STUDIES IN REGULATION

Economic Rents at Heathrow Airport

David Starkie

NS 10.1 April 2020

REGULATORY POLICY INSTITUTE

Studies in Regulation, New Series

Published by the Regulatory Policy Institute
300 Banbury Road, Oxford OX2 7ED, UK
www.rpieurope.org

First published April 2020

ECONOMIC RENTS AT HEATHROW AIRPORT

David Starkie*

Abstract

The Paper challenges the common supposition that (scarcity) rents at Heathrow airport accrue from airlines charging efficient clearing prices and instead suggests that because of oligopolistic practices, much of the rent at Heathrow is quasi-monopoly rent. It also suggests remedies that could be implemented in the short term before more runway capacity is added and that if Heathrow airlines matched the average load-factors of those at London's other major airport, Gatwick, average fares might be as much as 5 per cent lower.

JEL Classification; D42, D43, D45, L41, L49, L51, L93, R49

Key Words: Heathrow Airport, scarcity rents, airline oligopoly, slot allocation, bilaterals.

The UK Airports Commission, established to advise the government on options for maintaining London's status as an international aviation hub, focussed much of its analysis on the supposition that airlines rationed limited capacity by charging passengers an efficient fares premium (a source of scarcity rents) and that, with expansion of runway capacity, this economic surplus would be transferred from producers (airlines) to consumers (passengers)[1]. Since it reported, half-a-dozen studies on behalf of different protagonists (the latest released in December 2019 by UK Civil Aviation Authority[2]) have produced different views on the subject; studies of scarcity rents are by no means scarce.

This Paper aims to broaden the perspective on a number of issues. In particular, it challenges the previous supposition that the (scarcity) rents accrue from airlines charging efficient clearing prices and instead suggests that because of oligopolistic practices, much of the rent at Heathrow is quasi-monopoly rent. It also suggests remedies that could be implemented in the short term before more runway capacity is added and that if Heathrow airlines matched the average load-factors of airlines at London's other major airport, Gatwick, average fares might be as much as 5 per cent lower.

*David Starkie is Senior Associate at Case Associates, London.

[1] Airports Commission: Final Report, July 2015.

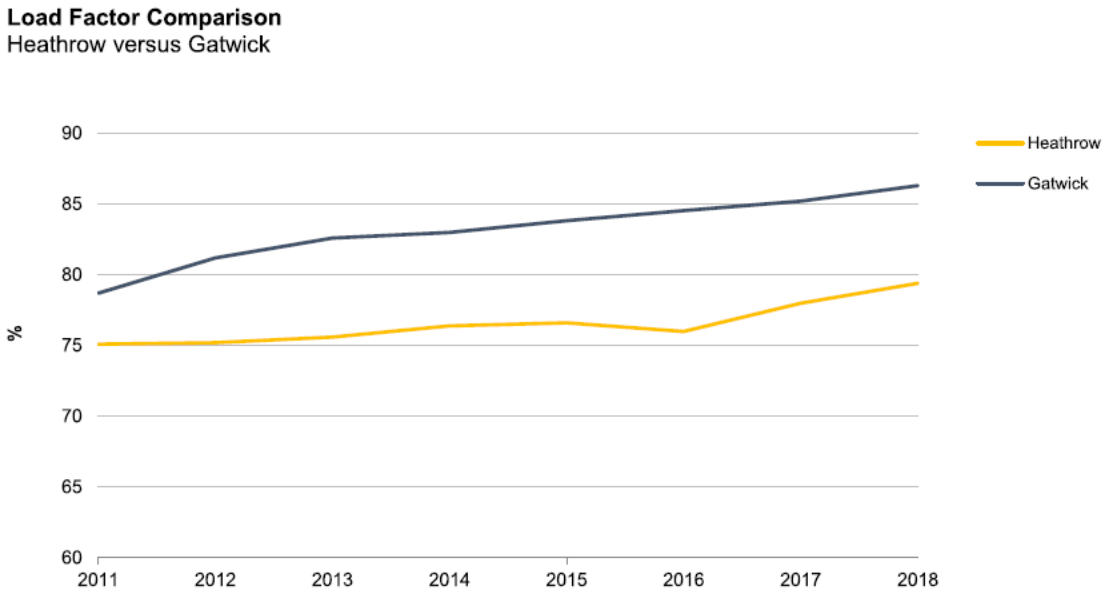
[2] Civil Aviation Authority, CAP 1871a, Review of Research on Scarcity Rents at Heathrow Airport http://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=list&type=search&search=CAP%201871A

Seat Occupancy of Heathrow Airlines

Heathrow currently is operating its two runways and associated infrastructure very close to existing declared capacity (about 99 per cent for runways), squeezing the Heathrow lemon. Given the huge pressures on the airport's infrastructure one might have expected airline load-factors to have followed suit, a presumption of which has focussed attention on scarcity rents and their legitimacy given the necessity to charge rationing prices. However, airlines operating out of Heathrow in 2018 had on average a load-factor of less than 80 per cent (see Figure 1). Although this statistic has increased recently, it is still significantly below the global average for the IATA airlines; it is these airlines that dominate the use of Heathrow[3].

FIGURE 1:

.



Source: S&P Global Ratings.

This is a remarkable outcome, not only because of the intense pressure at Heathrow on available take-off and landing slots, but because for most of the last decade load-factors hardly changed, despite growing air transport demand in the London region, a rigid supply of runway capacity and the large component of connecting traffic at the airport (24.8 per cent in 2018[4]), argued to be necessary to fill planes. The poor loading performance was also despite the availability and advancement of revenue management technology and techniques, one of the revolutionary features of modern aviation. The use of IT-based approaches to managing passenger demand has allowed airlines to price discriminate to a

[3] Note that the IATA global average is not inflated by the high load-factors of low-cost carriers like Ryanair and Easyjet which do not belong to IATA (and, of course, do not operate from Heathrow).
[4] The Heathrow general information website reports the 2018 statistic as 30 per cent.

much greater extent than previously, segmenting the market partly by time of booking. The effect of more sophisticated price discrimination than hitherto has been to bring marginal revenue from the marginal passenger closer to average revenue and thus closer to a level of output (seat occupancy) one would expect to find in a competitive market[5]. But at Heathrow it is as though this transformational development never happened.

The Heathrow average load-factor also happens to be well below that for Gatwick (see Figure 1). The different route structure, service offerings and airline mix at Gatwick is, of course, to be borne in mind, but BA (the dominant airline at Heathrow) has a major presence there too and in Winter 19/20 season for example was operating more than a score of long-haul routes out of the airport. These are mostly leisure oriented whilst Heathrow routes in contrast have an emphasis on the business traveller. But it is not immediately obvious why this should make such a difference to load-factors. Business travellers are paying for, amongst other things, a bigger, more comfortable seat and an upgraded cabin service, not to have their section of the aircraft less occupied than economy.

If Heathrow were to operate at Gatwick's average load-factor about 12million more annual passengers could be passing through the airport and the average fare yield would be lower (probably by about 5 per cent); consumers would then benefit well in advance of any new runway development[6].

With these unusually low seat utilisation figures for Heathrow in mind, one is drawn to the conclusion that notwithstanding the runway capacity constraints, many, if not most, of its user airlines seem to be setting prices in excess of those that might be expected to clear the market in seats supplied; consequently, too many seats are being flown empty and Heathrow's potential capacity is being squandered. If, indeed, this hypothesis is correct, then it adds an interesting twist to the role scarcity rents played in the economic case for Heathrow expansion; the magnitude of current rents (from premium air fares) at Heathrow is not the direct result of physical or regulatory constraints on runway capacity, but a result of oligopolistic competition between route-dominant airlines; they are quasi-monopoly rents, not scarcity rents[7].

Some Reasoning

Why, as hypothesised, might unusually low seat occupancy figures for airlines using Heathrow indicate oligopolistic behaviour and fares that are set too high?

[5] A number of low-cost airlines have shown it is possible using load management techniques to operate with *average* annual seat occupancy across an entire route/service portfolio at levels well above 90 percent.

[6] Declared runway capacity at Heathrow (and other constrained airports) takes into account limitations on stand and terminal capacity. Terminal capacity is thought to be about 90m annual passengers. The estimated lower yield is based on 6 per cent more seats sold (broadly the difference between Heathrow and Gatwick's average load-factors), at an inverse price elasticity of - 0.8 (an assumed blended elasticity for leisure/business).

[7] If airlines made much better use of existing aircraft capacity, the binding constraint would then become scarce airport capacity.

First, most airline route markets (and those from Heathrow are no exception) start out as 'thin' markets which develop density over time as demand for air travel grows. One might expect, therefore, such routes to operate initially, and for a time, as (natural) monopolies. In practice, they often started as duopolies and remained as such because the mercantilist traditions of aviation, operating through nation-to-nation bilateral air service agreements usually imposed this duopoly structure on route markets. The late 20th/early 21st century move to liberalisation relaxed controls in certain markets (the European single aviation market and the US-Europe open skies agreement being the two principal examples affecting Heathrow), but a culture of bilateralism dominates still much of global aviation (and it also set the initial tone within de-regulated markets).

Second, at capacity constrained airports like Heathrow, incumbent airlines enjoy the benefit of historic rights to runway slots which in the case of Heathrow are now very scarce. These rights are qualified by slot allocation rules (see below) but in essence existing users retain an entitlement which re-enforces the traditional patterns of use established by bilateral air service agreements. Where market entry has been opened-up, and this is the case for short-haul aviation between Heathrow and Europe, significant new entry is precluded by the lack of slots at the capacity constrained airport. Entry is limited to the few slots available late at night (for which there is no market) or odd slots becoming available as a result of occasional breach of slot utilisation rules by existing users, or by occasional and marginal changes in declared runway capacity.

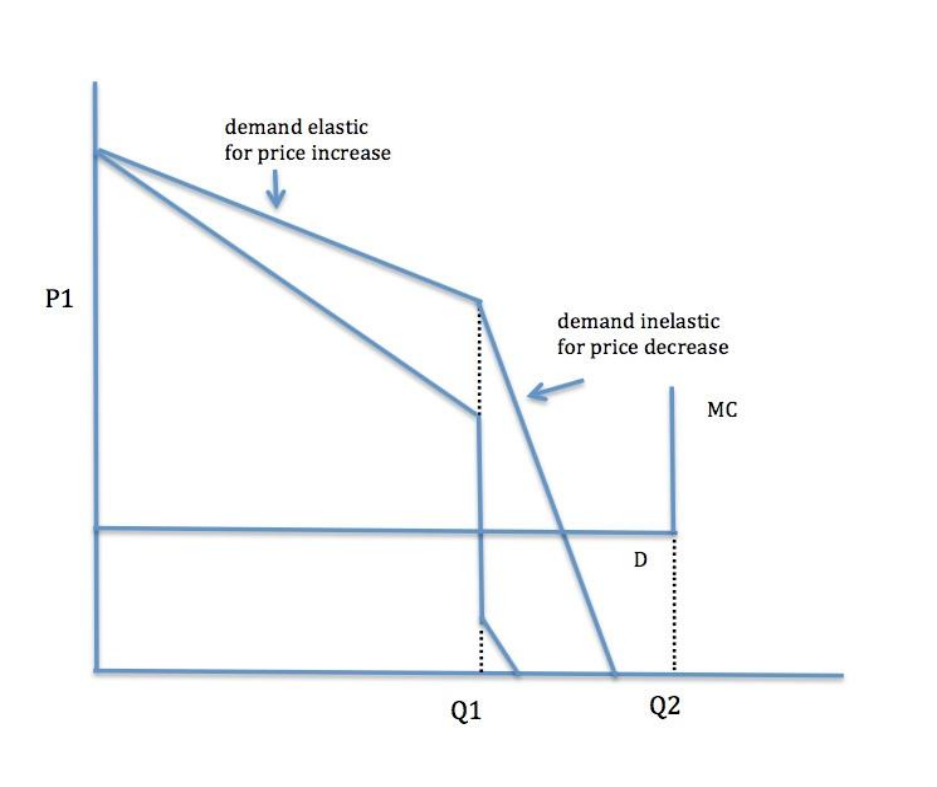
Third, at a route level, on the whole, there is a stable equilibrium in the short run; for this to change an airline serving a route has to switch capacity from other routes or, in the longer run, introduce new equipment (change of gauge). Such events, to a large extent, are 'telegraphed', partly through the forum of IATA's bi-annual international scheduling conferences. For any particular route, the outcome of IATA's seasonal conferences will be a service frequency generally co-ordinated and aligned with (limited) slot availability, leading to a route-specific commitment of seat capacity (a commitment made by one airline with pretty good knowledge of what its route rival(s) is expecting to do). Fares are then set to maximise profits in the context of the total supply of seats to that particular airport-to-airport market; profit maximising fares in an oligopolistic setting leaves many seats empty (see Box 1)[8].

A further impetus to low load-factors is added by the slot allocation rules. The allocation procedures require the surrender of grandfathered slots if not used for at least 80 per cent of the time in the equivalent (winter/summer) season. The re-allocation process for any slots which are returned to the pool places limitations on incumbent carriers' ability to claim them back. This means that at a congested airport like Heathrow, incumbents (particularly a large network carrier like BA) are intent on preserving their existing, potentially valuable, slot

[8] There will still be a competitive constraint from alternative airports used by other carriers in the same regional system, but London's airports generally are fairly slot constrained, particularly during the peaks, apart from which there are relatively few overlaps with Heathrow in long-haul markets. For connecting (long-haul) traffic, competition comes from alternative hub airports; this is possibly the most price competitive market sector.

allocation. The incentive on the airline therefore is to try and utilise slots come what may. This possibly adds to the incentive that has been argued to exist in markets that are subject to operating licences; the incentive is to over-supply denser markets, sometimes at the

BOX 1: OLIGOPOLISTIC BEHAVIOUR AT SLOT CONSTRAINED AIRPORTS



With two airlines serving a route the equilibrium price/quantity might be P1/Q1: Airline A raising its prices cannot be sure Airline B will follow suite; it is faced with elastic demand and a loss of market share if it does so. Conversely, with a price decrease it is likely that the competitor will also reduce prices to avoid loss of market share, so demand over this (lower) segment is inelastic: the outcome is a demand curve kinked at a stable equilibrium price. Note that there is a rigid (short run) aircraft capacity constraint at Q2. Quantity Q2-Q1 represents unsold seats. For duopoly routes from Heathrow the most likely outcome is a Cournot-Nash equilibrium. The outcome for routes with more than two airlines is most likely a modified Stackelberg oligopoly whereby an entrenched incumbent (in this case not necessarily the most efficient) decides on the quantity of seats it will place in the market and then other airlines (constrained by slot availability) follow its lead.

expense of thinner markets[9]. In practical terms in the Heathrow context this could result in too high a frequency, say, to New York (a long-haul dense market) or Dublin (a dense short-haul market). Airlines are further incentivised by the slot rule to compete by emphasising quality of service (of which frequency is an important component) at the expense of price competition; the outcome is low seat occupancy[10].

The recent study for the CAA by the Institute for Transport Studies (ITS) at Leeds University is a significant contribution in this field: greater attention was paid to how airlines behave (although the focus, following its remit, remained scarcity rents). It modified the usual diagrammatic stylisation of Heathrow rents; past diagrams have been based on the assumption that the binding constraint is fixed airport capacity (and by implication, that all flights are 'fully' loaded), thus treating all rent as scarcity rent. The ITS study, consistent with oligopolistic behaviour by market participants, introduces downward sloping marginal revenue curves in the context of incumbent airlines supplying seats whilst adopting the same simplifying illustrative assumptions of a linear demand curve, a constant airline marginal cost curve and a vertical constraint on airport capacity, but where the latter does not prove to be the binding constraint (see their Figure 3.4).

The study also proceeded to calculate, using assumed average fares and elasticities (the latter based on 2008 research by IATA), the implied quasi-monopoly rents at Heathrow according to different airline market shares. For example, with a route duopoly, the implied rent would be about 25 per cent (increasing to 50 per cent for a monopoly route). With an average short-haul fare (yield) out of Heathrow of £237 (based on Frontier's 2019 analysis) this would suggest a quasi-monopoly rent at the airport of nearly £60[11]. However, the level of calculated rent did prove highly sensitive to elasticity assumption and, of course, to airline market share.

Who Gets the Rents?

If, as suggested, Heathrow airlines are capturing substantial quasi-monopoly rents, why are they not reporting good profits? BA, the major airline operating at Heathrow, is part of the International Airline Group (IAG) which also includes Iberia. The operating margin for IAG

[9] See for example, Severin Borenstein, 'On the Efficiency of Competitive Markets for Operating Licences', *Quarterly Journal of Economics*, May 1988. This behaviour might be because scheduled carriers that are able to achieve the largest frequency share on a route may benefit from a disproportionately large market share and thus dominate a route.

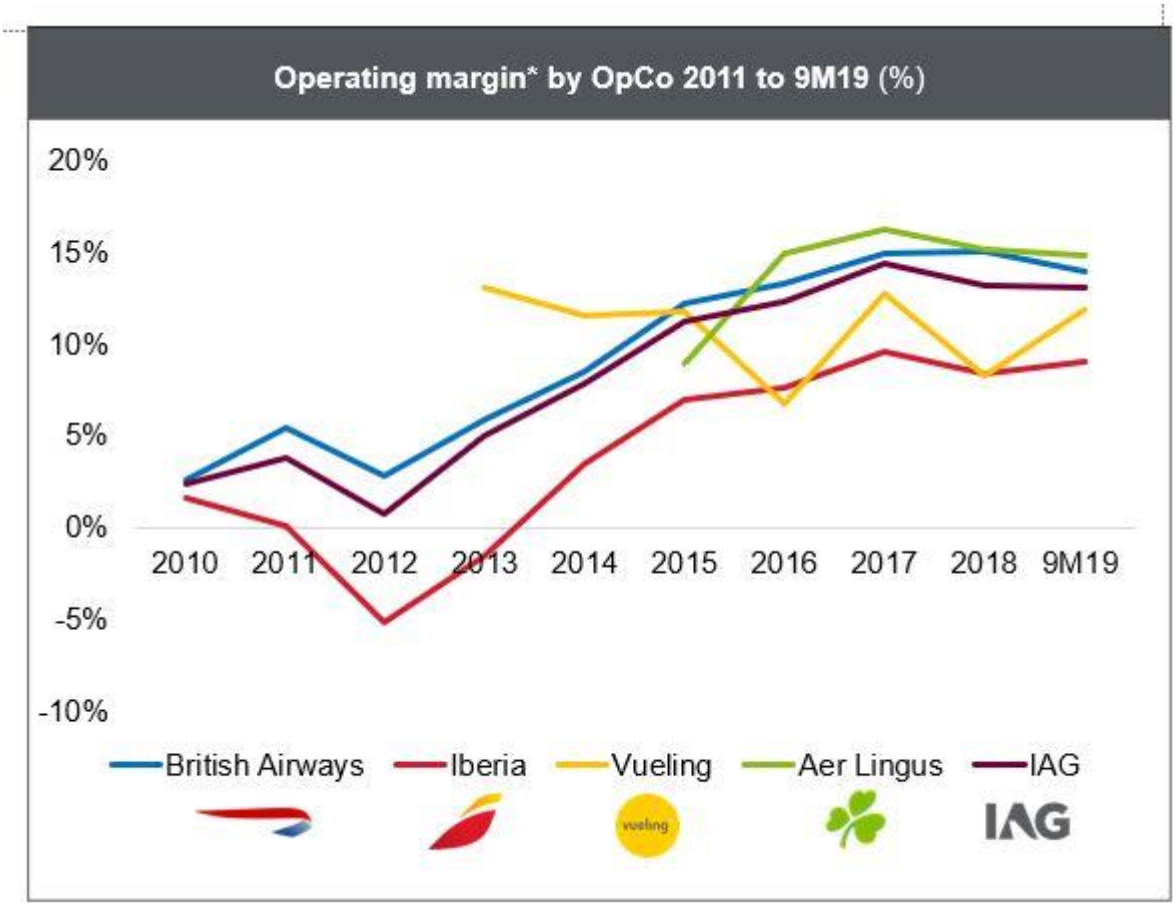
[10] Interestingly, a recent study noted: "for the main London airport regressions, own frequency is positive and statistically significant suggesting that holding everything else constant, more flights to the same destination from the airport in question is associated with higher fares on that particular route". See Frontier Economics, Competition and Choice 2017: a report prepared for Heathrow. https://www.caa.co.uk/uploadedFiles/CAA/Content/Accordion/Standard_Content/Commercial/Airports/HAL%20-%20Frontier%20Competition%20and%20Choice.pdf

[11] 'Average fare' needs careful interpretation. The fare paid by a passenger will vary considerably across routes and by time of day, season etc but there is also the issue that unlike in the past there is no longer such a thing as a posted (menu) fare. Seat offer-prices are subject to yield management and thus dynamic pricing, varying for the same flight and class of travel, literally minute by minute according to the pattern of demand, against a background of a fixed supply of seats for a particular flight (although seat numbers supplied can vary a little with changes in cabin layout and sometimes adjustments, usually small, in the type of aircraft operated).

group members is shown in Figure 2 which suggests in recent years a healthy margin of nearly 15 per cent for BA, distinctly higher than Iberia's margin and that of the low-cost carrier Vueling. It is not an exceptional performance, however, and no better than the Group's airline Aer Lingus with its main hub at Dublin which is less congested.

Heathrow (compared with Dublin) is an expensive hub to operate from, both in terms of aeronautical charges imposed by the airport and because of the difficulties of operating across a crowded, complex estate. In addition, there is the question of the operating efficiency of the airline: whether its historic dominance at Heathrow and its heritage as a nationalised flag-carrier, protected by bilateral agreements, allowed inefficient operating practices to develop (X-inefficiency) and resulted in an organisational culture that without strong competitive forces can take a long time to change. There is also the question of whether rents have been 'passed-on' to employees in inflated remuneration, including generous final salary pensions; an observation which in the past has led to the quip that BA was basically a pension fund with an airline on the side.

FIGURE 2



There is another aspect of 'who gets the rents' which is often overlooked. A significant (indirect) recipient is the UK Treasury as a result of the Air Passenger Duty (APD) levy, levied at the highest rate in Europe for short-haul flights and the highest in the OECD for long-haul. Duty is levied on passengers departing from most UK airports, with the rate depending on the passengers' final destination. There are two bands: one up to and including 2,000 miles and one over 2,000 miles, and three rates: two according to seat pitch (up to and more than 40 inches) and a higher rate meant to capture corporate jet aviation. The large volume of long-haul and business travel from Heathrow (33 per cent for the latter) does mean that Heathrow flights are contributing substantially to the approximately £3.5bn of total annual revenues from APD; much of the incidence of this tax will fall on Heathrow airlines (as opposed to their passengers). Without Air Passenger Duty, *ceteris paribus*, it is very likely that BA really would have much higher operating margins.

HAL's Damocles Moment

Heathrow Airport Limited (HAL) in the last couple of years appears to have changed tack by re-energising its approach to encouraging retail spending by passengers. The theory of two-sided markets suggests that an enterprise could modify and trim its prices on one side of its business platform with the intention of boosting sales of a complementary business on the other side. Airports with two principal sides to their business, an aeronautical side and a commercial retailing/property side, provide an example of potential two-sidedness. However, because HAL has a highly congested airside, for a number of years its incentive to boost revenues by cutting its charges and thus trying to attract more aircraft movements has not been obvious, besides which, such a strategy did not fit with its campaigning for runway expansion[12].

Now that the latter project seems to have been secured and with the Company straining to boost its cash-flow to fund a very expensive project for a third runway and accompanying infrastructure, this has focussed minds on how it might boost commercial revenues. As a consequence, it has focussed its attention on the rather poor average load-factors of its client airlines with a view to boosting the number of passengers passing through existing terminals. Heathrow Airport Limited's response has been to negotiate a growth incentive with airlines operating from Heathrow which aims to drive-up average load-factors over the next few years. As HAL overtly admits, its intention is to increase passenger volumes to generate more commercial revenues to pay for expansion[13].

[12] In the 1980s, Heathrow operated at a loss on its airside activities but its land-side concessions were profitable. For an early example of two-sided thinking in general and applied to Heathrow in particular, see David Starkie, Reforming UK Airport Regulation, *Journal of Transport Economics and Policy*, 35,1 (2001), re-printed in *Aviation Markets*, Ashgate, 2008.

[13] Heathrow Airport Limited, Decision 2020 Airport Charges, October 2019. https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/doing-business-with-heathrow/flights-condition-of-use/conditions-of-use-documents/Heathrow_Airport_Charges_and_Conditions_of_Use_2020.pdf. HAL operates under a single-till regulatory settlement but can keep revenues from out-performance during the regulatory settlement period (the current version of which, Q6, the CAA has agreed to extend beyond its original December 2018 termination date).

The overall pattern of aeronautical charges at Heathrow is now quite complex, with passenger charges varying by passenger destination and season of travel. In addition, there are movement charges varying by aircraft Chapter (quietness of aircraft) and aircraft parking charges.

The growth incentive comes via a continuation of seasonality discounts, introduced in 2019, which focuses on off-peak months. Last year the discounts applied only to passengers transferring between flights, but they are now extended to cover all passenger charges. Also maintained for 2020 is the departing passenger discount of £10.00 for European destinations "to address an imbalance in the European load-factor compared to non-European destination". (There is an additional connectivity discount for passengers on domestic flights, again introduced in 2019).

As a further overlay, there is for 2020 another incentive component applying in principle to all qualifying airlines subject to targets being met; this is an incentive charges rebate of £10 per departing passenger above 2019 actual volumes providing that: the airline has grown both total passenger numbers and departing passenger numbers during the year, and Heathrow's total passenger numbers increase from 2019 to 2020. In the event that the total rebate exceeds £8 million, the capped amount payable, the reward will be paid proportionally to all qualifying Airlines[14].

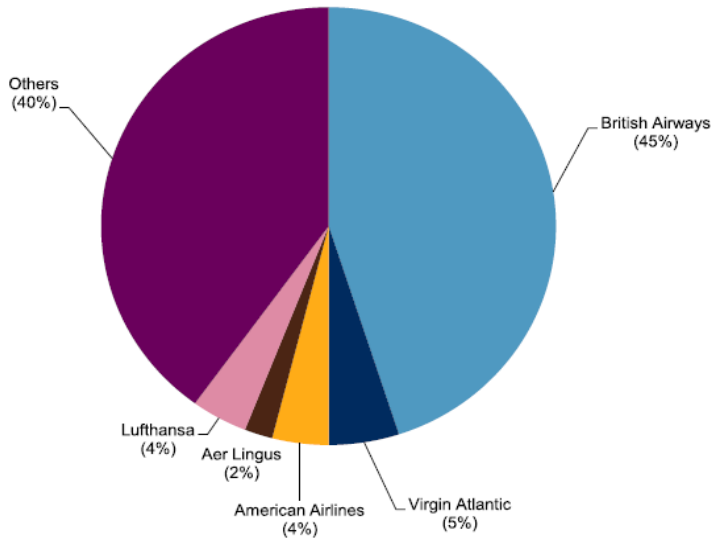
These initiatives are to be welcomed, but their impact is uncertain. They will push down the marginal cost curve of a short-haul operation by a little and that of a long-haul flight, hardly at all; the extent to which airlines would pass-through such a cost reduction is debatable. It also has to be borne in mind that there is a long tail of air carriers with a limited presence at Heathrow that operate within the context of protective bilateral air service agreements and are not always commercially-minded entities; serving Heathrow often confers status and to some, profits are a secondary consideration. In aggregate, airlines having a small presence at Heathrow command a large proportion, possibly as much as a third of Heathrow slots (see Figure 3)[15].

[14] Note that the capped amount is trivial in relation to Heathrow's total aeronautical charges income which was £1.745bn in 2018.

[15] Entrants in the last few years have included: Aeromexico, Avianca, China Southern Airlines, Garuda Indonesia Airlines, LAN Airlines, Philippine Airlines and Vietnam Airlines as well as China Eastern, Azerbaijan Airlines Air China, Air Astana, Ethiopian Airlines and Aeroflot Russian Airlines. Given the pattern of recent entry which has focussed on new thin routes within the context of bi-lateral restrictions one might speculate that the dominant airline, BA, at Heathrow might be relatively relaxed about the EU slot rule that provides for new entrant carriers to have first choice of spare capacity. This denies the use of new slots for competitive entry into core BA markets. However a recent (small) allocation has gone to Norwegian which is quite a different matter.

FIGURE 3

Heathrow's Airlines Served



Source: S&P Global Ratings.

What Remedies are Possible?

It now seems unlikely that the planned additional runway at Heathrow will be operational before 2028 and until then effective competitive entry will be impossible without a fundamental change in operating practices such as the introduction of mix-mode runway operations, currently ruled out for noise reasons[16]. Pending an additional large tranche of capacity coming on-stream, the seemingly oligopolistic behaviour of Heathrow's airlines and their self-imposed restrictions on output implicit in the remarkably low average load-factors, calls for urgent attention. HAL's incentive growth scheme, with its focus on the use of an economic incentive, is a step in the right direction but its marginal nature is unlikely itself to fundamentally change the oligopolistic behaviour of airlines, particularly bearing in mind the non-commercial mind-set of some.

One option is for HAL to adopt more radical economic incentives by re-structuring the charges schedule (within the constraints of the agreed revenue cap). At the present time, Heathrow raises the overwhelming majority of its aeronautical revenue from charges on passengers (71 per cent) and only 21 percent from movement charges levied on aircraft[17]. This balance does

[16] Another approach that seems to be treated as too radical, but perhaps should not be, is to open the first 2000m of the new runway (the section without the complications of crossing the M25 motorway) at an earlier date.

[17] Heathrow Airport Limited, Airport Charges and Passenger Volumes, undated https://www.heathrow.com/company/about-heathrow/economic-regulation/airport-charges-and-passenger-volumes

little to encourage airlines, protected from entry, to increase aircraft occupancy and is in marked contrast to the pattern of charges in the 20th century when the emphasis was on movement (landing) charges; indeed in the 1980s there were no charges on passengers. If the balance was shifted to increase the relative importance of movement charges in the charges schedule, this would increase the airlines fixed flight costs and provide more of an incentive to fill seats[18]. However, because such a move would change the balance of the demand risk faced by airlines, it could be expected to meet with fierce resistance across the board.

Under the terms of the 2012 Civil Aviation Act, the CAA now has a clear overriding duty to further the interests of users of air transport services - namely passengers. Addressing the low average load-factors at Heathrow would clearly be in their interest because it would bring additional seats to the market, potentially lowering the average fare yield. By making better use of existing aircraft capacity and thus a lower average carbon footprint per passenger, it would also be beneficial from an environmental viewpoint. A basic issue is whether the CAA has the levers to drive such a change?

One possibility might be to consider using the provisions in Part III of the Airports Act of 1986 (Regulation of Use of Airports) and specifically Sections 31, (possibly supplemented by 32 and 33). Section 31 provides powers to the CAA to make rules for the distribution of air traffic between airports that appear to serve the same area of the UK. Currently such Traffic Distribution Rules (TDRs) apply to Heathrow (and Gatwick) with the object of limiting access of freighter aircraft and corporate jets. Conveniently, the Act was modified by Statutory Order in 1991 so that it became the duty of the CAA to perform its route licensing functions to secure compliance with any traffic distribution rules in force. The exercise of such functions would of course have to be non-discriminatory as indeed are the existing application of the rules[19].

The specific suggestion is to introduce a TDR focussed on aircraft seat utilisation. Such a Rule would have to allow for the development and build-up of custom on (a few) newly opened routes and it would have to make reasonable allowances for service frequency so that for routes offering several daily rotations, off-peak flights were not unduly targeted. Therefore the rule might apply by stipulating a required overall average *route* load-factor. The required average might be segmented by route type (short-haul, long-haul) or at a more granular level, by targeting cabin-type (business versus economy). But the way in which a rule might be applied will depend a great deal on the statistical distribution of load-factors across the population of more than a thousand daily flights at Heathrow. If there is a distinctive tail of routes under-performing on load-factors, this might make the application of a TDR a little easier. But clearly the poor overall average level of seat occupancy at an airport where slots are in such great demand merits further investigation and, most likely, remedial measures.

[18] For a similar conclusion based on abstract modelling of charges at congested airports with oligopolistic airline behaviour, see Achim I. Czerny, Simon Cowan, and Anming Zhang How to mix per-flight and per-passenger based airport charges: The oligopoly case, *Transportation Research Part B* 104 (2017) 483–500.

[19] The effect of the rules is to direct air services not meeting certain criteria at one airport to alternative airports serving the same general area.

Conclusions

Much attention has been given to the topic of the economic rents accruing to airlines at Heathrow airport on the supposition that the magnitude of these rents is determined by the efficient rationing of scarce runway capacity and that the outcome of such rationing has been, overall, an efficient price premium paid by passengers. Here we have argued to the contrary: that airline fares are being set at quasi-monopoly levels and not at levels aiming to clear the quantity of seats supplied to the Heathrow market.

There is a strong *prima facie* case to support this point of view based on the observed remarkably low average load-factors of Heathrow's airlines and on the existence of factors which inhibit competitive entry into route markets, particularly the grandfathering of slots and a residual of bilateralism which still applies to a significant tranche of international aviation. Further enforcement of incumbents' market power comes from airline scheduling and slot allocation procedures: IATA scheduling conferences which telegraph to potential rivals broadly what capacity each airline proposes to commit to individual route markets each forthcoming season; and slot allocation regulations which incentivise airlines to inefficiently utilise slots rather than surrender them.

Remedies suggested include a more aggressive move by the airport company, HAL, to increase the aircraft movement charge relative to passenger-based charges. Anticipating the difficulties of achieving this outcome an alternative measure suggested is for the regulator, the CAA, to use its powers, including those to introduce traffic distribution rules, by focussing on minimum acceptable levels of average route load-factors thus forcing the sale of more seat-capacity that is currently available.

Finally, one can note that over the years the focus of economic regulation in the aviation sector has been airport market power. After the 1986 Airports Act economic regulation of airport charges applied to four UK airports deemed to have such power; this number has now been reduced, leaving only Heathrow subject to the standard regulatory price cap approach. The current approach to airport market power, now subject to tests set out in the 2012 Civil Aviation Act, is based on the premise that the airline market is competitive so that efficient levels of airport charge pass through to benefit the airline passenger. Long ago, Condie[20] suggested that the airport-airline relationship was more akin to bilateral oligopoly. Perhaps in future more attention might be given by regulators to examining the extent to which this is the case and thereby examining also the behaviour of airlines using congested airport hubs.

[20] Stuart Condie, 'Wither airport regulation', in B Bradshaw and H Lawton Smith (eds), *Privatization and Deregulation of Transport*, Macmillan Press, Basingstoke, 2000.