³¹ The underlying reason is that widebodies require more robust and costly infrastructure, and airport charging frameworks typically recover these costs in proportion to aircraft weight and operational demands.

This principle is set out by the International Civil Aviation Organization (ICAO) which has cost-relatedness as one of its four charging principles and in relation to this suggests landing, parking, hanger and security charges should reflect weight and/or aircraft dimensions.³² This is reflected in actual charges. For example, Singapore publishes its fees and charges, which show landing charges reflects aircraft weight, parking charges reflect aircraft size, and aerobridge fees reflect aircraft seating capacity.³³

Bringing the two effects together

When comparator airports are aligned to Heathrow's airline operating model, two structural effects occur simultaneously, and they work in opposite directions when expressed on a per-passenger basis. First, lower load factors and lower seat density reduce passenger throughput for a given level of aircraft movements, lowering effective passenger scale and weakening passenger-driven economies of scale. Second, the higher share of widebody movements increases asset intensity per movement and, because widebody aircraft are several times heavier yet carry only around twice as many passengers, increases asset requirements per passenger.

Treating these effects separately is necessary to represent the full structural impact of the operating model without obscuring the underlying mechanisms or creating unintended overlap. The passenger-scale adjustment captures how total asset requirements change with passenger volumes, while the widebody adjustment captures how asset intensity per passenger changes with fleet mix at a given scale.

³¹ The elasticity of asset scale per passenger with respect to widebody share is estimated at 0.23. This is derived by comparing the change in average asset requirement per passenger as the proportion of widebody aircraft movements increases from 20% to 30%. Widebody aircraft typically have a maximum take-off weight nearly four times that of narrowbodies, but only about 1.8 times the passenger capacity. Because airport infrastructure charges are primarily based on aircraft weight, a higher widebody share leads to a disproportionate increase in charges reflecting the disproportionate increase in asset requirements per passenger.

³² International Civil Aviation Organisation, 2024, ICAO's Policies on Charges for Airports and Air Navigation Services ([Link](#))

³³ Singapore Changi Airport, 2024, List of Fees and Charges Applicable in Changi Airport ([Link](#))

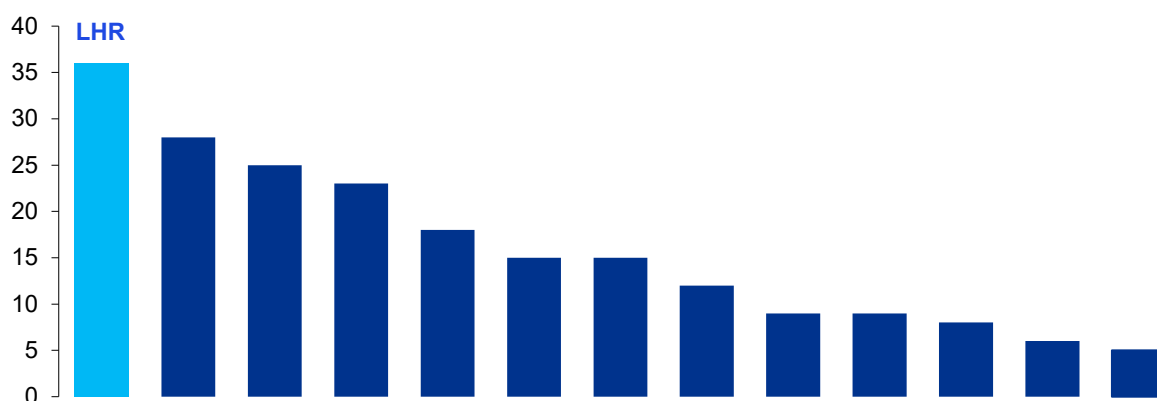
(c) Passenger mix and spend

The composition of an airport’s passenger base has a direct influence on commercial performance, particularly in terms of retail spending and the provision of premium facilities. Airports serving a higher proportion of premium and long-distance travellers typically see greater retail spend per passenger, as these groups have higher disposable incomes and spend more time in the terminal.³⁴

This pattern is evident in the annual accounts: retail spend per passenger at Heathrow stands at £9.20, compared to an average of £6.86 at the comparator airports. Only Singapore and Hong Kong report higher retail spending per passenger than Heathrow, highlighting the significance of passenger mix in driving non-aeronautical revenue.

The number of airport lounges provides a further indication of the premium passenger segment. Airports with more premium travellers require a greater number of lounges, but this can reduce the floor space available for retail, potentially lowering retail revenues. At Heathrow, the opportunity cost of the lounge estate is estimated at around £100 million in forgone retail revenue across 36 lounges, with comparator airports averaging 57% fewer lounges.³⁵

Figure 9: Number of airport lounges



Source: Review of airport specific websites listings of lounges includes both Common use and Airline specific

Figure 9 shows the number of lounges at each airport: while Heathrow has the highest total, a few other airports such as New York (JFK) and Zurich have more lounges per passenger than Heathrow.

5.10 Application of operating model adjustment

For the purposes of benchmarking, the analysis assumes that comparator airports operate under a business model similar to Heathrow. This approach enables a consistent assessment of how differences in airline operating models would affect key metrics if all airports adopted Heathrow’s mix of premium and transfer passengers, aircraft types, and service levels.

Several adjustments are made to reflect this alignment:

- The proportion of widebody aircraft movements (ATMs) is set to match Heathrow, resulting in a corresponding uplift in asset requirements to accommodate larger aircraft and more complex operations.
- Load factors for narrowbody aircraft are adjusted to the Heathrow benchmark, ensuring consistency in passenger throughput per flight.
- Aircraft seating configurations are standardised to Heathrow’s average, reflecting the higher prevalence of premium seating and its impact on passenger capacity.

³⁴ Del Chiappa, G., Loriga, S. and Meleddu, M.(2020). Determinants of travellers’ expenditures at airports. European Journal of Tourism Research 26, 2605 ([Link](#))

³⁵ Assumption on forgone revenue has been provided by Heathrow – this has not been assessed or verified

- Retail spending per passenger is increased to reflect the higher levels observed at Heathrow, with an uplift of up to £2.34 per passenger to account for the premium passenger mix.
- Retail revenue is further adjusted to account for the opportunity cost of lounge provision, using Heathrow's estimate of forgone retail revenue and scaling this according to the number of lounges and passenger volumes at each airport.

The load factor and seating configuration adjustments directly influence passenger numbers, which in turn affect operating costs, commercial revenues, and asset requirements. These interactions are addressed in detail in the following section, ensuring that the analysis captures the impact of adopting a Heathrow-like operating model across relevant financial and operational dimensions.

6 Application of driver adjustments

6.1 Introduction

This section sets out (a) how each driver adjustment is applied to the comparator airports, and (b) how any resulting change in passenger numbers is carried through the financial building blocks to avoid overstating impacts. The objective is to apply adjustments consistently and transparently, using evidence-based parameters and clearly stated assumptions.

6.2 Application of drivers

Table 11 provides an overview of each driver, the nature of the adjustment applied, the scope of application, and the supporting evidence.

Table 11: Application of drivers in analysis

Driver	Description of adjustment		Applies to	Evidence
1: Cost of construction	Applies the difference in the cost of construction between airport locations and London (Heathrow)	Depreciation costs are uplifted by difference in cost index covering an assumption of 85% of assets to reflect some assets are in the course of construction.	All Comparator airports	Arcadis International Construction Cost (ICC) Index BCIS Index (for Gatwick) Airport Annual Accounts
		Airports are assumed to maintain the same EBIT/Fixed asset ratio from the statutory accounts so an increase in asset value based on cost index increases the absolute level of return		
2: Rail investment	Increase to comparator asset base by 2.5% to account for the proportion of spend on rail assets at Heathrow	Depreciation costs uplifted by 2.5%.	All Comparator airports (as none owns or operates the onward rail connections)	Heathrow's Annual Accounts
		Airports are assumed to maintain the same EBIT/Fixed asset ratio from the statutory accounts so an increase in asset value based on inclusion of rail increases the absolute level of return.		
	Revenue per passenger and operating cost per passenger added to reflect the observed rail revenue and operating costs per passenger at Heathrow resulting in a reduction in aeronautical revenue requirements given an operating surplus.			
3: Price differences	Change in operating costs and non-aeronautical revenue to reflect PPP levels between countries		Non-UK Comparator airports	Airport Annual Accounts World Bank
4: Tax environment	Applying an increase/decrease to airport's social security costs reflecting the difference between comparator country and UK's systems.		Non-UK Comparator airports	Airport Annual Accounts OECD
	Applying an increase/decrease to airport's estimated property tax costs reflecting the difference between comparator country and UK's systems		Non-UK Comparator airports	Airport Annual Accounts OECD

Driver	Description of adjustment	Applies to	Evidence
	Applying a pro-rated impact to the scale of retail spend from withdrawal of VAT-free shopping reflecting the estimated £100 million impact for Heathrow	Non-UK Comparator airports	Heathrow assumption
5: Operating restrictions	Adjustments made to passenger numbers based on operating hours of the airports which are not subject to operational restrictions which reduces the denominator – corresponding impact on operating costs, retail revenue and asset requirements.	Only airports without operating restrictions	Airport-specific websites and FlightStats.com
6. Other revenue	Adjustment made to non-aeronautical ‘other’ revenue to proportionally match the level observed at Heathrow.	All Comparator airports	Airport Annual Accounts
7: Operating model	Load factors at the comparators are set to the same level as at Heathrow resulting in an impact on number of passengers within the analysis with a corresponding change in operating costs, non-aeronautical revenue and asset requirements.	All Comparator airports	iba.aero data
	Seat configuration at the comparators are set to the same level as at Heathrow resulting in an impact on number of passengers within the analysis with a corresponding change in operating costs, non-aeronautical revenue and asset requirements.	All Comparator airports	iba.aero data
	Proportion of widebody aircraft movements are set to the same level as Heathrow with a corresponding change in asset requirements.	All Comparator airports	iba.aero data
	Change in retail spend to reflect a passenger mix similar to Heathrow.	All Comparator airports	Airport Annual Accounts
	Heathrow assumption that around £100 million is lost in retail revenue due to lounges which could be allocated to retail units – assumption applied relative to number of lounges per airport passenger	All Comparator airports	Heathrow assumption

6.3 Adjusting passenger numbers

Passenger numbers are a critical denominator in the calculation of aeronautical revenue per passenger. Where adjustments to passenger numbers are made, particularly for Driver 5 (Operating restrictions) and Driver 7 (Operating model), it is necessary to reflect the resulting impact on the financial building blocks in the numerator. Without these corresponding adjustments, the effect of changes in passenger numbers could be overstated or misrepresented. The building blocks affected include operating costs, non-aeronautical revenue, depreciation, and return on investment.

6.4 Change in operating costs

Operating costs are assumed to change in proportion to passenger numbers using an elasticity of 0.4.³⁶ The implication, is that if passenger numbers are assumed to fall due to adjustments in the analysis, operating costs will also fall.

³⁶ Frontier Economics, 2021, H7 IP OPEX REVIEW ([Link](#))

6.5 Change in non-aeronautical revenue

Non-aeronautical (retail) revenue is adjusted in line with changes in passenger numbers, using an elasticity of 0.80. This means that a 1% change in passenger numbers leads to a 0.80% change in retail revenue, reflecting the strong link between passenger volumes and spending opportunities within the airport. The elasticity figure of 0.8 aligns with CEPA³⁷ assumption for other service revenue. The implication of this approach is that if passenger numbers reduce due to adjustments in the analysis, retail revenue will also reduce, however not at a proportional rate. The overall effect is therefore that a reduction in passenger numbers will increase the required level of aeronautical revenue per passenger.

6.6 Change in depreciation and return on investment

Airport infrastructure is typically developed in large increments, resulting in step changes in capacity rather than smooth year-on-year variation. This presents a challenge when modelling the impact of marginal changes in passenger numbers. Two approaches are possible:

- Assume the asset base is fixed, reflecting planning for peak capacity and no change for marginal passenger variation.
- Assume asset requirements change with passenger numbers and operational requirements.

This study adopts the second approach in relation to assets noting this is more conservative assumption. This is more conservative as the first approach implied asset requirements do not change for marginal passenger number changes, meaning the level of depreciation and rate of return building blocks are held constant when there is a marginal reduction in passenger numbers which would result in a higher relative aeronautical revenue requirement.

Reflecting the second approach, two elasticities are applied, one for change in passenger numbers, and one for change in proportion of widebody aircraft. The evidence around these has been set out in Section 5.9. This ensures that the analysis captures the dynamic relationship between passenger throughput, aircraft mix and capital needs, providing a more accurate reflection of how changes in scale affect depreciation and return on investment. However, given the step change approach to airport capacity this assumption should be treated with caution. This is because the approach taken implies airport assets are able to increase/decrease in a more flexible manner to respond to marginal changes in passenger numbers whereas in reality airport assets develop in step changes.

³⁷ CEPA, 2021, the Review of H7 Opex and Commercial Revenues: Initial Assessment and Forecasts ([Link](#))

7 Non-quantified drivers of difference

7.1 Introduction

This section highlights several important factors that are likely to influence aeronautical revenue per passenger but have not been quantified within this analysis. These non-quantified drivers are included to provide context for interpreting the results and to avoid residual differences being misattributed to any single cause. Their omission from the quantitative benchmarking is not due to a lack of relevance, but rather reflects the difficulty of obtaining robust, consistent and comparable evidence across all airports in the sample.

The quantitative benchmarking focuses on external drivers that can be evidenced and applied consistently as set out in the previous sections. By contrast, differences in efficiency, rate of return and quality of service are not adjusted for because they are potentially within the control of airports and / or are strongly shaped by local regulatory and governance choices. As a result, once external drivers have been normalised, any remaining variation between Heathrow and comparator airports may plausibly reflect some combination of these non-quantified factors, as well as data and reporting limitations.

Differences in land are also discussed in this section. While land can materially affect costs and operational constraints, adjustments have not been applied because disclosure and accounting treatment are not sufficiently consistent across the comparator set to support a robust, uniform adjustment.

7.2 Efficiency

Airports may operate at different levels of productive efficiency due to differences in ownership structures, governance, market pressures, labour models (including outsourcing), and the strength and design of regulatory incentives. These differences can arise in day-to-day operations (for example staffing, maintenance and resilience practices) and in capital delivery (for example programme management capability, procurement strategy and delivery risk).

Efficiency matters because, all else equal, a more efficient airport can deliver a given level of output at lower operating cost and or with lower capital intensity resulting. This would mean a lower requirement for aeronautical revenue per passenger for the same level of output. Conversely, airports operating in more complex environments or under more demanding service requirements may have higher costs that are not straightforwardly attributable to inefficiency. For these reasons, the report does not quantify 'efficiency adjustments'. Instead, efficiency is treated as a contextual factor that may contribute to residual differences once external drivers have been normalised.

7.3 Rate of return

Airports can face materially different return requirements depending on their regulatory framework, ownership and financing structure, and the extent of economic oversight. All else equal, airports with a higher rate of return would lead to a higher aeronautical revenue per passenger for the same level of output.

In the Heathrow context, regulatory decisions are important as these affect how investment is recovered, how depreciation is set, and how the allowed return is determined. Over time, choices such as asset valuation, indexation, depreciation policy and the treatment of 'over or under recovery' can create persistent differences in the revenue that needs to be recovered per passenger.

Where airports operate under RAB-type regulation, the regulatory value of assets can diverge from book value in statutory accounts, and this divergence can affect the implied return and depreciation

recovered through airport charges. Other airports may be lightly regulated or not economically regulated, and returns may instead reflect commercial strategy, shareholder expectations, and market dynamics.

For the purposes of the comparator analysis, the quantitative adjustments do not seek to impose Heathrow's allowed return on other airports. Instead, where asset values are adjusted (for example for construction cost normalisation or rail), the analysis holds each comparator airport's observed return relationship to its asset base constant and scales the absolute return amount mechanically with the adjusted asset base. This avoids introducing assumptions about what return rate should apply in another jurisdiction, while still reflecting the effect of higher or lower asset intensity on the return component.

7.4 Quality of service

Quality of service refers to the standards of passenger experience, punctuality, security, and baggage handling delivered by an airport. Industry benchmarks, such as ACI ASQ³⁸, demonstrate that service levels vary considerably across airports, reflecting differences in investment, operational priorities, and regulatory requirements.

Quality matters because higher service standards typically require greater capital investment (for example terminal capacity, baggage systems, passenger circulation space, stand and gate provision) and higher operating costs (for example staffing, service provision, maintenance and resilience). These factors can increase aeronautical revenue per passenger even where external conditions are similar. Because comparable, airport-level evidence on quality standards and the associated cost impacts is not available consistently across the sample, quality is discussed qualitatively rather than adjusted quantitatively.

7.5 Land

Land can affect aeronautical revenue per passenger through two main routes: (i) differences in land ownership, valuation and charging treatment, and (ii) differences in site constraints that affect development complexity and operational costs.

7.5.1 Ownership and value

Airports differ in how their land is owned, valued, and paid for. Some airports own their land outright, while others lease it from the state or operate under more complex arrangements. The way land is treated within financial accounts can have a significant impact on both capital recovery and ongoing costs. Where land is included in the asset base, its value and the associated financing costs are recovered through aeronautical charges. In contrast, airports that lease land or pay ground rents may treat these costs as operating expenditure, which can also affect the reported revenue requirement per passenger.

This distinction is important because inconsistent approaches to land ownership and valuation across jurisdictions can either inflate or reduce the aeronautical revenue required to recover these costs. The lack of standardised disclosure makes robust comparison challenging.

7.5.2 Site constraints and operational impact

A second land-related consideration is the physical constraint of the airport site. Airports operating on restricted or highly developed land often face greater challenges in undertaking capital works and managing day-to-day operations. Limited space can make construction projects more complex and expensive and may also increase the cost and difficulty of routine activities such as aircraft movements, maintenance, and passenger flows.

³⁸ ACI ASQ Awards: 2024 Winners ([Link](#))

These operational constraints can lead to higher asset intensity and estate management costs, which in turn increase the aeronautical revenue required per passenger. Airports with more generous land availability may be able to operate more efficiently and at lower cost.

Table 12 summarises the estimated land area for each airport. This highlights the variation of the land used by the different airports with some airports more than double the size of Heathrow.

Table 12: Airport estimated size

Airport	Estimated airport size (km ²)
Heathrow	9.5
Gatwick	5.2
Dublin	6.7
Zurich	7.9
Los Angeles	9.3
Copenhagen	10.4
New York	16.1
Toronto	16.4
Frankfurt	18.3
Amsterdam	18.4
Hong Kong	19.2
Melbourne	19.9
Singapore	22.4
Madrid	31.7

Note: Areas calculated as footprint (disregarding e.g. multiple floored building), as defined by OSM.
Source: Spatial data from OpenStreetMap (OSM).

7.6 Conclusion

The analysis applies a comprehensive set of quantified adjustments to normalise for external drivers where evidence and consistent data permit. However, several important factors remain outside the scope of quantification. These non-quantified drivers are not peripheral and can be helpful in understanding why some variation in aeronautical revenue per passenger may persist even after adjustment.

Residual differences may reflect legitimate variations in regulatory treatment, expected returns, service standards, operational complexity, and land constraints, as well as limitations in public reporting. The results should therefore be interpreted as indicative benchmarks under a consistent hypothetical scenario rather than definitive statements about airport performance.

8 Findings

8.1 Introduction

This section presents the results of the comparator analysis. It brings together the baseline aeronautical revenue per passenger figures for 2024 and the adjustments derived from the seven quantified drivers set out in Sections 5 and 6. The objective is to provide an evidence-based comparison of aeronautical revenue per passenger at Heathrow and a set of international peer airports, and to explain how much of the baseline differences can be attributed to the quantified external drivers.

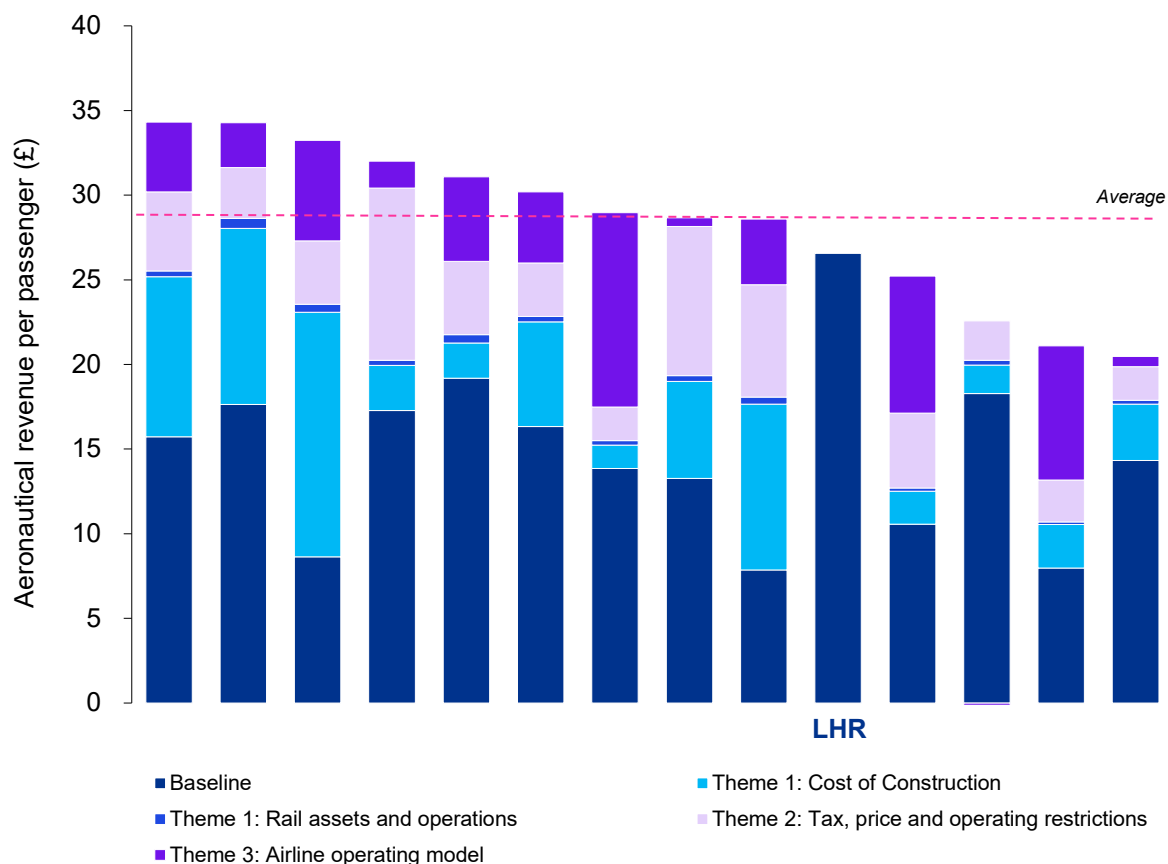
The results should be read alongside Sections 5 and 6, which document the evidence base and the mechanics for each adjustment. Findings are presented as indicative benchmarking outputs under a consistent 'West London, Heathrow-like scenario'. As set out earlier, the analysis is strictly comparative and does not assess efficiency, service quality, allowed returns, or the appropriateness of charging outcomes.

8.2 Overview of findings

The analysis indicates that, after applying the quantified adjustments to comparator airports, the average adjusted aeronautical revenue per passenger across the comparator sample is £28.44 (2024 prices). This is marginally higher than Heathrow's observed 2024 aeronautical revenue per passenger of £26.57. The implication is that, once the quantified external drivers are normalised, Heathrow's aeronautical revenue per passenger is broadly in line with its international peers under the benchmark scenario.

This result is illustrated in Figure 10. This groups the adjustments by the three themes (with rail set out separately). Heathrow's value is unchanged in the adjusted comparison because Heathrow already operates under the West London conditions and airline-driven operating characteristics used as the reference point in the counterfactual.

Figure 10: Adjusted Aeronautical Revenue per Passengers (2024 prices)

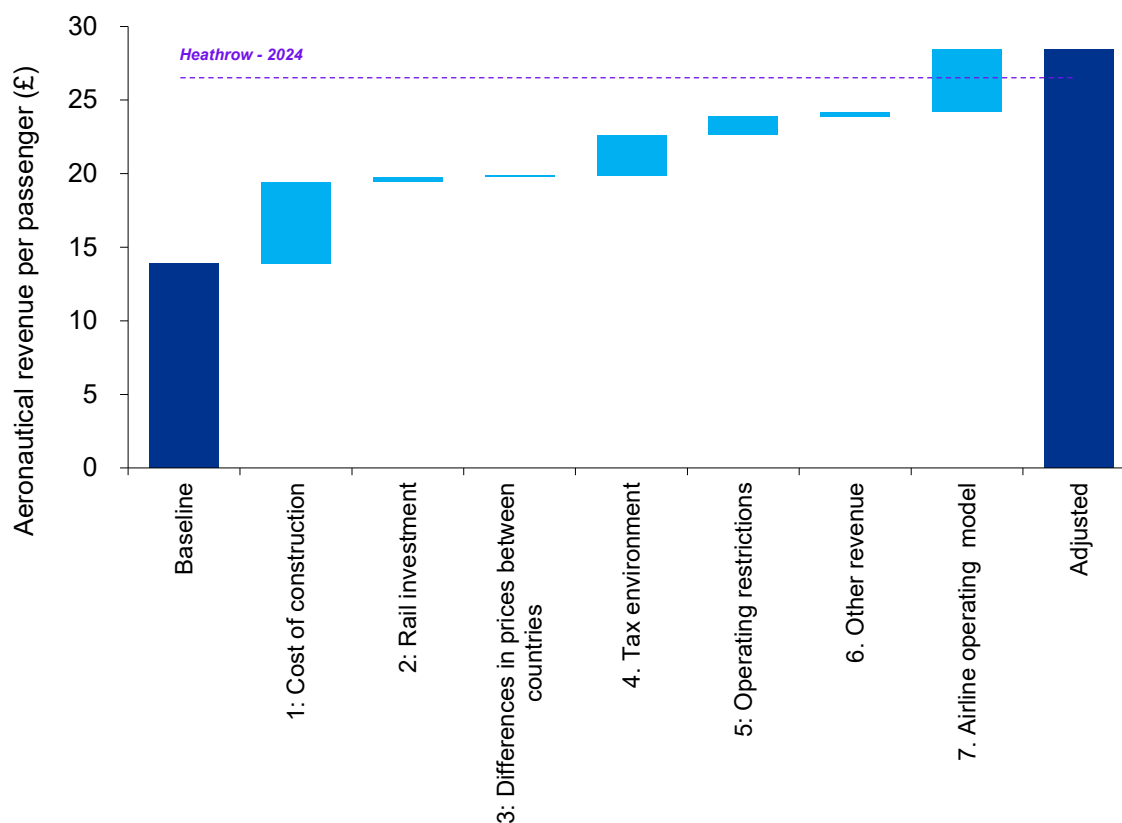


Note: The airport comparators are anonymised with Heathrow highlighted.

Across the comparator set, the largest adjustments are generally observed for airports with material differences from Heathrow in one or more of the following areas: construction cost environment, tax and policy environment, operating constraints, and airline operating model.

Figure 11 summarises the average impact of each driver across the sample. In aggregate, the results indicate that construction costs, tax and policy environment, operating restrictions, and airline operating model account for a substantial proportion of the difference between Heathrow’s baseline aeronautical revenue per passenger and unadjusted comparator values.

Figure 11: Breakdown of average driver impact across comparators (2024 prices)



The analysis yields several important insights:

- Cost of construction (Driver 1):** Differences in local construction costs are a primary factor in explaining the gap between Heathrow and key European comparators. Airports located in cities with lower construction indices, such as Madrid and Amsterdam, see their adjusted revenues rise significantly when benchmarked to London’s cost environment. This underscores the importance of asset base valuation in regulatory and financial planning.
- Tax environment and operating restrictions (Drivers 4 & 5):** Jurisdictions with lower tax burdens and fewer operational constraints, such as Singapore and Hong Kong, initially report lower aeronautical revenues per passenger. However, when adjustments are made to reflect the UK’s tax regime and Heathrow’s operating restrictions, the gap narrows considerably. This finding highlights the material impact of fiscal policy and regulatory restrictions on airport financial performance.
- Airline operating model (Driver 7):** Heathrow’s status as a major hub, with a high proportion of widebody aircraft, lower load factor and seat configuration relative to comparators, and premium passengers, necessitates greater asset investment whilst at the same time leading to higher retail spend per passenger. When comparator airports are adjusted to reflect a similar operating model, their aeronautical revenues per passenger increase, demonstrating the interplay between infrastructure requirements and commercial opportunities.

Sensitivity and segmentation

To test how results vary across sub-samples, Table 13 summarises adjusted aeronautical revenue per passenger under different segmentation approaches. Excluding group airports does not materially change the overall picture: the adjusted comparator average remains close to the headline adjusted average. Segmentation by geography and scale suggests that larger airports and European airports tend to exhibit higher adjusted values within the benchmark scenario.

Table 13: Benchmarked Aeronautical Revenue per Passenger by airport type

	Aeronautical Revenue per Passengers (£)
Heathrow (2024)	26.57
Adjusted comparator average (<i>all</i>)	28.44
Excluding group airports	27.27
Including only airports with >50 million passengers	29.22
Including only airports with <50 million passengers	27.53
Including only European airports	29.74
Including only non-European airports	26.92
Including only European airports with >50 million passengers	33.94

8.3 Conclusions

The benchmarking analysis indicates that, once the quantified external drivers are normalised under the 'West London, Heathrow-like scenario', Heathrow's aeronautical revenue per passenger is broadly aligned with the adjusted comparator set. The results underscore the importance of construction cost environment, tax and policy settings, operating restrictions, and airline operating model in shaping aeronautical revenue per passenger across airports.

For stakeholders, the results highlight why headline comparisons of aeronautical revenue per passenger can be misleading when airports face different cost environments, policy settings and airline-driven operating characteristics. The adjusted benchmarks provide a more meaningful basis for comparison within the defined counterfactual scenario. However, the findings should be interpreted as indicative rather than definitive. Residual differences may reflect non-quantified factors (including service standards, efficiency, return frameworks and land-related constraints) as well as differences in disclosure and data limitations.

Annex 1: Scope work

The Company is engaging with the Civil Aviation Authority ('CAA') on the economic regulation of Heathrow Airport Limited as part of the H8 regulatory control period and the CAA Consultation on Working paper on regulatory models (CAP 3195).

The Supplier previously prepared an Aeronautical Revenue benchmarking study (under contract number 4229251) for the Company that considered Heathrow and seven comparator airports ('initial report') with the aim to help enable the Company to consider internal and external factors which may influence some of the building blocks which determine the overall level of aeronautical revenue per passenger. In the engagement contract for that work, the Supplier agreed that the initial report could be provided to the CAA and airlines connected to the Company under cover of a Transmittal Letter containing hold harmless terms for the benefit of the Supplier.

Following discussions with the CAA in relation to the initial Aeronautical Revenue benchmarking study, the Company wants the Supplier to build on the previous work and prepare an objective technical report solely to help inform the Company's submissions to the CAA in connection with the H8 regulatory control period and the CAA Consultation on Working paper on regulatory models (CAP 3195), that can be provided to the CAA under cover of a Transmittal Letter containing hold harmless terms for the benefit of the Supplier as part of the regulatory process.

The Supplier shall undertake the following five tasks:

Task 1: Identify six additional airport comparators

The airport comparator set used in the initial report was seven airports. The first task is to expand this set of comparators to 13 airports; this will be based on the following:

- Developing a long list of potential airports for inclusion reflecting an initial analysis of scale, data availability and ownership structure for comparability with the Company.
- Developing a set of objective criteria to consider the long list of airports to identify those which are most relevant comparators for the study.
- Apply the objective criteria to select six additional comparator airports for inclusion in the updated study

Task 2: Data collection for the comparator airports

- Undertake detailed data collection for the shortlisted six airports based on published financial accounts and to obtain more recent publicly available information for the other seven comparator airports.

Task 3: Review and update methodology

- Following discussion with the CAA in relation to the initial report, the Company has provided the Supplier with observations regarding 10 areas in relation to the previous study, this includes points around:
 - (a) Comparator airport sample
 - (b) Transparency of adjustments
 - (c) Treatment of group airports
 - (d) Inclusion of additional adjustments
 - (e) Sensitivity tests
 - (f) Construction cost indices
 - (g) Hub and spoke model and asset comparisons
 - (h) Existing rail assets at comparator airports

- (i) Operating hours
- (j) Aircraft seating configurations and revenue mix
- The Supplier shall go through each of these points and comment on whether it considers that updates are required to the methodology. This list is not exclusive nor does it mean that any adjustments to the methodology will occur, only that the Supplier will comment on whether it considers that there is merit in making an adjustment based on available evidence.

Task 4: Benchmarking analysis of aeronautical revenue

- Update the benchmark analysis based on the findings from Tasks 1-3.

Task 5: Prepare a technical findings benchmarking report

Prepare an objective technical report which builds on the previous Aeronautical Revenue benchmarking study as set out above, which shall reflect changes to:

- Airport comparators
- Methodology
- Input data
- Benchmark findings
- Sensitivity tests

The report shall set out anonymised airport comparators in the findings and may present the findings using relativity rather than absolute values (i.e. the comparator airports will not be named, and the data may be presented in an aggregated form).

Task 6: Discussion with CAA

During the project and prior to finalising the Report, the Company will arrange a meeting with the CAA to enable the Supplier to discuss the approach that will have been to prepare the Report.

Annex 2: Updates to an earlier version of this analysis

This annex provides a cross reference between areas discussed with stakeholders on a previous iteration of a benchmarking aeronautical revenue report and where these areas are addressed in this report. The purpose is to support traceability for key methodology choices, data normalisation and interpretation of outputs.

Observation areas	Short response	Where covered in this report (section / figure / table)
Comparator airport sample	The original analysis included seven comparators. Six additional comparators have been incorporated into the study. This includes New York (JFK), Los Angeles (LAX), Melbourne (MEL), Hong Kong (HKG), Copenhagen (CPH) and Zurich (ZRH). These have been selected based on a set of criteria reflecting scale, geographic variation, data availability, international focus and operating activities.	Section 4 provides a summary of the rationale for selection of the comparator airports, and also discusses other airports considered but not included.
Transparency of adjustments	<p>This report has been developed with the aim to provide greater clarity on the approach, assumptions, evidence sources, and findings.</p> <p>The benchmarking methodology that is set out has been structured to support a transparent understanding, and sets out the process beginning with a baseline assessment, establishing the aeronautical revenue per passenger for Heathrow and each comparator airport using published financial and operational data. Comparator airports are then adjusted to reflect a hypothetical scenario in which each operates in West London reflecting external differences the exist between airports. No adjustment is made to Heathrow itself. Adjustments are applied only where evidence and sufficiently consistent data are available across the sample.</p> <p>The report also discusses drivers which may impact aeronautical revenue but have not been quantified. These should be treated as a contextual factor when interpreting the adjusted results.</p>	<p>Section 5 provides a summary, evidence and application of the adjustment in the analysis.</p> <p>Section 6 further provides a summary of the adjustments along with a discussion of how adjustments interact.</p> <p>Section 7 provides a summary of those drivers not included in the quantitative analysis.</p>
Treatment of group airports	<p>A number of key European comparators of Heathrow are part of wider airport groups including Amsterdam, Madrid, Frankfurt and Dublin. Excluding these airports would reduce the insights to be gained from the study.</p> <p>We take a pragmatic approach to groups, and where possible rely on breakdowns provided in annual reports. However, where this is not possible revenue and costs are allocated based on proportion of passengers and staff.</p>	<p>A discussion of the approach to groups airports is set out in Section 4.4.</p> <p>The baseline average without groups airports included is set out in Section 4.5, whilst Table 13 provides the adjusted findings excluding group airports.</p>
Inclusion of additional adjustments	<p>The only additional adjustment is Driver 3: Price differences which relates to Purchasing Power Parity.</p> <p>Whilst no further adjustments have been incorporated, some adjustments have been refined for example Driver 7: Operating Model, and a</p>	Section 5.5 provides details of Driver 3: Price differences.

Observation areas	Short response	Where covered in this report (section / figure / table)
	further discussion of drivers not incorporated in the analysis is set out in Section 7.	
Sensitivity tests	The average adjusted estimates, when excluding group airports, remains closely aligned with the overall comparator set. Segmentation by scale and geography reveals that larger airports and those located in Europe tend to report higher adjusted aeronautical revenue per passenger.	Table 13 provides a further breakdown of the findings into sub-categories to provide additional insights.
Construction cost indices	<p>The Arcadis ICC Index is adopted as the primary evidence base for this study because it:</p> <ul style="list-style-type: none"> • It includes all cities in the comparator airport sample, whereas the Turner & Townsend ISMC does not. • It covers a broader range of building types, including public sector and infrastructure projects, making it more applicable to airport developments. • The Arcadis index has shown consistent relative rankings over time; for example, the 2016 edition also placed London, New York, Hong Kong, and Copenhagen among the most expensive cities, with Madrid, Amsterdam, and Melbourne significantly lower. 	Section 5.3 provides a summary of the evidence around cost of construction.
Hub and spoke model and asset comparisons	<p>Hub airports, which accommodate a higher proportion of widebody aircraft, require longer runways, wider taxiways, larger parking stands, and multiple air bridges. Widebody aircraft also occupy airport assets for longer periods. Long-haul and transfer passengers longer in terminals than short-haul passengers, necessitating additional facilities and more complex infrastructure, such as baggage systems, security for transfer flows, and inter-terminal transport.</p> <p>Analysis set out in this report highlights the relationship between assets per passenger and the scale of the airport in terms of passengers, and the proportion of widebody aircraft movements.</p>	Section 5.9 provides a summary of the evidence around how the operating model of airlines impacts the asset requirements.
Existing rail assets at comparator airports	<p>Heathrow owns and operates both the inter-terminal rail system, and onward rail connections (i.e. Heathrow Express). Together this raises Heathrow’s asset base by around 5%.</p> <p>Other airports own and operate inter-terminal rail systems. However, none of the comparators owns and operates an onward connection.</p> <p>We do not have a split in the rail base between inter-terminal and onward rail connection and so a 50% assumption has been applied.</p>	Section 5.4 provides a summary of the evidence around rail assets.

Observation areas	Short response	Where covered in this report (section / figure / table)
<p>Operating hours</p>	<p>Airport operations are frequently subject to regulations that impose limitations on activity and capacity. Analysis previously undertaken by DfT, Airlines UK and DAA have highlighted the potential impact of these restrictions on passengers numbers.</p> <p>Some comparator airports operate without significant operational restrictions and as such potentially are able to have higher asset utilisation during different parts of the day.</p>	<p>Section 5.7 provides a summary of the evidence around operating hour restrictions.</p>
<p>Aircraft seating configurations and revenue mix</p>	<p>LCCs typically operate a high proportion of narrowbody aircraft on direct, origin-destination routes, achieving high load factors on each flight. In contrast, network carriers use a mix of narrowbody and widebody aircraft to aggregate demand at hub airports. Aircraft seating configurations also vary, with network carriers tending to offer more premium seating, resulting in fewer seats per aircraft compared to maximum capacity models. These differences mean that, for a given aircraft movement, the number of seats and the load factor can vary significantly depending on the business model, an important consideration where runway capacity is constrained, as it can limit the theoretical number of passengers per movement.</p>	<p>Section 5.9 provides a summary of the evidence around how the operating model of airlines impacts the asset requirements.</p>

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CREATE : CRT165319A | April 2026

