CAP 771

Connecting the Continents

Long Haul Passenger Operations from the UK

Civil Aviation Authority

Economic Regulation Group

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Executive Summary

The Civil Aviation Authority (CAA) last produced a report on the long haul market in 1994[1]. The significant changes that have occurred since that date – not least the freeing up of new markets such as India, and the recent EU-US Open Skies agreement – suggest it is timely to revisit this sector.

In 1994, relatively few long haul destinations outside North America were served with a daily departure from London, and it was common for these long haul flights to make multiple stops, thereby serving two or more destinations. The industry has grown significantly since then. In 2006, 47 million passengers travelled on long haul routes from UK airports, and in 2005, around 37 per cent of European long haul scheduled traffic (and 19 per cent of all global intercontinental traffic) consisted of passengers travelling to or from the UK.

Long haul services from the UK vary widely. Services to central African or ex-Soviet capital cities may be operated from London by a single airline departing only a few times per week, whereas, flights from London to New York are available virtually every half hour from one of ten scheduled carriers. Some services, such as Manchester-Orlando, carry mainly UK resident passengers travelling directly to their intended destination, whilst others, such as London-Mumbai, have a high proportion of non-UK passengers connecting in London from US or Canadian flights.

Short haul travel benefited hugely from the deregulation of the European market in the 1990s. By contrast, many long haul routes from the UK remain restricted in one way or another, although the more popular are increasingly becoming less constrained by governments – most notably in recent times those to India and (prospectively) the United States. This bodes well for future development of the industry, as well as for passengers who gain from greater competition on long haul routes.

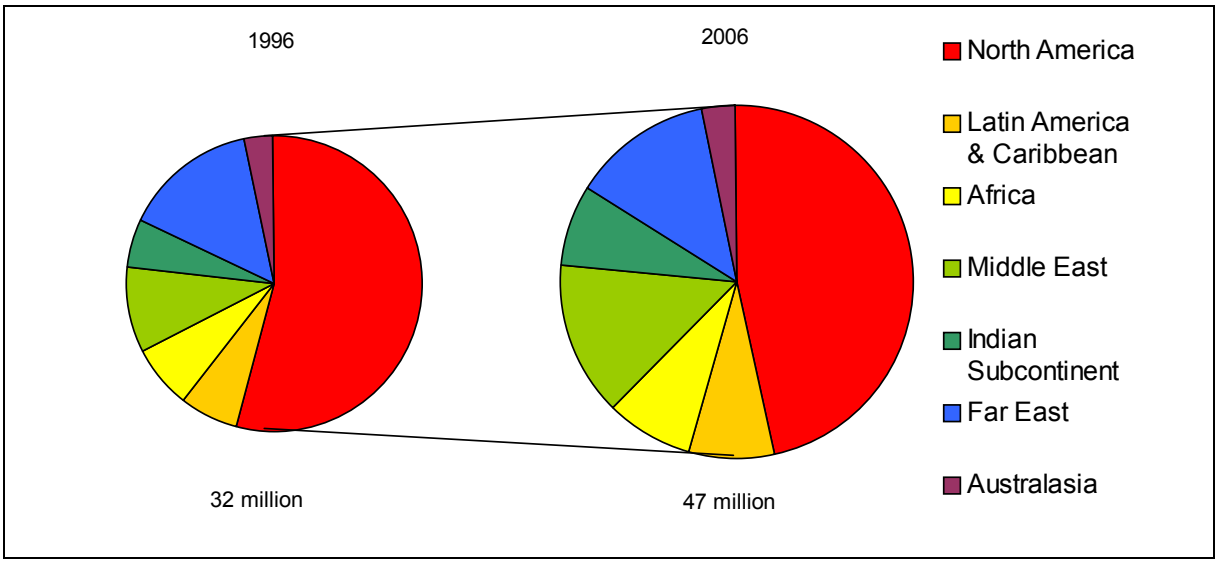
Many passengers on long haul flights at the UK's airports are not travelling to or from the UK at all, but simply making connections between international services. Such passengers accounted for around a quarter of the long haul traffic from the UK in 2005, or 11 million passengers. A similar proportion of long haul passengers to or from the UK are changing planes at the other end of their flight, some of whom will have made a connection in the UK as well. However, not all long haul journeys begin with a long haul flight: over three million passengers flying between the UK and a long haul destination in 2005 travelled via a short haul international hub airport.

What does the UK long haul market look like today?

In the period since the CAA's last study, the number of passengers travelling on long haul flights at UK airports, and the number of flights themselves, has grown by more than half. Scheduled services have grown faster than charter services. However, the same airlines operate the majority of long haul services as in 1994.

1. CAP 639, Airline Competition on European Long Haul Routes, Civil Aviation Authority, 1994

Figure 1 Growth in passengers on UK long haul services between 1996 and 2006



Source: CAA Airport Statistics.

North America is still the main long haul destination from the UK both in terms of passengers and flights. The *increase* in UK-US traffic since 1996 exceeds the *total* 2006 traffic between the UK and any other single long haul destination country. However, the rate of growth has been lower than for some other world regions, with the largest percentage increases in passengers being on routes to the Middle East, Indian Subcontinent and Latin America and Caribbean. For example, traffic between the UK and the United Arab Emirates in 2006 was more than four times its 1996 level of 0.7 million passengers.

What changes have occurred?

The recent EU-US Open Skies agreement – following hard on the heels of the UK-India and UK-Australia deals – is an important contribution to more liberalised long haul markets. When this agreement comes into force in early 2008, over 60 per cent of the UK's long haul passengers will be covered by Open Skies style agreements. Including the European common aviation area, over 90 per cent of the UK's international air travel will take place within Open Skies or more liberal Open Aviation Area-style agreements.

However, the regulatory systems governing long haul markets vary widely. The UK-New Zealand Open Aviation Area agreement, like the EU-US Open Skies agreement, allows any airline from either side to operate international services between any points, with no restrictions on frequency or fares. This contrasts with more restrictive, old-style bilateral Air Services Agreements (ASAs), such as that with Japan, which constrains carriers, fares and frequencies.

Although direct cause and effect is difficult to prove, it can be observed that those countries with more liberal agreements appear to have benefited in terms of traffic growth. For example, direct traffic between the UK and India doubled between 2004 and 2006, following an increase in the number of allowed services between the two countries. Some Middle Eastern countries have benefited from a high level of investment in their airlines and infrastructure as well as more liberal ASAs. Conversely, traffic between the UK and Japan, which remains bilaterally constrained, has traffic levels in 2006 similar to those in 1994. Hong Kong, whose bilateral restrictions on frequency of service have been regularly renegotiated in line with the growth in demand, is now the largest Far Eastern market from the UK.

Where do long haul passengers fly from?

For scheduled long haul services, Heathrow remains the main UK airport. With Gatwick, it accounts for 89 per cent of all long haul traffic, compared to 96 per cent in 1996. Feed traffic is important at these airports – over 30 per cent of passengers boarding scheduled long haul flights at Heathrow and over 20 per cent at Gatwick did not start their journeys in the UK at all, whereas at Manchester the figure is less than two per cent. For scheduled routes at regional airports, feed traffic at the other end is important – over 50 per cent of long haul passengers at Manchester make a connection at the other end of their flight. Around half of the passengers using long haul services at Heathrow, Gatwick and Manchester will be connecting onto another flight as part of their journey.

It is generally perceived that Heathrow is the preferred London airport for carriers. This study considers some routes which have switched between Gatwick and Heathrow, and observes that the preference for Heathrow appears to derive from the higher yields that can be obtained, possibly from access to greater numbers of business passengers, rather than the additional passengers that can be attracted.

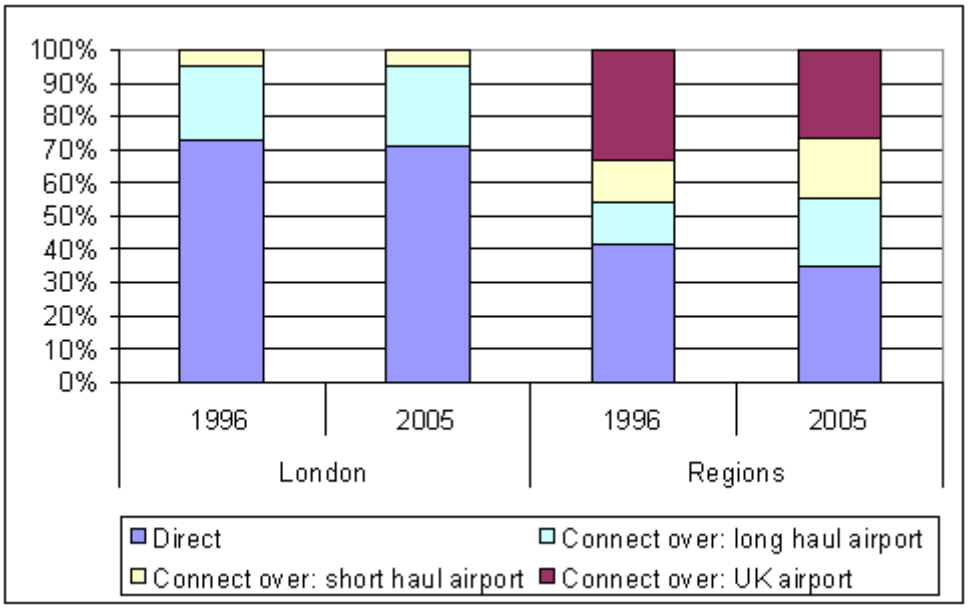
Long haul traffic is currently growing faster at the UK's regional airports (from 2.7 million long haul passengers in 1996 to 7.2 million in 2006) than at the London airports, largely due to non-UK network carriers (predominantly Continental and Emirates) serving their hub airports and UK carriers (mainly Virgin Atlantic and bmi) mostly serving leisure destinations for UK holidaymakers. The number of scheduled long haul flights and seats at the three larger regional airports, Manchester, Birmingham and Glasgow has more than doubled in the last ten years (during which time services have also begun at a further six regional airports). In addition, as more international short haul services become available from the regions, a smaller proportion of passengers are connecting over the London airports and more are connecting over short haul destinations.

How do passengers get where they are going?

Many long haul destinations are still not served directly from the UK, and, even for those that are, some passengers still choose a connecting flight through a short haul or long haul airport rather than the direct service. Where the choice exists, passengers seem less likely to choose a direct flight the further they travel (where the time penalty for indirect routes may represent a smaller proportion of the total journey time). If the destination country has a less liberal ASA with the UK – thereby potentially restricting direct services on the route – then indirect routes are also used more frequently, as they are for passengers travelling for leisure purposes or in the economy cabin (and therefore more likely to be attracted by the potentially lower fares available on connecting services).

Over the last ten years, increases in direct long haul flights from the UK regions, and in services to European hubs which can be used to connect onto long haul services, have all contributed to reducing the proportion of long haul passengers from the regions using the London airports. However, the growth in regional passengers connecting to long haul services at London airports over this period exceeds the overall growth of long haul traffic in London, indicating that the proportion of London long haul traffic connecting from domestic services has actually increased.

Figure 2 Routeings of long haul passengers travelling from London and Regional airports 1996 and 2005



Source: CAA Passenger Survey 1996, 2005.

What has been the effect on airlines?

Increasing competition on long haul routes appears to affect both fare levels and product offerings. Virgin Atlantic's entry onto the London-Johannesburg route in 1996 affected the *range* of economy fares types offered to the passenger, more than average fare *levels*, although these did fall. Published business class fares showed little evidence of reduction in this case, although innovation in airlines' business class offerings suggests competition on aspects other than price.

The nature of long haul services, and the competition they face, can affect the yields realised. In economy class, yield is *lower* for routes with longer sector lengths, where there are more than two direct carriers, for routes served in addition by carriers offering indirect routeings, and for routes with higher proportions of leisure passengers.

For certain routes, long haul airlines compete mainly through their higher-yielding premium cabin offerings. London's position as a major business centre provides a pool of customers who value comfort and frequency of service highly. Many companies enter into agreements with airlines that guarantee them discounts from the published fares, often dependent on taking a minimum number of flights. The carriers offering the widest range of destinations are likely to be most attractive for many such companies, and these are likely to be the airlines whose operations are based at airports in the same country as the companies are.

For many long haul airlines, membership of an alliance has replaced many of the codeshare agreements that were common at the time of the last CAA review of this area. At Heathrow, it appears that alliance membership has not increased the proportion of passengers connecting onto long haul services, although those passengers that do connect are more likely to be transferring between airlines from the same alliance, than they were with the old codeshare agreements.

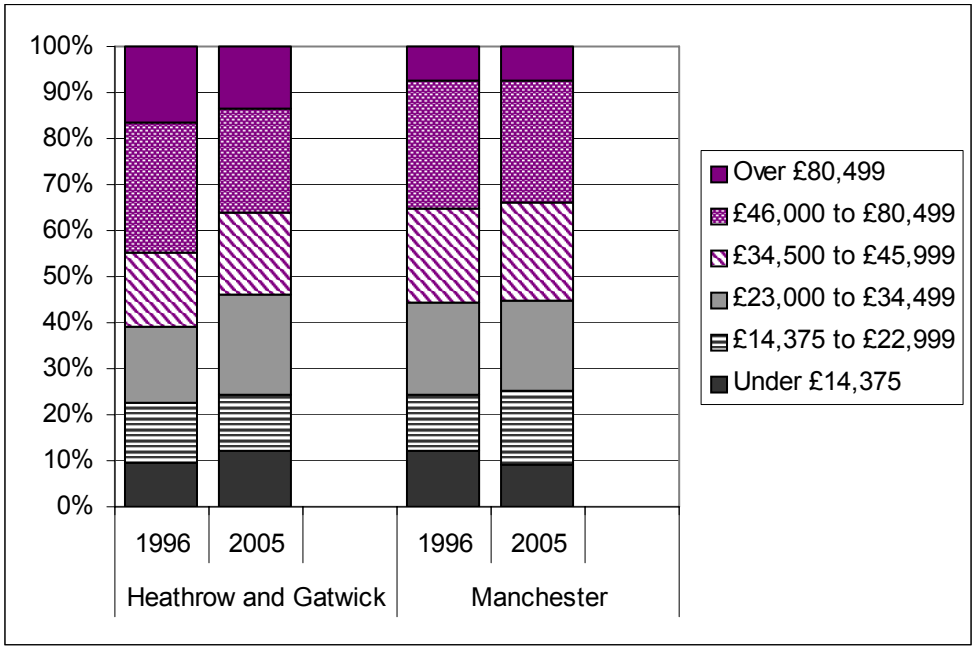
In general, airlines appear to have a 'home advantage' on long haul routes, in that they can attract a greater proportion of both business and leisure passengers who are resident in their home country than those resident elsewhere. This is unlikely to be due simply to passenger loyalties to their 'flag carriers', but rather to the effectiveness of advertising and loyalty schemes, or to cultural preferences around levels of service or in-flight catering.

The nature of long haul travel compared to short haul means that utilisation of aircraft and crew, and the consequent expenses incurred, is very different. Long haul operations can be expected to achieve higher aircraft utilisation rates, although this may be dependent on having a sufficiently large network or operating specific routes. However, crew costs are much more significant for long haul services than short haul, since the same pilots and cabin crew cannot perform both the outbound and return legs of a rotation.

Who is travelling?

The proportions of long haul passengers at UK airports split by gender, journey purpose and country of residence have not significantly changed between 1996 and 2005. There has, however, been an apparent shift in the income levels of long haul passengers, with a greater proportion of leisure passengers with household incomes of less than £34,500 and business passengers with personal incomes of less than £34,500 (both in 2005 prices).

Figure 3 Household income distribution of UK resident long haul leisure passengers 1996 and 2005, 2005 prices



Source: CAA Passenger Survey, 1996 and 2005.

Passengers travelling for business purposes make up around a quarter of all long haul traffic at UK airports. The majority of business passengers are using economy or premium economy tickets, and only about a quarter of these are using fully flexible tickets. However, it remains the case that passengers using the premium cabins or on fully flexible tickets are much more likely to be travelling for business purposes.

What's next for long haul?

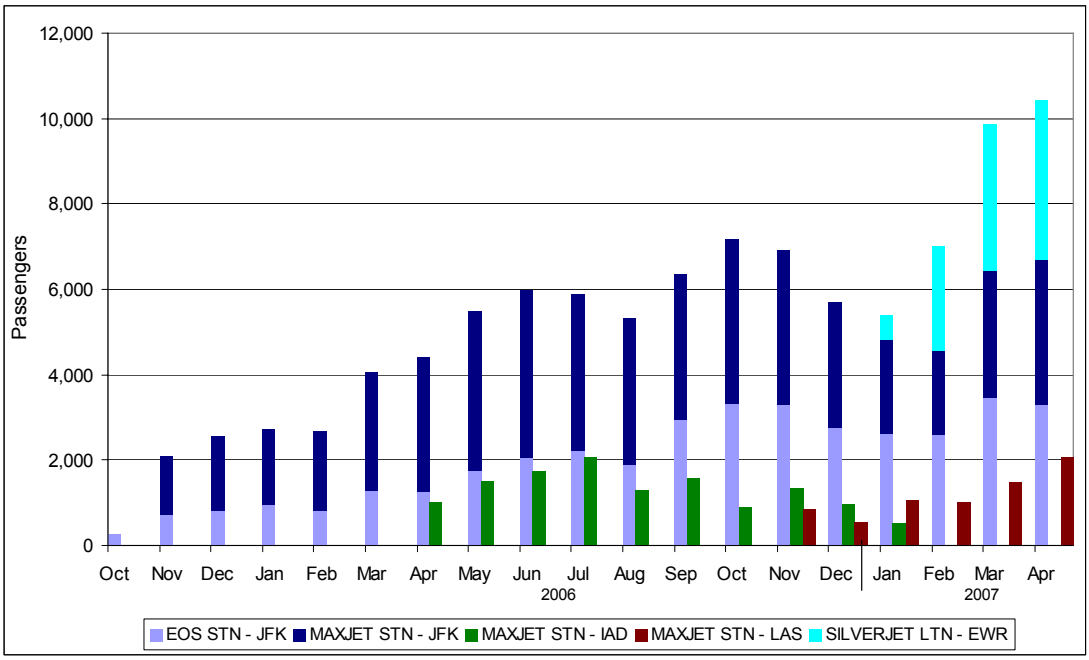
Many carriers have signalled their intention to continue to build sixth freedom services in order to expand their hubs and exploit foreign markets. For example, the latest generation of Middle Eastern carriers which have adopted this business model have grown significantly in the last ten years and have further orders for many new aircraft. However, the effects on any one route will be limited to some extent by the need to provide convenient connection times at a hub between inbound and outbound flights.

The new types of aircraft due to come into service in the next few years – in particular the Airbus A380 (first deliveries in October 2007) and the Boeing 787 (in 2008) – offer the possibility of reduced average costs per seat on long haul routes, which could lead to falling prices or changes in patterns of operations.

Although there is potential for cost savings on long haul routes, a viable low cost long haul operation is likely to need a somewhat different business model from the majority of short haul no frills operators. In particular, a high-frequency economy-only operation, one of the key attributes of no frills carriers, seems unlikely to be successful on all but the thickest long haul routes from the UK, and, of the airlines that have recently proposed or begun services in the UK branded as low cost long haul, most include two cabin classes or more.

Some carriers have sought to identify other niches in the long haul market, such as business-only scheduled services, some of which have begun operating from the UK, primarily offering services between London and New York. Most are only in their first or second year of operation and in 2006 appeared to have around ten per cent of the premium class passengers on this route. Growth in this market is planned - in 2007, the capacity offered by the business-only carriers on the London-New York routes is likely to be 100 per cent higher than in 2006. There has also been an increase in recent years in business travellers hiring or owning a share in an aircraft, or making use of private jets.

Figure 4 Passenger carryings of business-only operators serving London



Source: CAA Airport Statistics.
Note: STN=Stansted, LTN=Luton, JFK=New York(JFK), EWR=New York(Newark), IAD=Washington, LAS=Las Vegas.

What constitutes a long haul 'market'?

It is sometimes necessary, for example in competition or merger cases, to provide a market definition for aviation services. This paper examines the various factors that may affect competition, and therefore the definition of a 'market' for long haul passenger services. A review of analysis and conclusions from case law indicates that each case will need to be considered on its own merits. There are however a number of factors that are likely to be relevant in many cases; these include: journey purpose; time sensitive and non time sensitive passengers/ ticket type; routes – expressed as either city or airport pairs; nature of feed traffic; origin and destination of passengers; and the nature of indirect competition.

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Chapter 1 Background

1 Introduction

1.1 In 1994 the CAA published a comprehensive study of European long haul passenger markets[1]. This new study complements and updates the 1994 publication. Focusing on long haul passenger operations to and from the UK, it highlights the main characteristics and how they have changed over the intervening years. It also looks at the impact of possible future developments in long haul travel, some of the newer business models that are emerging, and examines the factors that will inform the definition of relevant markets for long haul air travel.

1.2 This study forms part of the CAA's ongoing efforts to publish analysis and information about the aviation industry, the better to offer advice to Government and to inform public debate. The results of this analysis should form a useful input into future regulatory and policy decisions concerning long haul air services.

Structure

1.3 This document addresses the following questions:

- How have long haul operations from the UK developed over the last decade?
- How do airlines use their networks to support long haul services and how does this affect London and regional airports?
- What characteristics of a long haul passenger operation differentiate it from short haul and how do they affect the services offered on long haul routes?
- What sort of passengers use UK long haul services and what factors affect their choice of routeing and airline?
- What are the likely future developments in long haul travel and what new business models are emerging?

1.4 This chapter sets out the scope of the study, including the definition of long haul that has been used. It reviews the key findings and recommendations of the CAA's 1994 long haul document, discusses whether they are still relevant today, and summarises the key changes in liberalisation of passenger air transport services from the UK. It analyses the changing nature of long haul traffic and routes offered from the UK over the past ten years, and the relationship to the development of global aviation. It also examines the concept of market definition for competition purposes on long haul routes and reviews some definitions previously proposed in specific competition cases.

1.5 Chapter 2 examines the route characteristics of long haul services, including the network effects that play a significant part in long haul travel to and from the UK, both by considering the long haul services offered from the UK and the feed traffic provided from either end of a route; and through analysing the expansion of long haul services from the UK's regional airports (often as feeder services into foreign hubs[2]). There is also an analysis of long haul services that have transferred between Heathrow and Gatwick.

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1. CAP 639, Airline Competition on European Long Haul Routes, Civil Aviation Authority, 1994.
2. An airline 'hub and spoke' network consists of a central airport (the hub) from which routes (the spokes) extend outwards. Passengers connecting through the hub, which ideally will be located such that the airline efficiency gains are maximised, can travel between any two points served by a spoke.

1.6 Chapter 3 examines the different aspects of airline operations that may affect the way long haul services are operated. These aspects include the difference between charter and scheduled carriers, membership of an airline alliance, aircraft and crew utilisation, and the importance of cargo revenue to passenger services. This chapter includes a case study of a route where market liberalisation allowed a third carrier to enter alongside the traditional national carriers. It also sets out a statistical analysis of the factors determining airline yields for economy passengers on long haul services from the UK.

1.7 Chapter 4 examines the characteristics of typical long haul passengers. The CAA Passenger Survey collects information from departing passengers on a wide variety of passenger characteristics, such as gender, journey purpose, country of residence, income and trip length. The chapter also considers the routeings passengers use to travel between the UK and long haul destinations and how these have changed, the correlation between journey purpose and the use of premium cabins, and the effects of 'flag loyalty' on the choice of airline by passengers.

1.8 Chapter 5 investigates some of the ways in which long haul operations have developed and may develop further. Although the majority of long haul travel to and from the UK is still undertaken by the traditional network of national carriers, there has been a gradual increase in other, more diverse, business models. This chapter reviews the services offered by sixth freedom[3] carriers and discusses the opportunities for low cost or business only long haul services.

3. Sixth freedom services are those operated between two foreign points via an intermediate point in the carrier's home country. A summary of all the 'freedoms of the air' can be found in Annex A.

2 Scope

2.1 This study will examine various aspects of long haul passenger air services operating to and from UK airports. It will not consider cargo only operations or non-commercial operations.

2.2 For the purposes of this study, long haul is defined as all those destinations outside geographical Europe and North Africa[4], but where, for convenience, all destinations in both Russia and Turkey are defined as short haul[5]. Other definitions exist, for instance based on journey time, which would capture the perceptions of the travelling passenger and could be defined as those destinations for which it is not possible for a single air crew to perform a complete rotation within one working day[6], although this would mean that long haul destinations could differ between UK airports[7]. Long haul routes could also be defined by the aircraft type or cabin configuration used on a flight[8], but this definition could produce a single route served with a short haul service by one airline and a long haul service by another.

2.3 The study uses evidence from airline schedules and fares, the aviation data collected by the CAA as part of its duties[9] and the CAA's own departing passenger survey, which takes place each year at various UK airports. It also draws on other relevant material, such as airline merger decisions by various competition authorities, where these have sought to define the relevant market for a long haul route in competition terms.

2.4 The key years for comparison in this study are 1996, 2005 and 2006, since relevant data is most readily available for these years. The CAA's airport statistics record all commercial traffic arriving and departing the major UK airports and, at the time of writing, contained annual data up to 2006. Interviews for the CAA Passenger Survey have been carried out each year at the key long haul airports of Heathrow, Gatwick and Manchester since 1996, although before then they had not been sampled in the same year since 1987. At the time of writing, the latest available survey data were from 2005.

2.5 A proportion of long haul flights recorded in the CAA's airport statistics will make multiple stops where passengers can leave and join the service, and this leads to two different ways to categorise the data. For example, a flight departing from Heathrow to Sydney may also make a stop in Singapore where some of the passengers may complete their journey, with the remainder travelling on to Sydney. When considering only passenger journeys, it is sensible to assign the passengers to the airport at which they disembark, where known, and this will be called 'passenger related' data[10]. However, when considering the numbers of flights offered and passengers carried on a particular route served by an airline from a UK airport, it is sensible to assign each movement and all the passengers on board when the flight departs the UK to the same overseas airport. In this instance, the first airport on the route will be used and this will be called 'aircraft related' data[11]. Similar definitions will apply to data about inbound flights to UK airports.

4. Morocco, Algeria, Tunisia, Libya and Egypt.
5. The majority of air services from the UK to Russia are to destinations west of the Urals and likewise the majority of flights to Turkey are to Istanbul or destinations on the Mediterranean coast.
6. Crew costs for long haul routes are therefore by definition significantly higher (per seat if not per seat kilometre) than for short haul.
7. For instance, flights to Tripoli from Edinburgh take around 4.5 hours whereas from Heathrow they are approximately 3.5 hours.
8. For instance, BA's 2006 factbook reports that it configures its Boeing 767-300s with up to 252 seats in two cabins for short haul routes and up to 189 seats in three cabins for long haul.
9. Under the Chicago convention, the UK Government is obliged to report passenger and flight numbers from all major UK airports and financial data for all major UK airlines to ICAO.
10. In the example, some of the passengers would be assigned to London-Singapore and some to London-Sydney.
11. In the example, all the passengers on the flight would be assigned to London-Singapore.

2.6 Throughout this study, all traffic figures should be taken to refer to a two-way flow (so for example, "passengers travelling between London and New York" or "passengers on the London-New York service" includes those on flights from London to New York and those on flights from New York to London).

Sustainability

2.7 This report analyses and makes observations about current, and potential future, characteristics of the long haul industry. It does not attempt to make judgements about possible future growth in the market, and as such does not attempt to examine the potential impact of any environmental measures or issues on the industry.

2.8 However, the CAA recognises that environmental issues pose a challenge for the aviation industry as a whole. The CAA supports the Government's objectives for sustainable development and tackling climate change, including the principle, reiterated in the Future of Air Transport Progress Report[12], that aviation should meet its full environmental costs[13], as should all sectors of the economy. So long as aviation meets its full environmental costs, it should only grow where economic and social benefits outweigh related costs.

2.9 The CAA supports measures aimed at achieving this goal, such as the introduction of aviation into the EU emissions trading scheme. The industry itself is also taking steps which will improve environmental performance, such as the renewal of fleets with more fuel-efficient aircraft, while, for example, the delivery of efficiencies in other areas such as air traffic management could offer further environmental benefits in the future. These issues and measures may have implications for the future development of the long haul market; however, this is outwith the coverage of this report.

12. http://www.dft.gov.uk/about/strategy/whitepapers/air/aviationprogressreportsection/
13. http://www.caa.co.uk/docs/286/Aviation%20Environmental%20Policy.pdf

3 Update on the 1994 CAA long haul study

3.1 The CAA's 1994 document, 'Airline Competition on European Long Haul Routes' contained a review of the state of competition for the major European long haul routes[14], considered issues that could affect future competition and offered an assessment of the scope for increased competition.

Long haul services from Europe – findings in 1994

3.2 Then, as now, the routes between Europe, and particularly the UK, and the US comprised by far the largest proportion of long haul operations, with most passengers from Europe's main capital cities having access to frequent, non-stop services to the main US gateways. Although they were less onerous than those on Europe-Far East routes, bilateral restrictions also varied between European countries and the US, and were still impeding the effective working of market forces.

3.3 In the first and business class segment of the Europe-US market, there was little evidence of competition on fares, although it may have existed on non-price aspects of flight. However, yields on Europe-US routes overall were low compared with other long haul destinations, as were costs, and profitability was in aggregate poor, although this concealed a wide variation between different routes and airlines. UK carriers secured satisfactory profits on their North Atlantic routes, due to their emphasis on yield management. The report suggested that, for long haul economy travel, Europe-US air services operated within an environment that was generally the most competitive, albeit not uniformly so.

3.4 The general conclusion was that US airlines were somewhat larger than their European counterparts[15], that the North Atlantic was of less significance to their overall output, and that they were particularly dominant at their US hub airports[16]. Although British Airways (BA) and Virgin Atlantic (Virgin) operated successfully on their US routes, the same was not true of many European carriers. Even for the UK airlines, lack of access to the large domestic market behind the US gateways could still be a severe disadvantage, even in an otherwise more liberalised market.

3.5 Routes between Europe and Japan were amongst the fastest growing long haul services over the ten years preceding the 1994 report, and this country had the third largest traffic flows from Europe, after the US and Canada. Despite this, only five European countries had a daily service to Japan and, for the UK at least, survey data showed no major indirect traffic flows to or from Japan, so connecting services were unlikely to be much of a competitive constraint. Although bilateral constraints between Japan and the European countries had loosened to keep pace with growth, remaining bilateral constraints and slot shortages, particularly at Tokyo (Narita) airport, prevented increased competition. For both leisure and business travel, fare structures and levels seemed little affected by any competition, with IATA tariff agreements, reinforced by Japanese Government regulation, a major factor.

3.6 Routes between the Far East and Europe were relatively thin, especially for leisure destinations where flights typically served more than one point. Of the 41 city-pair routes from Europe to Bangkok, Hong Kong and Singapore, less than a third were served by more than two airlines and, even for these, the third carrier was unlikely to provide even a near-daily service (Qantas on London-Bangkok and London-Singapore

14. To the US, Japan and the Far East / Australasia in general. In the 1994 document, 'Europe' refers to the UK, Germany, France, Italy, the Netherlands, Belgium, Luxembourg, Denmark, Ireland, Greece, Spain, Portugal, Austria, Finland, Norway, Sweden and Switzerland.
15. The largest US airlines had turnovers between $12bn and $16bn, whereas the largest European airlines had turnovers between $9bn and $11bn.
16. Delta's share of total enplanements at its US hubs of Atlanta and Cincinnati was in excess of 75% in 1993.

being the exception). Indirect competition from sixth freedom carriers was fragmented and unlikely to provide much competitive pressure, in part because price competition was impeded by government restrictions and the influence of IATA agreements. European governments had also tended to use bilateral restrictions to limit the capacity offered by Far East airlines so as to protect their carriers against these airlines' lower costs.

3.7 UK services had the largest share of markets between Europe and Australia / New Zealand, and accounted for three quarters of the total capacity from Europe. The market was considered to consist of (at least) two distinct segments: those passengers wanting to stop over between the UK and Australia (for whom flag carriers from intermediate countries provided a good deal of choice) and those not wishing to (for whom choice was more limited, particularly in the light of BA and Qantas co-ordination). However, because even third/fourth freedom carriers had to make a technical stop in the Far East (or US), sixth freedom operators had been able to secure a substantial share of the market, and were considered to have made it difficult for BA and Qantas to contain competition on the route.

Competition – findings in 1994

3.8 In considering the potential for future competition, the document noted the effects of bilateral relations, financial issues, economies of scale and scope, airlines' commercial strategies, and airport constraints. For the UK, it stated that the emphasis in bilateral relations had been on the establishment of liberal agreements, with the US being the main exception. It also noted that moves to have the European Commission negotiate Air Services Agreements[17] (ASAs) on behalf of the EU as a whole were being resisted by many member state governments. For the future, it predicted that the EU's role, combined with the rise of airline alliances and the recognition of the need for commercially motivated airline management, might challenge the established system of bilateral arrangements.

3.9 High start-up costs were considered to make it difficult for long haul entrants to benefit from scale economies available to network carriers, since they were likely to begin operating on only a small set of routes. Network carriers could also benefit from scope economies given their better access to feed traffic from their other routes. For the future, the document recognised the possibility of increased competition between Europe's major airlines and non-European carriers (caused by a relaxation of regulations on fares, ownership and designation).

3.10 The effect on competition of the spate of alliance-building[18] was considered hard to predict in 1994. Other airline strategies that were highlighted as having an impact on competition were the use of commission overrides[19] for travel agents, corporate rebates, codesharing and frequent flyer programmes. At airports, the constraints on apron and stand capacity at some of the major hub airports were considered of more relevance to long haul routes than runway capacity because of the lower frequencies required to serve long haul routes and the greater flexibility in scheduling that was possible for flights of longer duration.

17. An Air Services Agreement (ASA) is an agreement which allows civil aviation with negotiated restrictions between the participating countries.
18. Here the term 'alliance' was taken to mean the bilateral agreements reached between airlines on particular routes, typically through codesharing arrangements often backed up with anti-trust immunity. It predates the current global airline alliances of Star Alliance, oneworld and SkyTeam.
19. Defined in paragraph 3.17 below.

Competition – developments since 1994

3.11 Although North America is still the main long haul destination from the UK both in terms of passengers and flights, growth has been lower than for some other world regions. The largest increases in passengers have been on UK-Middle East, UK-Indian Subcontinent and UK-Latin America and Caribbean routes. The Middle Eastern countries have benefited from a high level of investment in their airlines and infrastructure, as well as more liberal ASAs. This has allowed them to offer high frequency from a variety of airports, in turn permitting a wide range of connecting possibilities coordinated at their hub airports, and hence competitive services on a sixth freedom basis.

3.12 UK-India services have also benefited from liberalisation in recent years with a consequent increase in frequencies and destination choice, whereas routes between the UK and Japan, which remain bilaterally constrained, have traffic levels in 2006 similar to those in 1994. Hong Kong, whose bilateral restrictions on frequency of service have been regularly renegotiated in line with growth in demand, is now the largest Far Eastern market from the UK.

3.13 The high growth in services to Central and South America has been driven by UK holidaymakers travelling to destinations in Mexico, Cuba and the West Indies. This demand has been served by charter carriers, mainly to resort airports in Mexico, Cuba, and the Dominican Republic, and scheduled carriers, through their services to the smaller Caribbean islands.

3.14 In early 2004, the European Commission was given a mandate to negotiate an ASA between Europe and the US, and in 2007 agreement on an 'Open Skies' deal was reached. Negotiation of ASAs between Europe and other long haul markets has so far remained the responsibility of the individual member states, although there is now a requirement for member states to seek a community designation clause[20] in their agreements.

3.15 The efforts of the UK Government to liberalise many of the bilateral ASAs which affect long haul destinations together with increased passenger demand has led to the introduction of third and sometimes fourth carriers on many routes from the UK. This, together with the extra competition from strong sixth freedom carriers, has recently led the CAA to withdraw from its fares regulation on all long haul routes[21].

3.16 The four largest European long haul airlines identified in 1994[22] still predominate, although Air France and KLM are now part of the same airline group, Lufthansa has merged with SWISS, and Virgin has grown significantly to establish itself as one of Europe's main long haul airlines. Many of the major US and European long haul airlines are now part of alliances[23], which allows them to codeshare, coordinate marketing and frequent flyer programmes and, where competition authorities allow, fares and schedules. UK airlines are still amongst the more profitable on long haul routes. Lufthansa and Air France / KLM are in a much stronger financial position than was the case in 1994, whereas many of the US airlines[24] have spent some of the intervening time in 'Chapter 11' bankruptcy, having filed for protection from creditors while restructuring.

20. This clause requires that all EU airlines be afforded the same rights within a bilateral agreement between any member state and any other country. Although becoming more commonplace, these clauses are still rarely used for long haul services. One example, Corsair, is German owned and controlled but serves Madagascar and Cuba from its base at Paris (Orly) airport.
21. US routes were a temporary exception to this policy, but fares regulation will also be lifted on these routes from August 2007.
22. BA, Lufthansa, KLM and Air France.
23. The history of the three main airline alliances is discussed further in Chapter 3 section 5.
24. All of the major transatlantic US airlines with the exception of American.

3.17 The provision of commission overrides to agents, whereby extra commission is paid once the agent has sold a certain volume of seats for a particular airline, was highlighted in 1994 as a possible cause for concern. High street agents no longer sell the majority of tickets to leisure passengers, as airlines increasingly use other channels such as the internet. Efforts by airlines to reduce costs have led many of them to lower significantly, or in some cases remove altogether, their commission payments to agents. However, override agreements with agents still exist and may be significant, particularly on those routes where passengers are more likely to travel as part of an inclusive tour package.

3.18 The CAA's 1994 long haul document concluded that regulatory action was probably not justified in the case of commission overrides to agents, and if it were, then this would need to be at a supra-national level involving the European Commission, US authorities and probably others. In 1999, the European Commission declared that since 1992 BA had been infringing Article 82 of the Treaty of Rome by operating a commission override scheme which, by rewarding loyalty from and discriminating between agents, had the object and effect of excluding BA's competitors from the UK markets for air transport. The Decision[25] imposed a fine of €6.8m for this abuse of a dominant position, and required BA to end the infringement immediately. BA changed the terms of the scheme but continued to appeal the Decision. The European Court of First Instance upheld the Decision in 2003 and BA lost a further appeal to the European Court of Justice in March 2007.

3.19 Corporate deals, whereby airlines agree volume discounts with particular companies similar to those offered to agents, were considered to be a greater potential competition concern in 1994 and they still play a large part in the sales of premium class tickets[26]. Like commission overrides to agents, such deals often contain volume related discounts (i.e. where greater, or even retrospective, reductions are available once a certain number of tickets has been purchased). The European Commission noted in its decision on the Air France / KLM merger in 2004 that corporate customers generally agree non-exclusive contracts with airlines or airline alliances[27] and so tend not to be tied to just one carrier.

3.20 As noted in 1994, major carriers could, in theory, use these agreements to deploy the advantages of their widespread networks in a way that would make it difficult for smaller competitors to respond. However, the safeguards available under UK and EU competition law against the abuse of a dominant position have been strengthened since 1994 and would now cover such actions. In 2003 the Office of Fair Trading opened a formal investigation under the Competition Act 1998 into BA's non-linear discounts in its corporate deals. In May 2007 the OFT announced[28] that it was dropping the investigation because there was both a lack of evidence and insufficient benefits for consumers in continuing.

3.21 Of the other competition concerns, codeshare and cooperation agreements between airlines, although still common on long haul routes, have been superseded in some instances by global airline alliances. In 1994, the CAA considered that the principles of competition policy should apply to airline cooperation agreements just as they do to mergers and acquisitions, and this has manifested itself through competition authorities granting or withholding antitrust immunity to alliance partners[29]. For long haul routes from the UK to the US, the constraints in the ASA have been used as justification to refuse antitrust immunity to alliance partners. However, as Open Skies

25. Case No. IV/D-2/34.780, Virgin/BA, Commission decision of 14 July 1999.
26. Although published evidence is not easily available, discussions with UK airlines tend to confirm this statement.
27. Case No. COMP/M.3280 - Air France / KLM, EC, 11 February 2004.
28. http://www.oft.gov.uk/advice_and_resources/resource_base/ca98/closure/British-Airways2.
29. See Table 1.8 for a sample of competition authority decisions for long haul partnerships since 1994.

or Open Aviation Area type bilateral and multilateral agreements become more common, other competition issues arise. The European Competition Authorities Air Traffic Working Group produced a recent paper on the particular aspects of dealing with mergers and alliances in air travel[30].

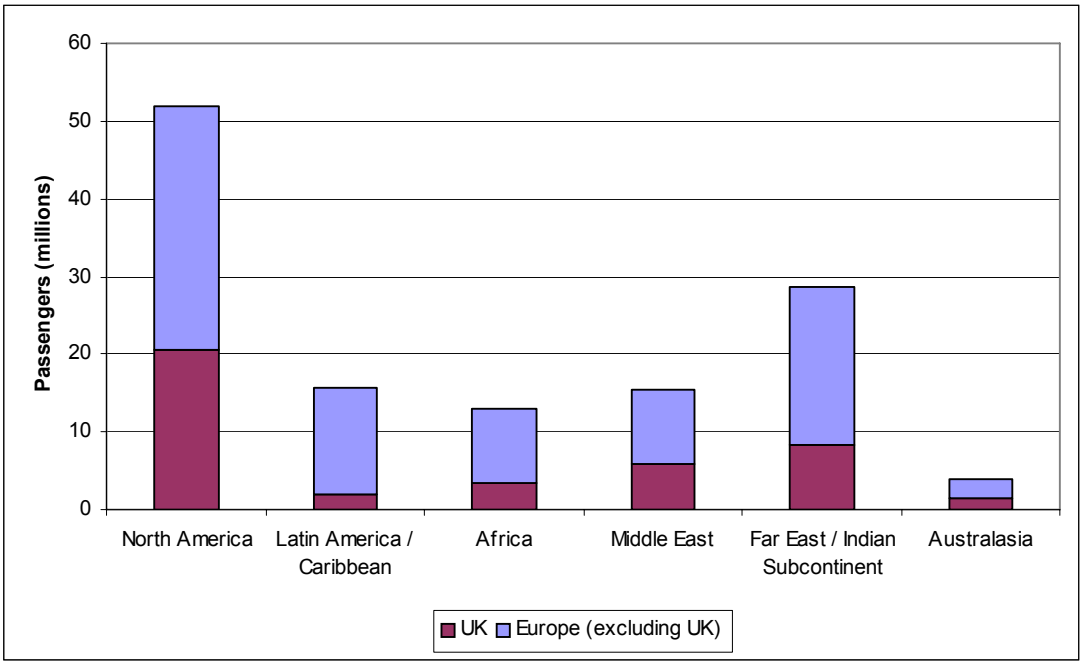
30. Report of the ECA Air Traffic Working Group, "Mergers and Alliances in Civil Aviation". See paragraph 6.5.

4 Overview of long haul air services from the UK

4.1 Long haul markets constitute a significant element of UK aviation services, and competition between carriers serving them is complicated, both because of the longer distances involved (which may make alternative, indirect routeings competitive), and the regulatory constraints faced by carriers operating in these markets. Whilst short haul services within the EU can, for the most part, be operated by any EU carrier to almost any airport, and without restriction on frequencies, long haul operations may still be constrained by the prevailing bilateral ASAs between the governments of the countries at the end – or intermediate – points on the route.

4.2 In 2006, there were 47 million passengers on long haul routes from UK airports (20% of total passengers), an increase from 32 million (23% of the total) in 1996. The majority of these passengers travelled on scheduled services. According to IATA, passengers travelling to or from the UK make up around 37% of European long haul scheduled traffic, as shown in Figure 1.1, and 19% of all global intercontinental traffic.

Figure 1.1 UK and European scheduled long haul aviation, 2005



Source: 2005 data from IATA World Air Transport Statistics 2006.

4.3 In the period since the CAA's last study of long haul operations in 1994, the number of passengers travelling on long haul flights at UK airports, and the number of flights themselves, has grown by more than half. Scheduled services have grown faster than charter services, and there has been an increase in the UK regional airports' share of services. However, predominantly the same airlines operate the majority of long haul services as in 1994[31].

31. These trends are explored further in paragraphs 4.12 and 4.13.

4.4 The CAA's airport statistics show that total passenger numbers on long haul flights from the UK grew by 49% between 1996 and 2006[32]. North America remains by far the largest destination, despite the temporary demand shock following the terrorist attacks on 11 September 2001, still constituting nearly 50% of total long haul passengers from the UK. Other factors affecting long haul markets over this period include the outbreak of SARS in the Far East in 2003 and the military action in Afghanistan and Iraq, in late 2001 and 2003 respectively. Although these factors will have caused traffic to fall temporarily, research suggests[33] that aviation recovers quickly from market 'shocks' which do not affect underlying economic conditions. Table 1.1 shows long haul passenger numbers to and from the UK divided into seven world regions, while Table 1.2 illustrates growth rates (indexed to 1996) over the same period.

Table 1.1 Total passengers on long haul services from the UK 1996 to 2006

Passengers (m)	1996	1998	2000	2002	2004	2006	2006 %
North America	16.9	20.3	22.5	19.8	21.3	21.7	46%
Latin America & Caribbean	2.1	2.8	3.2	3.0	3.4	3.6	8%
Africa	2.2	2.4	2.9	3.1	3.6	3.9	8%
Middle East	3.0	3.5	4.2	4.3	5.5	6.6	14%
Indian Subcontinent	1.6	1.7	1.8	1.7	2.2	3.6	8%
Far East	4.8	4.9	5.6	5.5	5.8	6.1	13%
Australasia	1.0	1.1	1.1	0.9	1.1	1.4	3%
Total long haul	31.6	36.7	41.3	38.3	42.9	46.9	100%

Source: CAA Airport Statistics, passenger related.

Table 1.2 UK long haul passenger growth 1996 to 2006 indexed to 1996

	1996	1998	2000	2002	2004	2006	Average annual growth
North America	100	120	133	117	126	128	2.5%
Latin America & Caribbean	100	136	156	144	167	176	5.8%
Africa	100	111	133	144	167	178	5.9%
Middle East	100	118	140	144	185	219	8.2%
Indian Subcontinent	100	109	116	110	141	226	8.5%
Far East	100	103	117	115	122	128	2.5%
Australasia	100	114	117	90	110	145	3.8%
Total long haul	100	117	131	122	137	149	4.1%

Source: CAA Airport Statistics, passenger related.

32. By contrast, short haul international passenger traffic grew by 88% over this period.
33. Journal of Transport Economics and Policy Vol 40 Part 2, May 2006, "Are Shocks to Air Passenger Traffic Permanent or Transitory?", Nenad Njegovan.

4.5 Long haul passengers on scheduled services constituted over 92% of the total in 2006, an increase from 89% in 1996. Although charter operators, under pressure on their short haul routes from no frills carriers, have been increasing their average sector length, the majority of this growth has been to Turkey and North Africa, which are defined as short haul in this study. Also, UK-Florida and UK-Caribbean routes form a significant proportion of long haul charter traffic and these were badly affected by 11 September 2001. Long haul charter traffic has increased marginally from 3.4 million passengers in 1996 to 3.5 million in 2006, although within this period it reached a high of 4.1 million passengers in 1998 and a low of 2.6 million in 2002.

4.6 The US and Canada are the countries with the most long haul passengers on routes from the UK. The *increase* in UK-US traffic since 1996 exceeds the *total* 2006 traffic between the UK and any other single long haul destination country. There is quite a disparity in traffic growth between the different country markets. On the one hand, traffic between the UK and the United Arab Emirates in 2006 was more than four times its 1996 level of 0.7 million passengers whilst, on the other, traffic between the UK and Japan has actually reduced slightly over the 10-year period, now standing at 1.1 million passengers.

4.7 The long haul routes with most passengers in 2006 were London-New York, London-Dubai and London-Singapore. Table 1.3 shows the carriers that have flown these routes over the last ten years. On each of these routes the same scheduled airlines are offering third / fourth freedom services in 2006 as in 1996, with the exception of Virgin's service to Dubai and the business-only carriers Eos and Maxjet[34] serving New York. Leaving aside Concorde in 1996 and the two business-only carriers in 2006, both the number of frequencies offered between London and New York from 1996 (21.1 per day excluding Concorde) to 2006 (25.2 per day, excluding Eos and Maxjet) and the number of passengers carried from 1996 (3.1 million) to 2006 (3.7 million) have grown by 19%, indicating aircraft sizes and load factors that are roughly constant.

4.8 By contrast, the routes London-Dubai and London-Singapore have seen very large frequency increases of 4.4 per day to 12.3 per day (180%) and 4.1 per day to 7.1 per day (73%) respectively, coupled with passenger increases from 0.6 to 2.1 million (250%) and 0.9 to 1.6 million (78%) respectively, indicating that aircraft size and/or load factor has grown slightly on the Singapore route, but significantly on the Dubai route.

34. Silverjet, another business-only carrier, began operations between Luton and New York in 2007, so does not appear on the table. Zoom Airlines, a low cost transatlantic carrier started flying Gatwick-New York from 21 June 2007. Delta Airlines acquired route authority from United Airlines in late 2006 and has been operating services between Gatwick and JFK since then.

Table 1.3 Carriers serving the three most popular long haul routes from the UK: daily round trips offered between 1996 and 2006

			Daily round trips					
City Pair	Airline	Route	1996	1998	2000	2002	2004	2006
London -New York	British Airways	LHR-JFK	6.1	6.7	7.2	6.8	6.7	6.9
		LHR-EWR	1.0	1.5	2.0	2.1	2.6	2.8
		LGW-JFK	1.0	1.0	1.0			
	Virgin Atlantic	LHR-JFK	1.9	2.0	3.0	2.2	3.0	3.4
		LHR-EWR	1.0	1.0	1.0	1.7	1.9	2.0
		LGW-EWR		1.0	1.0			
	American Airlines	LHR-JFK	5.9	5.9	5.9	5.3	5.7	5.6
		LHR-EWR		0.8	1.0	1.0		
	United Airlines	LHR-JFK	2.0	2.7	2.9	2.0	2.0	0.8
		LHR-EWR	1.0	1.0	1.0	1.0		
	Continental Airlines	LGW-EWR	1.4	2.0	2.0	1.9	2.0	2.2
	Eos Airlines	STN-JFK						1.2
	Maxjet Airways	STN-JFK						0.8
	Fifth freedom carriers		1.6	1.4	1.4	1.4	1.4	1.4
Total London - New York			22.9	27.0	29.2	25.4	25.4	27.2
London -Dubai	British Airways	LHR-DXB	1.0	1.1	2.0	1.9	2.2	2.1
	Emirates	LHR-DXB	1.8	2.0	3.0	3.0	3.8	5.0
		LGW-DXB	0.7	1.0	1.0	1.6	3.0	3.0
	Virgin Atlantic	LHR-DXB						0.7
	Fifth freedom carriers		0.9	0.7	1.6	1.1	1.4	1.6
Total London - Dubai			4.4	4.8	7.5	7.6	10.4	12.3
London -Singapore	British Airways	LHR-SIN	1.1	1.9	2.0	2.0	2.0	2.0
	Singapore Airlines	LHR-SIN	2.0	2.3	3.0	3.0	3.0	3.0
	Qantas	LHR-SIN	1.0	1.0	1.4	1.4	2.1	2.1
Total London - Singapore			4.1	5.2	6.4	6.4	7.1	7.1

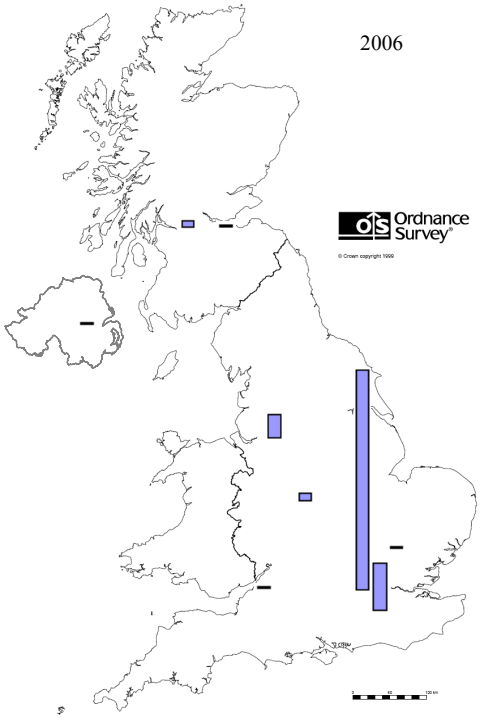
Source: CAA Airport Statistics, aircraft related.
Note: Only services with at least 52 rotations in a particular year have been included.
BA's service between Heathrow and JFK includes flights by Concorde between 1996 and 2002.
LHR=Heathrow, LGW=Gatwick, STN=Stansted, JFK=New York(Kennedy), EWR=New York(Newark), DXB=Dubai, SIN=Singapore.

4.9 Heathrow accounts for over 70% of passengers on scheduled long haul services from the UK, with Gatwick and Manchester some way behind and a number of other regional points having some services. Figure 1.2 illustrates the number of scheduled long haul flights operated from the various UK airports in 1996 and 2006.

Figure 1.2 Long haul scheduled flights from UK airports in 1996 and 2006

Airport	Number of Flights 1996		2006	
Heathrow	88,112	73%	145,703	71%
Gatwick	23,798	20%	30,561	15%
Stansted	544	-%	2,257	1%
Total London	*112,454*	*93%*	*178,521*	*87%*
Manchester	4,860	4%	14,705	7%
Birmingham	1,425	1%	4,621	2%
Glasgow	1,534	1%	3,511	2%
Edinburgh	3	-%	1,367	1%
Belfast	40	-%	880	-%
Bristol			651	-%
Others	64	-%	162	-%
Total Regions	*7,926*	*7%*	*25,897*	*13%*
Total	120,380	100%	204,418	100%

Source: CAA Airport Statistics, aircraft related.
Note: -% indicates less than 0.5%



4.10 The growth in services at regional airports has been stronger than at London airports, although the latter still provide over 85% of all long haul flights out of the UK. Much of the growth at regional airports has been from non-UK carriers, the largest of which are Continental and Emirates. In 2006, the UK's major scheduled passenger carriers only offered long haul services from Heathrow, Gatwick and Manchester, although scheduled services by carriers with links to the package travel industry, such as Thomas Cook and Flyglobespan, operated from Belfast, Birmingham and Glasgow.

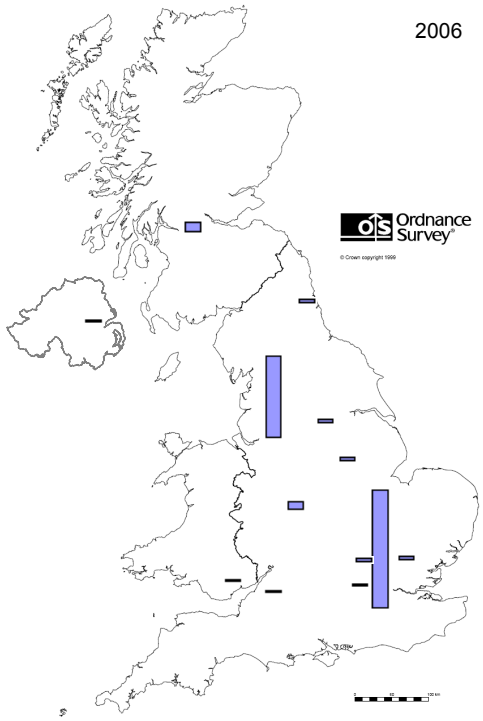
4.11 Figure 1.3 shows that long haul charter flights are mainly operated from Gatwick or Manchester. There has been a small decline in charter flight numbers since 1996, although this is mainly due to changes in the North American routes, where carriers that operated charter services in 1996 now offer scheduled services, whilst still catering to their traditional package tour markets. As a result, charter flights between the UK and North America have halved over the period, whilst those to Latin America and the Caribbean and Africa have doubled. There has been a noticeable decline in charter flights at Glasgow, although this is due to Canadian carriers switching to scheduled services[35] and the emergence of Flyglobespan, carrying Globespan's tour passengers on its scheduled US services. The recent consolidation of the UK's four main tour operators into two companies may cause charter services to contract further as they consolidate their flight operations.

35. See Chapter 3, paragraph 4.12 for an explanation of this.

Figure 1.3 Long haul charter flights from UK airports in 1996 and 2006

Airport	Number of Flights 1996		2006	
Gatwick	6,353	51%	5,697	46%
Luton	182	1%	341	3%
Stansted	125	1%	330	3%
Heathrow	119	1%	54	-%
Total London	*6,779*	*54%*	*6,422*	*52%*
Manchester	3,420	27%	4,169	34%
Glasgow	949	8%	441	4%
Birmingham	386	3%	317	3%
East Midlands	37	-%	176	1%
Cardiff	104	1%	168	1%
Newcastle	185	1%	165	1%
Doncaster Sheffield			138	1%
Belfast	364	3%	108	1%
Others	293	2%	449	4%
Total Regions	*5,738*	*46%*	*5,885*	*48%*
Total	12,517	100%	12,307	100%

Source: CAA Airport Statistics, aircraft related.
Note: -% indicates less than 0.5%



4.12 In general terms, the airlines with the largest share in the UK long haul market in 1996 remain so in 2006. Table 1.4 shows the top ten long haul airlines in the UK in 2006 and how their passenger carryings have changed. Only Emirates and Qantas would not have appeared in a 1996 list of the top ten long haul airlines which, instead, would have featured Thomsonfly[36] and MyTravel Airways.

Table 1.4 Ten airlines carrying the most long haul passengers at UK airports in 2006

Carrier	Long Haul Passengers (m) 1996	2006	Growth 1996-2006	Passenger Share 2006
British Airways	11.7	13.6	16%	29%
Virgin Atlantic	2.3	5.0	120%	11%
American Airlines	2.0	2.7	36%	6%
Emirates	0.4	2.4	490%	5%
United Airlines	1.4	1.6	16%	4%
Air Canada	1.0	1.6	57%	3%
Continental Airlines	0.5	1.4	164%	3%
Qantas	0.5	1.0	92%	2%
Singapore Airlines	0.5	0.8	59%	2%
Delta Airlines	0.6	0.8	33%	2%
Other airlines	*8.3*	*15.6*	*70%*	*34%*
Total	30.2	46.5	54%	100%

Source: CAA Airport Statistics, aircraft related

36. Which, at that time, would have been trading as Britannia.

4.13 BA's share of UK long haul passengers has reduced over the period, but it still carries over two and a half times more passengers than its nearest rival. The airline which has gained the most long haul passengers since 1996 is Virgin, which has expanded its network from mainly North American routes[37] to encompass Indian, Middle Eastern, Caribbean and Australian points. No other scheduled UK carrier appears in the top 10, although bmi has commenced operations from regional airports to the US and Caribbean as well as setting up services from London to Mumbai (since dropped) and Saudi Arabia. In addition, a new niche long haul UK scheduled carrier, Silverjet, has opened services at Luton to New York (Newark). The two largest charter carriers in terms of long haul passengers are Thomsonfly and MyTravel, each carrying over 600,000 in 2006, and are 12th and 15th on the list respectively.

37. In 1996 Virgin served eight destinations in North America plus Hong Kong, Tokyo and, for the first time, Johannesburg.

5 The regulatory environment for long haul routes from the UK since 1994

5.1 Competition between long haul points is heavily influenced by bilateral constraints. In contrast to European short haul markets, which witnessed radical regulatory reform in 1993 and 1997 with the introduction of the European Common Aviation Area[38], carriers operating between the UK and almost all long haul markets have continued to face varying degrees of restriction on their ability to offer services.

5.2 Government restrictions affecting airlines are set out in ASAs, which form the framework for scheduled air services between countries. The genesis of the existing web of interlocking agreements that govern international aviation can be traced back to the 1944 Chicago Convention, which defined access to airspace and landing/take-off in the context of 'freedoms' granted to the airlines of bilateral partners[39]. In addition to setting out the regulatory conditions in essential operational areas such as safety and security, these legally binding agreements typically include commercial constraints relating to traffic rights and ownership and control. ASAs were typically written to protect existing services, usually operated by each side's national carrier. Back then, services tended to be multi-stop, using short-range aircraft that were costly to run and consequently served just a very small proportion of the population. Airlines were also state-owned and often operated exclusive duopolies on international routes. Tight restrictions were placed on the route schedule (departure, arrival and intermediate points for air services) and tariffs had to be agreed between the operating airlines.

5.3 Traditionally, tight controls on traffic rights have restricted:

- the number, size, and destination points of flights that can take place between countries;
- the type of direct connecting services or codeshare arrangements that airlines can offer;
- the airlines' freedom to set their own fares, often requiring fares to be approved by one or both of the contracting nations; and
- majority investor ownership and effective control of an airline which must reside with nationals of the relevant country.

Emerging liberalisation

5.4 More recently, the benefits of removing frequency and capacity restrictions have been more widely recognised. More liberal arrangements which allow free competition, higher output and greater efficiency have been adopted by countries looking beyond the narrow interests of their flag-carriers. The spread of 'Open Skies' agreements, pioneered by the US with its bilateral partners since the early 1990s, is one manifestation of this more open approach. Open Skies agreements typically sweep away the majority of traditional limits on traffic rights and allow full pricing freedom, but leave tight restrictions on cabotage[40] services and the ownership and control of airlines in place. Agreements which sweep away all of these remaining restrictions, Open Aviation Areas (OAAs), are exceptionally rare in ASAs between long haul partners, although some intra-regional, shorter-haul examples exist. Europe is perhaps the best example, although a similar OAA agreement exists between New Zealand and Australia. Table 1.5, below, summarises the differences between these principal types of agreements.

38. For international services in 1993 and domestic services in 1997. See CAP 685, The Single European Aviation Market: the First Five Years, Civil Aviation Authority, 1998, for a comprehensive description of European liberalisation.
39. A summary of these freedoms is contained in Annex A.
40. Domestic services in a country other than that of the carrier. Also known as eighth and ninth freedoms – see Annex A.

Table 1.5 Summary of Restrictions in Traditional Bilateral, Open Skies Agreements and Open Aviation Areas

Type of agreement	Open service capacity and frequency?	Freedom in setting fares?	Extended traffic rights (e.g. onward 5ths)? (See note i)	Foreign ownership and control allowed?	"Cabotage" (see note ii)
Traditional Bilaterals	×	×	×	×	×
'Open Skies'	✓	✓	✓	×	×
Open Aviation Area (OAA)	✓	✓	✓	✓	✓

Notes: i) 5ths are the right to pick up passengers from a foreign country and fly them to another foreign country.
ii) "Cabotage" is the right of a foreign carrier to operate purely domestic services in another country.

The UK Government position

5.5 The UK Government's own attitude has generally been in favour of allowing carriers greater commercial freedom to meet consumer demands. Whilst the policies of the UK and several other countries could therefore be regarded as pro-liberalisation, there has been mixed success in securing broader liberalising agreements.

5.6 Liberalisation of the European market means that highly liberal OAA-style arrangements represent a larger proportion of the UK's passenger services than is the case for international air travel more generally. OAA markets cover all flights within the European Aviation Area, and therefore comprise over 70 per cent of the UK's international air travel (compared to a figure of about 17 per cent of all international aviation according to internal IATA estimates[41]). However, New Zealand is the only long haul country with which the UK has signed an OAA style agreement. For the UK's other long haul markets, Open Skies agreements cover about 60% of traffic[42], while the remainder typically remain regulated by restrictive ASAs[43]. The degree to which carriers can freely operate to particular long haul destinations consequently varies considerably. The range of bilateral restrictions applying to the UK is shown in Table 1.6, which illustrates the three different types of agreements to which the UK is party.

41. UK figure calculated from CAA statistics. IATA figures taken from OXERA (2006).
42. This figure includes the US, whose Open Skies agreement with the EU commences in March 2008, and itself covers nearly 40% of the UK's long haul traffic.
43. This means OAA and Open Skies markets cover nearly 90% of international traffic at the UK's airports.

Table 1.6 Examples of UK Air Services Agreements

UK: Japan (1999)	**Highly restrictive traditional-style Bilateral Agreement.**
Frequency and capacity caps on direct services (carriers from each side are restricted to 37 frequencies per week).	
Restrictions on intermediate and onward fifths (no onward fifths are allowed, and intermediate fifth freedoms are restricted to a limited number of points in Europe, Asia and the Americas).	
Strict regulation of fares (authorities may require fares to be filed 30 days in advance and may regulate fares for trips originating from their territory[44]).	
Ownership and control of carriers restricted to UK or Japanese citizens.	
UK: Canada (2006)	**Partially liberalised "Open Skies" Agreement**
No restrictions on direct and indirect frequencies.	
Some restrictions on intermediate fifths.	
No regulation of fares.	
Ownership and control of carriers restricted to UK or Canadian citizens.	
UK: New Zealand (2005)	**Fully liberalised "Open Aviation Area" Agreement**
No restrictions on direct and indirect frequencies (i.e. via an intermediate point).	
No restrictions on 7th freedom or cabotage services.	
No regulation of fares.	
Ownership and control of carriers restricted to European or New Zealand citizens.	

5.7 For the most restrictive agreements, such as that with Japan, the most important aspects of a carrier's product offering are heavily regulated, from the destinations, frequency and capacity that can be offered by an airline, to the fares that can be sold.

Frequency restrictions

5.8 Table 1.7 shows the ten largest long haul country markets for direct services from the UK and summarises the current and historic traffic and bilateral restrictions on UK airlines. Whilst few countries have completely open third or fourth freedom agreements out of London, many of them now have unrestricted access to the UK's regional airports. It is also noticeable that, with the exception of the US, the countries with the largest growth in passengers are also those with the more liberal ASAs. Canada and United Arab Emirates both have unrestricted third and fourth freedom operations to the UK and India saw its permitted third/fourth freedom frequency more than treble. Although this apparent connection between liberalisation and traffic growth may be due to liberal ASAs providing increased capacity and competition, it may also be due to significant demand that is not satisfied within the conditions of the pre-existing ASA providing a greater incentive for governments to negotiate liberalising agreements.

44. The most recent amendment to the agreement between the UK and Japan restricts intervention to country of origin, meaning that Japanese authorities can only intervene in tariffs sold ex-Japan. As UK policy is to allow the market to determine fare levels, in practice it is only ex-Japan fares that are regulated.

Table 1.7 Top ten direct long haul country destinations from the UK 2006

	Passengers (m)		Open 3rd/4th freedoms on London?[45]	
Country	1998	2006	1998	2006
US	17.2	18.1	No (complex Bermuda II restrictions apply)	No (complex Bermuda II restrictions apply)(a)
Canada	3.1	3.6	Yes	Yes
United Arab Emirates	0.9	3.3	Yes	Yes
India	1.0	2.3	No (16 pw)	No (56 pw)
South Africa	1.2	1.6	No (24 pw)	No (42 pw)
Hong Kong	1.0	1.4	No (29 pw)	Yes
Singapore	0.9	1.3	No (18 pw)	Yes
Australia	0.9	1.2	No (21 pw)	Yes (b)
Japan	1.4	1.1	No (31 pw)	No (37 pw)
Pakistan	0.4	0.7	No (10 pw)	No (10 pw)
Other long haul destinations	8.7	12.3		
Total	36.7	46.9		

Source: CAA Airport Statistics, passenger related, CAA internal review of bilateral restrictions 1998.
Notes: Bilateral agreements as at December 2006.
(a) The EU-US Open Skies agreement will lift the US 3rd/4th frequency cap in March 2008.
(b) Australia's 3rd/4th frequency cap was lifted in July 2006.

5.9 By far the largest country market for long haul passenger travel from the UK in 2006 and 1998 was the US, despite the many restrictions enshrined in the bilateral ASA. The Bermuda II agreement between the UK and the US Governments was signed in 1977 and will be in force until early 2008. Although Bermuda II has permitted a large overall expansion in traffic, it restricts the number of US gateways served from London and only allows certain carriers from each side to operate particular routes[46]. This often means that only two carriers, one from each side, serve a particular airport pair and, broadly, neither is allowed to operate more than 150% of the frequencies of the other. There are also restrictions governing other freedoms, ownership and control of airlines and fares.

5.10 In 2008, an Open Skies agreement between the EU and US will commence, which will remove current restrictions on fares, airlines, frequencies and routes between the US and the UK. It will also allow fifth freedom rights to airlines from both sides, but, other than the right for any EU carrier to serve the US from any EU airport, will not relax rules on ownership and control nor those on domestic services. Nevertheless, the benefits to UK passengers and airlines have been estimated at around £1 billion over the first 20 years of the agreement[47].

45. Many of the UK's ASAs only place limitations on the number of frequencies that can be operated to London (Heathrow and Gatwick). Other, regional points are often open in terms of 3rd and 4th frequencies and onward 5ths. See 'Regional Policy' section.
46. In particular it restricts services at Heathrow to only two US and two UK airlines.
47. From the CAA's modelling and analysis of the impact of the EU-US aviation agreement (http://www.caa.co.uk/default.aspx?catid=589&pagetype=90&pageid=7731), although the analysis acknowledged that the actual benefits arising could be much greater or less than this figure, due to the high degree of uncertainty surrounding many of the assumptions which underpinned it.

Regional policy

5.11 UK regional airports have in the past been subject to the same limitations as London airports. In June 1998, the UK Government announced that its policy would be to offer unconstrained third/fourth freedom access to regional airports, subject to UK airlines also being able to operate without restriction on the same routes. Its aim was to encourage the growth of regional services by freeing those airports from the restrictions normally associated with access to the main London market. The effect of the policy is difficult to gauge, partly because those countries prepared to offer reciprocal agreements at UK regional airports are likely to be those more willing to liberalise their London services as well. In addition, the freedom to establish a route to the UK regions will only be taken up if there is sufficient demand to make it viable, and this is only true for a limited number of routes. However, reciprocal agreements allowed bmi to begin direct scheduled services to the US from Manchester in 2001.

5.12 Further regional opening was signalled in October 2005 when the Government announced that it was inviting applications from foreign airlines to operate new fifth freedom services via regional airports. The UK Government now has a presumption in favour of granting new applications but can also take account of any evidence from objectors showing a negative net effect on the UK. This development has resulted in the freeing up of access to the UK's regional airports, although applications for regional fifth freedom services have been made by few carriers[48] to date, despite the restrictions which are still present for services to and from London.

5.13 These more liberal policies have contributed to growth in long haul traffic at the UK's regional airports, which is discussed in more detail in Chapter 2.

Air fares

5.14 Another important aspect of the regulatory environment on long haul routes is that surrounding airfares. Historically, the fare structure on long haul routes has been greatly influenced by the IATA multilateral tariff coordination system under which the bulk of published fares were agreed between airlines, for both direct and indirect travel. Some governments also sought protection for their national carrier's home market, through the pricing provisions of bilateral ASAs. The oldest form of bilateral ASA would typically require airlines of each country to set their fares by mutual agreement through the IATA system wherever possible, and there was often strong pressure on airlines to stick to IATA fare levels.

5.15 Where airlines needed to compete on price, this usually took place in the discount market, through third party consolidators. Such fares were not openly advertised by the airlines concerned or in reservation systems. By the time of the CAA's 1994 document,[49] there were some signs of airlines pricing unilaterally and transparently in the published market on the more competitive long haul routes from the UK, such as to the US. For example, in 1994, BA launched its 'World Offers' brand on a wide range of long haul routes, offering short-life seat sale fares in limited quantities and at levels more in line with its discount rates. Gradually, non-IATA fares[50] spread throughout the fare structure in subsequent years, giving a much wider choice to the consumer[51].

48. Amongst whom, Pakistan International have made most use of the new freedoms.
49. Appendix 5 of the 1994 document included an analysis of BA's fares structure in Part 1 and the UK discount market in Part 2.
50. On 29 June 2007, the European Commission announced that it was ending the block exemption from competition law that permits IATA multilateral tariff conferences for routes between the EU and non-EU countries. However, fares offered in the UK market today are generally set unilaterally and are subject to competitive market forces, while IATA fares have tended to be used for journeys involving interlining between non-aligned carriers. IATA is reported to be developing a new system for interline fares.
51. More information on the development of fare structures on long haul routes from the UK, including the relationship between IATA and non-IATA fares, can be found in the CAA's 2006 consultation document on fares regulation at www.caa.co.uk/docs/589/20060803ConsultationDocument.pdf.

5.16 The regulatory environment has also loosened. Tariff provisions in bilateral ASAs have been reformed and controls over tariffs have been relaxed; indeed, the latest, most liberal agreements remove any possibility of unilateral intervention by governments and rely either on bilateral consultations to resolve a problem, or remedies under competition law.

5.17 In the UK, the CAA's preference has generally been for airlines to set fares according to their own commercial judgement. However, the CAA has, in the past, seen a need to safeguard certain passengers from overcharging where competition was lacking. The CAA devised a regime of fares regulation in the 1970s, when there was only limited competition between airlines, and it was considered normal for fares to be set by international agreement. This regulation generally focused only on a relatively small part of the market, where the CAA found it necessary to intervene to freeze the level of fully flexible economy fares[52] where these appeared to be excessive in relation to cost. These policies have been gradually refined over the years, and the CAA has relaxed its regulation where competitive forces warranted it.

5.18 By 2006, the CAA was regulating around 40 long haul routes – those where competition was most constrained by government limits on which airlines could fly and how often. However, changes in the competitive position, with the emergence of new carriers and indirect competition, together with the decline in the significance of IATA tariff coordination, the availability of lower-priced alternatives and the ability of passengers to compare prices using the internet, led the CAA to conclude that regulation of fares was no longer necessary[53]. In December 2006 the CAA removed remaining fares regulation on all but routes between the UK and US[54], with a commitment that this would also be removed with other pricing restrictions in the UK–US market[55], most likely when liberalisation of the UK-US market takes effect. This will finally occur in August 2007.

Regulatory distortion of competition

5.19 The nature of long haul competition means that airlines are vying with rivals based in other countries. As in other areas of trade, this inevitably raises questions about the degree to which competition is distorted by the regulatory environments in which different airlines operate. As international markets become increasingly liberalised, and barriers to market entry are removed, the importance of ensuring a level playing field for all carriers moves up the agenda. Different regulatory approaches by national governments can lead to airlines gaining an unfair market advantage over others.

5.20 The most frequently cited source of regulatory distortion in long haul markets is the influence of state aid. This issue is of less importance in short haul markets within Europe because of the existence of a strong and homogeneous competition framework, and relative homogeneity in the regulatory environment, which minimises the degree to which state aid can distort trade.

5.21 European long haul carriers operate in a far less homogenous environment than their short haul counterparts. The focus of concern about state aid in the long haul market has changed in recent years, from the bailing out of struggling flag-carriers, to the emergence in the last 25 years of financially strong Middle Eastern and Asian carriers

52. Those applying to last-minute, changeable, refundable economy tickets, where airlines generally have the least incentive to compete on price.
53. www.caa.co.uk/farespolicy.
54. Removing regulation from routes to Israel, Russia, Egypt, Ghana, Mauritius, Nigeria, South Africa, Bangladesh, India, Pakistan, Japan, Thailand, Mexico and Brazil.
55. Airlines were unable to price freely on UK-US routes because of the "sum of sector" policy, which the CAA applied at the request of the UK Department for Transport. This policy imposed a floor on the level of fares to/from points served indirectly. An important element of the CAA's reasoning for removing fares regulation on other long haul routes is the fact that on those routes lower-price alternatives on indirect routeings are widely available.

such as Emirates and Singapore Airlines. For such airlines, a key dimension of their growth strategy has been the integration of development policies for the airport, airline and tourism sectors of their host countries, which have looked to take advantage of the complementary benefits to the economy that flow from these mutually dependent sectors. One manifestation of this strategy is common management and ownership of the airline, its hub airport and the regional tourism strategy.

5.22 However, many airlines also enjoy natural advantages in certain markets, due to location, historic or cultural factors. For instance, just as European cities are well placed to act as connecting points between North America and the Middle and Far East, so cities in the Middle East and Asia are well placed as connecting points between Europe and Australasia. Airlines can also benefit from lower wage costs, the prevailing price of jet fuel[56], the tax regime or the attitude towards infrastructure development at their centre of operations. These advantages should not be confused with state aid, unless they are deliberately denied to airlines of different nationalities that wish to exploit them also.

5.23 Gauging the degree to which the receipt of state aid distorts the competitive environment in long haul markets requires a twin test: first, is an airline in receipt of state aid; and, secondly, is it creating a harmful market distortion.

5.24 The task of identifying the existence of state aid is complicated by support taking more subtle forms than cash injections. Government-backed loans to companies (which benefit from lower risk and hence borrowing rates than those obtainable by equivalent airlines without state support), tax exemptions, compensation for financial burdens imposed by the public authorities[57] or discriminatory access to airport facilities, could all be classed as state aid.

5.25 Uncovering and quantifying the degree to which an airline is a beneficiary of such support is made more difficult by the absence of transparency in many international airline accounts. Many government-owned airlines are not listed on public stock exchanges and are not subject to international accounting standards which would guarantee a certain minimum level of transparency. Local statutory reporting requirements differ, meaning that an airline's published accounts may not make full disclosure of such transactions.

5.26 In international markets, the degree to which state aid is a harmful distortion is difficult to gauge, not least because its existence can often adversely affect the incentives for an inefficient airline to improve in the long run. At some point in their past, many airlines will have been in receipt of some form of government support, either overtly through direct financial aid, or through more subtle forms of support, such as discriminatory regulatory practices. Some assessment of the degree and materiality of state aid support is therefore desirable to help understand the extent to which it has an effect on the level of fair competition. A judgement will also need to be made about the degree to which the state aid being provided is likely to be a temporary or long-term distortion to competition.

5.27 The UK Government has been a long-standing advocate of liberalisation of aviation markets, but is also concerned about fairness in the market post-liberalisation. Consequently, in some cases it has insisted on fair competition articles as a precondition to signing more liberal ASAs. Such articles prohibit the allocation of state aid to either UK airlines or those within the partner state's jurisdiction.

56. IATA's jet fuel price monitor for 6 July 2007 shows that prices varied from 218 cents per gallon in Latin & Central America to 206 cents per gallon in the Middle East & Africa.

57. For instance, over-compensation for flag carriers' government-imposed obligation to provide unprofitable domestic services.

6 Market definition for long haul routes

Relevant markets

6.1 In offering advice to the UK's competition authorities[58], or the European Commission, or in conducting its own scarce capacity hearings, the CAA sometimes needs to define the relevant market for aviation services. This section does not seek to conduct such a detailed exercise, but does set out a brief description of the purpose and meaning of defining a relevant market, examines how competition authorities and other public bodies have defined relevant markets for long haul passenger services from the UK in the past and looks into the factors which the CAA considers pertinent in assessing a relevant market for long haul passenger services.

6.2 Market definition is a useful analytical tool to enable the evidence on market power to be organised – it provides a frame of reference for the analysis. However, the exact market definition chosen should not determine the eventual conclusion of the analysis of competitive constraints faced, since, for example, defining a market narrowly will just increase the importance of understanding the competitive constraints that could emanate from outside of the chosen market.

6.3 In its advice on market definition[59], the Office of Fair Trading sets out a process for defining a market. This includes an approach which assumes that a hypothetical monopolist has control over the products under investigation[60], and then considers whether they could profitably sustain a small but significant increase in price[61] for the product above competitive levels. If it cannot, this is usually because a sufficient proportion of consumers would switch to a substitute product[62], and/or because alternative suppliers would enter the market in response to the increase in prices, indicating that the original definition failed to capture sufficiently the significant competitive constraints. The same approach could also be used to detect whether there is more than one relevant market for the product[63]. In this case, it is necessary to see whether a subset of the product group would pass the hypothetical monopolist test, which is an indication that the subset itself may form its own relevant market[64].

6.4 Relevant market definition typically requires that consideration be given to both the product, which for the purposes of this document will be assumed to be some form of passenger air transport[65], and the geographical aspects of the service under consideration. For both the product group and geographical area concerned in any particular analysis, there are a number of potential subsets or supersets of passengers that could be considered to form separate markets. Issues to consider include: passenger journey purpose, residence and ticket type, indirect services, overlap of airport catchment areas and loyalty schemes, such as frequent flyer programmes or corporate deals. The following sections explore these issues further.

58. The Office of Fair Trading or the Competition Commission.
59. See for instance 'Market Definition: Understanding Competition Law', OFT, Dec 2004.
60. For aviation markets this will often be an airport pair or set of airport pairs.
61. Non-transitory price increases of 5%-10% are usually considered appropriate for this test.
62. For aviation markets, the substitute product could be, for example, a service from an alternate airport pair connecting the same cities as the route under consideration.
63. For passenger aviation markets, passengers travelling for business and leisure purposes may be considered to be in separate relevant markets, although they are travelling on the same air services.
64. Care must be taken with the use of this test where there is the possibility that current market prices are not at a competitive level.
65. It could be considered that the market should be widened to include surface transport, but long haul air travel involves journeys in excess of 4,000 km typically taken at speeds of around 900 km/h and surface modes are therefore unlikely to be a substitute.

Advice on aviation market definition

6.5 In 2005, the ECA Air Traffic Working Group published a report[66] on mergers and alliances with particular reference to market definition, competition assessment and remedies. The report considered all aviation markets, not just those for long haul travel. The ECA considered that, generally, the basic product under consideration in defining the market for aviation is air transport services between a point of origin and a point of destination (O&D), but that it is particularly worth considering a distinction between time-sensitive and non time-sensitive passengers as well as between point-to-point passengers and connecting passengers. They also highlighted the need to consider indirect services, network effects and alternative modes of transport.

Instances of relevant market definition

6.6 It can be seen from the above description that the precise definition of a market for long haul passenger air transport is likely to be dependent on the specific routes that are the focus of any particular piece of analysis. This is reflected in the range of decisions that have been taken by various competition authorities worldwide, which are summarised in Table 1.8.

66. Report of the ECA Air Traffic Working Group, 'Mergers and Alliances in Civil Aviation'.

Table 1.8 Previous decisions on relevant markets for long haul travel

Regulatory body, year and scope		Market Definition	
		Product	Geographic
EC (1998)	BA-American alliance (a)	• Separate markets for time-sensitive and non-time sensitive passengers travelling between the UK and the US. • A third relevant market existed for passengers travelling indirectly over London.	• For time sensitive passengers, each direct route (city pair) between the UK and US constituted a separate market. • For non-time sensitive passengers, all UK-US routes formed a single market. • Passengers travelling between north-western / western central Europe and the US.
EC (1999)	KLM-Alitalia alliance (b)	• Noted that time-sensitive passengers often considered a separate market, but not necessary to make such a distinction in this case.	• Airport pairs including other airport pairs whose catchment areas significantly overlap • Indirect services to the extent that they provide substitutes for the direct services.
UK CC (2000)	Canadian-Air Canada merger (c)	• Separate markets for time-sensitive and non-time sensitive passengers. • For time-sensitive passengers, separate markets for scheduled and charter operations.	• City pairs between the UK and Canada. • Separate markets for point-to-point passengers and those travelling beyond the UK or Canada. • For time-sensitive passengers, separate markets for services to Heathrow and those to other London airports.
EC (2001)	United-US Airways alliance (d)	• Noted that time-sensitive passengers often considered a separate market, but not necessary to make such a distinction in this case. Further noted that many business passengers travelled in economy class.	• Airport pairs including other airport pairs whose catchment areas significantly overlap • Indirect services included in the airport pair market if they appear in computer reservation systems and have a connection time no longer than 150 minutes.
US DoJ (2001)	BA-American alliance submission (e)	• The relevant market on which a decision should be made was for time-sensitive passengers on non-stop services.	• City pairs, but services to Heathrow formed a separate market to services to Gatwick.

Table 1.8 Previous decisions on relevant markets for long haul travel (Continued)

UK OFT (2002)	United-bmi alliance (f)	• The question of whether time-sensitive passengers formed a separate market not relevant for this decision.	• City pairs between the UK and US. • Inclusion of indirect flights decided on a route-by-route basis.
CAA (2004)	UK-India scarce capacity hearing (g)	• Time-sensitive passengers form a separate market to non-time sensitive passengers.	• Direct, non-stop air services for city pairs London-Delhi, London-Mumbai and London-Chennai. • Stronger argument exists for including indirect services on Chennai due to thinness of route and relatively infrequent direct service, particularly for non-time sensitive passengers.
EC (2004)	KLM-Air France merger (h)	• Time-sensitive passengers considered as a separate market to non-time sensitive passengers. Time-sensitive passengers defined as those using a flexible ticket type. • Noted that corporate customers could be thought to constitute a separate market, but stated that most such customers had deals with more than one alliance.	• Airport pairs including other airport pairs whose catchment areas significantly overlap • Indirect services included in the airport pair market if they appear in computer reservation systems and have a connection time no longer than 150 minutes.
ACCC (2004)	BA-Qantas joint services agreement (i)	• Separate markets for business and leisure travellers, characterised by premium and economy cabin classes.	• Market for business travellers defined as city pairs with travel by the most direct route. • For Australian-originating leisure passengers, single market for Australia-Europe services.

Notes: OFT=Office of Fair Trading, CC=Competition Commission, EC=European Commission, DoJ=Department of Justice, ACCC=Australian Competition and Consumer Commission.

Sources:
(a) "Case No COMP/M.2041 - United Airlines / US Airways", EC, 12th January 2001
(b) "Case No COMP/JV.19 - KLM / Alitalia", EC, 11th August 1999
(c) "Air Canada and Canadian Airlines Corporation: A report on the merger situations", CC, August 2000
(d) "Cases IV/36.201 and IV/36.089 Draft analysis", EC, 8th July 1998
(e) U.S.-U.K. Alliance Case, Docket OST-2001-11029, US Dept of Justice, 17th December 2001
(f) Case CP/1535-01, Decision of the Director General of Fair Trading, OFT, 1st November 2002
(g) Decision of the Authority on its proposal to vary licence S/9 held by British Airways Plc, licence S/13 held by British Midland Airways Limited and licence S/33 held by Virgin Atlantic Airways Limited heard on 11 and 12 November 2004
(h) "Case No COMP/M.3280 - Air France / KLM", EC, 11th February 2004
(i) "Applications for Authorisation A30226 and A30227 in respect of The Restated Joint Services Agreement dated 3 April 2000 between Qantas Airways Limited and British Airways Plc", ACCC, 8th February 2005

Passenger journey purpose

6.7 In broad terms, the table shows that various competition authorities have come to similar conclusions about the market definition for long haul services over an extended period, with different sets of routes as their starting point. It is common to consider separate markets for 'business' and 'leisure' passengers travelling between 'city pairs', although a variety of definitions are used for these terms. However, these basic market definitions have been widened or narrowed according to the specifics of each case, so that different market definitions may be adopted in different cases by the same competition authority.

6.8 The European Commission's analyses of transatlantic services for the BA-American alliance in 1998 and for the United-US alliance in 2004 had significantly different market definitions. This does not necessarily represent a change in thinking about transatlantic markets, rather it indicates that for long haul travel the services under consideration are crucial to market definition. For example, BA's network at Heathrow and the amount of feed traffic that uses the short haul services at the airport required a market to be defined for passengers travelling between parts of continental Europe and the US in the 1998 case, whereas no such distinction was required for United and US's transatlantic routes to the UK and continental Europe. The contribution of feed traffic to UK long haul services is examined in Chapter 2.

Passenger residence

6.9 The distinction between passengers based on the actual origin and destination points of their full journey was used in 2000, when the UK Competition Commission defined separate markets for passengers flying beyond UK or Canada and those flying between them. However, it may even extend to those passengers who are not making a connection at all. Although it could be considered that all return passengers are buying one flight arriving in the UK and one flight departing, and therefore the same product, they are buying slightly different products, since the orders of their flights are reversed: UK resident passengers travel from the UK to their destination and back, whereas foreign resident passengers travel from their point of origin to the UK and back.

6.10 Currently, network carriers predominate on long haul routes from the UK and most of these have a different fare structure for return tickets sold in the UK and those sold at the other end of a route. There are a number of reasons why airlines might price their tickets in this way: balancing demand across its schedule, price regulation at one or other end of the route, or the different price sensitivities of passengers at each end of the route. However, the opportunity to price independently for passengers resident in countries at either end of a route could imply that the two groups may form separate markets. Table 1.9 shows a sample of long haul flexible economy return fares.

Table 1.9 Return fares charged at either end on long haul routes from the UK in 2006

	Flexible economy fare		Flexible business fare	
Carrier and Route	**UK end**	**Non-UK end**	**UK end**	**Non-UK end**
Emirates:		2,860 AED		13,140 AED
Manchester–Dubai*	£478	£410	£2,181	£1,884
British Airways:		$1,732		$9,470
London–New York	£860	£913	£4,354	£4,992
South African Airways:		25,287 RAN		
London–Capetown**	£1,516	£1,795	£3,592	N/A
Virgin Atlantic:		13,411CNY		41,011CNY
London–Shanghai***	£1,548	£892	£4,221	£2,728
Singapore Airlines:		2,256 SGD		8,465 SD
London–Singapore	£773	£759	£2,888	£2,848
bmi:		27,785 RUB		85,720 RUB
London–Moscow	£599	£546	£1,793	£1,685
Qantas:		3,400 AUD		9,336 AUD
London–Sydney	£1,975	£1,382	£5,886	£3,795

Source: Airline websites.
Notes: All flights were for purchase and travel in November 2006.
Fares include all taxes, fees and surcharges.
Exchange rates used: 1USD=£0.5272, 1CNY=£0.0665, 1AED=£0.143, 1RUB=£0.0197, 1AUD=£0.406, 1RAN=£0.0710, 1SGD=£0.3364.
** Typical business and leisure fares departing 8th November, returning 15th.*
***Typical business and leisure fares departing 15th of November returning 22nd.*
****Upper class flexible fare = flexible business fare.*

Ticket type

6.11 Most competition authorities in Table 1.8 acknowledged a difference between time-sensitive and non-time sensitive passengers, although time-sensitive passengers were variously defined as those with flexible tickets, those in premium cabins or those whose journeys were undertaken for business purposes. Chapter 4 examines the correlations between these categories for long haul passengers at UK airports.

6.12 The increasingly competitive environment for long haul services has led to a wider range of products, such as premium economy class, becoming available to passengers, as suggested by a case study of the effects of third carrier entry on long haul routes in Chapter 3. Some of the emerging long haul business models such as sixth freedom carriers and business only services are discussed in Chapter 5. As passengers are able to choose between a wider range of fare types with non-

discriminatory conditions on a route, it becomes harder to divide them into separate markets based on their characteristics, since it becomes more plausible that there may exist a chain of substitution between each of the products.

Journey purpose

6.13 For some long haul routes from the UK, principally those to solely leisure destinations, the distinction between time-sensitive and non-time sensitive passengers may not be a significant feature of the market, although other passenger characteristics may be relevant. For example, a proportion of leisure passengers may be travelling to visit friends or relatives, rather than for holidays. Like business passengers, this group will be highly destination-specific, although they may be far more price sensitive, since the cost of travel may well form a much higher proportion of their total trip costs than for other leisure passengers[67].

6.14 For leisure passengers, trip duration or the purchase of an inclusive tour package may also be enough to allow airlines to discriminate between them and other passengers, which could indicate that they form separate markets for a particular route. The cost of air travel is likely to form a smaller proportion of the total trip costs for passengers on longer stays and they may be less sensitive to the duration of the flight itself or the cost. Inclusive tour passengers are less likely to have selected their airline or routeing and so may not have the same choices as other passengers, although they may have more flexibility to choose alternative holiday destinations. The characteristics of long haul passengers are discussed in Chapter 4, and long haul charter services are reviewed in Chapter 3.

Indirect routes

6.15 Table 1.8 shows that the competition decisions for different long haul routes produced less agreement on the inclusion of indirect routeings in the same relevant market as direct ones, and, even where indirect services were included, in each case it was for a different reason. In the UK-India scarce capacity hearing in 2004, the CAA considered indirect and direct services between London and Chennai potentially to be in the same market, due to the thinness and infrequency of the direct services. In 1998, the EC considered all UK-US routes to form a single relevant market for non-time sensitive passengers due to the network nature of many of the transatlantic airlines, whereas in 2001 it specifically defined indirect services to be in the same market as direct transatlantic services depending on their appearance in reservation systems and connection times. In the Air France-KLM merger decision of 2004, the EC used this criterion for inclusion of indirect alongside direct long haul routes in the relevant markets for both time sensitive and non-time sensitive passengers. Since all the services between Europe and Australia require a technical stop en route, the Australian Competition and Consumer Commission defined their relevant market for business passengers in 2004 as those stopping services which provided the most direct routeing between city pairs. Chapter 4 investigates the use of indirect services by passengers travelling to or from the UK by world region, ticket type and journey purpose.

Airport overlap

6.16 In many previous competition decisions, all services from the same city are considered part of the same market. However, particularly for time-sensitive passengers travelling from London, this has not always been the case. In 2000, the UK Competition Commission considered services at Heathrow to be in a separate market for time-sensitive passengers to those at other London airports, principally

67. For instance, if they do not have to pay for hotel accommodation, car hire or eating out.

due to the extra frequencies that were available at Heathrow to UK-Canada passengers as a result of the volume of traffic connecting onto these routes. In 2001, the US Department of Justice came to a similar conclusion for time-sensitive UK-US passengers, but based their decision on the proportions of premium passengers on Heathrow and Gatwick services and the yields they attracted. Chapter 2 examines long haul passenger characteristics at Heathrow and Gatwick, with particular reference to those services which have switched between the airports in recent years.

Loyalty schemes

6.17 For business passengers, the prevalence of corporate deals for air services may be a further factor that affects which of a city's airports share a relevant market. Many companies strike such deals with airlines or alliances not just on consideration of one particular journey but rather of the totality of travel undertaken by employees during the year. This may mean that a network carrier (or set of carriers at a network hub) is more likely to be chosen and could restrict the market to a single airport if such deals are widespread.

6.18 About half of the competition decisions listed in Table 1.8 concern airline alliance partners seeking the ability to coordinate fares, schedules and frequent flyer programmes. For UK airlines and their US alliance partners, such applications tended to be rejected whilst air travel between the countries was restricted by the Bermuda II bilateral agreement. Chapter 3 demonstrates how airline alliances, as opposed to codeshare agreements, have affected connecting traffic at the London airports.

Conclusion

6.19 There are many considerations involved in defining a relevant market for long haul passenger air travel. Given the large differences in passengers travelling and services offered on long haul routes from the UK, these considerations will have different degrees of significance for different markets. Decisions on market definition are therefore best taken on a case-by-case basis.

6.20 There are, however, a number of factors that are likely to be relevant in many cases and should be considered as a matter of course. These are the full journeys currently taken by passengers on a route (how traffic is split between residents at each end of the route and those who are making connections from other flights), the level of time or price sensitivity of the passengers (which may be best represented by their journey purpose, ticket type or some other factor), the extent of indirect travel as an alternative to direct flights, and the size of the catchment areas at either end of a route (whether travel from an airport, a city or even a whole country should be considered). The effect of these factors is unlikely to be independent, and so it may also be necessary to consider how they influence each other.

6.21 The increasing liberalisation of the UK's long haul routes continues to encourage developments in airline business models and products, and these may also have an effect on market definitions in the future. The following chapters explore some of the key features of current and possible future long haul operations from the UK, and examine what distinguishes different long haul services from each other and from short haul services.

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Chapter 2 Route characteristics of long haul operations

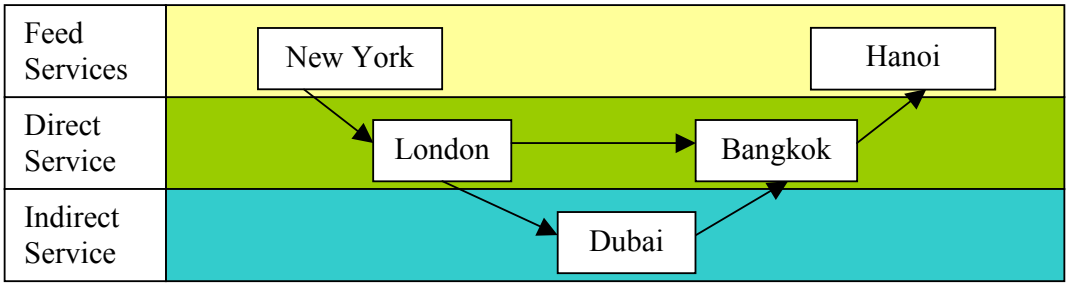
1 Introduction

1.1 This chapter examines some aspects of long haul air services from the UK that are relevant to the routes offered by airlines. It also analyses the network effects that play a part in long haul travel to and from the UK: first, by considering the long haul services offered from the UK and the feed traffic provided from either end of a route; and also through a study of the expansion of long haul services from the UK's regional airports (often as feeder services into foreign airlines' hubs).

1.2 This chapter concludes with a short comparison between London's two main long haul airports, Heathrow and Gatwick, because of these London airports' importance to long haul traffic and the existence of certain services that have switched between the two. It examines how such services have been transferred, the effect of this on passenger numbers on those routes, and the characteristics of long haul passengers using the two airports.

1.3 Many types of connecting journeys need to be considered in analysing traffic on a particular route. For example, a passenger flying between London and Bangkok could be connecting at London with a domestic service, such as to Manchester, or an international service, such as to New York. Similarly, at the other end of the route, there could be passengers connecting at Bangkok with a domestic service, such as to Phuket, or with an international one, such as to Hanoi. Passengers may also be travelling between London and Bangkok via an intermediate point such as Dubai. These example routeings are illustrated in Figure 2.1.

Figure 2.1 An example of the possible types of passenger connections for the London-Bangkok service



1.4 Such diverse routeings are generally only a feature of scheduled operations, where it is often necessary to support regular services on relatively thin routes with feed traffic from other points. Charter services, on the other hand, can be operated at a frequency responding to the level of point-to-point demand and rarely require passengers to make connections.

1.5 The characterisation of routes into feed and indirect services is only valid relative to a particular direct service. For instance, when considering the Dubai-Bangkok service in Figure 2.1, London-Dubai becomes a feed service, and when considering the New York-Bangkok route, New York-London-Bangkok becomes an indirect service. Similarly, the characterisation of an airport as a hub does not relate to any physical quality of the airport[1], but rather that a network airline has established a hub operation at the airport.

1. Although a certain minimum set of facilities may be necessary.

Chapter Summary

This chapter considers the route related aspects of long haul air travel and finds that:

- In general, scheduled long haul services operated from the UK are supported by passengers connecting at one or both ends of the route. At Heathrow, only 44% of long haul passengers did not make such a connection. For Gatwick the figure is 51% and for Manchester 48%. However, the extent to which the economics of a particular route are reliant on feed traffic from either end can vary quite widely with strength of demand for the city pair in question. More long haul passengers at the London airports will connect at the UK end of their journey, whereas those from the regions will connect at the other end.
- Long haul services from regional airports have grown significantly in the last ten years, mainly serving leisure destinations for UK holidaymakers or hub airports of non-UK carriers. These latter services have expanded the range of long haul destinations available to passengers from the UK regions. However, long haul services from Manchester still outweigh those offered from other regional airports.
- The available data show that long haul carriers have a preference for Heathrow over Gatwick. This seems to derive from higher yields that can be obtained at Heathrow, rather than an increase in passenger numbers. However, this analysis is based on observation of the small proportion of routes where directly comparable services have switched between the two airports in the last fifteen years and the conclusion is accordingly tentative.

2 Feed traffic on long haul routes

2.1 Feed traffic is an important consideration for many long haul scheduled services and can be essential to their operational viability. In Figure 2.1 above, feed traffic for the London-Bangkok flight comprises those passengers who connect to or from the New York-London or Bangkok-Hanoi flights. Long haul charter services tend to attract only small numbers of connecting passengers[2], and so the analysis here concentrates solely on scheduled services. It considers the different routeings taken by passengers on long haul services operated from UK airports, and therefore includes those whose journey neither starts nor finishes in the UK. Chapter 4, however, examines the ways in which passengers originating or ending their journey in the UK travel to or from long haul destinations.

2.2 Table 2.1 shows how the proportions of different types of feed traffic vary by world area for long haul routes at the three largest UK long haul airports. It indicates that for all long haul world regions, over 30% of the total passengers on scheduled services from Heathrow, Gatwick and Manchester (from hereon in these are referred to as the 'UK's main long haul airports') are connecting from another flight at the UK end. For passengers travelling to or from Africa and Australasia, this figure rises to around 40%[3]. The pattern of connections for passengers on long haul flights at the non-UK end varies much more, ranging from around 15% for Latin America and the Caribbean and the Indian Subcontinent to around 45% for the Middle East and Far East.

Table 2.1 Connections made by passengers on scheduled long haul services at Heathrow, Gatwick and Manchester, 2005

Region	Point-to-Point	Connect at UK end only	Connect at other end only	Connect at both ends	Passengers (m)
North America	49%	27%	17%	7%	19.5
Latin America & Caribbean	61%	25%	10%	4%	2.0
Africa	50%	33%	10%	8%	3.5
Middle East	32%	24%	34%	10%	5.1
Indian Subcontinent	55%	30%	11%	4%	2.1
Far East	35%	20%	32%	12%	6.1
Australasia	44%	36%	13%	7%	0.9
Total Long Haul	46%	26%	20%	8%	39.3

Source: CAA Passenger Survey, 2005.
Notes: Region indicates the region where the flight ends, not necessarily the final destination of the passenger.

2. CAA survey data from 2005 indicate that 96% of the passengers on long haul charter services from the UK's main long haul airports did not make a flight connection at either end of their journey.
3. Passengers connecting at the UK end are the sum of the categories 'Connect at UK end only' and 'Connect at both ends'. Similarly, passengers connecting at the non-UK end are the sum of 'Connect at other end only' and 'Connect at both ends'.

2.3 There is a consistency in the proportion of passengers travelling point-to-point on long haul services from the UK's airports. At Heathrow, only 44% of long haul passengers did not make a connection to another service at one or other end of their flight. For Gatwick the figure is 51% and for Manchester 48%. This is a significant indication of the extent to which feed traffic contributes to passenger volumes on long haul operations from the UK.

Passengers connecting at the UK end of a long haul service

2.4 Historically, the UK has been well placed as an intermediate point between the US and, respectively, Europe and the Middle and Far East, and this certainly helped to establish London as a hub. However, as aircraft ranges increase, the need to connect at a hub (and the optimum geographic position for hubs) also changes. London has been protected from these changes to some extent by its geography and the size of its local demand: many of its main long haul routes are transatlantic to the east coast of the US, so, with the exception of Dublin and Toronto, alternative hubs only exist eastbound of London. It also benefits from a high level of point-to-point demand, which helps to sustain its long haul services.

2.5 Table 2.2 shows the proportions of traffic connecting to or from scheduled long haul services at the UK's main long haul airports. At Heathrow there were over 30 million scheduled long haul passengers in 2005, nearly 12 million of which made a connection to another flight at the airport. Half of these passengers connected with a short haul international service.

Table 2.2 Traffic connecting onto scheduled long haul flights at Heathrow, Gatwick and Manchester, 2005

Passengers (m)	<-- Connecting passengers by connecting flight -->				Terminating Passengers	Total Passengers
	Domestic	Short haul International	Long haul International	Total		
Heathrow	2.2	5.9	3.6	11.8	19.0	30.8
%	7%	19%	12%	38%	62%	100%
Gatwick	0.4	0.8	0.5	1.7	4.3	5.9
%	6%	13%	9%	28%	72%	100%
Manchester	0.1	0.0	0.0	0.1	2.5	2.6
%	2%	1%	0%	4%	96%	100%
Total	2.6	6.7	4.2	13.6	25.8	39.3
%	7%	17%	11%	34%	66%	100%

Source: CAA Passenger Survey, 2005.

2.6 Connecting passengers from international flights at Heathrow are clearly a much more significant element of traffic than at either Gatwick or Manchester. This is true for passengers from both short and long haul points, although there is a similar proportion of domestic connectors at Gatwick and Heathrow. The higher proportion of international connectors at Heathrow is not only indicative of the larger number of services offered, but also its hub status for many full service airline and international alliance network operations. This explains why many long haul destinations that are not hubs themselves are served only from Heathrow.

2.7 Although Manchester has a significant network of short haul and domestic services, only a small percentage of its long haul passengers connect to other services at the airport. Most of its long haul services are operated by non-UK airlines, which are more likely to consider it a spoke to their own hub network. This is typical of long haul operations at regional airports where feed traffic connecting onto the service through the UK airport is of much less significance than that connecting through the airport at the other end of the route.

2.8 Even at a hub airport such as Heathrow, there can be large differences in the proportions of feed traffic for different routes. Table 2.3 shows those routes at Heathrow with the lowest proportion of terminating passengers at the UK end. Of the 58 long haul routes operated from Heathrow in 2005 with more than 100,000 passengers, 25 had more than 40% of their passengers connecting at the airport[4]. These destinations are mainly secondary cities in their region or country and can sustain relatively few services either to European cities or to points on the opposite side of Europe, thereby making a connection at Heathrow attractive.

Table 2.3 Scheduled long haul routes with the highest proportion of connecting passengers at Heathrow 2005

	Connecting				
	Domestic	**International**	**Total**	**Terminating**	**Total Passengers (000s)**
Beirut	1%	62%	63%	37%	123
Tehran	1%	59%	60%	40%	158
Phoenix	7%	47%	54%	46%	191
Ottawa	11%	42%	54%	46%	120
Nairobi	5%	48%	53%	47%	492
Mexico City	0%	53%	53%	47%	114
Montreal	5%	48%	53%	47%	373
Accra	8%	43%	51%	49%	119
Baltimore	2%	49%	51%	49%	120
Calgary	19%	31%	50%	50%	240

Source: CAA Passenger Survey, 2005.

2.9 Table 2.4 shows the breakdown of connecting services used by passengers on long haul scheduled flights at the UK's main long haul airports. It shows that in 2005, 6.7 million passengers connected between a North American service and another flight at a UK airport, some 34% of the total UK-North American traffic. Of these passengers, 1.0 million were connecting with a domestic flight in the UK, 3.8 million with a short haul international flight and the remaining 1.9 million with a long haul flight. For the majority of world regions, the largest component of connecting traffic is from short haul international flights, the exceptions being the Middle East and Indian Subcontinent, which attract greater proportions from long haul services. For all world regions, connecting passengers from domestic services are fewer than those from international services, although this may not hold for individual routes. As shown in Table 2.2 above, the majority of passengers connecting at the UK end of long haul services do so at Heathrow and Gatwick, underlining the importance of London as an international and domestic hub.

4. By contrast, the long haul route with the lowest proportion of connecting passengers was Jeddah with 21%.

Table 2.4 UK connecting services used by scheduled passengers on long haul flights to or from Heathrow, Gatwick and Manchester, 2005

Passengers (m)	**Connecting at UK airport from or to:**			
World region	**Domestic flight**	**Short Haul flight**	**Long Haul flight**	**Total**
North America	1.1 5%	3.8 20%	1.8 9%	6.7 34%
Latin America & Caribbean	0.2 8%	0.3 16%	0.1 4%	0.6 28%
Africa	0.3 8%	0.5 16%	0.6 16%	1.4 40%
Middle East	0.3 5%	0.4 8%	1.0 20%	1.7 33%
Indian Subcontinent	0.1 5%	0.3 12%	0.4 17%	0.7 34%
Far East	0.7 11%	1.1 18%	0.3 4%	2.0 33%
Australasia	0.1 11%	0.3 28%	0.0 4%	0.4 43%
Total	2.6 7%	6.7 17%	4.2 11%	13.6 35%

Source: CAA Passenger Survey, 2005.
Notes: Region indicates the region where the flight ends, not necessarily the final destination of the passenger.
Percentages given are related to the total passenger numbers on flights to each world region.

Passengers connecting at the non-UK end of a long haul service

2.10 A long haul service can attract feed traffic at either end or both. An airport with significant feed traffic may have sufficient services to act as a regional hub for long haul travel and may be able to support new services by tapping into demand from other points it serves. An airport at which long haul routes tend to attract feed traffic solely from the other end is more likely to have services to hub airports only, and any new long haul route to a nearby destination may reduce the feed traffic on existing routes[5].

2.11 Table 2.5 shows the proportions of scheduled traffic which connected at the other end of their journey in 2005. It shows an entirely different pattern from Table 2.3. Manchester's long haul routes have by far the largest proportion of passengers changing planes at the non-UK end. There is a smaller range of destinations served from Manchester and a high proportion of those destinations are hub airports for non-UK airlines. This is true to a lesser extent for Gatwick, whereas Heathrow, although it too has routes to hub airports, also serves many 'spoke' points due to BA, Virgin and bmi all offering a long haul network there.

5. For instance, where an airport already has a New York service, a new service to Chicago may divert traffic that used to connect at New York.

Table 2.5 Traffic on scheduled long haul flights from Heathrow, Gatwick and Manchester airports connecting at their destination airport, 2005

Passengers (m)	Connecting passengers at destination point			Terminating Passengers	Total Passengers
	Connecting onto domestic flight	Connecting onto International flight	Total		
Heathrow	3.2	4.7	8.0	22.8	30.8
%	11%	15%	26%	74%	100%
Gatwick	1.2	0.6	1.8	4.1	5.9
%	20%	11%	30%	70%	100%
Manchester	0.6	0.7	1.3	1.3	2.6
%	25%	25%	50%	50%	100%
Total	5.1	6.0	11.1	28.3	39.3
%	13%	15%	28%	72%	100%

Source: CAA Passenger Survey, 2005.

2.12 Table 2.6 shows the types of service which passengers connect onto at the non-UK end of scheduled long haul flights from the three main long haul UK airports. Service types are divided into domestic flights, international flights to a country within the world region and international flights to a country in a different world region. The high proportion of North American, Indian Subcontinent and Australasian traffic connecting to domestic services at the non-UK end of the route is due to some extent to the geographical size of the main country in each of these regions. However, it may also be due to the prevailing ASAs between the main countries in these regions and the UK. Where carriers from either side are denied access to all but the main airports in a country then any passengers wishing to travel to secondary cities are more likely to use domestic or international connecting flights.

Table 2.6 Non-UK connecting services used by scheduled passengers on long haul flights to or from Heathrow, Gatwick and Manchester, 2005

Passengers (m)	Connecting at non-UK airport from or to:			
World region	Domestic flight	Intra-Region flight	Extra-region flight	Total
North America	4.0	0.2	0.5	4.6
	20%	1%	3%	24%
Latin America & Caribbean	0.1	0.2	0.0	0.3
	5%	9%	0%	14%
Africa	0.3	0.2	0.1	0.6
	9%	6%	2%	18%
Middle East	0.0	0.3	2.0	2.3
	0%	5%	38%	44%
Indian Subcontinent	0.3	0.1	0.0	0.3
	12%	2%	2%	16%

Table 2.6 Non-UK connecting services used by scheduled passengers on long haul flights to or from Heathrow, Gatwick and Manchester, 2005 (continued)

Passengers (m)	Connecting at non-UK airport from or to:			
World region	**Domestic flight**	**Intra-Region flight**	**Extra-region flight**	**Total**
Far East	0.3	0.7	1.8	2.7
	4%	11%	30%	45%
Australasia	0.1	0.1	0.0	0.2
	12%	8%	1%	21%
Total	5.1	1.6	4.4	11.1
	13%	4%	11%	28%

Source: CAA Passenger Survey, 2005.
Notes: Region indicates the region where the flight ends, not necessarily the final destination of the passenger. Percentages given are related to the total passenger numbers on flights to each world region.

2.13 The high proportion of intra-regional connections made by passengers on flights between the UK and the Far East is also noticeable. The Far East is home to a number of network airlines, in part because most of the main airports in the region are in different countries, unlike, say, the Indian Subcontinent where a number of the main airports are in India. Indeed, combining the proportions of intra-regional and domestic connections suggests that the Far East is little different to many of the other regions.

2.14 However, a high proportion of passengers on flights between the UK and the Middle East and Far East regions are catching connecting flights to destinations beyond these regions[6]. Both regions contain carriers whose main business strategy is to connect points worldwide by offering sixth freedom services through their hub airports. Both regions are also well positioned geographically, in particular for travel between Europe and Australasia. These destinations support high levels of traffic, particularly from the UK, and the length of the air journeys means that for the most part services require at least one stop, which makes passengers less resistant to travelling by indirect routeings.

2.15 As long haul air markets develop, the geographical advantages of the Far East, and even more so the Middle East, are likely to become more significant. The Middle East lies not only between Europe and the Indian Subcontinent and the Far East, both of which support relatively large traffic volumes, but also between North America and Africa and these regions.

Passengers connecting at both ends

2.16 For some passengers, neither of the airports connected by long haul services from the UK are the start or end point of their journey. Table 2.7 illustrates the main flows for passengers at the UK's main long haul airports connecting at both ends of their long haul flight in 2005. It shows the type of connection made from each end of the flight, the number of passengers, and the proportion this represents of the total traffic on flights between the UK and the world region. For instance, the first row shows that in 2005 there were over half a million passengers travelling on services between the UK and North America whose full routeing was actually Short Haul – UK-North America-North America and that these represented 3% of all passengers travelling between the UK and the North American region.

6. As shown in 'Extra-regional flight' column from Table 2.6

Table 2.7 Major flows for passengers connecting at both ends of long haul scheduled flights to and from Heathrow, Gatwick and Manchester, 2005

World Region	UK Connection	Non-UK connection	Passengers (000)	Percentage of world region total
North America	Short Haul	Domestic	594	3.0%
North America	Long Haul	Domestic	427	2.2%
Far East	Short Haul	Extra-Regional	251	4.1%
Middle East	Long Haul	Extra-Regional	229	4.5%
Far East	Domestic	Extra-Regional	204	3.3%
North America	Domestic	Domestic	183	0.9%
Far East	Short Haul	Intra-Regional	124	2.0%
Middle East	Short Haul	Extra-Regional	122	2.4%
Others			1,041	2.7%
Total			3,176	8.1%

Source: CAA Passenger Survey, 2005.
Notes: Region indicates the region where the flight ends, not necessarily the final destination of the passenger. Percentages given are related to the total passenger numbers on flights to each world region.

2.17 The table shows that of the main routeings taken by passengers connecting at both ends of their journey, the majority are connecting to or from international flights at the UK airports[7]. North American traffic features heavily in the table, occupying three of the top six routeings, and over 6% of the total traffic between the UK and North America. Although this will in part be due to the high traffic volumes between the UK and this region, each of these three routeings features domestic connections at the North American end and, as has been noted above, the ASA in force between the US and the UK is particularly restrictive as to the US cities which can be served by direct services from London. Flights between the UK and the Far East also feature three times in the table, and passengers connecting at both ends make up over 10% of the total to this region.[8]

2.18 Over 8% of the total passengers on long haul routes are connecting at both ends of their flight, and the majority of these are connecting from international services in the UK. Services at UK airports may be challenged for this traffic in the future by the development of more direct long haul routes between world regions, or by network airlines with connecting services at airports outside the UK.

7. Note that where these connections are to or from long haul flights, then it is possible that passengers are counted twice in the table. For example a passenger who travels on a routeing such as Greensboro-Charlotte-London-Dubai-Mumbai will be counted in both row two and row four of the table.
8. Although the routeings shown explicitly on Table 2.7 make up just less than 10% of the total, the figure goes over 10% when the Far East routeings which are included in the 'others' category are included.

3 Regional airports

3.1 As noted in the previous section, the nature of some scheduled long haul routes means that they are only sustainable where they can be supported by feed traffic from other services. However, the increased use of narrow-bodied aircraft such as the Boeing 757-200 and the Airbus A321, which can serve long haul destinations but need fewer passengers to make a route economically viable, has meant that overseas network carriers have begun to add UK regional airports as spokes to their networks. Table 2.8 shows the number of scheduled long haul flights and seats by UK airport in 1996 and 2006, comparing London airports to the regions.

Table 2.8 Scheduled long haul flights and seats at UK airports in 1996 and 2006

Airport	Flights		Seats (000s)	
	1996	2006	1996	2006
Heathrow	88,112	145,703	27,416	42,166
Gatwick	23,798	30,561	6,786	8,905
Stansted	544	2,257	158	230
London Total	*112,454*	*178,521*	*34,360*	*51,301*
Manchester	4,860	14,705	1,215	4,090
Birmingham	1,425	4,621	265	1,133
Glasgow	1,534	3,511	288	881
Edinburgh	3	1,367	1	255
Belfast	40	880	13	175
Bristol		651		115
Others	64	162	22	42
Regional Total	*7,926*	*25,897*	*1,804*	*6,690*
Total	120,380	204,418	36,164	57,991
Regional %	7%	13%	5%	12%

Source: CAA Airport Statistics, aircraft related.

3.2 For scheduled long haul services, Heathrow remains the most significant airport and, together with Gatwick, still accounts for 86% of all traffic (measured by number of flights), compared to 93% in 1996. However, the numbers of scheduled long haul flights and seats at the three larger regional airports, Manchester, Birmingham and Glasgow have more than doubled in the last ten years, and services have begun at a further six regional airports over this same period.

3.3 Whilst the London airports still account for the bulk of the scheduled long haul flights from the UK, the same is not so true for charter routes as can be seen from Table 2.9 below. Although Gatwick and Manchester are the focus of the long haul charter market, the remaining UK services are spread more widely among the other regional airports than their scheduled counterparts. Charter operations can be sustained more easily on smaller passenger volumes, since it is possible to operate them successfully on frequencies as low as one flight per week.

Table 2.9 Charter long haul flights and seats at UK airports in 1996 and 2006

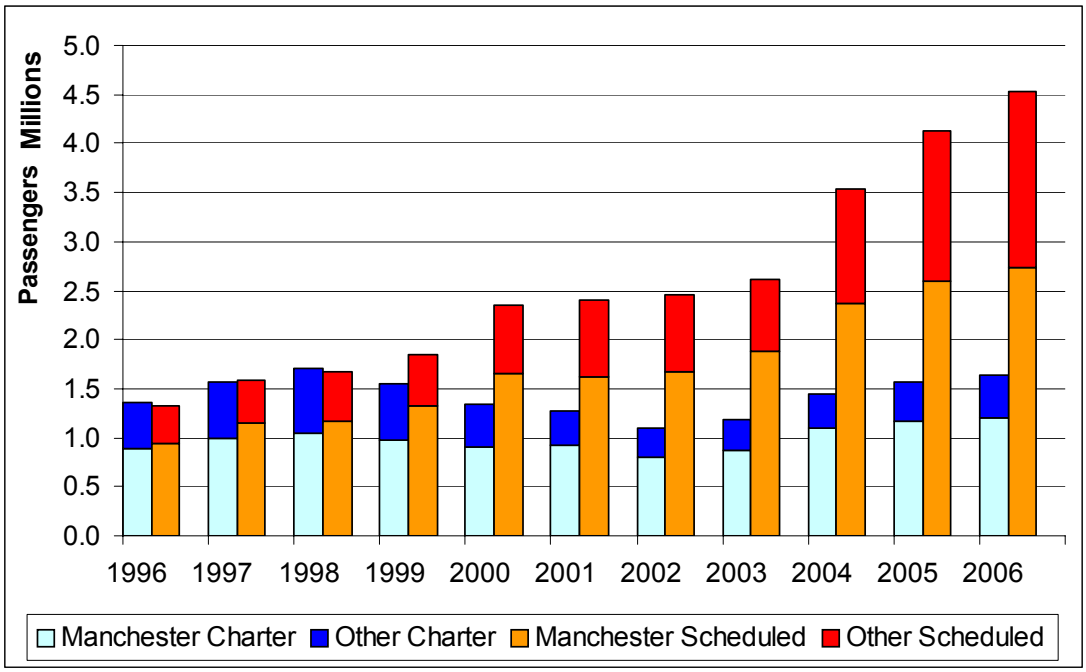
Airport	Flights		Seats (000s)	
	1996	2006	1996	2006
Gatwick	6,353	5,697	1,840	1,802
Luton	182	341	42	28
Stansted	125	330	36	67
Heathrow	119	54	15	10
London Total	*6,779*	*6,422*	*1,933*	*1,906*
Manchester	3,420	4,169	1,037	1,382
Glasgow	949	441	271	147
Birmingham	386	317	102	101
East Midlands	37	176	11	44
Cardiff	104	168	28	59
Newcastle	185	165	51	60
Doncaster Sheffield		138	0	43
Belfast	364	108	120	32
Others	293	203	86	42
Regional Total	*5,738*	*5,885*	*1,706*	*1,910*
Total	12,517	12,307	3,639	3,816
Regional %	46%	48%	47%	50%

Source: CAA Airport Statistics, aircraft related.
Note: Doncaster Sheffield airport was not in operation in 1996.

3.4 Figure 2.2 shows the difference in the number of passengers travelling on long haul scheduled and charter services from the regions between 1995 and 2006 and highlights the strong position of Manchester, albeit one that is being slowly eroded. Since 1996 the number of scheduled passengers travelling from the regions has increased more than three-fold. In contrast, the number of charter passengers has increased by only 20%[9], although these figures are affected by carriers serving Canada, that ran charter operations in 1996, but were mainly scheduled in 2006[10]. Whereas in 1996, passengers from Manchester constituted 65% of the regional long haul charter total and 73% of the regional long haul scheduled, by 2006 the charter proportion had increased to 71% but the scheduled proportion had fallen to 60%.

9. The average annual growth rate over the period for scheduled regional passengers was 13.1% while the equivalent for charter passengers was only 1.8%.
10. See Chapter 3, paragraph 4.12 for more information on this.

Figure 2.2 Regional long haul passengers between 1996 and 2006



Source: CAA Airport Statistics, aircraft related.

3.5 Table 2.10 shows the historic passenger carryings of the 12 airlines that carried the most long haul traffic from the UK's regional airports in 2006. Emirates and Continental were easily the two largest airlines operating from the UK regions in 2006, although both had had a relatively small presence ten years previously. The charter carriers as a whole saw passenger numbers decline between 1996 and 2002, as their North American operations were affected by the increased services from scheduled airlines and the effects of 11 September 2001, but regional charter traffic has increased between 2002 and 2006, mainly due to a greater presence on Latin American and Caribbean routes. The only one of the largest scheduled carriers in 2006 not to have significantly increased passenger numbers over the period is American Airlines.

3.6 In 2006, Continental served its hub in Newark from six UK regional airports using narrowbody Boeing 757-200 aircraft. In 1996, Continental offered services from Newark to only Manchester and Gatwick in the UK and from Houston to Gatwick, the Bermuda II ASA preventing it from serving Heathrow. Services from Newark to Birmingham and Glasgow followed in 1997 and 1998. Apart from adding Cleveland and Houston services at Gatwick and a short lived expansion to flights from Stansted in 2001, its UK network remained the same until 2004, when Edinburgh was added, followed in 2005 by Bristol and Belfast. Although this regional strategy may have been initially driven by an inability to serve Heathrow, CAA Passenger Survey data indicate that Continental's London and regional routes serve different passenger types: whilst UK residents form less than a quarter of the London passengers, they represent over 60% of regional passengers. This suggests that the recent EU-US Open Skies agreement will not necessarily mean that US carriers will withdraw their regional services merely because they are allowed to operate from Heathrow.

3.7 In contrast to Continental, Emirates' UK regional services, all of which are to its Dubai hub, have used widebody Airbus A330s or Boeing 777s and, in 2006, served only three airports outside London. Emirates' Manchester service has been in operation since 1990, became daily in 1997 and double-daily in 2003. It added a daily service to Birmingham in 2000, increased to double-daily in 2005, and a daily service to Glasgow in 2004. It has also announced a daily service to Newcastle beginning operations in September 2007. In 2006, Emirates also operated eight daily services between London and Dubai, but, as with Continental, there is a difference in the passenger profile of its London and regional passengers. In 2005, UK residents made up nearly three-quarters of Emirates regional passengers, but less than a half of its London passengers.

Table 2.10 Long haul passengers at regional airports for the top 12 long haul regional carriers in 2006 over the period 1996 to 2006

Passengers (000s)	1996	1998	2000	2002	2004	2006	Passenger share 2006
Emirates	22	57	173	353	622	918	15%
Continental	120	323	402	364	518	758	12%
Britannia/Thomsonfly	284	423	301	148	271	396	6%
Pakistan International	71	112	162	194	278	339	6%
MyTravel	350	450	516	545	486	329	5%
Thomas Cook	0	7	27	149	255	295	5%
Virgin	105	122	181	116	232	294	5%
First Choice	1	1	232	147	161	291	5%
Delta Airlines	140	251	278	170	128	277	4%
American Airlines	261	312	299	237	257	275	4%
bmi	0	0	0	220	321	249	4%
Monarch	173	239	143	41	113	221	4%
Other Scheduled	608	488	859	803	1,114	1,298	21%
Other Charter	557	590	126	63	223	223	4%
Total	2,692	3,375	3,697	3,550	4,979	6,165	100%

Source: CAA Airport Statistics, aircraft related.

3.8 The last ten years have also seen UK scheduled carriers serving more long haul destinations from the regions, with the majority of these services operated from Manchester. The UK carriers' regional long haul services tend to be concentrated on thick, UK-originating, leisure-intensive routes. In 2006, Virgin's regional services were to Florida and Caribbean destinations. bmi served a mixture of the hub airports of its alliance partners and leisure destinations in the Caribbean and Las Vegas. This is in contrast to services offered by non-UK airlines at regional airports, which are more likely to link into the carrier's hub airport. All of the passengers carried by Emirates from the regions travelled to Dubai, while Continental's passengers were carried to Newark, and American's to Chicago, Boston or Miami. The sustainability of many of these regional scheduled routes is therefore due to the feed traffic they provide at the foreign carrier's hubs. Once they reach the hub, regional passengers are offered a wide range of connections to destinations that could not feasibly be served on a point-to-point basis.

Indirect travel from regional airports

3.9 International short haul services from UK regional airports have increased far more than long haul in the last ten years, giving passengers an increased ability to travel to hub airports in other EU countries, from which they can connect onto long haul services[11]. Table 2.11 compares all long haul passengers at London and regional airports in 2005 and shows their choice of route: either direct, through one of the London airports or through an international hub[12]. It shows how the numbers of passengers on these different types of journey have changed since 1996.

Table 2.11 Method of travel for long haul passengers from London and regional UK airports, 2005 and 1996

2005 Departing Airport	Direct	Connect over: UK airport	Connect over: short haul airport	Connect over: long haul airport	Total	Passengers (m)
Heathrow	70%	0%	6%	24%	100%	30.28
Gatwick	75%	0%	1%	24%	100%	7.28
Other London	88%	0%	12%	0%	100%	0.12
London Total	*71%*	*0%*	*5%*	*24%*	*100%*	*37.68*
Manchester	50%	13%	11%	26%	100%	4.85
Glasgow	31%	34%	11%	24%	100%	1.23
Edinburgh	9%	57%	24%	10%	100%	0.82
Birmingham	31%	1%	34%	35%	100%	0.77
Other UK regions	11%	57%	31%	0%	100%	1.79
Regional Total	*35%*	*27%*	*18%*	*20%*	*100%*	*9.47*
Total	64%	5%	7%	23%	100%	47.15

1996 Departing Airport	Direct	Connect over: UK airport	Connect over: short haul airport	Connect over: long haul airport	Total	Passengers (m)
Heathrow	71%	0%	6%	23%	100%	20.55
Gatwick	79%	0%	1%	21%	100%	6.92
Other London	67%	0%	32%	1%	100%	0.13
London Total	*73%*	*0%*	*5%*	*22%*	*100%*	*27.59*
Manchester	54%	21%	8%	18%	100%	2.92
Glasgow	37%	40%	11%	12%	100%	0.83
Edinburgh	4%	78%	17%	0%	100%	0.42
Birmingham	48%	1%	25%	26%	100%	0.35
Other UK regions	19%	59%	21%	0%	100%	0.90
Regional Total	*41%*	*33%*	*13%*	*13%*	*100%*	*5.42*
Total	68%	5%	6%	21%	100%	33.02

Source: CAA Airport Statistics, Passenger Surveys 2005, 2003, 1994/5, 1996.
Note: Airport totals exclude passengers connecting from domestic services to avoid double counting.

11. Although much of this growth has been on no frills services, many of which make no concessions to passengers with onward connections. Thus not all short haul growth has added to long haul hub connectivity.
12. Since not all regional airports were surveyed in 2005, some data is taken from the 2003 CAA Passenger Survey and scaled to the passengers recorded at the survey airport in 2005. For the comparison figures, the 1996 and 1994/5 surveys have been used and scaled to the 1996 passenger totals.

3.10 The method of travel for long haul passengers from the London airports is much the same in 2005 as in 1996, with only 5% connecting over short haul international airports and the remainder travelling directly or connecting over a long haul airport (of which nearly half are simply making a domestic connection at the end of their journey). At the regional airports, there has been a greater change in the routeings taken by passengers. The proportion flying directly to their long haul destination has fallen from 41% to 35%, whereas the proportion connecting over a long haul airport has increased from 13% to 20%. Combining these gives the proportion who leave the UK on a long haul flight, which has remained roughly the same at 55%. This change is mainly due to increasing scheduled long haul services at regional airports, operated to non-UK carriers' hub airports, combined with little growth in long haul charter passengers who tend not to connect to other services.

3.11 The proportion of regional passengers connecting over a UK airport (which in most circumstances is a London airport) has fallen from 33% in 1996 to 27% in 2005, although, due to the increase in passengers travelling between long haul destinations and the regional airports, this still represents a rise in passenger numbers of 0.8 million. There has been a significant increase in the proportion of passengers travelling between regional airports and long haul destinations via a short haul international airport, up from 13% (or 0.7 million passengers) in 1996 to 18% (or 1.7 million passengers) in 2005.

3.12 Although the expansion in long haul services from the UK's regional airports could be due in part to capacity pressures at the major hub airports in London, it is just as likely that the growing demand for services direct from the regions has reached a level where more services are sustainable. This pattern has also been seen at regional airports for short haul services[13], despite the large increase in short haul no frills operations at the London airports. However, as has been noted above, many regional services are operated by non-UK network carriers as 'spokes' into their main hub airports and, being secondary UK airports they will likely be thinner routes than those to London. This could mean that they may be more susceptible to any future downturn in the global air passenger market than established operations from London.

3.13 The EU-US Open Skies agreement is expected to result in more transatlantic services offered from London airports and Heathrow in particular. As a result, carriers could re-deploy long haul aircraft to London with a consequent loss of services at regional airports, forcing regional passengers to follow these services to London or use domestic or short haul connecting flights. However, US carriers with UK regional services are likely to have more long haul aircraft available from other parts of their networks, and, as noted in paragraph 3.7, their regional services attract a different mix of passengers than their London ones.

13. See for example, CAP 754, UK Regional Air Services, CAA 2005.

4 Comparison between Heathrow and Gatwick airports

4.1 Long haul aviation was formalised under a network of bilateral ASAs forged at a time when most countries had a single government-owned airline operating the routes. Often this carrier would operate all its long haul routes at the main (or only) airport in its capital city, and, since it is natural for carriers from other countries to wish to serve first the capital, the airport could easily become the centre of (scheduled) long haul operations. In the UK, scheduled long haul services became concentrated in London, due also to the concentration of wealth and population in the capital city. There are countries where this pattern was not followed: the United States has supported a number of network airlines since the early days of commercial aviation and is large enough for each of them to have one or more regional hubs. Pre-unification Germany had no one major city: its business centre was in Frankfurt and government in Bonn, and there were long haul services from a number of its cities.

4.2 BA, the UK's flag carrier before privatisation in 1987, established its main long haul operations at Heathrow, but has also based some of its services at Gatwick, as have some non-UK long haul carriers. For some routes to the US, this was made necessary by the Bermuda II ASA, but there are others where airlines have been free to choose Heathrow or other London airports. A common assumption is that airlines would prefer to base scheduled long haul routes at Heathrow, but are forced to use other London airports due to the lack of suitable take off and landing slots (or the high costs incurred in obtaining them). This section investigates those routes which have transferred between Gatwick and Heathrow, and the passengers that use them, for evidence of differences between long haul operations at the two airports.

4.3 In the wake of the EU-US Open Skies agreement, US airlines previously excluded from Heathrow will now be able to operate services there. The fact that many of them have stated their intention to transfer their existing services from Gatwick to Heathrow[14] indicates that they see some benefit to be gained from the switch, a point reinforced by the significant sums which are reported to accompany airlines' exchange of take-off and landing slots at Heathrow[15]. Although the same slot management process exists at Heathrow and Gatwick, it is notable that the majority of such reported trades are for Heathrow slots.

4.4 Competition assessments relating to specific routes or airlines have differed in their conclusions about whether Heathrow should form a separate relevant market[16] to the other London airports, due to its particular attractiveness to premium class passengers or those travelling on business[17]. Of the two reasons given in favour, the first is that the diversity of destinations available at Heathrow is greater, so enabling a Heathrow service to attract extra demand from connecting passengers. The second is that the ease of access to the airport from West London makes it preferable for passengers placing the most value on the shortest possible journey time to their destinations, with a consequent impact on yields[18].

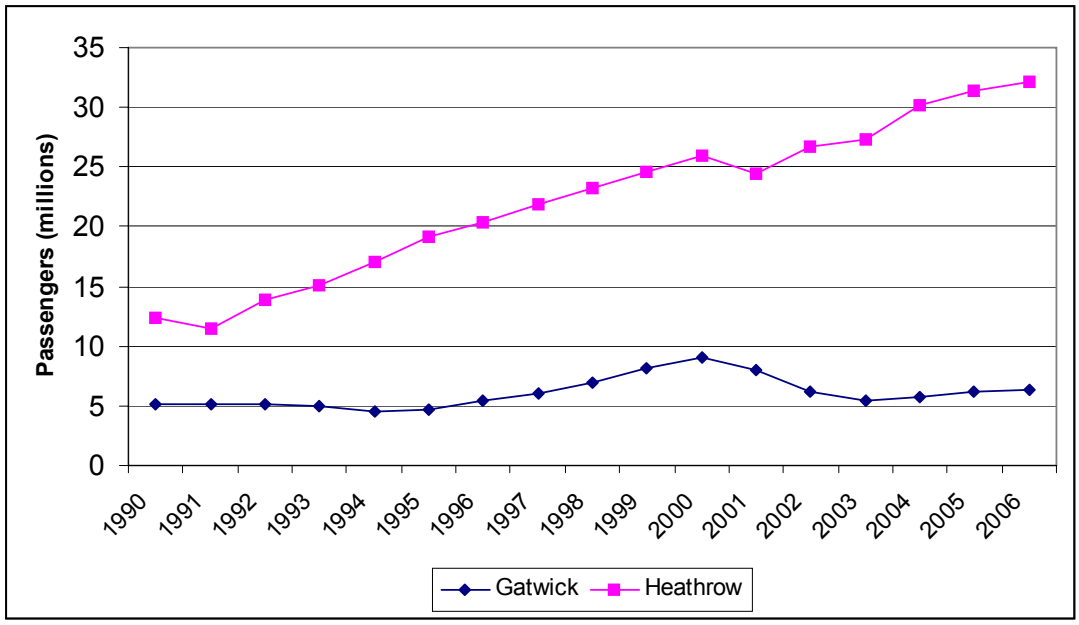
4.5 To investigate the first of these reasons, passenger volumes for those routes that have been switched from Gatwick to Heathrow in recent years are examined for evidence of increased demand. While an increase in passenger numbers could be evidence for a positive effect from the wider range of connections at Heathrow, its absence may not imply that no such effect exists. Rather airlines may be choosing to

14. 'Delta seeks slots at Heathrow', FT.com, 23 April 2007
15. 'BA buys extra slots at Heathrow' Financial Times, 31 March 2007.
16. See Chapter 1 paragraphs 6.2 to 6.4 for definition.
17. For example 'U.S.-U.K. Alliance Case, Docket OST-2001-11029', US Dept of Justice, 17 December 2001
18. Yield is measured as average fare per unit distance.

use increased demand to extract greater yields from the same level of supply[19]. To investigate the second reason, CAA Passenger Survey data can be used to examine the characteristics of long haul passengers at Heathrow and Gatwick (although these will in part be affected by the differing range of routes available at the two airports).

4.6 Figure 2.3 shows that for passengers carried on scheduled long haul flights between 1990 and 2006, Heathrow shows a long-term upwards trend, with notable dips in 1991 and 2001, coinciding with the Gulf War and the terrorist attacks of 11 September 2001. At Gatwick, these declines appear to be much more sustained, with passenger decline running from 1990 to 1994 and 2001 to 2003.

Figure 2.3 Total scheduled long haul passengers on routes at Gatwick and Heathrow, 1990 – 2006



Source: CAA Airport Statistics, aircraft related.

4.7 Route level analysis was undertaken to ascertain whether these differences in long haul traffic growth are correlated with the different destinations offered at the airports. Passenger data from long haul routes operated at both Heathrow and Gatwick have been examined in an attempt to detect any differences between the two airports in demand from passengers and airlines. The criteria for including routes in the group for this comparison were:

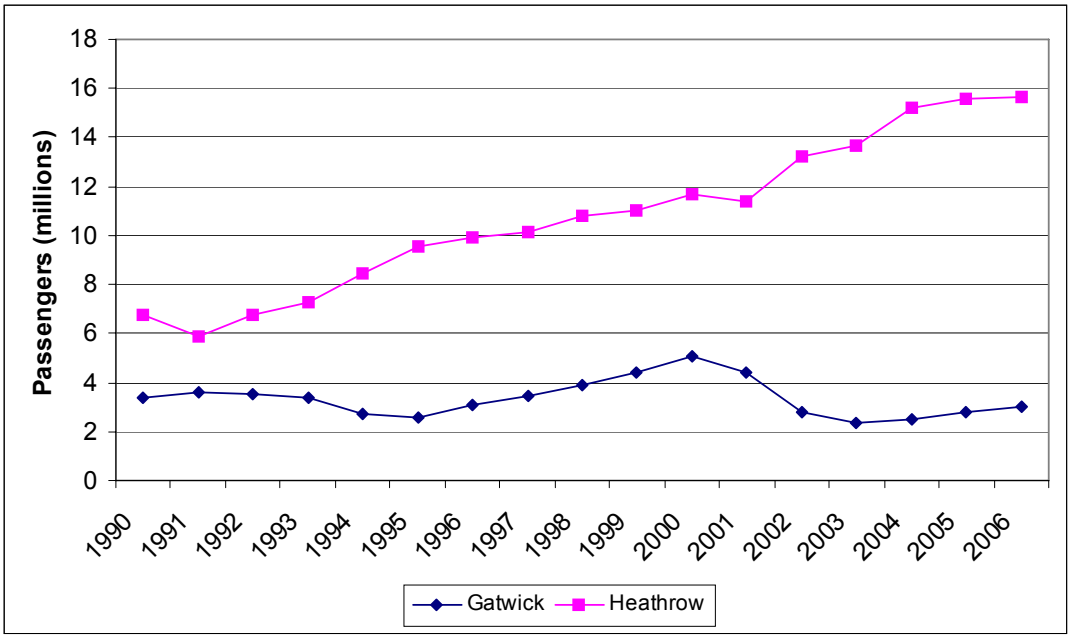
- both Gatwick and Heathrow airports served a significant number of passengers in the period, 1990 - 2006;
- each route demonstrated at least four years continuous service at both airports (which may or may not have overlapped); and
- flights were scheduled, not charter.

4.8 From hereon in, these are referred to as 'parallel routes'. They comprise 54% of Gatwick's scheduled long haul traffic in the period 1990 to 2006, and 47% of Heathrow's. Figure 2.4 shows long haul passenger numbers at Heathrow and Gatwick on these parallel routes since 1990. Despite including approximately half the

19. However, the extent to which this would be possible may be limited, as passengers are usually not prepared to pay as much for a single leg of a connecting service as direct passengers, although connecting passengers at Heathrow may be prepared to pay more than those at Gatwick if they benefit from a greater frequency of available connections.

original passengers, Figure 2.4 looks very similar in shape to Figure 2.3. Growth at Heathrow was negative in both 1991 and 2001, but recovered quickly, whereas Gatwick shows a deeper decline in passenger numbers after both 1991 and 2001. This indicates that drivers of demand on the parallel routes are likely to be similar to those on the other routes at Heathrow and Gatwick.

Figure 2.4 Total scheduled long haul passengers on "parallel routes" operating from both airports during the period 1990 – 2006



Source: CAA Airport Statistics, aircraft related.

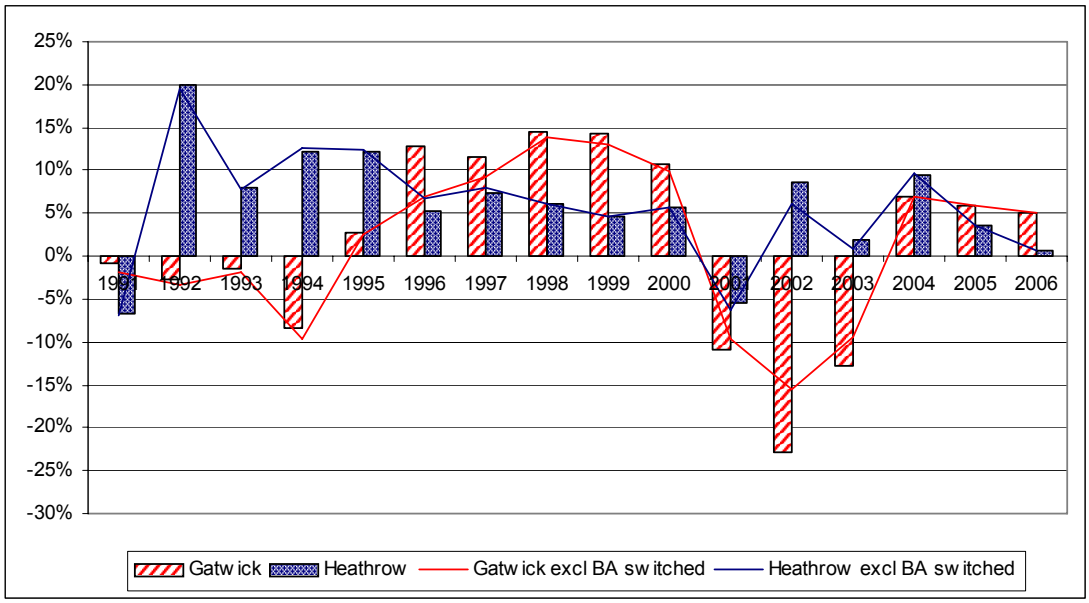
BA routes served at both Heathrow and Gatwick

4.9 Although many scheduled long haul routes have been served from Heathrow and Gatwick in recent years, there are few occasions where a carrier has transferred a route from one airport to the other, with the exception of BA. In 1999 BA was pursuing a double-hub strategy, operating 33 of its London long haul services[20] at Gatwick and the remaining 37 at Heathrow. This policy was reversed in 2001, and by 2003 BA only served nine long haul destinations from Gatwick[21], compared to 51 at Heathrow. In BA's case, there may be more reasons than those listed in paragraph 4.4 for concentrating its London long haul operations in a single hub. Not only is there the opportunity to benefit from greater levels of feed traffic, but also the potential for economies of scale.

4.10 Figure 2.5 shows annual long haul passenger growth rates at Gatwick and Heathrow since 1991 and how these were affected by BA's parallel routes. Given the lower baseline number of passengers at Gatwick, changes that are similar in absolute size to those at Heathrow produce higher growth rates. Switching of BA's parallel routes only has a significant effect when the contributions they make to Heathrow and Gatwick's growth rates are opposite[22] and with a larger percentage impact at Gatwick. This is most strikingly the case for the period between 2001 and 2003.

20. Only long haul services with more than 100 movements in the year are counted.
21. Bilateral restrictions meant that BA could not operate three of these routes (Dallas, Atlanta and Houston) from Heathrow.
22. That is, positive at Heathrow and negative at Gatwick or vice versa.

Figure 2.5 Scheduled long haul passenger growth rates at Gatwick and Heathrow, 1990 – 2006



Source: CAA Airport Statistics, aircraft related.

4.11 There were a number of routes switched between the airports over the period 2001 to 2003 by BA. These are looked at in detail in the following paragraphs, but by excluding the passenger numbers on these routes at both airports, the passenger growth numbers excluding 'switching' can be calculated. In the case of Heathrow, this makes little difference as the absolute number of passengers is so much larger. However, for Gatwick the difference to the growth rates between 2001 and 2003 is substantial, indicating that BA switching its long haul routes contributed significantly to the overall decline in passenger numbers. Interestingly, some of these routes were also switched in significant numbers from Heathrow to Gatwick around 1996, as evidenced by the growth rate in 1996 in Figure 2.5.

4.12 BA moved several routes to Heathrow from Gatwick in line with its new operational strategy at the airports[23]. Approximately a third of the major fall of 23% in Gatwick's scheduled long haul passengers in 2002 is due to the shift of a number of BA services from Gatwick to Heathrow. Table 2.12 lists the routes which BA switched from Gatwick to Heathrow between 2001 and 2003.

23. In BA's 2001/02 Annual Review, the Chief Executive, Sir Rod Eddington comments on the corporate strategy at Gatwick, "…transforming it into a base for point-to-point short haul flights with a reduced number of long haul routes." He also refers to plans to "…strip complexity out of the business"

Table 2.12 BA switched routes from Gatwick to Heathrow (2001-2003)

North America	Baltimore, US Denver International, US
Latin America	Buenos Aires, Argentina Rio de Janeiro, Brazil Sao Paulo, Brazil
Caribbean	Grand Cayman, Cayman Islands
Africa	Abuja, Nigeria Accra, Ghana Dar-Es-Salaam, Tanzania Entebbe, Uganda Lilongwe, Malawi Lusaka, Zambia Mauritius, Mauritius Nairobi, Kenya Mahe, Seychelles

Source: CAA Airport Statistics.

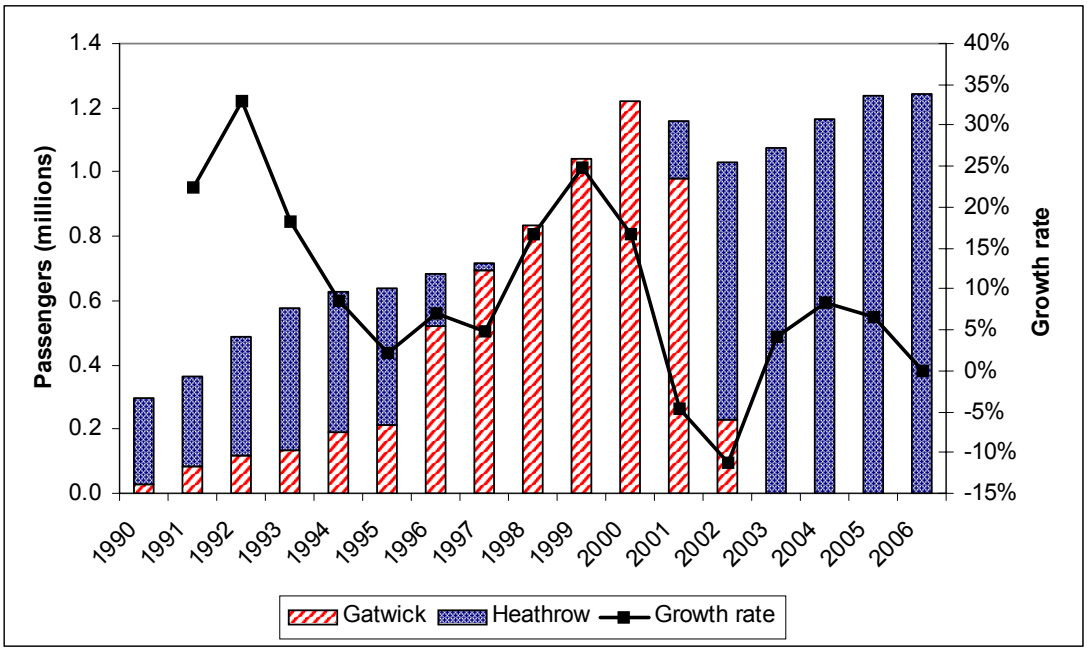
4.13 In 2000, BA carried 1.2 million passengers on these routes from Gatwick and none from Heathrow, but by 2004 this situation had completely reversed with 1.2 million passengers carried from Heathrow and none from Gatwick. In 2002 the 'switching' of BA services was most concentrated, with approximately 750,000 passengers travelling on routes at Heathrow which had been served only from Gatwick the year before.

4.14 The effect of the switching on BA's total passengers at Heathrow and Gatwick on these routes only is shown in Figure 2.6. There are two periods notable for accelerating rates of growth:

- 1997-1999 when the routes were operated from Gatwick, and
- 2002-2004, when passenger numbers are in recovery from 11 September 2001.

From 1997 to 1999, when the majority of the services are still at Gatwick, the growth can be seen to be higher than the years before. However, because of the effects of 11 September 2001, it is misleading to compare this to the rates seen when the services are moved to Heathrow, from 2001 onwards.

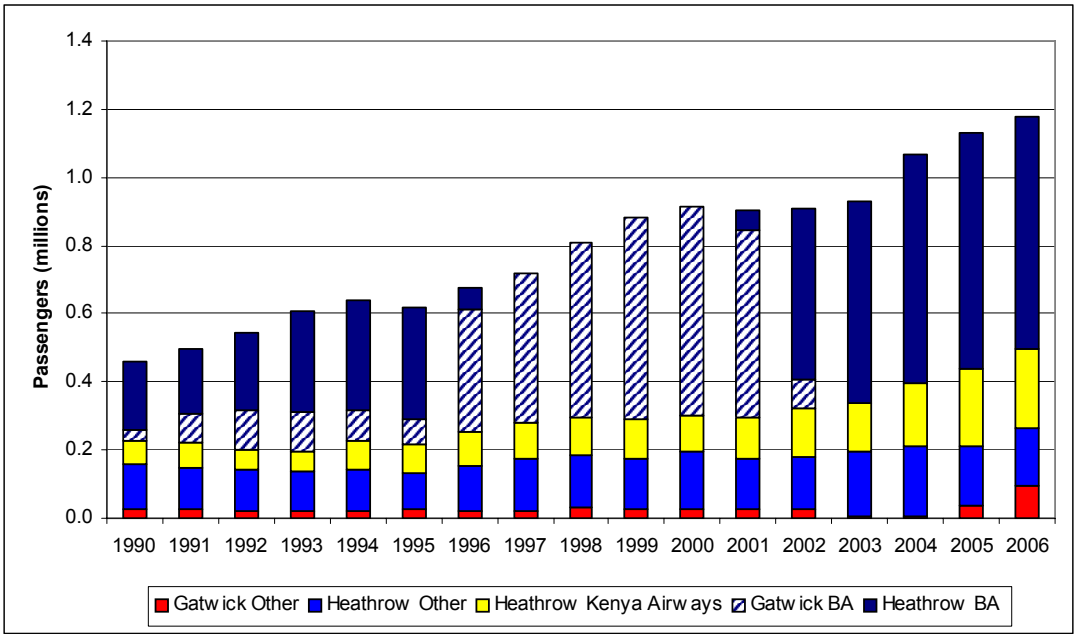
Figure 2.6 Total BA passengers on the routes switched by BA 2001-2003, split by airport, 1990 – 2006



Source: CAA Airport Statistics, aircraft related.

4.15 The majority of the switched routes are between London and destinations in Africa. Figure 2.7 shows how the total passenger figures on these routes are made up by airline. It can be seen that the BA passengers have grown along with the market, rather than in place of other carriers. This figure shows how the switching to Gatwick of these routes does not appear to have hampered the passenger growth trend in 1996, nor did the switching away in 2002 improve it.

Figure 2.7 Total passengers flying on the African routes switched by BA from Gatwick and Heathrow, all airlines, 1990 – 2006



Source: CAA Airport Statistics, aircraft related.

4.16 A similar pattern can be seen from the other routes switched by BA from Gatwick to Heathrow over this period. Thus, looking at the switching of the BA routes alone, there appears to be no benefit in terms of passenger numbers in locating the services at Heathrow.

Non-BA routes served at both Heathrow and Gatwick

4.17 Extending the analysis beyond the BA switched flights, there are very few scheduled long haul services that an airline has switched between the London airports such that operations continue for enough years to allow any inference to be made from the results. Once the BA switched routes are removed, there are 33 further routes identified which meet the criteria noted in paragraph 4.7 for parallel routes. Eight have had services operating at both Heathrow and Gatwick for at least ten years and, of the other 25 (listed in Table 2.13 below), the majority had been operated by multiple airlines, and the switching was in fact one airline stopping operations at one of the airports, and a different airline starting up elsewhere, rather than a single airline moving operations between the airports.

Table 2.13 Parallel routes operating between 1990 and 2006, excluding the BA switched routes and the wholly overlapping routes

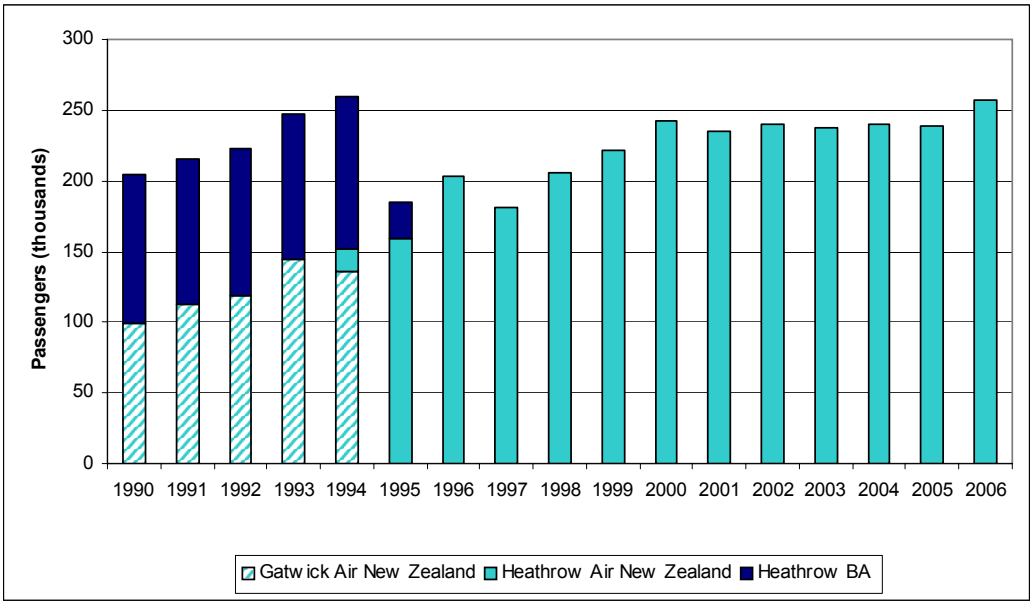
North America	Philadelphia, US	San Francisco, US
	Phoenix, US	Vancouver, Canada
	Pittsburgh, US	Toronto, Canada
Latin America & Caribbean	Kingston, Jamaica	
	Port of Spain, Trinidad and Tobago	
Africa	Harare, Zimbabwe	
Middle East	Abu Dhabi, UAE	Sanaa, Yemen
	Doha, Qatar	Tel Aviv, Israel
	Heydar Alijev, Azerbaijan	
Indian Subcontintent	Delhi, India	Islamabad, Pakistan
Far East	Jakarta, Indonesia	Beijing, China
	Hong Kong, China	Seoul, South Korea
	Manila, Phillipines	Taipei, Taiwan
Australasia	Auckland, New Zealand	

Source: CAA Airport Statistics.

4.18 There are a handful of routes that show clear evidence of continued operations by one or more airlines, and switching between the airports by one or more of these airlines. These routes are: Auckland, Hong Kong and Sanaa in the Republic of Yemen. Figure 2.8 shows how Air New Zealand switched operations from Gatwick to Heathrow in late 1994, and how BA stopped their service at the same time[24]. The growth trend exhibited at Gatwick from 1990 to 1995 continues at Heathrow until 2001 when the passenger numbers stabilise, but do not show a dramatic change due to switching airports.

24. After this time, BA served these points through its Joint Services Agreement with Qantas, whereby the two airlines coordinated their schedules for London-Bangkok, London-Singapore and flights onward from these points.

Figure 2.8 Total passengers flying between Auckland, NZ and Gatwick or Heathrow, all airlines, 1990 – 2006

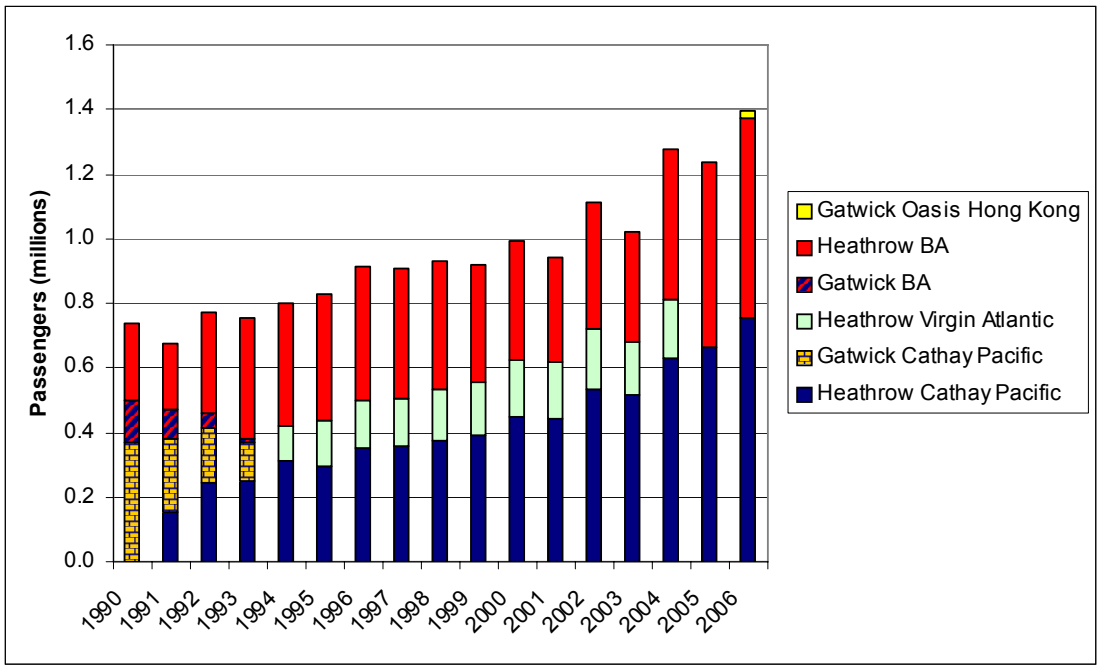


Source: CAA Airport Statistics, aircraft related.

4.19 Figure 2.9 shows the passenger numbers for Hong Kong over the same period. Both BA and Cathay Pacific[25] switched operations in 1995 away from Gatwick to Heathrow[26]. The graph indicates that the overall market shares for both BA and Cathay Pacific fell following the dropping of their Gatwick services (note the route is not regarded as fully switched since services were already operating out of Heathrow). However, the move of operations wholly to Heathrow for both airlines also coincides with entry into the market by Virgin and United, both also operating out of Heathrow.

25. Cathay Pacific was originally prevented from operating at Heathrow by traffic distribution rules, which were abandoned in 1991.
26. This route was not investigated when looking at the BA switched routes above as the switching took place in 1995 as opposed to being part of the 'mass BA switch' around 2001.

Figure 2.9 Total passengers flying between Hong Kong and Gatwick or Heathrow, all airlines, 1990 – 2006



Source: CAA Airport Statistics, passenger related.
Note: Does not include passengers travelling between the UK and onward points whose services made a stop in Hong Kong.

4.20 Neither analysis of routes that transferred from Gatwick to Heathrow over the period – those operated by BA and those operated by other airlines – has revealed any noticeable increase in passenger numbers for the services due to the change of airport. However, this does not in itself mean that there is no benefit to the airlines from the switches. For the BA routes, it may be that those which were initially chosen to be operated from Gatwick were exactly those which would have benefited least from the extra connections available at Heathrow, and the reasons behind switching them to Heathrow were to secure operational and cost benefits from concentrating routes at one airport.

4.21 Finally, as noted above, it may be possible for the airline to obtain a higher yield from the service operated at Heathrow than at Gatwick. There is little published information on airline yields. However, the CAA Passenger Survey contains data on the price paid by passengers for their tickets. To make a reasonable comparison, only data from those passengers who purchased a non-connecting economy class[27] return flight priced in pounds sterling were examined. Since the switched routes are relatively thin, there are few interviews available for each service and it is more robust to calculate the yield for the basket of switched routes between 2000 and 2004. The results are shown in Table 2.14 below. The yield for the routes when operated at Heathrow appeared to be over 5% higher than that obtained at Gatwick, even when the figures are adjusted for inflation across the survey years[28].

27. There was insufficient data to perform the same calculation for premium class fares. Using a different methodology, analysis by the CAA in 2001 indicated that long haul business yields were on average around 10% higher at Heathrow than Gatwick.
28. In general, air fares have fallen during this period, which would suggest that the actual premium for Heathrow is even higher.

Table 2.14 Calculated yield for economy passengers on BA switched routes 2000 – 2004

	Year	2000	2001	2002	2003	2004	Total
Gatwick	Interviews	109	108	21	0	0	238
	Yield (p/km)	7.3	7.0	6.3			7.1
Heathrow	Interviews	0	5	90	123	90	308
	Yield (p/km)		10.4	8.6	7.7	7.9	8.1

Source: CAA Passenger Surveys, 2000 - 2004.
Note: Yields shown are not adjusted for inflation.
Yields calculated for Gatwick in 2002 and Heathrow in 2001 may have a wide margin of error due to small sample sizes.

4.22 Although the table indicates that yields for economy passengers were higher when the switched services transferred to Heathrow than when they were operated at Gatwick, the sample sizes are not sufficiently large to be confident of the size of the increase. In 2001, the CAA performed a similar analysis on long haul routes operated from both Heathrow and Gatwick using data from the 1996 Passenger Survey[29]. Although here also sample sizes were small for long haul routes, and the conclusions therefore more tentative, it showed leisure yields at Heathrow for UK residents were higher by up to 8% than those at Gatwick.

4.23 A factor equally, if not more, important than economy class yield to many long haul routes is the ability to attract premium class passengers. However, CAA Passenger Survey data show little change in the proportion of premium class passengers on the switched routes between these years, although the sample sizes are not sufficiently large for small changes to be detected.

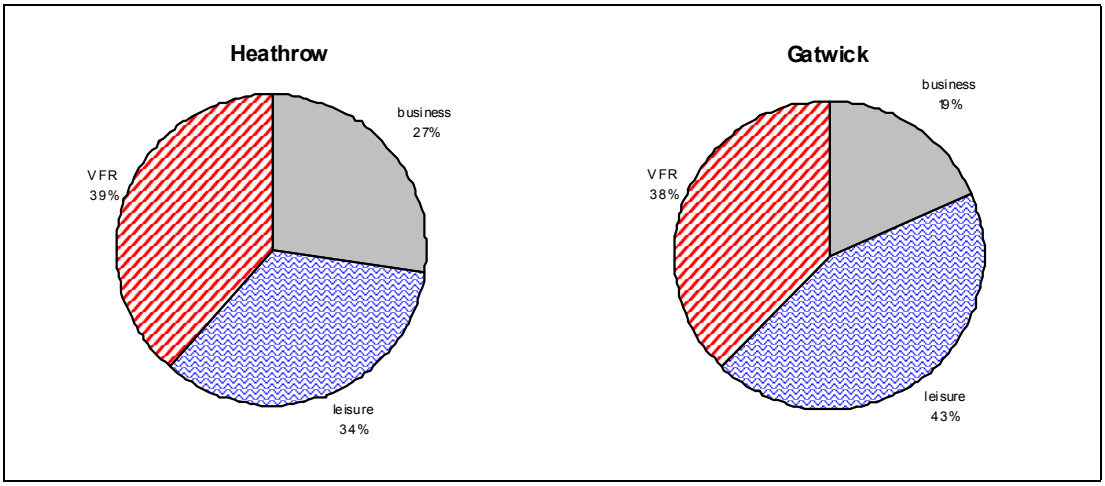
Differences in passenger profile between the airports

4.24 The CAA Passenger Survey records various characteristics of passengers and so gives some opportunity to test whether Heathrow and Gatwick attract significantly different passenger types; one of the main differences, which may have some effect on airlines' potential yields, is the journey purpose of the passengers. However, since the routes offered at Heathrow and Gatwick have for the most part been selected by the airlines, it is difficult to distinguish cause and effect: are passenger journey purposes different because the airports attract different types of passenger or do the airports attract different types of passenger because of the range of routes offered? An alternative passenger characteristic less likely to be influenced by the routes on offer at the airports is surface origin of the passengers' journeys. The more substitutable they are perceived to be by their passengers, the more likely is each airport to have a marked catchment area.

4.25 Figure 2.10 shows how scheduled long haul passengers' journey purposes vary between the two airports. Although there is a roughly similar proportion of passengers visiting friends and relatives (VFR), a greater percentage of Heathrow's passengers are travelling for business purposes[30].

29. Published as the Demand Valuation annex to 'Heathrow, Gatwick, Stansted and Manchester Airports Price Caps - 2003-2008: CAA Preliminary Proposals - Consultation Paper', November 2001.
30. Any discussion of proportions of the total passengers at each airport needs to be considered in the context of the relative sizes of the absolute total passenger numbers. For instance, given the relative size of Gatwick in terms of total passengers, and despite the higher percentage of leisure users, the absolute number of leisure passengers on scheduled long haul flights in 2005 is 2.6million at Gatwick, compared to 10.4million at Heathrow.

Figure 2.10 Journey purpose of scheduled long haul passengers at Heathrow and Gatwick, 2005

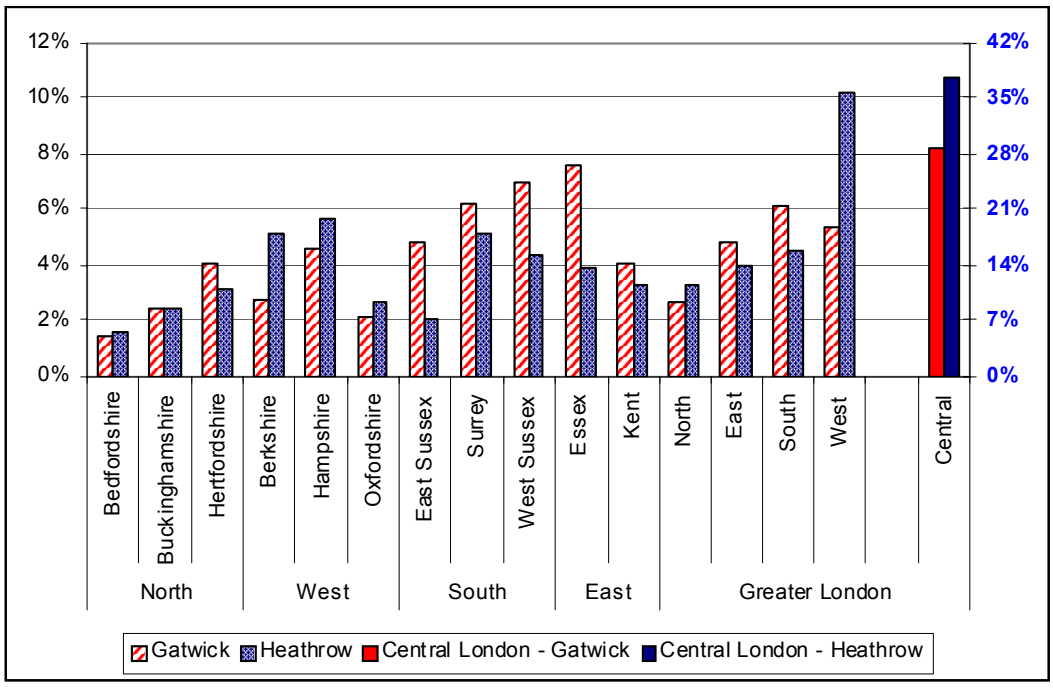


Source: CAA Passenger Survey, 2005.

4.26 Looking at the terminating passengers originating from within the South East it can be shown that the catchment areas for the airports, although showing a high degree of overlap, do have slight differences in their geographical appeal. Some overlap of catchment should be expected as not all destinations are served from both airports. The analysis has been restricted to the South East since differences in the journey time between Gatwick and Heathrow are less likely to affect airport choice for passengers travelling from outside this region.

4.27 Figure 2.11 shows how the passengers from the various counties in the South East are split between each airport. The proportions from Central Greater London are much larger than any other individual county and are thus scaled separately on the right-hand axis.

Figure 2.11 County of origin for passengers originating from the South East



Source: CAA Passenger Survey, 2005.

4.28 These percentages must be considered in the context of the absolute long haul passenger numbers travelling through each airport. Thus although, say, Buckinghamshire makes up approximately 2.4% of the passengers at both airports, this is a much larger number of absolute passengers at Heathrow. The effect of the First Capital Connect and Southern train lines linking Hertfordshire to Gatwick can be seen in the large percentage of Gatwick passengers travelling from the other side of London.

4.29 Unsurprisingly, this analysis indicates that, although Heathrow and Gatwick both attract passengers from across London and the South East, where services are operated from both airports, passengers are more likely to use the one that is the most accessible. This may make a long haul service more attractive for an airline when operated from one of the airports as opposed to the other, although the strength of this preference (and the preferred airport) will be dependent on the likely geographical distribution of the underlying demand for the particular service, as well as airlines' existing network structures and route characteristics.

Conclusion

4.30 The evidence from BA's switched services suggests that the attraction of Heathrow for long haul scheduled airlines does not lie in increasing overall passenger numbers on a route, despite the greater pool of potential connecting passengers, although leisure yields at Heathrow may be higher than those at Gatwick. Survey data indicate that scheduled long haul routes at Heathrow attracted a higher proportion of business passengers than those at Gatwick, and that a greater proportion of Heathrow passengers originated in West and Central London. Since airline behaviour suggests that a service based at Heathrow is valued above one at Gatwick, it seems likely that for many airlines this is due to greater access to high yield business passengers, rather than overall volume of passengers using the airport.

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Chapter 3 Airline characteristics of long haul operations

1 Introduction

1.1 This chapter considers some of the features of airlines offering long haul services, and how route operation and the competitive environment are affected by these features. For long haul routes from the UK, airlines offer a variety of different products, catering to a range of passenger preferences. On many scheduled flights there are four cabin classes on offer, each of which can be booked with a range of ticket flexibility options. The simpler pricing strategy used by short haul no frills airlines has influenced pricing in, but not significantly penetrated, the long haul market.

1.2 When long haul routes were first established, they were commonly served just by the flag carrier airlines from the two countries at either end of the route. The growth of traffic on the major long haul routes from the UK, together with increased liberalisation, means that more destinations are now served by three or more airlines. A case study in this chapter examines the effects of the entry of a third carrier onto the long haul route between London and Johannesburg, including the changes to average fare levels and structures from the increased competition.

1.3 To illustrate the factors affecting economy[1] fares on a wider range of long haul routes from the UK, a statistical study was carried out assessing the impact on average yield of a number of potential explanatory variables. The routes analysed covered all of the world regions and amongst the explanatory variables were sector length, the number of direct and indirect carriers and the market concentration between them, the proportion of business traffic, the thickness of the route and the level of airport congestion at either end.

1.4 Although charter airlines' presence in the long haul market is not as significant as for short haul destinations, charter operations between the UK and various world regions are examined, as is how these operations have changed in recent years. The particular regulatory and economic factors affecting charter airlines operating to long haul destinations are discussed, as well as the interaction between scheduled and charter carriers at a route level.

1.5 Within recent years, three main airline alliances have been established, through which connecting passengers are encouraged to use alliance members and, in some cases, fares and schedules can be coordinated (although UK-US alliance members have been unable to gain anti-trust immunity from the US authorities for their transatlantic services[2]). The effects of alliance membership on connecting passengers at Heathrow is analysed and compared to previous codeshare agreements.

1.6 Two key differences between airlines' long and short haul passenger operations are the revenue contribution of bellyhold cargo and the achievable utilisation of crew and equipment. The importance of these factors to an airline establishing and running a long haul route is considered.

1. The study was confined to economy fares as the survey data used to estimate the average yield contained insufficient routes with a sample large enough to make a similar analysis of business fares practical.
2. The EU-US Open Skies agreement should remove one of the hurdles to this, as anti-trust immunity has tended to be given only if a country has an Open Skies deal with the US, although clearance from competition authorities would still be required.

Chapter Summary

This chapter considers the airline aspects of long haul travel and finds that:

- Increased competition on long haul routes not only reduces fares, but can lead to a greater range of products. A case study of Virgin's entry on the London-Johannesburg route in 1996 suggests that the introduction of a third carrier has much more impact on the range of fare types offered to the passenger than on average fare levels. While there were significant decreases in the lowest published economy fare on the route, the average fare paid by leisure passengers appeared to fall by a much smaller amount, possibly because lower, unpublished fares were already available through consolidators.
- Yield on long haul routes is lower for longer sector lengths, for those routes served by more than two direct carriers, for those served in addition by carriers offering indirect routeings and for those with higher proportions of leisure passengers.
- Long haul charter operations have declined in the North American market where they have historically been concentrated, but operations to other world regions have increased. Most long haul routes appear to be served either by charter or scheduled carriers rather than both, and it is more common for routes to switch from charter to scheduled services than vice versa.
- Whilst the proportion of connecting passengers on long haul services at Heathrow has been little affected by the rise of airline alliances, alliance membership has more effect on the airlines connecting passengers use than did the simpler codesharing agreements that preceded them.
- Revenue from bellyhold cargo is much more significant for the economics of a long haul route from the UK than it is for many short haul routes. However, the volume of cargo carried varies greatly between different long haul destinations and according to whether the flight is inbound to or outbound from the UK.
- Aircraft utilisation, as measured by the average number of block hours flown per day, is much higher for long haul routes than for short haul, since the longer average flight times for these sectors far outweighs any extra time required to load, unload and turn around larger long haul aircraft. However, crew expenses are likely to be much higher for long haul operations, since multiple crews are required for each rotation.

2 Case study on third carrier entry: London-Johannesburg

One of the main benefits of liberalising long haul operations is the effect of increased competition, particularly from scheduled carriers, on fares and service. This has most recently been observed in the UK following the more liberal ASA agreed with India in 2005[3]. However, airlines in this market have had only a relatively short period to establish competing services, so the longer term effects of third carrier entry have been examined for London to Johannesburg, where a third carrier has been present for a number of years.

UK-South Africa bilateral ASA

2.1 Prior to 1994, the UK-South Africa air travel market had been constrained by a restrictive ASA governing provision of capacity (both frequency and size of aircraft) and prices. Since then, the ASA frequency limits have more than trebled from just 12 a week for each side in 1994 to 42 a week in 2006. The current ASA also has liberal rules on the setting and filing of fares as well as for the range of destination and departure points offered by airlines, placing only limited restrictions on operations.

2.2 Although capacity restrictions were steadily relaxed from 1994 onwards, until 1996 the ASA between the UK and South Africa allowed only BA and South African Airways (SAA) to operate direct services between the two countries[4]. Virgin was allowed to enter the London-Johannesburg route from October 1996, and the route is now served by two UK carriers, BA and Virgin, and two South African carriers, South African Airways and Nationwide Air[5]. The terms of the existing ASA include an open designation clause, which removes any constraints on the number of airlines from either side allowed to provide services, although existing carriers are already operating to the cap on the constrained routes.

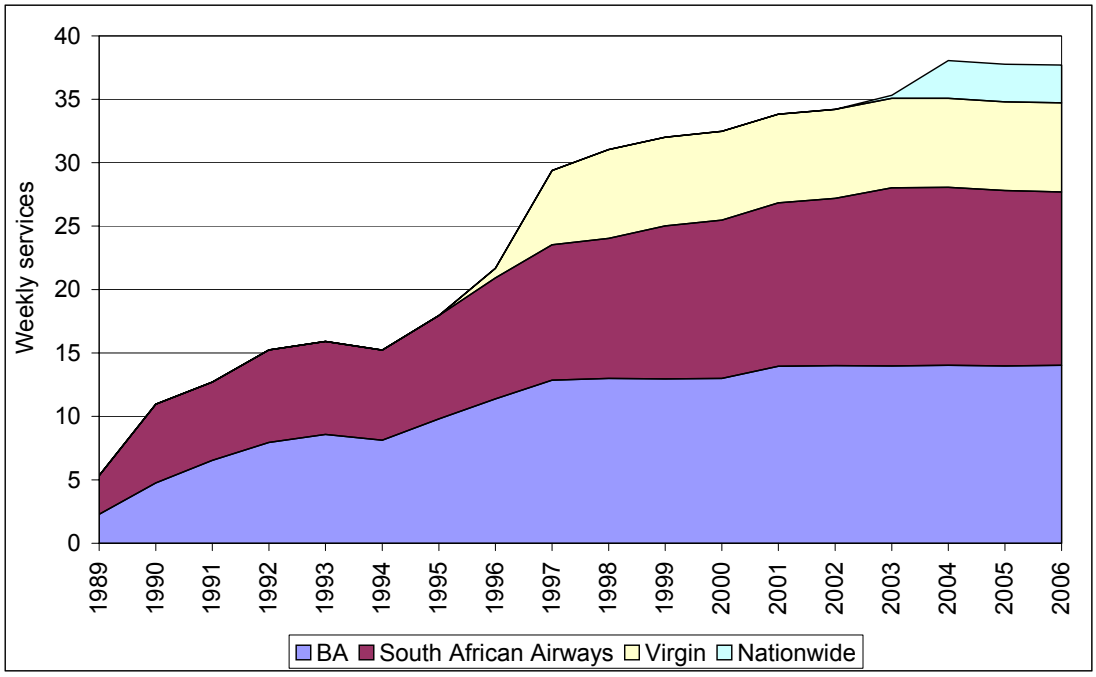
2.3 This section examines the impact of Virgin's entry on passenger numbers, frequency of services and both published and reported fares on this route.

Capacity developments

2.4 Figures 3.1 and 3.2 show how scheduled frequency and capacity has developed on the London-Johannesburg route since 1989. In 1995, BA operated ten weekly services and SAA eight weekly services. Both airlines used Boeing 747s with BA providing 58% of the approximately 700,000 seats supplied in 1995. Virgin entered the market in October 1996 with three weekly services using A340s. The following year, Virgin added four more weekly services which brought its total to seven. BA and SAA also increased their number of weekly services in 1997. The capacity on the route measured by seats available increased by about 50% between 1995 and 1997. Both services and capacity increased gradually between 1997 and 2002. In summer 2003, a privately owned South African carrier, Nationwide Air, entered the market with three weekly services from Gatwick[6]. However, seat capacity on the route has remained broadly unchanged since 2002 as BA employed a 747 with about 350 seats instead of the 400-seater used previously.

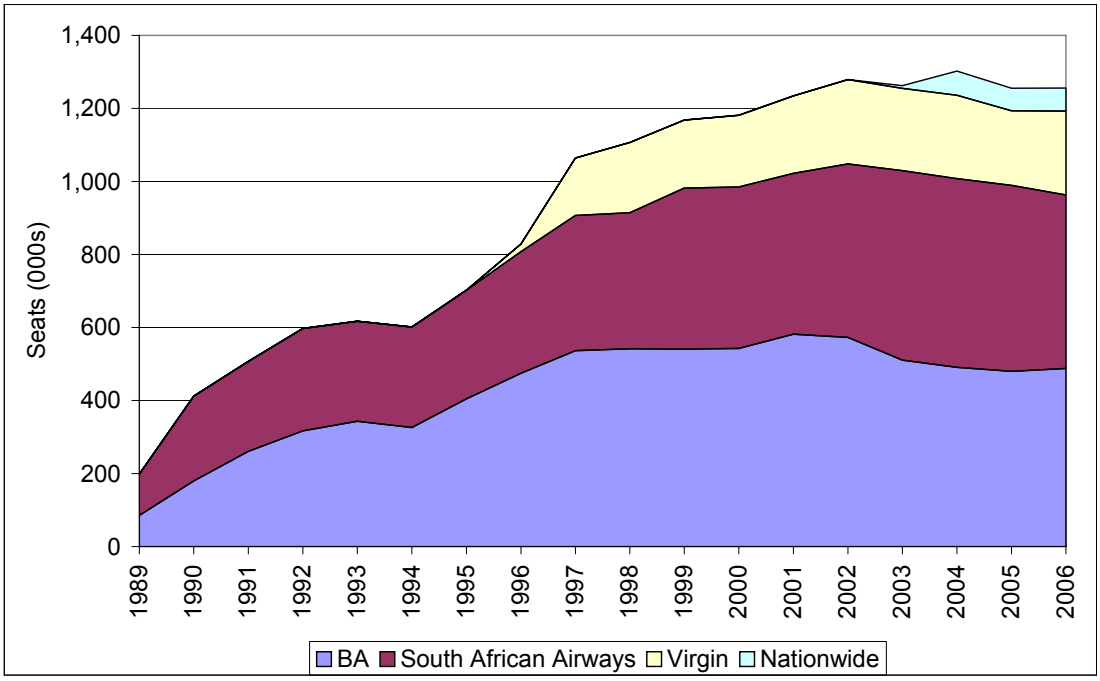
3. UK-India Air Services: A Case Study in Liberalisation, CAA, 2006.
4. At the time there were also some charter services on the London-Johannesburg route.
5. Nationwide Air began serving the route in late 2003.
6. The other three carriers operated from Heathrow.

Figure 3.1 Weekly services on London-Johannesburg, 1989-2006



Source: CAA Airport Statistics.

Figure 3.2 Seat capacity on London-Johannesburg, 1989-2006



Source: CAA Airport Statistics.

Fare Developments

2.5 Two sources of data have been used to analyse fare trends: published air fares collected from the Airline Tariff Publishing Company database or airlines' own publications; and the CAA Passenger Survey which provides information on air fares actually paid by passengers. Published fares may in some cases vary significantly from actual fares paid because of discount programmes. The carriers' ability to control

seat availability at a particular fare through yield management will determine the average fare paid. When interpreting fare trends, it should be remembered that different airlines may provide different quality of service over time for seemingly similar fare products, influencing prices.

Published economy class fares[7]

2.6 On any route there will typically be a large number of economy class fares available, with different stay requirements, penalties for reservation changes or cancellation, restrictions on routeing and booking requirements. The complexity of economy class fares makes it difficult to construct a meaningful annual average fare for the carriers operating on London-Johannesburg. In order to simplify the analysis, two fare products offered for travel in the economy class cabin on London-Johannesburg were considered: the lowest ex-UK round-trip fare for each airline available year round (albeit varying in level by season) and the BA 'World Offer' promotional fare on sale for limited periods[8]. London-Mumbai and London-Lagos, both of which remained two-carrier routes during the time period under investigation, were chosen as control routes to distinguish between competitive effects due to Virgin's entry and more general market developments[9].

2.7 Annex B contains a list of the economy fares offered by BA on all three routes between 1995 and 1998[10]. The lowest ex-UK round-trip fare on the London-Johannesburg route available for sale in 1995 was an L class fare. This fare varied according to travel season (peak, off-peak and two shoulders) and selling dates. In the same year, BA made available a single World Offer promotional fare (shown in red font in the Annex) for travel in February and March 1996 which was priced at £699. This was about 13% cheaper than the L class fare available for travel during the same months.

2.8 Virgin began selling fares in February 1996 (eight months before its first flight) and its special offer launch fares were available from July 1996. In December 1996, BA's L class fares increased by about 5% on the levels applying in 1995. However, in the same year BA offered six World Offers, the lowest of which (£399) was about 40% cheaper than the low season L class fare (£690) available for purchase between December 1996 and August 1997.

2.9 When Virgin increased the number of weekly services from three to seven in 1997, BA lowered its L class fare by between 10% and 20% depending on the season and also offered as many as 11 World Offers at different levels of discount relative to L class fares. In 1998, BA offered seven World Offers at markedly lower levels than the concurrent L class fares. BA also changed its fare structure in May 1998 when a new tier of V class fares was introduced at the bottom of the structure. The V class fares introduced another season in the fare structure and were, in general, lower than L class fares.

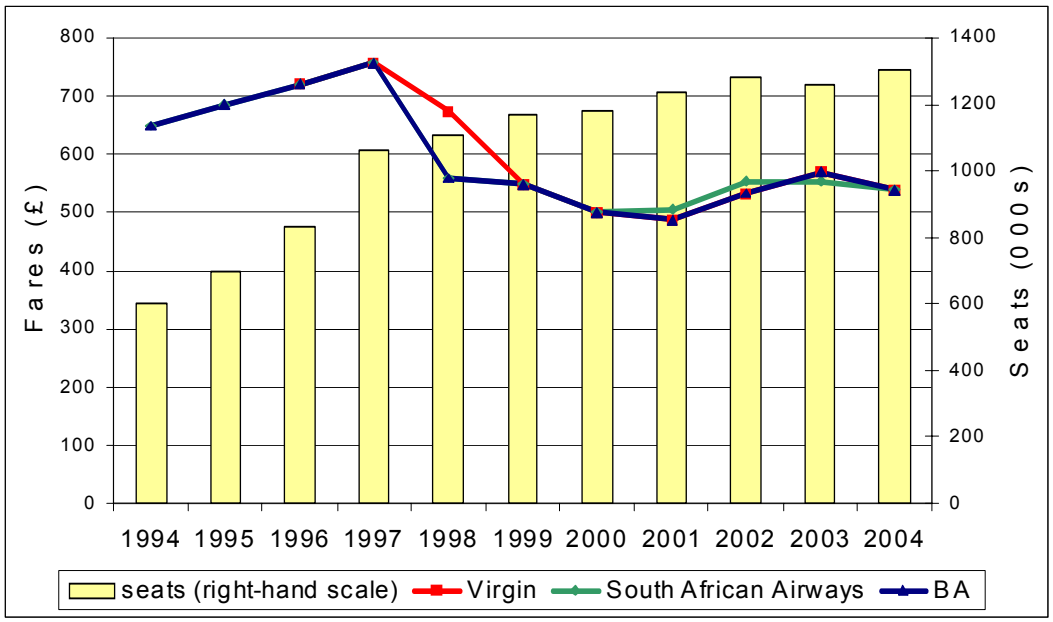
2.10 The proliferation of short-term promotional fares on the London-Johannesburg route following Virgin's entry is in marked contrast to fares developments on the two control routes. BA marketed only two World Offers on the London-Mumbai and London-Lagos routes during the four-year period over which the comparison is made.

7. Unless specifically referred to, all fares are in nominal terms. Where fares are shown in real terms, data have been adjusted using the Consumer Price Index (all items).
8. BA's World Offer fares were launched in 1994 across their network and BA has used them gradually to shift consolidator sales over to these fares and, more recently, to sales made through its website.
9. There were few other candidates for control routes, since they were required to be served by no more carriers than BA and the flag carrier at the other end for the period under consideration.
10. K, L and V fares are economy class fares with restrictive conditions in terms of minimum or maximum stay requirements, penalties for reservation changes or cancellation, restrictions on routing usually allowing no stopovers, and an advanced booking requirement.

The lowest published ex-UK economy class fare on both control routes in 1995 was a K class fare. This fare increased generally on both routes although, in the case of London-Lagos, the increase was accompanied by the introduction of L and V class fares at lower levels[11].

2.11 Figure 3.3 compares the lowest economy class round-trip fare offered by each carrier on the route at spot levels available for sale and travel in two different months, chosen arbitrarily as July (for sale) and September (for travel). For the first year and a half following Virgin's entry the carriers all raised their lowest economy fares at the same rate, despite the large increase in seat capacity offered[12]. However, tickets may have been sold by consolidators at prices below the lowest published fare, with yields falling more than appears from the chart.

Figure 3.3 Lowest ex-UK published round-trip economy class fare on London-Johannesburg route available for sale in July and travel in September 1994 to 2004



Source: Airline Tariff Publishing Company database, CAA Airport Statistics.

2.12 Figure 3.3 shows close fares matching between carriers. The only exception was 1998, and price-matching equilibrium was restored the following year. The trend shows a steady rise of about 5% per annum from 1994 which lasted until 1998 (i.e. a year and a half after Virgin's entry) when, from the peak of £756, BA and SAA reduced the fare in question to £560 (or, by 26%), and Virgin to £675 (or, by 11%). Parity was restored in 1999 when all three carriers priced at £550. Thereafter, the selected fare fluctuated within a narrow band between £500 and £550, the exception being in 2001 when BA and Virgin reduced it below £500 (presumably in response to the adverse impact of 11 September 2001 on demand).

2.13 Published fares therefore suggest that Virgin's entry had a noticeable impact on pricing in economy class. Firstly, there was a marked increase in the availability of BA's short-duration World Offer sale fares following Virgin's entry which was not noticeable on the control routes around the same time. Secondly, all three carriers

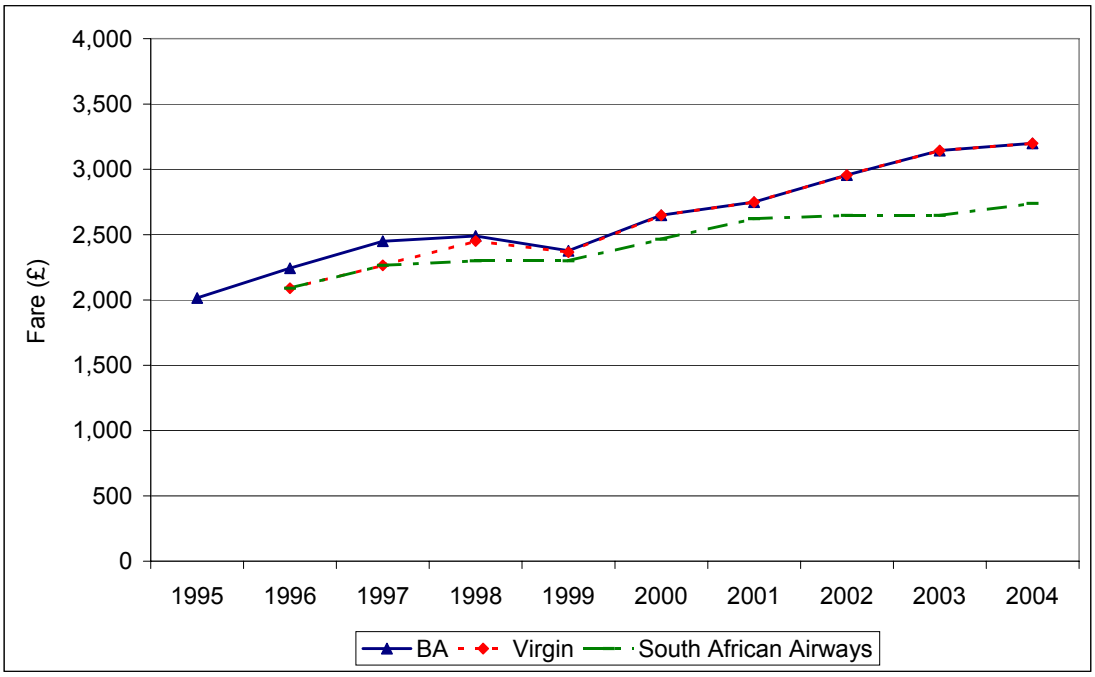
11. When fares are expressed per unit of distance, both L and V class fares were considerably more expensive on London-Lagos than on London-Johannesburg during the period over which the comparison is made. Price per unit of distance is expected to fall with distance although not by as much to account for the difference between London-Lagos (5040 km) and London-Johannesburg (9090 km) routes. This point is illustrated later in this chapter.
12. Load factors on the route fell from 83% in 1995 to 73% in both 1996 and 1997, only rising again to 81% in 1998.

reduced markedly the lowest published economy class fares on London-Johannesburg between 1996 and 2004[13] (by around 25% in nominal and 33% in real terms).

Published business class fares

2.14 Figure 3.4 illustrates the changes over time in the ex-UK round-trip J2[14] (the lowest fully flexible business class fare offered by all three carriers) for travel on London-Johannesburg[15]. The J2 fare increased at a steady rate over time, except for a slowdown in 1998, turning negative in 1999. When Virgin entered in 1996, it priced the J2 fare at £2,090 – the same level as SAA and around 7% cheaper than BA (£2,243). The following year all three carriers implemented similar price increases (between 8 and 9%), maintaining the relative levels. This does not take account of any changes in corporate discounts.

Figure 3.4 London-Johannesburg ex-UK fully flexible round-trip business fare



Source: Airline Tariff Publishing Company database.

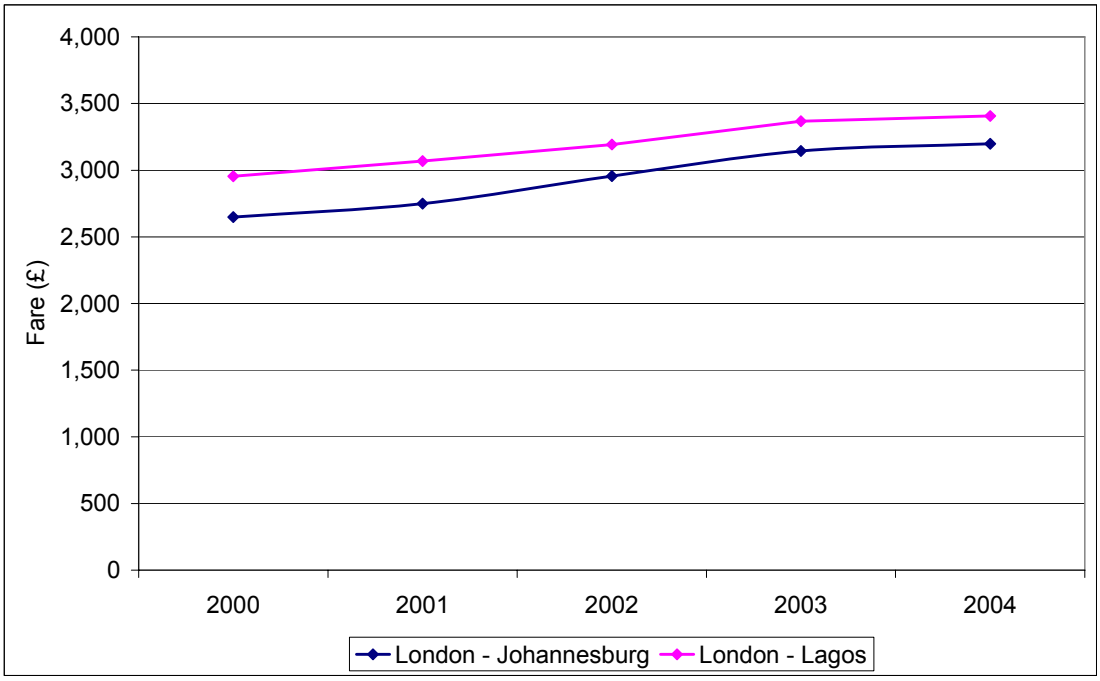
2.15 In 1998, SAA left its J2 virtually unchanged on the year before while Virgin increased it by a further 8%, effectively matching BA's J2 fare which rose to £2,489 (or, by 2% on the year before). However, in December 1998 Virgin reduced its J2 fare to £2,299 to match SAA. BA reacted one month later, when it too reduced its J2 fare to £2,299 to match Virgin and SAA. The parity was short lived as BA and Virgin increased J2 to £2,500 (or, by 9%) in September 1999. SAA followed in January 2000 with a smaller increase (7%) and this gap between its fares and those of the UK carriers has since increased steadily, with BA and Virgin matching each other's price increases. In 2004, BA and Virgin priced J2 at £3,198 year, which was about 15% more expensive than the SAA fare of £2,740 for the year as a whole.

13. 2004 has been chosen as a comparison year, since the market has had time to recover from the events of 11 September 2001, but not yet be fully influenced by the commencement of the Nationwide Air service.
14. The annual J2 fare shown here is an average of the different fares available through the year weighted by the proportion of the year for which they were on sale.
15. The J2 fare is not interlineable; that is, it can only be used on flights of one carrier.

2.16 Looking over the long term, between 1996 and 2004 BA's J2 increased by 43% in nominal terms and by 27% (or, by 3% per annum) in real terms while Virgin's J2 increased by 53% in nominal terms and by 36% (or, by 4% per annum) in real terms[16].

2.17 Only a partial comparison can be made with the control routes because J2 was not available on London-Lagos and London-Mumbai for the whole of the comparison period. Figure 3.5 compares BA's J2 fare on London-Johannesburg and London-Lagos between 2000 and 2004. The movements in the J2 fare on both routes show a similar pattern. However, when expressed per unit of distance, the London-Lagos J2 (68 pence per kilometre) was almost twice as expensive as the London-Johannesburg J2 (35 pence per kilometre).

Figure 3.5 London-Johannesburg and London-Lagos ex-UK J2 round-trip fare



Source: Airline Tariff Publishing Company database.

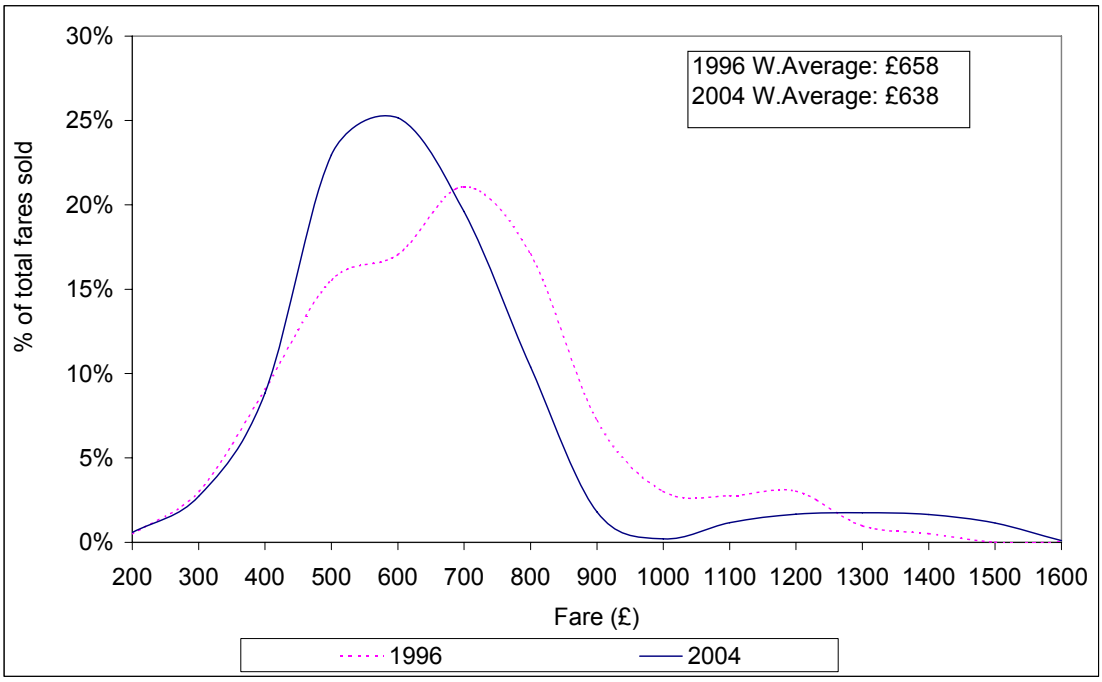
2.18 The impact of Virgin's entry on business class fares appears to have been of a transitory nature. The lowest flexible business class fare available for travel on London-Johannesburg increased at a steady rate between 1996 and 2004 with the exception of the two-year period shortly after Virgin's entry.

Economy class fares paid

2.19 This analysis of fare trends using published fares does not reveal the availability of different fare products over time and hence their relative usage. Moreover, many leisure passengers travel on discounted fares which cannot be purchased from airlines directly[17]. The information available from the CAA Passenger Survey about fares actually paid by passengers can therefore be more useful in this respect. However, any assessment of the impact on fares trends on London-Johannesburg of Virgin's entry on the route can only be partial, since the data are only available from 1996 when Virgin started operating.Figure 3.6 compares the distribution of paid round-trip fares in economy class (all carriers, nominal prices) in 1996 and 2004[18].

16. In August 1999 BA introduced a cheaper non-refundable business class fare with several restrictions, including a 14-day advance purchase requirement.
17. These fares are distributed widely through intermediaries with the airlines remaining at arm's length.
18. The Y–axis shows the percentage of fares sold in 1996 and 2004 at the levels listed on the X-axis. BA ran a special offer across the whole of its network in 1996 which enabled passengers to obtain two fares for the price of one. In order to compare like with like, these fares were excluded from the analysis shown in Figure 3.6.

Figure 3.6 Distribution of economy class round-trip fares, London-Johannesburg, all carriers, 1996 and 2004



Source: CAA Passenger Survey, 1996 and 2004.
Note: Both sets of data are shown in nominal prices.

2.20 Survey results shown in Figure 3.6 show that the average fare reported by passengers fell from £658 in 1996 to £638 in 2004. This represents a fall of 3% in nominal terms and 13% in real terms, which is smaller than the reduction in the lowest published fare shown in Figure 3.3. However, there is a change in the shape and position of the fare distribution between 1996 and 2004. By 2004, the fare distribution has become much more regular and shows two distinct peaks, the larger of which is at a lower nominal price than the 1996 peak and the smaller, higher-priced, which probably represents the new premium economy fares available on BA's services.

2.21 When the sample is truncated at £1,000 to exclude the 'premium economy' type data, the comparison indicates a bigger drop in the average fare – from £617 in 1996 to £578 in 2004 – than when the calculations are made over the whole sample. This represents a fall of 6% in nominal terms and 16% in real terms.

2.22 Although still tangible, especially when viewed in the context of general trends in regulated long haul markets, the effect on economy fares is less impressive than indicated by the analysis of published fares. One possible explanation is that BA supplied lower fares on this route through the discount market before Virgin's entry, and that after Virgin's entry BA decided to market them under the recently introduced World Offers[19] brand.

19. This is consistent with BA's own statement about World Offers according to which 'World Offers was launched to kill the myth that BA is expensive and to show people who appreciate the airline's quality that they can afford to fly with it' (BA News, 19 August 1994).

Business class fares paid

2.23 On individual routes, the size of the CAA Passenger Survey sample for business class fares can be small. Moreover, passengers undertaking a complicated routeing may be unable to say how much of their total journey cost is attributable to any particular sector. For London-Johannesburg, there were insufficient survey data to present the fares in the form of a distribution as in Figure 3.6. However, the average reported fare paid in business class on the route was £2,081 in 1996 and £2,624 in 2004. This constitutes a 26% increase in nominal terms and 13% (or, by 2% per annum) increase in real terms. However, much more so than for economy class, the comparison between 1996 and 2004 business fares does not merely reflect a change in price for a similar product. During this period, the business class offerings from BA, Virgin and SAA have been enhanced, most noticeably by the inclusion of flat beds.

Conclusion

2.24 This case study suggests that the introduction of a third carrier has some effect on average fare levels, but much more impact on the range of published fare types offered to the passenger. There were significant decreases to the lowest published economy fare on the route although the average fare paid by leisure passengers reported through the CAA Passenger Survey fell by a much smaller amount. Published business class fares did not show any evidence of reduction, although competition through quality and innovation may be more important than fare levels in this cabin. So there may have been an element of non-price competition which has not been captured by this analysis.

3 Statistical analysis of yield for long haul routes

3.1 The case study of the London-Johannesburg route revealed the competitive impact of Virgin's entry as a third carrier. This section applies regression analysis to a sample of long haul destinations served from London airports in order to determine the main drivers of long haul yield. The 2004 CAA Passenger Survey[20] was used to extract economy class fares data for 32 long haul destinations for which there were sufficient observations to calculate route-specific yields robust enough to be used in the regression analysis[21].

Yield in relation to distance

3.2 Table 3.1 lists the sample destinations with associated yield and distance information.

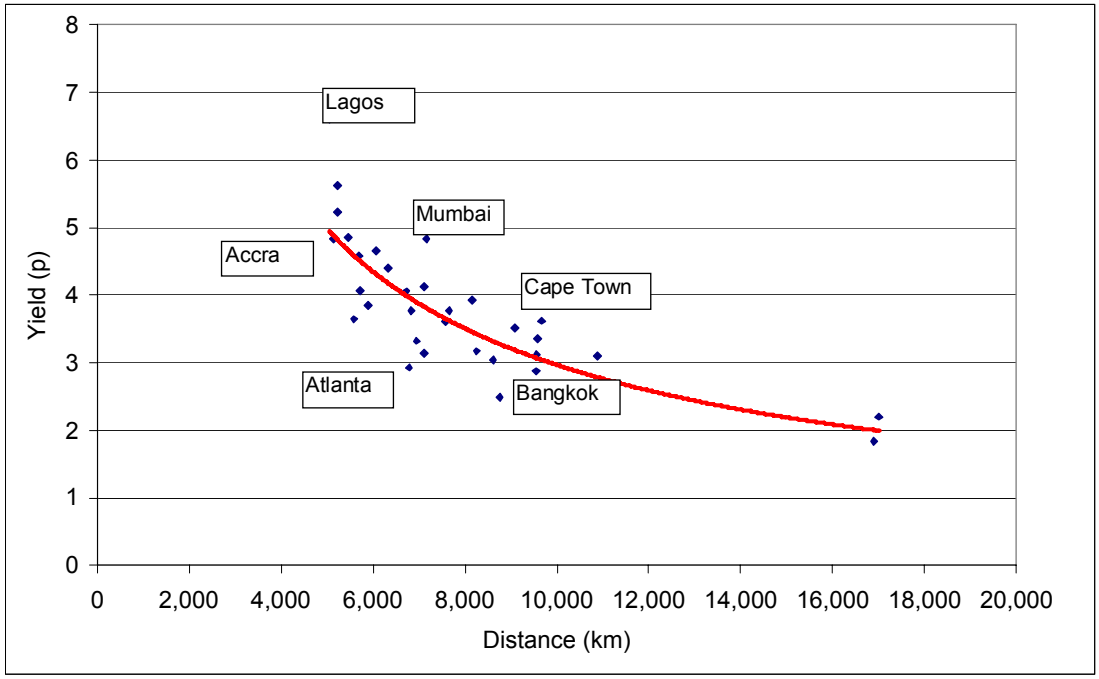
Table 3.1 Sample of long haul routes served from London ordered by economy class yield (point-to-point passengers only)

No.	Destination	Economy Class Yield (p)	Great Circle Distance (km)
1	Lagos	6.6	5,042
2	Boston	5.6	5,237
3	Montreal	5.2	5,241
4	Dubai	4.9	5,456
5	Mumbai	4.8	7,161
6	Accra	4.8	5,143
7	Islamabad	4.7	6,062
8	Philadelphia	4.6	5,688
9	Chicago	4.4	6,339
10	Miami	4.1	7,105
11	Toronto	4.1	5,728
12	Delhi	4.1	6,727
13	Beijing	3.9	8,148
14	Washington	3.9	5,898
15	Dallas	3.8	7,654
16	Nairobi	3.8	6,837
17	New York	3.6	5,588
18	Cape Town	3.6	9,674
19	Vancouver	3.6	7,575
20	Johannesburg	3.5	9,089
21	Tokyo	3.4	9,585
22	Orlando	3.3	6,953
23	Harare	3.2	8,259
24	Tampa	3.1	7,117
25	Hong Kong	3.1	9,559
26	Singapore	3.1	10,873
27	San Fransisco	3.0	8,611
28	Atlanta	2.9	6,785
29	Bangkok	2.9	9,540
30	Los Angeles	2.5	8,754
31	Sydney	2.2	17,008
32	Melbourne	1.8	16,897

20. To check the robustness of the findings, the same analysis albeit with fewer variables was carried on 2005 data and produced similar results.
21. The analysis is carried out in terms of yields (average fare per kilometre) rather than in terms of average fares since the former measure is more relevant to airline operational strategies. Only destinations for which there were more than 15 fares observations were included in the analysis. Where an international destination is served by more than one airport the airport-specific data were grouped together.

3.3 There is a considerable variation in yields across the sample from the highest of 6.6p on London-Lagos to the low of 1.8p on London-Melbourne[22]. Longer trips tend to have lower yields as illustrated in Figure 3.7 which plots yields against distance.

Figure 3.7 Yields plotted against distance for destinations in Table 3.1



3.4 The negative relationship between yield and distance observed in Figure 3.7 can be attributed to economies of stage length, whereby unit costs fall as fixed costs are spread over greater distances, and because higher block speeds and better fuel economy are achieved on longer sectors. However, there are some fairly large yield differences on similar-distance routes:

- at a distance of about 5,000 km, the yield on London-Lagos is approximately 30% higher than the yield on London-Accra;
- at a distance of about 7,000 km, the yield on London-Mumbai is approximately 40% greater than the yield on London-Atlanta[23]; and
- at a distance of about 9,000 km the yield on London-Cape Town is approximately 20% greater than the yield on London-Bangkok.

3.5 Several factors other than distance may influence yield, the intensity of competition and traffic mix being perhaps the most obvious. The standard approach to assessing the effect of competition on yield is to estimate an equation which relates route yield to measures of competition and other control variables that are believed to influence route cost and demand characteristics. These variables are listed in Table 3.2.

22. BA withdrew its daily service from London Heathrow to Melbourne via Singapore in March 2006.
23. After taking distance into account, the fares on two duopoly routes, Mumbai and Lagos, which were used as the control routes in the previous section are high in relation to the rest of the sample. Both routes have since seen new entry.

Table 3.2 Potential yield determinants in addition to distance

Competition or regulation effects	Demand effects	Cost effects
More than two 3rd / 4th freedom carriers	Route density	Route density
5th freedom services	Bisiness traffic	Slot congestion
Market concentration	Runway congestion	
Indirect traffic		

3.6 A brief explanation of how these variables have been defined and how they are expected to affect economy class yield is provided in Annex C. Table 3.3 shows the results of the best model which was estimated using the variables listed in Table 3.2.

Table 3.3 Results from the yield regression[1]

Dependent Variable: Yield (logged)

Explanatory Variables	Estimated Coefficients	p-value[2]
(log) Distance	-0.730	0.000
Business traffic	0.467	0.016
More than two $3^{rd}/4^{th}$ carriers	-0.123	0.021
Indirect traffic	-0.121	0.514

$R^2 = 0.80$

1. *Atlanta yield was considerably lower than that of other US hubs and was treated as an outlier with a use of a dummy variable.*
2. *p-value, also know as the exact significance level, may be defined as the lowest significance level at which the null hypothesis that the parameter has a value of zero can be rejected.*

3.7 The regression explains about 80% of the variation in log yields. The key findings are[24]:

- a 10% increase in *Distance* is associated with about a 7% decrease in yields;
- *more than two $3^{rd}/4^{th}$ carriers* on a route reduces yields by about 12%;
- a 10% increase in the proportion of *Business traffic* increases yields by about 1.3%;
- a 10% increase in the proportion of *Indirect traffic* reduces yields by 0.1%.

3.8 The findings from the regression analysis, admittedly tentative, are broadly consistent with the findings from the London-Johannesburg case study: that the presence of more than two carriers on a route is linked with lower economy fares. In addition to the number of carriers on a route, yields are likely to depend on the nature of the ASAs

24. Note that the coefficient estimate for the proportion of Indirect Traffic is not significant at conventional levels of significance. However, as there are valid reasons for believing that this variable is in fact a relevant yield driver, it would be wrong to exclude it from the analysis just because its impact could not be estimated with precision (see paragraph 3.10). Business traffic and Indirect traffic variables were not logarithmically transformed and the percentage impact for these variables is given by multiplying their parameter estimates with respective mean values.

governing entry, capacity and fares. For example, Tokyo is served from London by as many as four carriers and yet the yields are higher than on some routes of similar distance served by fewer carriers. This could in part be attributable to restrictions in the UK-Japan ASA, in particular those governing pricing, and the relatively low proportion of UK leisure traffic on the route.

3.9 Although the premium class cabins will attract many passengers travelling long haul on business, as will be demonstrated in the following chapter, a high proportion of business travellers also use economy class tickets. However, these passengers tend to generate higher yields than leisure economy passengers, as they are more likely to require flexible tickets or even premium economy tickets. On the assumption that around 20% of the passengers in the economy cabin are travelling for business purposes[25], the yield from business economy passengers is about 75% higher than from leisure passengers.

3.10 The level of indirect traffic on a route appears from the analysis to have a much smaller effect on yield than either distance, the presence of a third carrier or the proportion of business passengers. However, as will be shown in Chapter 4, passengers are more likely to use indirect routeings for longer sector lengths and when travelling for leisure purposes. It is therefore possible that the degree to which distance and business passengers have been calculated to affect yields contains some of the effect from indirect competition.

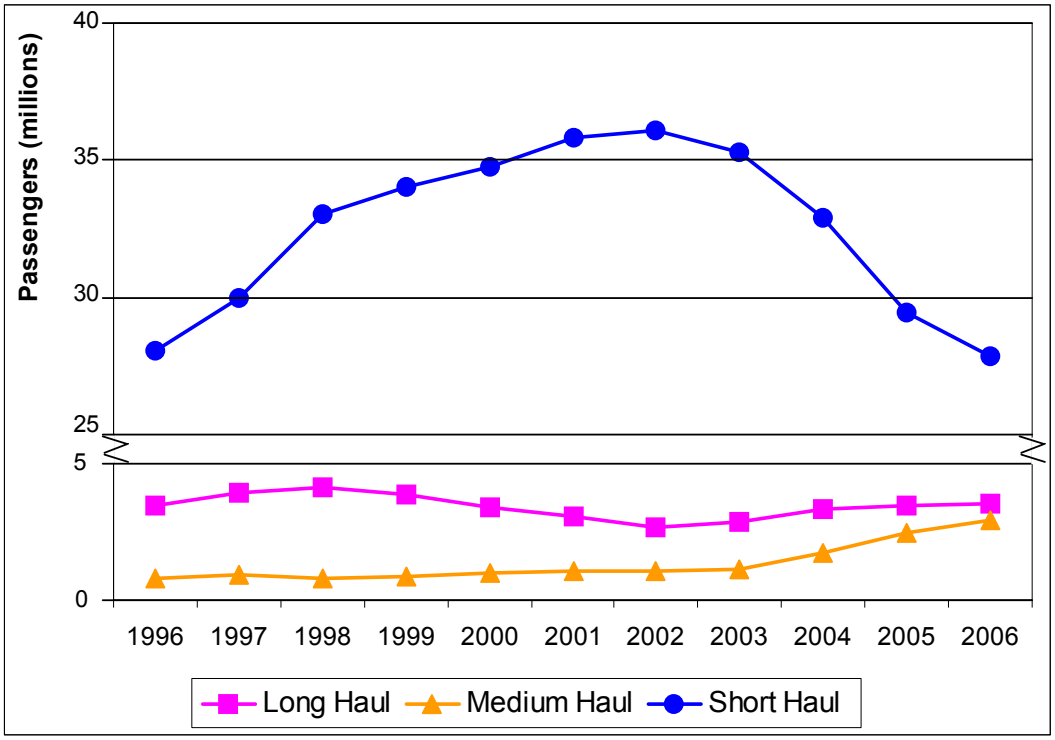
25. As indicated by the CAA Passenger Survey 2005.

4 Charter operations

4.1 Charter operations to and from the UK are traditionally associated with short haul holiday routes to sun or ski destinations. However, there has always been an element of long haul charter, predominantly to Florida or Toronto. In the last ten years, pressure from low cost carriers on European routes has led charter operators to transfer some of their capacity away from European destinations to long and medium[26] haul routes. However, there were only 3.5 million charter passengers on long haul routes at UK airports in 2006 compared to 43.2 million scheduled passengers.

4.2 Figure 3.8 shows the passenger carryings of charter operators from the UK split into long, medium and short haul destinations. The decline in short haul charter traffic in recent years is marked and, although it is compensated for in part by the increase in medium haul routes, the overall trend is still downward. Long haul charter traffic has not recovered to its 1998 peak. Recent growth can be attributed to new services to other world regions rather than to a recovery in the North American routes which formed the majority of traffic in the late 1990s.

Figure 3.8 Passengers on charter services from the UK, 1995 to 2006



Source: CAA Airport Statistics, aircraft related.

4.3 The presence of charter operators on long haul routes can be affected by the regulations in force between the UK and the destination country. Charter operations tend to fall outwith the constraints of the formal ASAs[27], but are conditioned by local charter regulations, which may be supplemented by bilateral Memoranda of Understanding. Some countries are more liberal in respect of charter than scheduled operations. Where scheduled frequencies are heavily restricted by the ASA, charter operations may have the opportunity to attract more traffic, depending on local restrictions.

26. Here, 'medium haul' is defined as North Africa and Turkey. For the purposes of this study, they do not form part of the 'long haul' destinations.
27. Although there are some exceptions, for example, the US and Canada.

4.4 The more restrictive charter regulations imposed by some receiving countries do not allow charter operators to sell any of their capacity on a seat-only basis, and restrict their sales to ex-UK travel[28]. This can prevent charter operators from tapping into business or independent travel markets where there is a shortage of direct scheduled capacity and may mean that these passengers use indirect routes instead. More liberal regulations allow charter operators to sell some proportion of their capacity as seat-only and so extend their likely customer base beyond the traditional ex-UK inclusive tour passenger[29].

4.5 The more restrictions in place, the less the flexibility afforded to UK tourists and the greater the constraints on charter growth and route viability. However, tour operators and charter airlines have also sought out other opportunities on long haul routes, for instance providing direct flights to join cruises, which in turn make their logistics more manageable and cost effective.

4.6 The economics of long haul charter operations are different from those of long haul scheduled and short haul charter, and this can affect their viability. Unlike more frequent long haul scheduled services, there is little opportunity for cargo revenue, attracting inbound traffic or connecting passengers at either end, or serving a large demand for premium cabin travel. Like short haul charter, aircraft utilisation on long haul routes is usually high, although unlike short haul charter, crewing expenses are also high due to the need to use different crews for return journeys.

Long haul charter growth by world region

4.7 Table 3.4 shows the traffic on long haul charter routes at UK airports over the last ten years by world region. The effect of 11 September 2001 can be observed. For example, traffic to Florida (which forms about 30% of total long haul charter traffic from the UK) suffered a sharp decline – from just over a million passengers in 2000 to less than 700,000 in 2002 – from which it has still not quite recovered[30].

Table 3.4 Long haul charter traffic by world region, 1996 to 2006

Passengers (000s)							Growth
World Region	1996	1998	2000	2002	2004	2006	1996-2006
North America	1,806	2,078	1,335	949	1,129	1,084	-40%
Latin America & Caribbean	799	1,180	1,203	1,129	1,489	1,629	104%
Africa	216	187	173	189	213	224	4%
Middle East	282	267	260	142	121	120	-58%
Indian Subcontinent	191	254	286	221	339	366	91%
Far East	38	43	41	8	0	24	-36%
Australasia	78	64	32	0	2	5	-94%
Total	3,409	4,074	3,330	2,640	3,293	3,452	1%

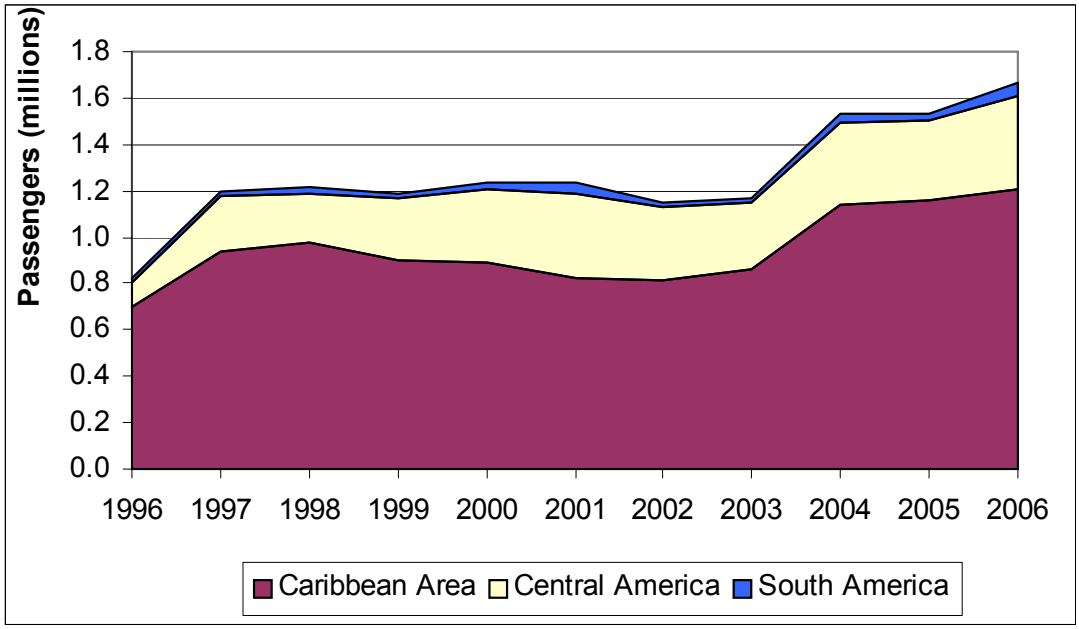
Source: CAA Airport Statistics, aircraft related.

4.8 Growth has been fastest over this period on routes to the Indian Subcontinent and to Latin America and the Caribbean, whereas passenger numbers to other world regions, with the exception of Africa, have declined markedly. However, charter traffic is concentrated in certain countries and it is therefore worth looking below the world region level.

28. Other conditions sometimes apply also. For example, the ASA between the UK and Egypt prevents a UK charter operator from serving any routes that are also operated by Egyptair.
29. Such conditions are typically only set out in memoranda of understanding, but the ASA between the UK and Jamaica, for example, allows charter operators to sell 20% of their capacity on a seat-only basis.
30. The assessment of when and if charter traffic to Florida will recover to its 2000 levels is complicated by scheduled carriers such as Virgin and Flyglobespan increasing their services to the state in the meantime.

4.9 Figure 3.9 shows how traffic to Latin America and the Caribbean breaks down between its sub-regions. The region has seen two periods of high growth in the last ten years. The first, between 1995 and 1997, saw large increases in traffic on routes to the Dominican Republic and to Mexico, whilst in the second, between 2003 and 2004, traffic on routes to the Dominican Republic and Cuba increased significantly. Charter traffic to the Caribbean has been quite volatile over recent years with only modest net growth. South America continues to attract only a small volume of charter traffic from the UK.

Figure 3.9 Charter traffic between the UK and sub-regions in Latin America and the Caribbean

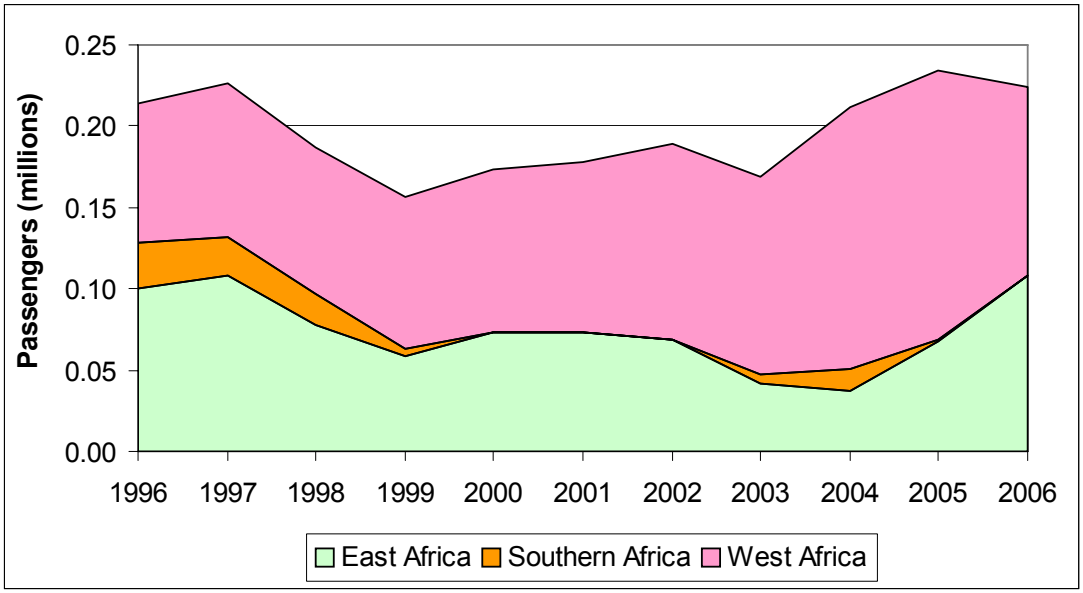


Source: CAA Airport Statistics, aircraft related.

4.10 Despite the low overall growth in UK-Africa long haul charter traffic, there have been some significant sub-regional changes, as shown in Figure 3.10[31]. Charter traffic to and from East Africa, predominantly Kenya, fell by 75% between 1996 and 2004, but has recovered strongly in 2005 and 2006. Charter traffic on routes to West Africa has shown a steady increase over the period, mostly driven by increased UK-Gambia services. In 2004 and 2005 there were relatively high numbers of passengers on UK-Ghana charter services, although these services were withdrawn in 2006, leading to the fall in West African charter traffic.

31. The most significant change in UK-Africa has been the increase on UK-North Africa services, from 0.7 million passengers in 1996 to 2.3 million in 2006. However, this sub-region is considered short haul for the purposes of this document.

Figure 3.10 Charter traffic between the UK and sub-regions in Africa



Source: CAA Airport Statistics, aircraft related.

4.11 There is less variation in the growth of charter traffic within other long haul world regions. Growth to all sub-regions in the Indian Subcontinent has been positive, but the proportion of traffic to and from the Indian Ocean Islands has increased from around 20% to over 30% of the Indian Subcontinent total between 1995 and 2006.

4.12 Within the North American region, there has been a decline in charter traffic between the UK and Canada. After peaking at 1.0 million charter passengers in 1999, UK-Canada traffic dropped to 0.2 million in 2000, and remains at this level. There are regulatory reasons for this, as Canadian charter carriers re-classified themselves as scheduled to avoid regulations requiring provision of bonds to protect their passengers against carrier financial difficulties.

Destinations served by both scheduled and charter carriers

4.13 Scheduled operators also serve the vast majority of countries receiving charter operations from the UK. As Table 3.5 shows, the proportion of charter traffic varies by destination, but in most world regions has reduced in recent years, in line with the decline in charter passenger numbers.

Table 3.5 Proportion of total traffic represented by charter services to and from long haul world areas 1996 to 2006

Passengers (000s)

World Region	1996	1998	2000	2002	2004	2006
North America	11%	10%	6%	5%	5%	5%
Latin America & Caribbean	38%	42%	38%	38%	44%	45%
Africa	10%	8%	6%	6%	6%	6%
Middle East	9%	8%	6%	3%	2%	2%
Indian Subcontinent	12%	15%	16%	13%	15%	10%
Far East	1%	1%	1%	0%	0%	0%
Australasia	8%	6%	3%	0%	0%	0%
Total	11%	11%	8%	7%	8%	7%

Source: CAA Airport Statistics, aircraft related.

4.14 For many long haul routes from the UK, it appears that for 2006, traffic is either almost all scheduled, or all charter. Table 3.6 shows the distribution between scheduled and charter services of passengers on long haul routes from the UK with a reasonable level of operation[32]. Of 224 routes, 90 were operated by scheduled services only and nearly 50 by charter services only. Of the remaining 86 routes where passengers used a mix of services, there were 60 where charter flights carried less than 1% of the total traffic. Of the remaining 26 routes where passengers were divided between scheduled and charter carriers, nine were between the UK and Canada, where, as noted above, traditional charter flights have tended to be operated on a scheduled basis.

Table 3.6 Proportion of passengers by operator type on long haul routes 2006

Distribution of Passengers		Number of Routes
Scheduled services only		90
Mix of scheduled and charter:	< 1% charter	60
	1%-10% charter	8
	10%-20% charter	7
	20%-30% charter	2
	30%-40% charter	2
	40%-50% charter	2
	50%-60% charter	1
	60%-70% charter	0
	70%-80% charter	2
	80%-90% charter	2
	90%-100% charter	0
Charter services only		48

Source: CAA Airport Statistics, aircraft related.
Note: Only routes with at least 40 flights in the year are considered.

4.15 This division of long haul routes into either wholly scheduled or wholly charter may be due to differences between the scheduled and charter business models. As with short haul operations, long haul charter routes from the UK tend to be established only where there is a critical mass of demand from the UK, which can be tapped into by tour operators, for example, to specific holiday destinations or from regional UK airports with few or no scheduled long haul services. If a scheduled service already exists – or if, following the establishment of a charter service, a scheduled service is introduced – then it may be more efficient for tour operators to use this instead, thus potentially undermining the viability of the charter operation.

4.16 In conclusion, it appears that, with a few exceptions, long haul charter and scheduled services are unlikely to co-exist for long on any particular city-pair route. However, the recent growth of long haul charter operations to some world regions outside North America indicates that there is still a place for these services to meet the needs of inclusive tour travellers and, where local regulations permit, seat-only passengers also.

32. In this analysis, a 'route' is defined as a city pair with at least 40 passenger air transport movements reported in 2006.

5 Airline alliances

5.1 It is increasingly common for airlines to be part of an alliance. A key aim for an airline alliance[33] is to offer the passenger a wide range of destinations worldwide without the need to transfer onto a non-alliance carrier. This means that an alliance will need to contain members offering long haul services. Although there are notable exceptions, such as Virgin or Emirates, many of the world's larger network carriers are in one of the three main alliances: oneworld, Star Alliance and SkyTeam. Table 3.7 shows the principal airlines in each of these alliances as of March 2007.

Table 3.7 Composition of major airline alliances March 2007

	oneworld	**SkyTeam**	**Star Alliance**
Europe	BA, Malev, Finnair, Iberia	Air France / KLM, Alitalia, CSA, Aeroflot	Austrian, bmi, TAP, Lufthansa, SAS, LOT, Spanair, SWISS
Americas	American, LAN Chile	Delta, Northwest, Continental, Aeromexico	Air Canada, United, US Airways
Africa	-	-	South African Airways
Middle East	Royal Jordanian	-	-
Far East / Australasia	Cathay Pacific, Qantas, Japan Airlines	Korean Air	All Nippon Airways, SIA, Thai, Asiana, Air New Zealand

Source: oneworld, SkyTeam, Star Alliance websites.

5.2 The Star Alliance was founded in May 1997 by Air Canada, United Airlines, Lufthansa, SAS and Thai International, whilst Varig joined later the same year. In 1999 and 2000, the alliance expanded to include ANA, Air New Zealand, SIA, bmi, Mexicana and Austrian Airlines. In 2003 and 2004, they were joined by Asiana, LOT, Spanair and US Airways, whilst Mexicana left the alliance. In 2005 TAP became a member and in 2006 SWISS and SAA were accepted, although in 2007 Varig left.

5.3 The oneworld alliance was formed in February 1999 by American Airlines, BA, Cathay Pacific, Canadian Airlines and Qantas. They were joined the same year by Finnair and Iberia and the following year by Aer Lingus and LAN Chile, although Canadian left the alliance that year. Royal Jordanian and Malev joined oneworld in 2005 and Japan Airlines in 2006, integrating their frequent flyer programmes and offering oneworld fares in early 2007, the same year in which Aer Lingus left the alliance.

5.4 The SkyTeam alliance formed in June 2000, with Air France and Delta Airlines expanding their previous strategic agreement to include Aeromexico and Korean Airlines. In 2001 they were joined by CSA and Alitalia and the alliance pursued anti-trust immunity for transatlantic and transpacific operations. Following its merger with Air France, KLM joined the alliance in 2004, as did Continental and Northwest[34], while Aeroflot joined in April 2006.

33. There are clearly other aims, such as coordinated flight schedules and fares, harmonisation of frequent flyer programmes and interoperability of IT systems.
34. Although no formal association was ever announced, Wings was formed from the cooperation of Northwest and KLM (which already had a partnership agreement) with Continental in 1998. Alitalia joined the proto-alliance when it set up agreements with the other three airlines in 1999. However, anti-trust investigations into Northwest and Continental by the US authorities and Northwest and KLM by the EC, meant that Wings never quite took flight. Alitalia joined the SkyTeam alliance in 2001 and, when KLM merged with Air France in 2004, the other three Wings airlines followed suit.

5.5 The potential for alliance members operating from the UK to collaborate on scheduling and pricing on major long haul routes has been restricted by their inability to obtain anti-trust immunity from the relevant governments[35]. The main advantages of alliance membership for long haul operations from the UK are therefore the ability to combine rewards from frequent flyer programmes and to provide onward connections to an alliance partner.

5.6 Some indication of the effect of alliance membership on passenger connection patterns can be shown by examining the airlines between which passengers connect. In 1996 there were no airline alliances but airlines still operated codeshare agreements which might be expected to influence passengers' connection choices in a similar way to alliance membership. Table 3.8 shows the principal codeshare agreements in place in January 1996 for selected airlines.

Table 3.8 Principal codeshare agreements, January 1996

Airline	Principal Codeshare partners
Virgin	Midwest Express, City Jet, bmi
BA	British Asia Airways, USAir, Maersk Air
American	bmi, Qantas, South African Airways
Qantas	BA (UK domestic only), American, Air New Zealand
United	bmi, Emirates, Lufthansa
Air Canada	Air France, bmi, Finnair, Iberia, LOT, Swissair

Source: OAG January 1996.

5.7 Data from the CAA Passenger Survey from 1996 (pre-formal alliances) and 2005 (post-formal alliances) on passengers connecting to long haul services from Heathrow (the UK airport served by the highest number of alliance members) have been analysed, taking a sample of the airlines with thicker long haul services[36]. Passengers connecting from international and domestic services have been analysed separately.

5.8 Of the UK airlines, BA has both a long and short haul network at Heathrow and so would be expected to benefit less than other airlines, since most of its transfer traffic would be fed by its own services. Virgin is not an alliance member and bmi, though a member of Star Alliance, has few long haul services from Heathrow[37]. Therefore the long haul services from Heathrow likely to benefit most from alliance membership might be expected to be operated by non-UK alliance members.

International connections

5.9 Tables 3.9 and 3.10 display the proportion of traffic connecting at Heathrow between international services and a long haul flight operated by one of Virgin, BA, American, Qantas, United or Air Canada in both 1996 and 2005. The definition of alliance members used for both periods in this analysis is based on memberships in 2005.

35. The granting of anti-trust immunity is of particular importance on routes to the US, where some EU carriers have been granted immunity under their alliances with US partners whilst UK carriers have not, although this may change following the EU-US Open Skies agreement.
36. Virgin, BA, American, Qantas, United and Air Canada. Virgin is not an alliance member; BA, American and Qantas are members of the oneworld Alliance, while United and Air Canada are part of the Star Alliance.
37. Although when it is allowed to serve US routes in March 2008 following the EU-US Open Skies agreement, this may change.

Table 3.9 Breakdown of international feed traffic in 1996 by global alliance at Heathrow

	Percentage of passengers from alliance on departing flight with:					
		oneworld			Star Alliance	
Alliance	Virgin	BA	American	Qantas	United	Air Canada
oneworld	23%	92%	48%	64%	22%	27%
Star Alliance	32%	3%	17%	13%	48%	35%
SkyTeam	4%	1%	3%	4%	3%	4%
Other	40%	5%	33%	18%	27%	35%
Total	100%	100%	100%	100%	100%	100%
Long haul passengers (000s)						
Connecting	135	3,988	308	146	339	280
Total	1,445	8,694	1,429	505	1,405	906
% connecting	9%	46%	22%	29%	24%	31%

Source: CAA Passenger Survey, 1996.
Note: All passengers on the above table arrived at Heathrow on an international flight and departed on a long haul flight with the named airline. The data are an average of the interviewees who flew in either direction. Charter passengers are excluded from the above analysis.

Table 3.10 Breakdown of international feed traffic in 2005 by global alliance at Heathrow

	Percentage of passengers from alliance on departing flight with:					
		oneworld			Star Alliance	
Alliance	Virgin	BA	American	Qantas	United	Air Canada
oneworld	21%	92%	76%	85%	20%	14%
Star Alliance	16%	4%	11%	9%	50%	38%
SkyTeam	5%	1%	2%	3%	3%	4%
Other	57%	3%	11%	3%	27%	44%
Total	100%	100%	100%	100%	100%	100%
Long haul passengers (000s)						
Connecting	491	5,279	627	258	408	489
Total	2,984	12,126	2,164	896	1,732	1,621
% connecting	16%	44%	29%	29%	24%	30%

Source: CAA Passenger Survey, 2005.
Note: All passengers on the above table arrived at Heathrow on an international flight and departed on a long haul flight or vice versa. The data are an average of the interviewees who flew in either direction. Charter passengers are excluded from the above analysis.

5.10 The most conspicuous difference between 1996 and 2005 is the feed traffic contribution of the oneworld alliance members to both American and Qantas long haul flights out of Heathrow. In 1996, 48% of American and 64% of Qantas' long haul passengers were fed into Heathrow by oneworld partners (using the 2005 definition of oneworld Alliance members). By 2005 this had risen to 76% and 85% respectively at the expense of connections from non-alliance airlines.

5.11 In 1996, American did not have any codeshare agreements with BA, while Qantas had codeshare agreements on BA domestic flights only. In 2005, both airlines were members of the oneworld alliance and appeared to have benefited from alliance membership, and BA's feeder traffic in particular. The other significant movement is the increase in the proportion of passengers contributed by airlines outside of the three major alliances to Virgin. This is a consequence of the expansion of Virgin's own network beyond North America – there are now many more passengers who connect between Virgin flights at Heathrow.

5.12 Although all the airlines have increased the numbers of long haul passengers carried as well as those connecting from international flights, only Virgin and American have actually increased the *proportion* of connecting long haul passengers. This would suggest that alliance membership has not, on the whole, provided the other airlines studied with increased access to connecting passengers at Heathrow, or at least no more than their old codeshare arrangements. However, it does seem to have encouraged connecting passengers to transfer between airlines from the same alliance.

Domestic connections

5.13 Tables 3.11 and 3.12 show the breakdown of domestic feed traffic for long haul services operated by the selected airlines from Heathrow in 1996 and 2005. In both years the main domestic carriers operating at Heathrow were BA and bmi[38]. In 1996 BA offered approximately 60% of the domestic flights and 70% of the domestic seats from Heathrow, whilst bmi offered only 30% of each. By 2005, BA and bmi each offered about half of domestic seats at Heathrow, although BA had a slightly higher proportion of domestic flights.

Table 3.11 Domestic connecting long haul passengers at Heathow, 1996

	Percentage of passengers from domestic carrier on departing flight with:					
Domestic		oneworld			Star Alliance	
Carrier	Virgin	BA	American	Qantas	United	Air Canada
BA	46%	90%	43%	86%	31%	53%
Bmi	49%	7%	47%	11%	62%	39%
Other	5%	3%	10%	2%	7%	8%
Total	100%	100%	100%	100%	100%	100%
Long haul passengers (000s)						
Connecting	77	550	55	46	61	55
Total	1,445	8,694	1,429	505	1,405	906
% connecting	5%	6%	4%	9%	4%	6%

Source: CAA Passenger Survey, 1996.
Notes: All passengers on the above table arrived at Heathrow on a domestic flight and departed on a long haul flight or vice versa. The data are an average of the interviewees who flew in either direction. Charter passengers are excluded from the above analysis.

38. In 1996 bmi operated under the name of British Midland, but its current name has been used here for clarity.

Table 3.12 Domestic connecting long haul passengers at Heathrow, 2005

	Percentage of passengers from domestic carrier on departing flight with:					
Domestic		oneworld			Star Alliance	
Carrier	Virgin	BA	American	Qantas	United	Air Canada
BA	29%	86%	77%	77%	9%	17%
bmi	68%	13%	22%	19%	89%	81%
Other	3%	1%	1%	4%	1%	2%
Total	100%	100%	100%	100%	100%	100%
Long haul passengers (000s)						
Connecting	205	712	110	89	131	140
Total	2,984	12,126	2,164	896	1,732	1,621
% connecting	7%	6%	5%	10%	8%	9%

Source: CAA Passenger Survey, 2005.

Notes: All passengers on the above table arrived at Heathrow on a domestic flight and departed on a long haul flight or vice versa. The data are an average of the interviewees who flew in either direction. Charter passengers are excluded from the above analysis.

5.14 The effects of the codeshare agreements in 1996 (as listed in Table 3.8) are clearly illustrated. Virgin, which had a domestic codeshare agreement with bmi, receives more domestic connecting passengers from bmi than BA, even though BA has the greater proportion of services. American, Air Canada and United also receive a higher proportion of their domestic transfer passengers from bmi than the 30% of seats which the domestic carrier offers, whilst Qantas receives more from BA.

5.15 By 2005, the relationship between the airlines used by domestic connectors on long haul flights seems to be strongly established along alliance lines. American shows the most striking change, going from a majority of connectors on bmi, despite the greater capacity offered by BA, to a clear majority for its alliance partner BA in 2005, even though BA's share of domestic capacity at Heathrow had shrunk. United and Air Canada, which both had codeshare agreements with bmi in 1996, have seen significant increases in the proportion of domestic passengers provided by their Star Alliance partner (from 62% to 89% for United and from 39% to 81% for Air Canada).

5.16 As with the international connecting passengers, the proportion of total long haul traffic at Heathrow accounted for by domestic connectors has not risen significantly for any of the oneworld airlines, although the Star Alliance airlines and Virgin have seen some increase over the years. This again suggests that the benefits of alliance membership have not come through greater levels of feed traffic overall, but from the greater stability in demand that comes from the link with alliance partners.

5.17 In 2005, Virgin (a non-alliance carrier) still received a reasonable proportion of its feed at Heathrow from members of the various alliances. The distribution of the airlines around Heathrow will change following the opening of Terminal 5 in 2008. This will group alliance carriers in the same terminal as far as possible and therefore encourage inter-alliance connecting. It will be interesting to see whether this will further affect the distribution of connecting traffic between airlines.

6 Bellyhold Cargo

6.1 Passenger airlines often have the option to supplement their revenues by carrying bellyhold cargo[39]. Those with larger networks, or flying between major population or business centres, are likely to benefit most, whereas those with operations demanding quick turnaround times and low costs may find the extra administrative and operational burdens unattractive.

6.2 In 2006, cargo-only services operated from the UK represented less than 20% of the total volume of cargo carried to long haul destinations: the remainder being bellyhold. This contrasts with the short haul and domestic cargo market, where cargo-only services represented around 80% of the total volume carried in 2006, with bellyhold operations making up the remaining 20%.

Cargo volumes

6.3 Bellyhold cargo therefore tends to be a more significant contributor to scheduled long haul revenue than to short haul. Table 3.13 shows the relationship between bellyhold cargo and passenger volumes at the three main long haul passenger airports. In 2006, scheduled long haul routes from Heathrow carried 3.5 tonnes of cargo for each 100 passengers, compared to 0.4 tonnes for short haul routes. The same pattern is repeated for the other two airports.

Table 3.13 Bellyhold cargo carried on international long haul and short haul scheduled routes from UK airports 2006

		Cargo (000 tonnes)	Passengers (m)	Tonnes cargo per 100 passengers
Heathrow	Long haul	1,139	32.1	3.5
	Short haul	131	29.2	0.4
Gatwick	Long haul	163	6.4	2.5
	Short haul	10	14.6	0.1
Manchester	Long haul	70	2.7	2.6
	Short haul	6	7.3	0.1

Source: CAA Airport Statistics, aircraft related.
Note: Cargo = freight and mail.

6.4 One major difference between short and long haul services is the capacity available to carry bellyhold cargo in the aircraft themselves. Aircraft used on short haul routes are generally smaller and narrower, leaving less room for cargo in addition to passenger baggage, and loading and unloading cargo may extend turnaround times and affect utilisation. Long haul aircraft are more likely to be wide-bodied and therefore to have more space available[40]. They usually take longer to turnaround than short haul aircraft, and so the effects of loading and unloading cargo on their utilisation are lessened.

39. Cargo includes both freight and mail. Some aircraft (often referred to as 'combi-') are partitioned to carry both passengers and cargo. Although data from these aircraft types are included in the figures quoted here, they form only a tiny fraction of all cargo carried to or from the UK in passenger aircraft.
40. For instance, according to the manufacturer's website, the Boeing 737-300 which tends to be used for short haul has a maximum freight capacity of 27m^3 or 0.22m^3 per passenger, whereas the 747-400 used on long haul flights has a maximum freight capacity of 171m^3 or 0.41m^3 per passenger.

6.5 The contribution that cargo can make to the viability of a long haul passenger route will chiefly depend upon the demand for cargo services between the start and end points, in terms of both volume and value. Just as centres of wealth and population tend to create demand for passenger transport, so demand for cargo transport will also arise. However, for mainly short haul holiday destinations, there is less likely to be an equivalent demand for cargo.

6.6 Another key difference between passenger and cargo demand is that cargo flows may be much greater in one direction than the other. Most passengers are taking return journeys and so, even if the traffic is mainly generated from one end of the route, there is little overall difference between total numbers travelling in each direction. Table 3.14, which shows the tonnage of cargo on arriving and departing flights for selected long haul routes at Heathrow, demonstrates that this is not the case for cargo.

Table 3.14 Cargo carryings from Heathrow on selected long haul routes, 2006

		Cargo (tonnes)		
Destination	Airline	*Departures*	*Arrivals*	*% difference*
Bangkok	BA	753	1,034	37%
	Thai	1,135	2,243	98%
Dubai	BA	7,046	8,009	14%
	Emirates	18,700	28,830	54%
Johannesburg	BA	7,838	10,059	28%
	South African	5,663	7,493	32%
	Virgin	3,879	4,187	8%
Los Angeles	American	4,438	8,425	90%
	BA	8,520	11,366	33%
	United	3,256	5,544	70%
	Virgin	6,431	8,420	31%
Mexico City	BA	1,748	910	-48%
New York (JFK)	American	21,153	16,625	-21%
	BA	25,460	18,945	-26%
	United	3,485	3,035	-13%
	Virgin	12,484	9,431	-24%
Tokyo (Narita)	All Nippon	3,711	6,032	63%
	BA	6,160	6,776	10%
	Japan Airlines	3,912	6,398	64%
	Virgin	3,403	4,057	19%

Source: CAA Airport Statistics, aircraft related.
Notes: Cargo = freight and mail.
5th freedom carriers on the named routes have been excluded due to the difficulties involved in directly comparing these services with those of a 3/4th freedom service.

6.7 On the long haul routes studied, Heathrow appears to be a net importer, as might be expected given that the UK is a net importer of goods. The greatest discrepancy in percentage terms is on the Heathrow-Bangkok route, where the amount of cargo

arriving in Heathrow was 98% higher than the amount destined for Bangkok. By contrast, on Heathrow-New York 14,500 more tonnes departed the UK than arrived. Of all the cities in the sample, New York appears to be a conspicuous outlier, with each of the airlines serving the route carrying more cargo to JFK from Heathrow than vice versa. In terms of airline nationality, it appears that a UK airline is no more likely to be a net importer or exporter of cargo than a foreign airline. However, a proportion of the cargo that arrives at Heathrow is transhipped onto other services, some of which are short haul. Therefore, although the table indicates that, for long haul routes, Heathrow is a net importer, this may overstate the case where Heathrow is acting as a gateway for domestic or European cargo distribution.

Cargo revenues

6.8 The proportion of revenue generated by bellyhold cargo for a route is commercially confidential information, but it is possible to use publicly available data to make an estimate. BA's Annual Report 2005/06 provides a measure of the average cargo revenue per tonne-km and the average passenger revenue per seat-km and, together with the sector length, total cargo and total passengers carried on the main long haul passenger routes out of Heathrow, it is possible to estimate the revenue contribution of bellyhold cargo[41]. Such a calculation shows that bellyhold cargo typically contributes between 5% and 10% of the total revenue on long haul routes[42].

6.9 Some confirmation of the overall level of cargo's contribution to long haul flights can be found in the CAA's airline financial statistics. Virgin reports that in the year ending March 2005, its revenue from 'scheduled passengers' was £1.15 bn, whereas its revenue from 'scheduled freight and diplomatic bags' was £0.13 bn or 10% of the total. During this period, over 99% of the cargo carried by Virgin was bellyhold and all its flights were to long haul destinations.

6.10 There is a premium paid for air cargo over surface transport. Partly this is due to the time-sensitive nature of the product being transported[43], and so disproportionately higher revenues are likely to be available to more frequent services. Therefore, although the contribution from bellyhold cargo may be important to the profitability of a long haul route, particularly one where price competition for passengers is strong, it is unlikely to be a determining factor driving an airline's decision to enter onto a long haul scheduled route. However, once a route is established, a significant revenue contribution from cargo (and the need for quick delivery which drives the prices that can be set) could influence the decision to increase the frequency of the operation to a daily service or the type of aircraft used to serve the route.

41. This implicitly assumes that the revenue obtained from cargo and passengers on all routes is only proportional to the volume and sector distance. In fact, there is likely to be more variation by route than calculated here.
42. For instance, between London and Dubai, bellyhold cargo is estimated to contribute 9% of revenue, based on yields, whereas between London and Mexico City, the figure is only 5% of revenue, although this may be affected by payload restrictions that apply to flights from high altitude airports.
43. It is also due to the extra costs incurred for air transport of cargo.

7 Utilisation

7.1 Efficient airlines must try to maximise the utilisation of their two main operational resources: aircraft and crew. Aircraft utilisation is expressed as the average number of hours per day spent in flight and this tends to be higher for long haul routes than for short haul. However, crew expenses are likely to be much higher for long haul operations, since multiple crews are required for each rotation. This effect is such that many airlines' operational definition of a long haul route is an airport pair that requires more than one crew to perform a single rotation.

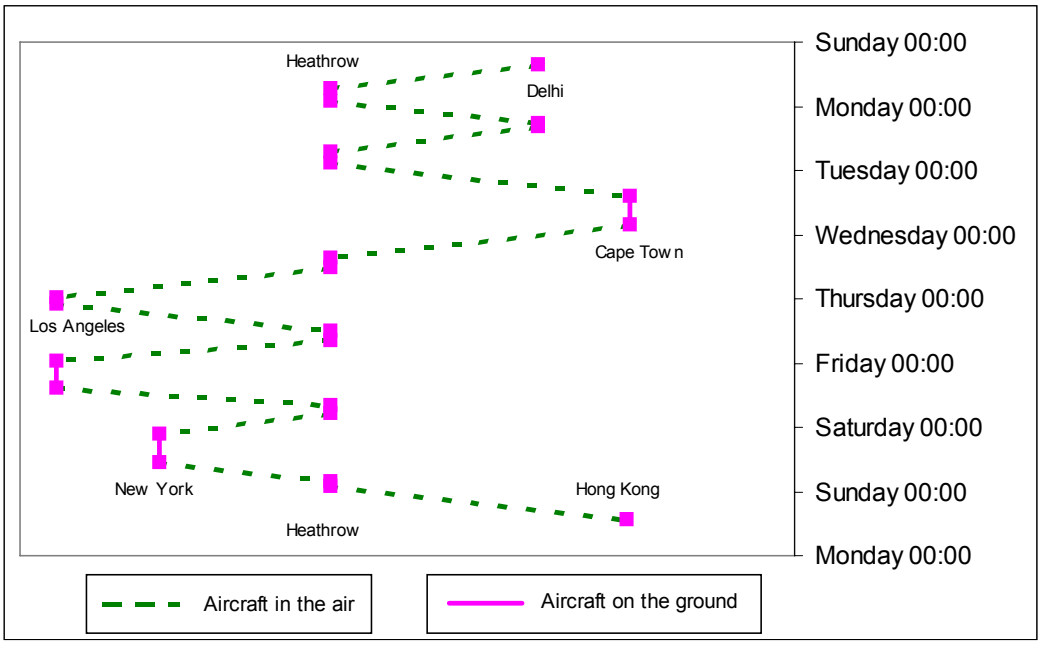
Aircraft utilisation

7.2 Operations on long haul routes have two advantages over short haul relating to aircraft utilisation. The first is longer sector length, which means that aircraft spend more time in the air between loading and unloading their passengers. The second is that short haul operations, which rarely cross many time zones, tend not to operate for certain periods of the day, since night-movement restrictions may be in force at both ends of the route.

7.3 Long haul aircraft are therefore much more likely to be used for a greater proportion of each day. However, longer sector lengths themselves may make such utilisation difficult to achieve unless a suitable route or network is operated. For a sector which takes eight or ten hours to fly, just one aircraft can perform a daily rotation and achieve high utilisation. However, for a sector which takes 13 hours, two aircraft will be needed for a daily service, and each one will be on the ground for 11 hours of the day unless they can be used for another route.

7.4 Many long haul airlines therefore need to develop their route networks in part to obtain better aircraft utilisation. To illustrate this point, Figure 3.11 shows the flights taken by a single long haul aircraft based at Heathrow through the course of a week, which, by switching between different destinations, managed to spend nearly 75% of its time in the air. This advantage of scale from long haul networks may create a barrier to small airlines starting services between some airport pairs, since to do so they would also need to start complementary services, with the additional associated costs, to achieve the same utilisation as incumbents.

Figure 3.11 Flights undertaken by one long haul aircraft at Heathrow during a single week in February 2007



Source: CAA Airport Statistics, aircraft related.

Crew utilisation

7.5 Unlike aircraft, air crew cannot be expected to work for a large proportion of the day. Long haul operations typically require multiple crews to perform a single rotation or sometimes a single sector. These crews must then either be transported back to the airline's home base as passengers or be funded to remain at the destination point until they can be used to crew a return flight. The extra costs incurred in either case is a significant difference between long and short haul operations.

7.6 In conclusion, utilisation of aircraft and crew, and the consequent expenses incurred, differs significantly between long and short haul routes. Long haul operations can be expected to achieve higher aircraft utilisation rates, although this may be dependent on having a sufficiently large network or operating specific routes. However, crew costs are much more significant for long haul services than short haul.

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Chapter 4 Passenger characteristics of long haul operations

1 Introduction

1.1 This chapter investigates the characteristics of long haul passengers on flights to and from the UK and how these may affect the operation and analysis of long haul services. The CAA Passenger Survey has been used to analyse their gender, income, trip length and other traits. The characteristics of long haul passengers differ from those using short haul or domestic services. This may be due to the extra journey time and likely extra expense for long haul travel, which makes it less attractive for short leisure breaks or for families with small children.

1.2 The chapter considers the categorisation of passengers according to those who are most influenced by comfort and convenience (for example, on timing) and those most influenced by price. The former passenger can be stereotyped as travelling for business purposes, on a flexible fare and in one of the premium cabins, whereas the latter is seen as a holidaymaker travelling on a restricted fare in economy class. The extent to which this stereotype holds is analysed.

1.3 This chapter also looks at the cause and effects of 'flag loyalty' (passengers' willingness to travel with a carrier which shares their nationality) on long haul routes.

Chapter Summary

This chapter considers long haul passenger characteristics and finds that:

- The proportions of long haul passengers at UK airports split by gender, journey purpose and country of residence have not significantly changed between 1996 and 2005. There has been a noticeable shift in the income levels of long haul passengers with a greater proportion of leisure passengers having household incomes less than £34,500 and business passengers having personal incomes less than £34,500 (both in 2005 prices).
- Passengers travelling between the UK and a long haul destination may have a choice between travelling directly and making a connection at an airport outside the UK. In general, the likelihood of a passenger making such a connection is greater (a) with the distance being travelled, (b) if the destination country has a less liberal ASA with the UK – thereby potentially restricting direct services on the route – or (c) if the passenger is travelling on a scheduled service, for leisure purposes or in the economy cabin.
- Around two-thirds of long haul passengers at Heathrow travelling for business purposes used economy class tickets in 2005. This is only a marginal increase on the proportions observed in 1996. However, by far the majority of the passengers occupying premium cabins in both years were travelling for business purposes.
- In general, the proportion of UK resident business passengers on a long haul route carried by UK airlines is greater than the proportion of non-UK resident business passengers carried by UK airlines, and the difference in proportions appears to have increased between 1996 and 2005. While this could be due to passenger loyalties to their 'flag carrier', it is more likely to be connected to the effectiveness of advertising and loyalty schemes, or to cultural preferences around levels of service or in-flight catering.

2 Long haul passenger characteristics

2.1 This section examines how the characteristics of long haul passengers from the UK have changed between 1996 and 2005, and how they differ from those of short haul and domestic passengers. In particular, gender, journey purpose, residence, length of trip and household income are considered using data from the CAA Passenger Survey at Heathrow, Gatwick and Manchester (the UK's main long haul airports).

2.2 Table 4.1 shows the proportions of passengers on long haul routes at the UK's main long haul airports, split between country of residence and journey purpose. There has been little change between 1996 and 2005, with only a small increase in the proportion of UK leisure passengers at London airports at the expense of non-UK leisure, and a slight reduction in the proportion of business passengers at Manchester.

Table 4.1 Long haul passengers split by residence and journey purpose 1996 and 2005

	Residence	UK			Non-UK		
	Journey Purpose	Business	Leisure	Total	Business	Leisure	Total
Heathrow and Gatwick	1996	9%	30%	40%	17%	43%	60%
	2005	9%	36%	45%	16%	39%	55%
Manchester	1996	7%	76%	83%	4%	13%	17%
	2005	5%	78%	83%	3%	13%	17%

Source: CAA Passenger Survey, 1996 and 2005.

2.3 A significantly greater proportion of passengers travel for business purposes from the London airports than from Manchester, reflecting the greater range of scheduled services at Heathrow and Gatwick as well as London's position as the UK's main business centre. Non-UK resident passengers mainly use London airports, partly due to the high proportion of connecting traffic. When the analysis is restricted to terminating passengers only, UK residents made up 54% of London long haul traffic in 1996 and 61% in 2005. This represents an increase in the share of UK leisure passengers, whilst UK and non-UK business passengers each form 12% of the total.

2.4 The distribution of short haul (including domestic) passengers at these airports is somewhat different. For the two London airports considered, UK business accounted for 18% of short haul passengers in 2005 and UK leisure 44%, whilst non-UK business passengers were 14% and non-UK leisure 24%. At Manchester there is also a higher proportion of business passengers on short haul services due to the importance of business-dominated domestic routes.

2.5 Table 4.2 shows that the gender split on long haul routes has remained largely unchanged between 1996 and 2005. For business travel, there has been an increase in the proportion of females travelling since 1996, but males predominate by nearly four to one. In comparison, for short haul and domestic travel at these airports, approximately three business passengers are male for every female. Long haul leisure travel has seen a slight increase in the proportion of males over this period.

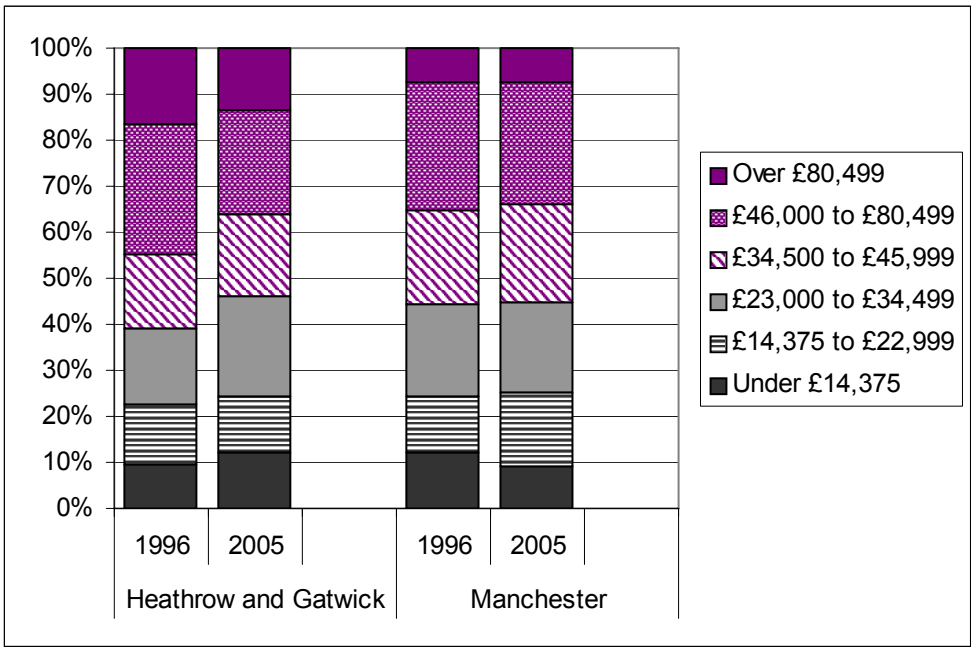
Table 4.2 Long haul passengers split by gender and journey purpose 1996 and 2005

Journey Purpose		Business		Leisure		Total	
	Gender	Male	Female	Male	Female	Male	Female
Heathrow and Gatwick	1996	81%	19%	47%	53%	56%	44%
	2005	79%	21%	50%	50%	56%	44%
Manchester	1996	82%	18%	51%	49%	55%	45%
	2005	78%	22%	55%	45%	57%	43%

Source: CAA Passenger Survey, 1996 and 2005.

2.6 Figures 4.1 and 4.2 compare the income levels of long haul passengers between the survey years. The 1996 responses are adjusted[1] to take account of the rise in incomes over the period. The CAA Passenger Survey records the personal income of business passengers, but the household income of leisure passengers. Figure 4.1 illustrates the change in income distributions of UK resident long haul leisure passengers between 1996 and 2005.

Figure 4.1 Household income distribution of UK resident long haul leisure passengers 1996 and 2005, 2005 prices



Source: CAA Passenger Survey, 1996 and 2005.
Notes: The proportions calculated above only include those passengers who answered the question. Those passengers who did not answer the question have been excluded from the analysis on the presumption that these omitted responses are on average evenly distributed.

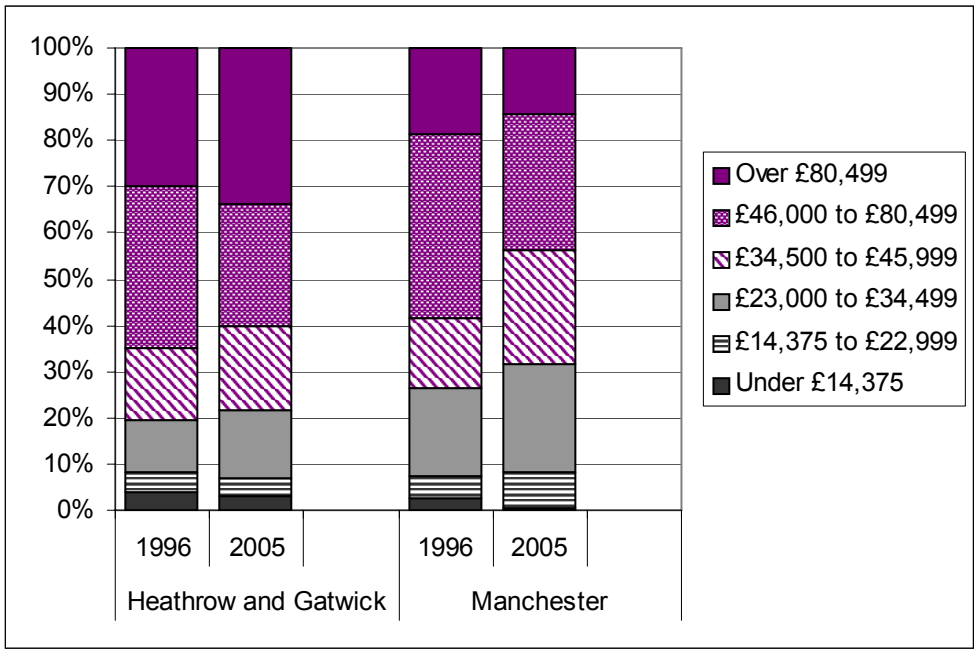
2.7 At Heathrow and Gatwick there has been a decrease of nine percentage points in the proportion of passengers with household incomes above £46,000 per annum, compensated for by an increase in those with incomes between £23,000 and £46,000. At Manchester, the proportions of passengers in the different income

1. Using the ONS Average Earnings Index for 1996 and 2005. The calculation does not account for the change in household composition – the proportion of households with only one adult grew from 33% to 35% over the period – which is likely to make the change in income distribution between the years more pronounced.

groups have remained broadly unchanged. The increase in the total volume of UK resident long haul passengers over this period, from 8.4 million in 1996 to 13.8 million in 2005, means that the number of passengers from all income groups has risen.

2.8 Figure 4.2 shows the incomes of UK resident business passengers on long haul flights in 1996 and 2005. At Heathrow and Gatwick and also at Manchester, there has been a reduction in the proportion of business passengers whose income is between £46,000 and £80,500, from 35% to 27% and 40% to 30% respectively. At Heathrow and Gatwick, there have been increases of four percentage points to income bands '£23,000 to £34,499' and 'Over £80,499'. For Manchester, the change in the income distribution of business passengers has been almost wholly due to an increase in the proportions of passengers from the lower income bands, particularly the band '£34,500 to 45,999' which has increased by nine percentage points.

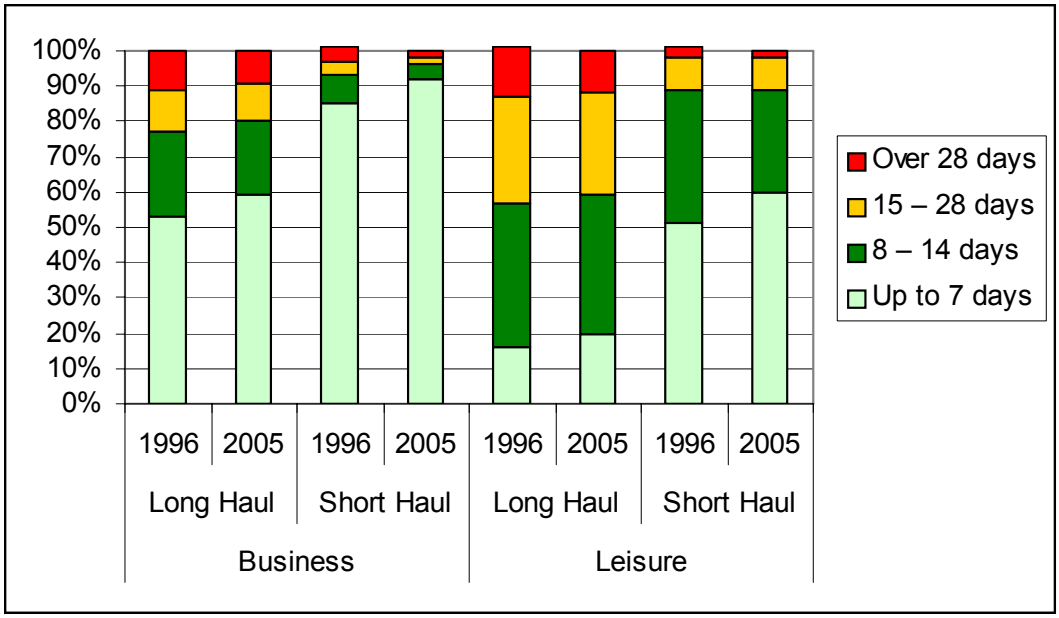
Figure 4.2 Income distribution of UK resident long haul business passengers 1996 and 2005, 2005 prices



Source: CAA Passenger Survey, 1996 and 2005.
Notes: The proportions calculated above only include those passengers who successfully answered the question. Those passengers who did not answer the question have been excluded from the analysis on the presumption that these omitted responses are on average evenly distributed.

2.9 Finally, the survey data reveal the extent to which long haul trips are likely to be much longer in duration than short haul and domestic trips, and the extent to which leisure trips tend to be of longer duration than business trips. Figure 4.3 shows how trip length differed between long and short haul journeys for business and leisure passengers in 1996 and 2005. Although the trip lengths of both long haul business and leisure passengers have decreased slightly over the period, they are still well in excess of the equivalents for short haul or domestic travel.

Figure 4.3 Trip length from Heathrow, Gatwick and Manchester airports by journey purpose and flight destination, 2005 and 1996



Source: CAA Passenger Survey, 1996 and 2005.

3 Passenger journeys between the UK and long haul destinations

3.1 This section will examine the various ways in which passengers travel between the UK and long haul destinations. Although the UK has a variety of direct long haul services, not all passengers are willing or able to make the whole of their journey on one flight; many will travel indirectly via a domestic, short haul or long haul intermediate point. The third of these options corresponds to the routeing London-Dubai-Bangkok from Figure 2.1 in Chapter 2, whilst the first could be represented by a routeing such as Newcastle-London-Bangkok and the second by a routeing such as Manchester-Frankfurt-Bangkok. Those passengers whose connections are solely to or from a domestic service at one or other end of a long haul flight are also considered in the Chapter 2 sections on feed traffic and regional airports[2].

3.2 There are a variety of reasons why passengers may take an indirect routeing to reach their destination, the simplest being that no direct service exists. Other factors which may be relevant are the relative frequencies and flight times of the direct and indirect services, the difference in ticket price or passengers' preferences for a particular airline (influenced by the quality of service offered, frequent flyer programmes or, for business travellers, corporate deals).

3.3 Data from the CAA Passenger Survey can be used to identify the full routeing taken by most of the passengers interviewed and can therefore shed some light on the extent of indirect travel to and from long haul destinations. It also provides information on the characteristics of the passengers and so can identify which passenger segments are more likely to choose to travel on a direct service. The survey only covers a proportion of the UK's airports in any year, but this always includes the main long haul airports of Heathrow, Gatwick and Manchester. This analysis will therefore mainly reflect traffic from these three airports, although a separate review of long haul passengers at smaller regional airports is also included.

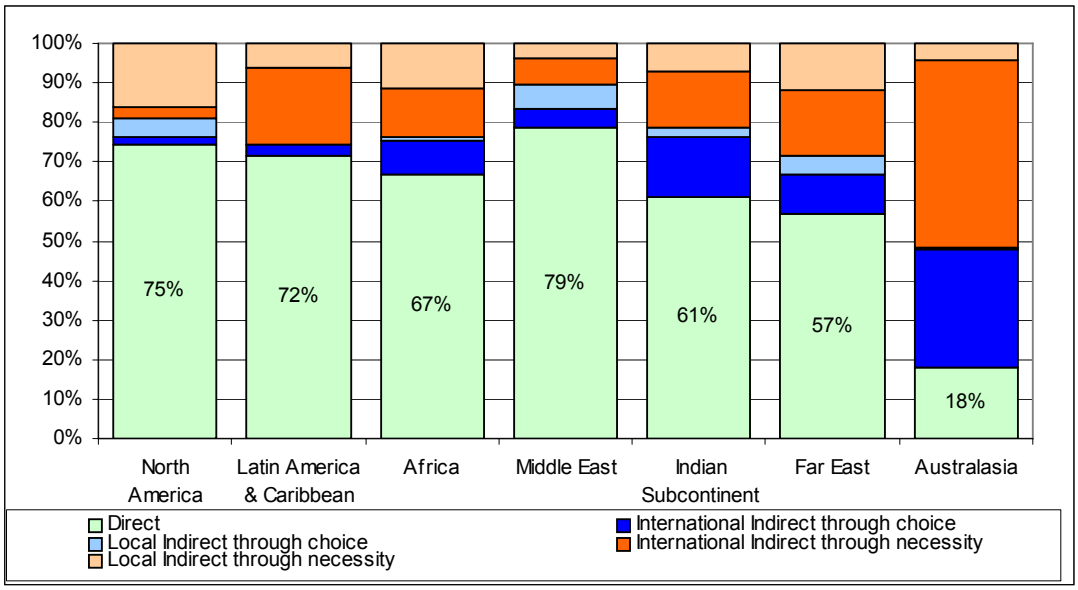
Passenger journeys by final destination

3.4 Survey responses for passengers travelling from UK airports[3] to long haul destinations in 2005 and beginning or ending their air journey in the UK have been examined and divided into those who interline and those who fly direct.

3.5 Those passengers who travelled indirectly to their destination have been classified into two groups: those who did so by necessity and those who did so by choice. Where there was no direct service between the start and end points of a passenger's journey, then the indirect option will have been a necessity. However, where an infrequent direct service exists some judgement has to be applied as to whether this provides a reasonable alternative to a frequent indirect service (in which case the passenger has interlined by choice) or not (in which case, they have interlined by necessity). Since some destinations are only served on a seasonal basis and for other routes a full direct service may only have been introduced part-way through the year it has been assumed that a 'reasonable alternative' would need to be a direct service which offers an average of three flights per week. Any passenger surveyed who used a connecting service instead of such a direct option has been assumed to have interlined 'through choice' – all other connecting passengers are assumed to have interlined 'through necessity'[4]. The results of this analysis split by world region of the ultimate destination are shown in Figure 4.4 below.

2. Different long haul world regions will have different proportions of passengers that connect onto domestic services. In particular, 20% of passengers on North American routes connected with domestic services in the United States or Canada in 2005, most likely due to the large size of these countries and, in the case of the US, the ASAs with the UK.
3. Airports surveyed in 2005 were Heathrow, Gatwick, Stansted, Luton, Manchester, Edinburgh, Glasgow, Prestwick, Aberdeen, Inverness, Newcastle, Durham Tees Valley, Leeds Bradford and Bournemouth.
4. Clearly, other definitions of 'interline by choice' and 'interline by necessity' could be used. In particular, for passengers travelling on business, a daily service may be the minimum requirement for a reasonable alternative. However, sensitivity tests indicate that similar conclusions would be derived from alternative definitions.

Figure 4.4 Percentage breakdown of direct and indirect trips to and from long haul destinations 2005



Source: CAA Passenger Survey, 2005.
Notes: Stopping services are considered to be direct for the purposes of this analysis.
To avoid double counting, the data excludes passengers taking a domestic connecting flight in the UK.
'Local indirect' indicates that the onward flight was one entirely within the world region.

3.6 A key feature of the chart is the relationship between the proportion of direct travel and the distance of the region from the UK, with the furthest destinations having the fewest direct passengers. This connection between distance travelled to a passenger's final destination and willingness to make an indirect journey is possibly explained through the greater choice of indirect options to more distant destinations, particularly eastbound from the UK. Also, on longer journeys, the time penalty incurred from using a connecting service represents a much smaller proportion of the total trip. For the longest journeys, such as those between the UK and Australasia, some passengers may even see advantage in breaking their journey[5].

3.7 However, the availability of direct services is also likely to have an impact on the proportion of indirect travel. The frequency of services between the major cities in the Middle East and the UK are much higher in general than those between the UK and Africa or Latin America, which may explain why these latter two regions have a greater proportion of passengers travelling indirectly, and mostly by necessity, to reach their final destination.

3.8 Lack of direct services will not explain the relatively low proportion of passengers travelling to or from the North America region indirectly 'by choice' (6%) compared to the proportion travelling 'by necessity' (19%). However, the Bermuda II bilateral agreement between the UK and US (the country in the region for which there are the largest traffic flows) has been particularly restrictive concerning the points in the US that are allowed UK services (examples of which include restrictions on the number of US cities that can be connected directly from the UK, as well as a requirement that certain fare changes be approved by both governments in advance), and almost all of these points are used as a domestic hub by one or more of the major US carriers with a regular service[6].

5. The case of Australasia is different from that of other world regions since even 'direct' flights from the UK require a refuelling stop at some point in the journey.
6. As defined in paragraph 3.5.

3.9 Even where a route has a frequent service, it may fall short of meeting the existing demand if the supply of direct capacity is constrained, for instance by ASAs. This will have the effect of forcing more passengers to take an indirect alternative and, although this may not be voluntary, they may still be labelled as 'indirect by choice' in this analysis. Although it can be assumed that, in the long run, airlines will provide direct services to meet the underlying demand, this will only be possible to the extent that ASAs permit it. At the level of world region, this effect may not be apparent, but it could influence services to countries with more restrictive ASAs with the UK, such as Japan, South Africa and, for much of 2005, India[7].

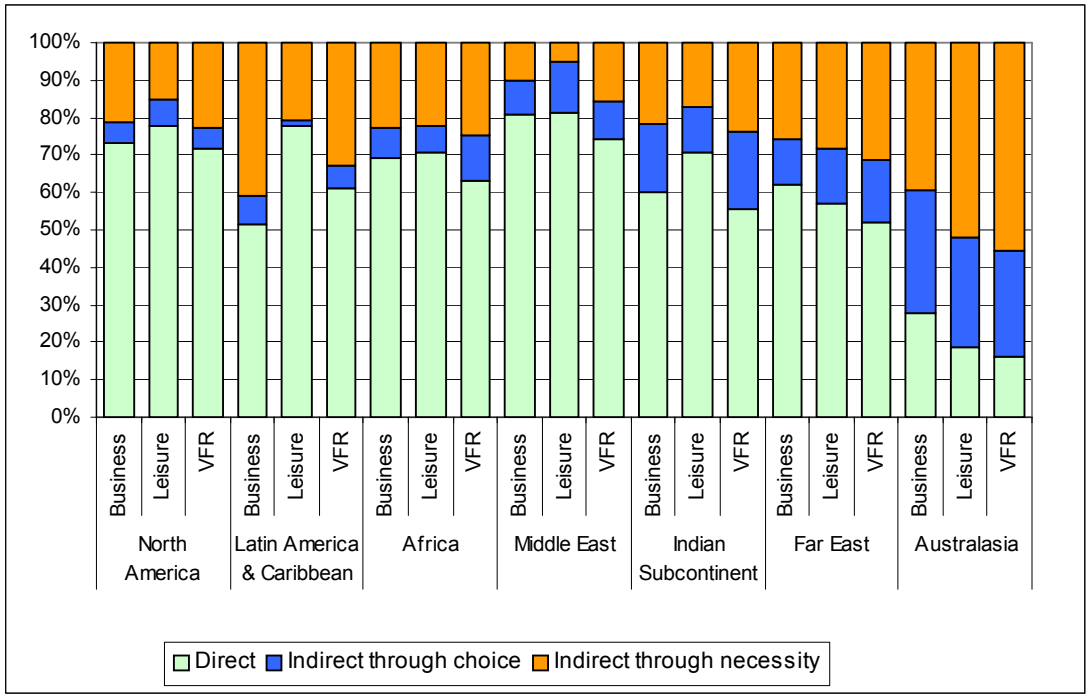
3.10 Comparing CAA Passenger Survey data from 2004 with 2005 for the Indian Subcontinent confirms how bilateral restrictions are likely to have affected passengers travelling between the UK and India before recent liberalisation of the ASA with India[8]. In 2004, 42% of passengers travelled point-to-point between the Indian Subcontinent and Heathrow, Gatwick or Manchester[9], while 36% of passengers would be classified as travelling indirectly through choice, where the choice to travel indirectly may have been made because of high fares or low availability on direct services. In 2005, after expansion of the UK-India bilateral, the proportion of passengers travelling point-to-point between the two regions had risen to 55%, while the proportion of passengers travelling indirectly through choice had fallen to 22%. The proportion of passengers travelling indirectly through necessity remained roughly the same, reflecting that extra services mainly increased frequencies to Indian points already served from the UK rather than expanding the network of points in India served directly.

Long haul journeys by journey purpose and ticket type

3.11 Figure 4.5 shows how the proportion of direct and indirect routeings differs depending on passengers' journey purpose. Passengers travelling for business purposes are less likely to use connecting flights than those visiting friends or relatives (VFR traffic) or, in most regions, those travelling for other leisure purposes. The only region where this relationship does not hold is Latin America & Caribbean, because a large proportion of business passengers travelling to or from the region use indirect routeings, due in good part to the relatively few points served directly from the UK. This region also has a relatively high proportion of charter operations, which helps to explain the high proportion of other leisure passengers travelling on direct routeings.

7. The India bilateral became gradually more liberal in the period between the IATA traffic seasons summer 2005 and winter 2006. For further information see CAA study 'UK-India Air services: A case study in liberalisation'.
8. In 2005, passengers to India constituted 57% of the total for the Indian Subcontinent.
9. The only airports with long haul services that were surveyed in both 2004 and 2005.

Figure 4.5 Proportion of direct and indirect travel by journey purpose and world region, 2005



Source: CAA Passenger Survey, 2005.
Notes: Stopping services are considered to be direct for the purposes of this analysis.
To avoid double counting, the data excludes passengers taking a domestic connecting flight in the UK.
Business data for Australasia has been cleaned to remove outliers.

3.12 One reason for high levels of VFR passengers choosing to travel indirectly may be that such passengers are less likely to be travelling to the major business or tourist destinations which have the majority of direct services. Their trip costs are also more likely to be dominated by the cost of the flight (as they may be staying with friends or family and so not incurring accommodation costs) and so any saving from travelling indirectly will represent a greater proportion of total expenditure.

3.13 Table 4.3 shows the relationship between cabin class and the decision to use connecting flights. This suggests that the group most likely to travel point-to-point are passengers with seat-only tickets on charter flights (98%), followed by passengers travelling on inclusive/package tours (82%), those in first class cabins (81%), business class (70%), economy full fare passengers (64%) and, finally, other economy ticket holders (57%)[10]. Undoubtedly, there is some correlation between ticket type and journey purpose, with more cost conscious VFR or other leisure passengers most likely to use 'other economy' tickets.

10. The CAA Passenger Survey only began recording premium economy ticket holders separately in 2006, but it seems reasonable to assume that they would fall somewhere between the business class and full fare economy percentages.

Table 4.3 Passenger routeings for long haul journeys to and from the UK in 2005 by cabin class

Ticket type	Indirect through choice	Indirect through necessity	Direct	Total Passengers (m)
First	5%	14%	81%	0.3
Business/club	12%	18%	70%	2.8
Economy full fare	11%	26%	64%	2.5
Economy Other	13%	30%	57%	20.0
Inclusive/package tour	5%	13%	82%	7.0
Charter seat only	0%	2%	98%	0.9
Others	5%	15%	80%	1.4

Source: CAA Passenger Survey, 2005
Note: Stopping services are considered to be direct for the purposes of this analysis.
Business/Club data for Australasia has been cleaned to remove outliers.
'Others' include standby and frequent flyer tickets.

3.14 Passengers travelling on inclusive or package tours often have very little choice as to the routeing they take. For long haul destinations, tour companies usually book their customers either onto dedicated charter flights, which are likely to be direct services to the resort or destination, or onto scheduled services which are already serving the destination country.

Long haul journeys from regional airports

3.15 The above analysis focussed only on passengers at the three main UK long haul airports. However, the UK's other airports increasingly offer direct services as well as opportunities to connect to domestic and international hubs. The CAA Passenger Surveys can be used to examine the situation at these airports, although unlike the major airports they are not surveyed every year.

3.16 Table 4.4 shows how long haul journeys taken by passengers at the UK's main and regional airports differ, distinguishing those who travel indirectly via a UK airport (for example Newcastle-Heathrow-New York), via an international airport reached by short haul (Newcastle-Amsterdam-New York), via an international airport reached by long haul (Birmingham-Dubai-Bangkok) and via an airport in the same country as their final destination (Heathrow-Bangkok-Koh Samui)[11].

11. This distinguishes those who may be interlining because their final destination can only be reached by a local service from those interlining through an international hub.

Table 4.4 Passenger journeys between the UK's main and regional airports and long haul points

Airport	Indirect - UK airport	Indirect - international short haul airport	Indirect - international long haul airport	Indirect - local airport	Direct	Total Passengers (m)
Heathrow	0%	8%	17%	10%	66%	20.6
Gatwick	0%	1%	8%	13%	78%	6.0
Manchester	13%	11%	13%	13%	50%	4.8
S England (2003)	1%	42%	22%	7%	29%	0.9
Scotland & N England (2005)	48%	21%	4%	7%	20%	3.3

Source: CAA Passenger Survey, 2003 and 2005.
Note: Excludes long haul passengers connecting from other flights at UK airports.
2003 S England airports include Bristol, Cardiff, Exeter, Liverpool, Birmingham, East Midlands and London City airports.
2005 Scotland & N England airports include Aberdeen, Edinburgh, Glasgow, Inverness, Prestwick, Newcastle, Durham Tees Valley and Leeds Bradford.

3.17 Table 4.4 shows the high proportion of passengers from Manchester, Northern England and Scotland flying to another UK airport – predominantly one of the London airports – to connect to a long haul flight. However, it also indicates that roughly the same proportion of passengers from these regions use their local airports to connect to an international service at a non-UK hub[12]. Finally, the small number of passengers travelling between the Southern England airports in 2003 and a long haul destination by any routeing (only 0.9 million) is likely to be indicative of a large proportion of long haul passengers originating in the South still travelling by surface to Heathrow or Gatwick airports.

12. At Manchester 24% of passengers to long haul destinations connected at an international airport, composed of 11% connecting at a short haul airport and 13% at a long haul airport. For Scotland and N England the total figure was 25%, comprised of 21% connecting at a short haul airport and 4% at a long haul airport.

4 Cabin class and journey purpose

4.1 Aviation analysis often considers separate markets for 'business' and 'leisure' passengers on a route. This is justified by the higher value placed on timeliness and comfort by the former group compared to the latter. It could be assumed that there is a high correlation between passengers travelling on business and those travelling in premium cabins[13]. However, CAA Passenger Survey data suggest that a high proportion of long haul business travellers use economy cabins.

4.2 Table 4.5 shows the distribution of business passengers on long haul services at Heathrow across cabin classes[14] in 2005 compared with 1996. It can be seen that in both years, around two-thirds of all passengers travelling on business were in the economy cabin and the majority of those were not travelling on full fare tickets. This proportion is virtually unchanged between the two sample years. UK airlines have a greater proportion of their business passengers travelling in the premium classes, although this proportion has declined slightly between 1996 and 2005, possibly due to premium economy seats on UK long haul carriers attracting some business passengers to 'trade down' from premium class.

Table 4.5 Proportion of business passengers in each cabin type for long haul flights from Heathrow in 1996 and 2005

	1996				2005			
Cabin class	First	Business	Full Fare Economy	Other Economy	First	Business	Full Fare Economy	Other Economy
UK airlines	9%	40%	13%	38%	4%	37%	17%	42%
Non-UK airlines	3%	20%	19%	58%	3%	20%	18%	59%
All airlines	6%	30%	16%	48%	4%	30%	17%	49%

Source: CAA Passenger Survey, 1996 and 2005.

4.3 The proportion of each cabin class taken up by passengers travelling on business is shown in Table 4.6. For instance, of all the passengers who flew first class on long haul airlines in 2005, 78% were travelling for business purposes. As expected, business passengers take up a smaller proportion of economy class seats and a higher proportion of the premium class cabins. There is quite a difference in the proportions of full fare economy passengers travelling on business between 1996 and 2005, most likely due to a fall in the usage of full fare tickets as the range of economy fare products has increased.

13. 'Premium cabins' are here assumed to be business and first class only, and therefore do not include premium economy seats.
14. Premium economy class was not distinguished in the 2005 survey and so only the distinction between full fare (i.e. fully flexible) economy and other economy tickets is made.

Table 4.6 Proportion of passengers in each cabin class travelling on business for long haul flights from Heathrow in 1996 and 2005

	1996				2005			
Cabin class	First	Business	Full Fare Economy	Other Economy	First	Business	Full Fare Economy	Other Economy
UK airlines	77%	83%	23%	34%	77%	81%	58%	21%
Non-UK airlines	69%	76%	23%	28%	80%	74%	50%	15%
All airlines	75%	81%	23%	30%	78%	79%	54%	18%

Source: CAA Passenger Survey, 1996 and 2005.

4.4 While passengers who travel in the premium cabins or on fully flexible tickets are more likely to be travelling for business purposes, the evidence of this section suggests that passengers in business class cabins on long haul flights do not directly correspond to passengers travelling on business. Rather, the majority of passengers travelling on business are using economy tickets and only about a quarter of these economy class business passengers are using fully flexible tickets.

5 Flag loyalty

5.1 'Flag loyalty' refers to the expectation that an airline is likely to attract a greater proportion of passengers resident in its home country than those from other countries. This is not to say that the airline attracts a larger market share of the home passengers than its rivals, since this will be driven by factors such as how price, quality, frequency, etc. compare. Rather, flag loyalty for UK carriers would be defined as the additional market share received from UK residents over non-UK residents all other things being equal[15].

5.2 Flag loyalty may be driven by a sense of national allegiance amongst passengers, possibly stemming from the days when most countries had only one airline, usually under government control. There may also be other contributory factors, including corporate deals or frequent flyer programmes, which will appeal to those using the airline multiple times, and who are therefore more likely to be in the home market, particularly for network airlines. Another factor is the effectiveness of advertising campaigns, with an airline likely to obtain more benefit from advertising spend in its home country where the majority of its services are based, as opposed to other countries where it will offer only a few routes[16]. Other relevant factors might be cultural – for instance service provided, including food – regulatory, such as the US Government's 'fly America' programme[17], or passenger perceptions regarding factors such as reliability, punctuality or safety.

5.3 The significance of flag loyalty has been measured by calculating the difference between the proportion of UK resident and non-UK resident passengers travelling on UK airlines, for various individual long haul routes out of the UK. The CAA Passenger Survey provides suitable data on the nationality of passengers and the airlines used. However, flag loyalty can only be estimated for routes which are served by both UK and non-UK carriers. In addition, the survey must have produced a sufficiently large sample to estimate the split of passengers by nationality between airlines with a suitable degree of accuracy. For this reason, only 32 of the routes served at Heathrow and Gatwick were analysed. The calculation of flag loyalty excludes those passengers catching connecting flights at the UK airport as, irrespective of nationality, they will be predisposed to using a UK network airline.

5.4 A single figure is produced for each route considered[18] and then combined to obtain an estimate for the overall extent of flag loyalty. This analysis was undertaken separately for business and leisure travellers. Table 4.7 shows some examples of the calculation for business passengers.

Table 4.7 Examples of flag loyalty calculation

		UK Airline	Non-UK Airline	Total	Flag Loyalty
Abu Dhabi	UK Business	32%	68%	100%	5%
	Non-UK Business	27%	73%	100%	
Amman	UK Business	55%	45%	100%	26%
	Non-UK Business	29%	71%	100%	
Bahrain	UK Business	42%	58%	100%	2%
	Non-UK Business	40%	60%	100%	

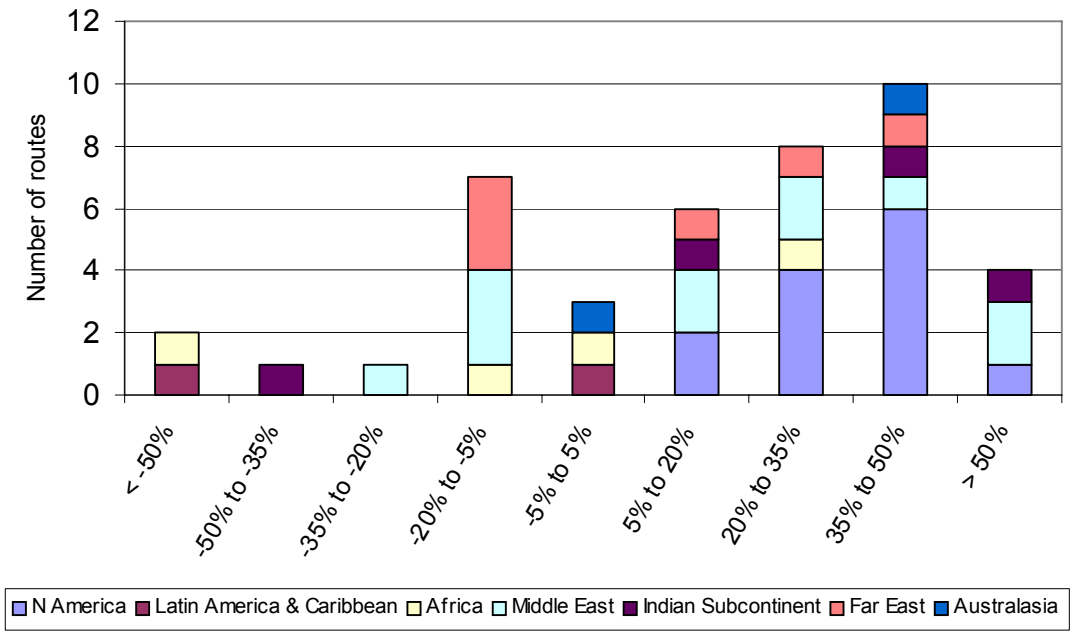
Source: CAA Passenger Survey, 2004.

15. Equivalently it could be defined as the extra attractiveness which non-UK carriers obtain from non-UK passengers over UK passengers.
16. This argument is only valid if the expected revenue per passenger from both ends of the route is not vastly different.
17. Whereby US government employees are required to travel on a US airline for international trips where possible.
18. For instance, if on a route it is observed that 40% of UK leisure passengers and 35% of non-UK leisure passengers travel with UK airlines, then measure of 'flag loyalty' on this route is calculated as 40%-35%=5%.

5.5 For business passengers, flag loyalty values ranged from a high of 59% to a low of -20%[19]. However, it is likely that these extreme values were affected more by sampling variance than by the attitudes of passengers to airlines. The median value was 27%.

5.6 Sample sizes mean that the results should be treated as being accurate only to within a fairly wide confidence interval for all but the thickest routes. However, by considering all the routes, more robust conclusions can be drawn about the nature of flag loyalty[20]. Figure 4.6 plots the results for business passengers on all the routes analysed, indicating their world region.

Figure 4.6 Results of flag loyalty calculation for business passengers on long haul routes from London airports 2005



Source: CAA Passenger Survey, 2005.

5.7 The highest bars in Figure 4.6 indicate a general value for flag loyalty of business passengers of between 20 and 50 percent. The routes to Australasia and North America tended to return the highest values for flag loyalty in 2005, whereas routes from other world regions demonstrated a broader range of values.

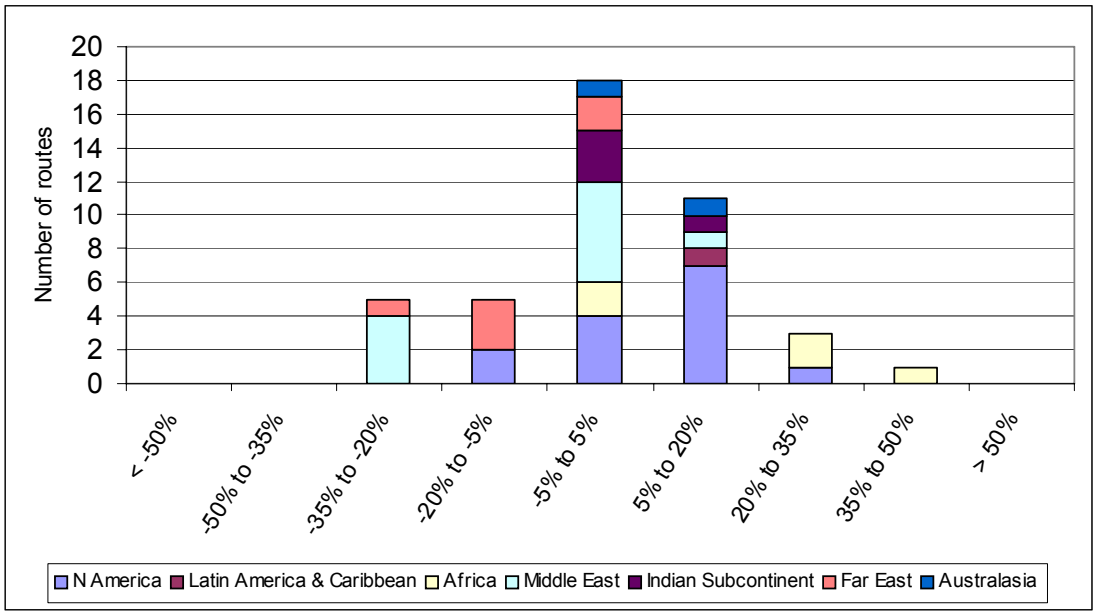
5.8 The results in this section are expressed in terms of the difference in proportions of UK and non-UK passengers on UK airlines. It would be equally appropriate (and equivalent) to consider the difference in proportions of UK and non-UK passengers on non-UK airlines[21]. It is therefore impossible to determine on this basis, for any individual route, whether flag loyalty is driven by the attractiveness of UK airlines to UK passengers or by that of non-UK airlines to their own home market[22].

19. Negative figures represent 'flag disloyalty' (i.e. UK airlines attract a greater proportion of foreign passengers than those of UK nationality).
20. Similar results have been obtained by repeating the analysis on data from the 2004 passenger survey indicating that conclusions drawn in this way are robust.
21. Since the sum of the proportion of UK passengers on UK airlines and UK passengers on non-UK airlines must add to 100%, and the same is true for non-UK passengers, then for any route, it is equivalent to say that non-UK airlines are proportionately more attractive to non-UK than UK passengers as UK airlines are proportionately more attractive to UK than non-UK passengers.
22. Equally, a negative value of flag loyalty may reflect UK airlines' effectiveness in attracting non-UK passengers or non-UK airlines effectiveness in attracting UK passengers.

5.9 A similar analysis of business passenger data on long haul routes from the 1996 Passenger Survey shows flag loyalty values in a much tighter grouping with the highest number of routes in the 5 to 20 percent category. The period between 1996 and 2005 has seen an increase in airlines' use of corporate deals and much development in their business class offering[23], although, as noted in the previous section, less than half of business travellers use the premium cabins.

5.10 The 2005 analysis for leisure passengers produced a similar set of results, although here the values tended to be much lower. Figure 4.7 shows the spread of flag loyalty values calculated for leisure passengers split by world region. Although the range of flag loyalty values is similar to those for business passengers, the peak occurs for the -5 to 5 percent category with a significant secondary peak in the 5 to 20 percent category. Again, North America and Australasia show flag loyalty levels at or above this average.

Figure 4.7 Results of flag loyalty calculation for leisure passengers on long haul routes from London airports 2005



Source: CAA Passenger Survey, 2005.

5.11 The leisure results from the 1996 survey data again show a more tightly clustered set of results, with the most frequent values in the –20% to –5% range, followed by the –5% to +5% range. Once again this increase in flag loyalty in the period between the two surveys could be a result of airlines' use of frequent flyer programmes and advertising, possibly stimulated by greater competition, which tend to have more impact in the home market and, particularly, on frequent flyers. Since business passengers tend to fly more frequently than leisure passengers, this would also explain why higher values of flag loyalty were observed for such passengers.

5.12 In conclusion, the results indicate that UK airlines' share of UK resident business traffic may be up to 50 percentage points greater than their share of non-UK resident business travellers. For leisure passengers, UK airlines' share of UK residents is typically between 0 and 20 percentage points greater than their share of non-UK resident passengers. Equivalently, UK carriers' share of, say, non-UK resident business passengers is expected to be less than their share of UK resident business passengers, or, put another way, non-UK airlines' share of non-UK resident business passengers is likely to be greater than their share of UK resident business passengers.

23. The most notable, but certainly not the only one of which is the lie-flat bed.

Chapter 5 Emerging models for long haul services

1 Introduction

1.1 This chapter considers some of the possible future changes to long haul travel to and from the UK over the next ten years. New models have recently begun to emerge, albeit only at the margins of current operations.

1.2 Liberalisation encourages innovation in airline business models. So increasing freedoms for long haul carriers to and from the UK will tend to increase the scope for competition in, and development of, the market. Some of the likely drivers of change are not in themselves new, for instance carriers taking a significant proportion of their passengers on sixth freedom services. Examples can be found amongst US, European, Far Eastern and Middle Eastern airlines. The recent increase in services by (and aircraft orders from) a number of Middle Eastern carriers, particularly using newer aircraft types, has given passengers travelling between Europe or the US and the Indian Subcontinent or the Far East an alternative to direct flights or connecting at a European hub. Other business models are also considered in this chapter, including the emergence of low cost long haul operations, and business-only services, which scheduled carriers have recently begun to provide on the UK's major long haul routes. Although new to the market, and as yet untested as a sustainable business model over time, these types of service show the potential for innovation.

1.3 The experience of deregulation in the domestic US market and in the EU brought about a number of changes, not all of which were predicted beforehand. Although long haul routes from the UK are not yet undergoing the same degree of liberalisation as these earlier examples, and are being liberalised at different rates, these markets may also alter in ways which have not yet been foreseen.

Chapter Summary

This chapter considers the emerging trends for long haul air services and finds that:

- Capitalising on the potential of sixth freedom services continues to be a focus for many long haul carriers, to build their hubs, exploit foreign markets, or use the opportunities these freedoms afford to expand. In particular, the latest generation of Middle Eastern carriers to adopt this business model has grown significantly in the last ten years, with significant orders for new aircraft. However, the effects on any given route will depend on the ability to provide convenient connection times at a hub between inbound and outbound flights.
- The advent of new types of aircraft – in particular the Airbus A380 (first deliveries in October 2007) and the Boeing 787 (2008) – promise reduced average costs per seat on long haul routes. Both models have already attracted a considerable number of orders and the resulting increased capacity and/or lower operating costs could lead to falling prices on some long haul routes or changes in the pattern of operations.
- A number of low cost, long haul airlines have begun or proposed operations from the UK. Analysis indicates that a viable low cost long haul operation is likely to need a somewhat different business model from the majority of short haul no frills operators. In particular, a high-frequency economy-only operation, one of the key attributes of short haul no frills carriers, seems unlikely to be successful on all but the thickest routes from the UK.
- The UK has also seen a number of business-only scheduled services emerging, primarily offering services between London and New York. Most are only in their first or second year of operation and between them appeared to have around 10% of the premium-class passengers on this route in 2006. In 2007, the capacity offered by business-only carriers on this route is likely to be twice as much as in 2006.

2 Sixth freedom carriers

2.1 The ability to attract connecting traffic is at the heart of any network carrier's strategy. Historically, the IATA multilateral interline framework – including uniform fares set by mutual agreement – provided the passenger with a network for travel between points which had no direct connection. As airlines have become more commercially focussed, so they have sought wherever possible to retain connecting traffic for themselves. This can be beneficial to a carrier seeking to maximise use of its hub, secure business outside a relatively small home market, or exploit wider growth opportunities.

2.2 BA, for example, aims to draw traffic from Europe, and from other points further east, to connect with its extensive network of US services at its Heathrow hub. Such extra traffic can provide the economies of scale necessary to justify additional frequency on long haul sectors which require a minimum size of aircraft. KLM and Singapore Airlines have developed their businesses beyond their home markets through sixth freedom traffic, as has the Gulf carrier Emirates, which has used these services as a way of expanding its business and, more recently, Etihad and Qatar Airways. That said, services offered by sixth freedom carriers may vary somewhat in quality, both in terms of the schedules and connecting times and the product on the ground and in the air.

2.3 The 1994 long haul study drew attention to sixth freedom competition in the UK-Far East and Australia markets. For many years BA and Qantas had faced significant competition from Far East competitors. Because Australian routes require BA and Qantas aircraft to make a refuelling stop en route, the sixth freedom carriers were particularly strongly placed to provide a competing service. Indeed, regulatory intervention to limit their ability to sell in this market and protect the third/fourth freedom carriers was once routine, but no longer applies.

2.4 The study showed[1] that on some routes, where third/fourth freedom services were infrequent or, like Australia, required an en-route stop, competition from sixth freedom carriers was strong. For example, back in 1991 only 35% of Singapore Airlines' traffic from London was actually destined for Singapore itself, with 40% destined for Australia[2]. By contrast, 44% of Singapore Airlines' traffic from London in 2005 was for Singapore itself, but the proportion travelling on to Australia was still 41%.

2.5 In other Far East markets, however, the 1994 study noted that either penetration was relatively small, for example London-Hong Kong, where 90% of traffic travelled with BA or Cathay Pacific; or sixth freedom competition was significant but highly fragmented, for example London-Bangkok and London-Singapore where sixth freedom traffic amounted to around 20–30% but no one carrier had a share greater than 5%.

2.6 The 1994 study drew attention to the potentially anti-competitive effects of IATA tariff coordination, and the possibility of the CAA relaxing pricing restrictions on sixth freedom services where reciprocal arrangements with the other government gave similar freedoms to UK carriers[3]. But for many years the official published fares on sixth freedom services were not permitted to undercut direct services, despite the obvious quality imbalance in terms of journey duration and connections. In reality, carriers were generally able to achieve the right price/quality balance by discounting

1. ibid, Table 3.10
2. This figure for Australian traffic will include passengers who stopped over in Singapore for a period of less than 72 hours.
3. ibid, page 69

fares unofficially through third parties in the consolidator market, although their inability to advertise the fares openly or in global distribution systems put them at a disadvantage.

2.7 Today, the UK is generally free of restrictions on sixth freedom pricing and carriers have become more sophisticated at marketing connecting possibilities through global distribution systems. Each carrier is now competing for sixth freedom traffic on price as well as other factors, often resulting in fierce price competition. This competition has been greatly enhanced by the Internet. The general public can now make informed choices using either a carrier's own website (which will generally show its own services and those of its commercial partners where appropriate) or on-line travel agents (such as Opodo, Expedia, Travelocity, etc.) that will compare the offerings of a wide range of airlines in terms of price and schedules.

2.8 Where a passenger is commencing a journey in the UK regions, the sixth freedom offering may be attractive as an alternative to connecting over a UK airport which in most cases will be Heathrow or Gatwick. Both will involve a change of aircraft and there may even be journey time advantages on the sixth freedom carrier. For many years KLM has exploited this with a network of services from twelve UK regional airports feeding its Amsterdam hub averaging nearly 50 flights per day in 2006. Air France (now merged with KLM) links six UK airports with its Paris hub and has increased operations at Manchester to five daily services in 2006, and Lufthansa serves Frankfurt, Munich and Hamburg from Manchester, Birmingham and Edinburgh with a total of 18 flights per day.

2.9 An interesting development has been Emirates' expansion into the UK regions from its Dubai hub. It started a Birmingham service in 2001 having gradually built up its Heathrow, Gatwick and Manchester services during the 1990s. By 2004 both Birmingham and Manchester were twice-daily, the same year that a new Glasgow service began, and later in 2007 a Newcastle service is to be launched.

2.10 Emirates has well-documented and ambitious plans for future expansion, and there are signs that Qatar Airways and Etihad would like to follow suit. Emirates was created in 1985 but its expansion, with passenger growth of around 20% per year, has mostly been over the last decade. It now has a fleet of just over 100 aircraft, with about the same number on order, and serves 88 destinations in 59 countries worldwide[4]. In 2008 it will receive the first of 47 A380s on order, the most of any airline, and its order for 42 Boeing 777s was also the largest ever for the type. Emirates envisages its fleet reaching 300 by 2020 and becoming the world's largest network carrier, exploiting its geographical location to serve emerging eastern economies, for example by carrying passengers from Asia to the US, bypassing European airports[5].

2.11 Central to many Gulf airlines' expansion strategies is hub airport development; Dubai and Doha will in due course have all-new airports while that at Abu Dhabi is undergoing major expansion. Dubai World Central International Airport is set to be the world's largest passenger and cargo hub, ten times the size of the existing Dubai airport with six parallel runways handling 120 million passengers and 12 million tonnes of cargo annually by 2030[6]. With this degree of ambition and expansion there are certain to be impacts on the UK long haul market, particularly if ownership and control restrictions are relaxed and truly global carriers begin to emerge.

4. Emirates data from www.emirates.com
5. The Observer 12 November 2006, interview with Tim Clark, Emirates' President.
6. Flight International 19 September 2006, www.flightglobal.com

2.12 However, the world regions where the largest growth in air passengers is expected to occur are to and from India and China[7]. The Middle Eastern airlines will be well situated to serve much of the traffic from these regions. Increasing the different passenger flows that can be routed through their hub airports will better enable them to control the release of seats between the markets in order to maximise the yield they can obtain. For instance, if greater yield is expected from passengers connecting London-Dubai-Mumbai than those connecting Accra-Dubai-Mumbai, then more capacity on the Dubai-Mumbai leg can be allocated to the former group than the latter.

2.13 The need to establish connections from many different distances and time zones may mean that not all flights can be timed in such a way as to be suitable for passengers from all origins. To demonstrate this, Tables 5.1 and 5.2 show the times of flight departures from London to arrivals at Dubai and the connections and connection times[8] that can be made from Dubai to Bangkok and Mumbai, respectively. The table shows that, although there were 56 flights per week from London to Dubai and 19 per week from Dubai to Bangkok and from Dubai to Mumbai, there are only nine connections per week between London and Bangkok and 12 between London and Mumbai that have connection times in Dubai of less than two and a half hours[9] (shown in bold type in the tables). This connection time represents an increase of 22% of the direct travel time between London and Bangkok and 29% of the time between London and Mumbai.

Table 5.1 Sample connecting times for Emirates sixth freedom services

Departure From London		Arrival At Dubai	Departure To Bangkok	Connection Time	
14:15	Gatwick	00:05	03:15	3:10	
17:00	Heathrow	02:55	09:00	6:55	
20:30	**Heathrow**	**06:25**		**2:25**	(a)
21:15	**Gatwick**	**07:10**	**08:50**	**1:40**	
22:30	**Heathrow**	**08:25**	**09:40**	**1:15**	Operates 2 days per week
08:30	Heathrow	18:30		8:45	
10:00	Gatwick	20:00		7:15	
14:00	Heathrow	23:55	03:15	3:20	
56 flights per week			19 flights per week 9 connections		

Source: OAG Flight Guide August 2006.
Notes: Highlighted services are those with connection times less than 2:30.
All times are local to the arrival or departure airports.

(a) Both the 20:30 and 21:15 from London connect with the 08:50 departure from Dubai so have only been counted as a single connection.

7. IATA Passenger and Freight Forecasts 2006-2010 predicts average annual passenger growth rates for China and India of 8%, compared to 5% for total international traffic.
8. The OAG Flight Guide reports the minimum international-international connection time in Dubai as increasing from 1 hour to 1 hour 15 minutes from 1 June 2006. However, for this table, the lower figure has been used.
9. Used by the European Commission in recent competition cases as the maximum connection time for indirect routes be included in the same relevant market as direct routes – see Chapter 1.

Table 5.2 Sample connecting times for Emirates sixth freedom services (continued)

Departure From London		Arrival At Dubai	Departure To Mumbai	Connection Time	
14:15	Gatwick	00:05		3:55	
17:00	**Heathrow**	**02:55**	**04:00**	**1:05**	Operates 5 days per week
20:30	Heathrow	06:25		7:05	
21:15	Gatwick	07:10		6:20	
22:30	Heathrow	08:25	13:30	5:05	
08:30	Heathrow	18:30		4:00	
10:00	**Gatwick**	**20:00**	**22:30**	**2:30**	
14:00	Heathrow	23:55	04:00	4:05	Operates 5 days per week
56 flights per week			19 flights per week 12 connections		

Source: OAG Flight Guide August 2006.
Notes: Highlighted services are those with connection times less than 2:30.
All times are local to the arrival or departure airports.

2.14 The tables show that, despite frequent services on each of the legs of the journey, there may not be many connections which avoid a long wait between flights. The impact on UK long haul services of increased capacity for sixth freedom operators will therefore depend heavily on the convenience with which the services can be scheduled at the hub airport, and the value placed on speedy connection times by passengers on the route.

3 Low cost long haul

3.1 Low cost carriers have had a large impact on economy class short haul European travel in the last ten years. The CAA produced a report in November 2006[10] on the effects of the introduction of 'no frills' business models[11], which noted that there was a 'general understanding' of what no frills carriers were, and were not (although some convergence between short haul business models was also apparent). In this chapter, it will be suggested that the same loose definition would probably not be appropriate for long haul business models.

3.2 Until recently there has been little attempt to spread the no frills business model to the major long haul routes from the UK. It has been argued that long haul routes do not have the necessary potential for cost savings that would give rise to the sort of fare differential with full service carriers that low cost airlines were able to generate on short haul routes. Operations on many of the UK's long haul routes have in any case been constrained by ASAs, which may have dissuaded or prevented new entrants, although Zoom UK's new service from Gatwick is being operated under the old UK-US Bermuda II agreement. However, since the announcement of an EU-US Open Skies agreement, a new transatlantic service from the UK, described as low cost, has been trailed by Ryanair.

3.3 Given that the cost of entry on a long haul route is higher than short haul (since more than one aircraft may be required for a daily service and crew must be rested at the far end of the route) and ASAs restrict entry on some routes, unlike intra-EU markets, it is perhaps not surprising that there have been only tentative forays into this market to date. Nevertheless, with greater liberalisation in the future, there may be scope for developing this model. A parallel can be drawn with the years preceding the emergence of easyJet and Ryanair. There were exploratory ventures by relatively small carriers, but the main breakthrough came with the very aggressive focus on lowering costs while simultaneously increasing market share with low fares, using the resulting traffic volume to generate ancillary revenues.

Current UK low cost long haul services

3.4 Charter carriers, the business models of which require low costs and do not rely on connecting traffic or yields from premium cabins, may already be considered to be operating low cost services on long haul routes. However, charter services, even those able to provide seat-only products, are primarily driven by the needs of the tour operators that supply the main part of their business. They would therefore be unlikely to exploit routes where there was not already a large inclusive tour demand. Also, long haul charter operators often have different, and sometimes more restrictive, regulatory conditions placed upon them than scheduled carriers[12].

3.5 However, some charter operators do also provide scheduled long haul services and these could be considered to be the equivalent of low cost operations. Astraeus is predominantly a charter airline which offers scheduled services between Gatwick and Manchester airports and destinations in Africa, Canada and the Near East[13]. For each of these services, it has partnered with a tour operator specialising in the destination and has only one or two departures per week. On the majority of them, a two-cabin configuration is used.

10. CAP 770, No Frills Carriers: Revolution or Evolution, UK Civil Aviation Authority (2006)
11. The study used the phrase 'no frills' as opposed to 'low cost' to avoid confusion with charter carriers which have always considered themselves to be low cost operations.
12. As discussed in Chapter 3, paragraphs 4.3-4.5.
13. These services are operated in partnership with JetAir and are in support of the energy exploration and logistics industries.

3.6 Zoom Airlines is a Canadian operator of charter and scheduled services between Canada and both the UK and France. It partners with tour companies on these routes, but the company website claims that the majority of flights are sold direct to the public and, unlike Astraeus, tickets can be purchased through the website. Neither Astraeus nor Zoom sell their seats through global distribution systems. Zoom's aircraft are configured only for economy and premium economy seating and provide daily services from Gatwick and Manchester airports, although many of these flights also stop at other UK or Canadian airports. Recently, Zoom announced the formation of Zoom UK Ltd, and in Summer 2007 commenced twice weekly flights from Gatwick to Bermuda and daily flights to New York under the existing Bermuda II limitations.

3.7 Flyglobespan, a wholly owned subsidiary of the Globespan Group, operates scheduled services from a number of UK airports to Canada, Orlando and various short haul holiday destinations. It also serves Boston from Glasgow, New York from Liverpool and Capetown and Johannesburg from Manchester. FlyGlobespan describes itself as a 'low fares airline' on its website and offers package holidays through the Globespan Group in addition to seat-only flights. The airline's long haul flights are configured with economy, premium economy and business class cabins.

3.8 In October 2006, Oasis Hong Kong began a daily service between Gatwick and Hong Kong. It uses a Boeing 747-400 configured with business and economy cabins, and advertises four basic types of fare for each class, offering different levels of flexibility or penalties for making changes. For example, it is possible to purchase a one-way economy 'super saver' fare for less than £200 inclusive of taxes, but any changes to the ticket will attract a fee of £70. Return flights are booked as two separately priced singles and therefore no minimum stay conditions apply.

3.9 As can be seen from the operations described above, no standard operating model for a low cost long haul service from the UK has yet emerged. There are a number of attributes common to each, namely the ability to reduce operational costs, to generate maximum yield from passengers whilst maintaining a high load factor on a reasonably large aircraft, and to increase the revenue from ancillary sales. However, these attributes alone cannot be used to define low cost long haul operations, since they could equally be said to apply to long haul network carriers, such as Virgin or BA. None of the low cost long haul carriers described here qualify as a no frills carrier in the sense used in paragraph 3.1, since they all offer more than one class of travel. The following section will consider how suitable this short haul no frills model might be for long haul routes.

Short haul no frills model

3.10 A short haul no frills carrier is defined as one which offers only a single cabin class, provides few extras to its passengers for free (although it may offer them for sale) and whose flights are not listed on global distribution systems. It provides a scheduled, seat-only service and aims to achieve high load factors through management of the availability of a range of fares.

3.11 For short haul no frills operations, cost savings have come through reduced airport charges (by serving secondary airports where the high passenger numbers provided by the airline can be used to negotiate favourable deals), lower cost passenger facilities (by not providing baggage transfer, free meals, drinks and the like), better utilisation (through faster turnaround times), savings on ticketing and sales (through only selling direct via call centres or websites and making standard tickets non-flexible and non-refundable[14], maintenance (by using new aircraft and standardising fleets to one or two types) and crew costs (through lower wages and lowering the ratio of

14. Some short haul no frills airlines allow flexibility, but charge extra for it.

crew to passengers). The larger no frills airlines have also benefited from lower ownership costs by negotiating discounts on orders for large numbers of aircraft, initially at a time when aircraft sales were otherwise depressed.

3.12 Some indication of the significance of these cost savings can be gained from the CAA's UK airline financial data. The distribution of costs per seat for full service and no frills short haul airlines can be estimated from this data, and Table 5.3 shows the areas where a short haul no frills airline can expect to save most costs compared to a full service operation. It indicates that around 45% of the costs of a short haul full service carrier have high potential for savings by a no frills airline and around 40% have medium potential.

Table 5.3 Cost structure per seat of short haul full service airline and potential for no frills savings

	Approximate full service short haul airline cost per seat	Scope for short haul no frills cost savings
Ownership Costs	15%	Medium
Crew Costs	10%	Medium
Fuel and Oil	15%	Low
Maintenance and Overhaul	10%	Medium
Passenger Costs	5%	High
Distribution Costs	10%	High
User Charges	30%	High
Other Costs	5%	Medium
Total Operating Cost per seat	100%	

Source: CAA Airline financial data 2005-06.
Notes: 'Distribution Costs' include sales, reservations, advertising and commission costs.
'User Charges' include airport and air navigation charges.

3.13 The yield management systems for no frills carriers reward passengers who book early or on relatively empty flights by offering them lower fares whilst penalising those who have fewer alternatives and must book later or on nearly full operations. No frills airlines often increase their average yields by not offering refunds for unused tickets or lower fares for children. When sporting events or the like mean that certain routes on certain days are likely to be very popular, many lower fares are withdrawn altogether.

3.14 Although the lower fares offered by short haul no frills airlines will have stimulated demand to some extent, their main impact was competition for traffic previously carried on full service airlines. Unlike charter operators, the no frills carriers were committed to a published timetable, so had to be confident that demand on the routes they operated would be strong enough to exceed their break-even load factors. With no business cabin, frequent flyer scheme or through ticketing arrangements, the core market for no frills airlines was the point-to-point leisure or cost-conscious business traveller.

Long haul no frills model

3.15 A long haul no frills carrier operating to the same business model as short haul would offer only a single cabin class, make charges for frills such as drinks, food or entertainment and rely on internet sales rather than being listed on global distribution systems. It would operate a scheduled service with high load factors, seek to use secondary airports and employ the same sort of yield management system to maximise its income. The question is whether, and to what extent, a long haul no frills carrier would be able to achieve cost savings compared to a full service rival.

3.16 Not all secondary airports have runways capable of handling long haul aircraft, and, although those that do are likely to offer much lower charges than primary airports, only those with sufficient demand from their catchment areas will be able to sustain long haul services. In addition, the longer sector length for long haul travel means that navigation and en route charges, which are the same for all airlines, are likely to form a larger part of overall user charges than is the case for short haul routes.

3.17 Long haul passengers on full service carriers generate more costs on board the aircraft, since every flight is likely to include at least one full meal, and the provision of drinks and entertainment are more important to the passenger due to the longer duration of the journey. A no frills airline could make cost savings from reducing such frills (and possibly extra revenues by offering them for sale), but it is debatable whether a cheap long haul fare without basic refreshments would be as attractive to long haul passengers as it is to short haul. So some provision may have to be made.

3.18 In a similar way to its short haul equivalent, a long haul no frills carrier would probably incur lower crew salaries than a full service carrier and be able to have fewer cabin staff per passenger, on account of having no premium class cabins. Unlike short haul routes, pilots and cabin crew cannot perform a long haul return trip within their maximum shift time, and so incur accommodation and positioning costs. Although a no frills carrier could not avoid these costs, it could probably reduce the average amount spent on them.

3.19 As discussed in Chapter 4, long haul carriers typically achieve much higher aircraft utilisation than short haul carriers, particularly those with larger networks. Therefore, although long haul no frills carriers would also benefit from this effect, they would be able to make few cost savings compared to their long haul full service rivals and, if operating a small number of routes, might even find their costs higher than a full service carrier that could use its network to achieve higher aircraft utilisation[15]. Also long haul no frills carriers would not have the advantages of short haul no frills carriers which bought or ordered their aircraft at a time when demand for aeroplanes was low, hence securing equipment and future options at favourable prices. Currently, demand for long haul aircraft is high, with significant order backlogs for certain aircraft types[16].

3.20 Therefore, in many of the cost categories listed in Table 5.3, a long haul no frills carrier has less scope to make savings than a short haul carrier. This would be mitigated to some extent by the increase in seating density that is available to a no frills long haul carrier, thereby driving down the overall costs per seat. For example, Virgin's Boeing 747-400s operated with 418 seats in 2005[17], whereas the maximum seating capacity for the aircraft is over 500[18]. Table 5.4 shows the composition of the cost per seat of a full service long haul carrier and the opportunities that a no frills service would have to reduce these costs.

15. See Figure 3.11 for an illustration of how long haul networks are used to increase aircraft utilisation.
16. Although older, long haul aircraft are available for sale from other airlines, using these would likely increase maintenance costs and, if reliability became an issue, the achievable level of utilisation.
17. Source: CAA Airline Statistics.
18. Source: Boeing website.

Table 5.4 Cost structure per seat of long haul full service airline and potential for no frills savings

	Approximate full service long haul airline cost per seat	Scope for long haul no frills cost savings
Ownership Costs	15%	Low
Crew Costs	10%	Medium
Fuel and Oil	25%	Low
Maintenance and Overhaul	10%	Medium
Passenger Costs	5%	High
Distribution Costs	10%	High
User Charges	15%	Medium
Other Costs	10%	Medium
Total Operating Cost per seat	100%	

Source: CAA Airline financial data 2005-06.
Notes: 'Distribution Costs' include sales, reservations, advertising and commission costs.
'User Charges' include airport and air navigation charges.

3.21 The table suggests that only 15% of a long haul full service airline's costs have a high potential for savings by a no frills airline (compared to 45% for short haul) and 45% have a medium potential (compared to 40%). This suggests that, although the no frills model would provide cost savings for long haul routes, they would not be as pronounced as for short haul.

3.22 Short haul no frills yield management techniques could equally be applied to long haul routes. However, adopting an economy-only business model would mean no frills carriers forgoing the higher fares associated with premium cabins with, potentially, a substantial impact on average yields for the operation. For full service long haul carriers, premium traffic contributes a significant proportion of revenue, much more so than for short haul carriers, and on some routes, frequency of operation may be dictated by the requirements of the premium passengers or those paying extra for flexible tickets. Many restricted economy fares on full service carriers are therefore already priced at low levels in relation to average costs, although this depends on the time of year, as many routes are highly seasonal and economy fare levels vary greatly between peak and off-peak flights.

3.23 Another consideration is the number of routes needed to provide the necessary traffic volumes to sustain a low cost long haul operation. Feed traffic is unlikely to form a large percentage of demand, since the no frills model does not provide for through-fares on a single ticket and baggage transfer[19], so the service would have to rely almost entirely on end-to-end traffic. As an indication of the number of thicker routes on which a no frills operation might be more successful, the 2005 CAA Passenger Survey indicates that there were only four UK long haul routes[20] with more than half a million non-connecting leisure passengers (compared to 20 such short haul routes in 1996) and a further seven with more than a quarter of a million (compared to 32 short haul in 1996).

19. For short haul services at Stansted, a high degree of 'self-interlining' has been observed, but the longer required check-in times and the likely higher overall cost of the trip may constrain this for long haul.
20. London-New York, London-Orlando, Manchester–Orlando and London-Toronto.

Conclusion

3.24 This analysis suggests that a no frills long haul operation based on an economy only product and with no formal access to feed traffic is unlikely to be able to achieve the same cost advantage over full service carriers as its short haul equivalent. Further, its yields would be diluted by not having access to the higher fares available for premium classes and it would potentially only be viable on a handful of routes from the UK under current circumstances. This is not to say that the individual nature of a particular route would not lend itself to such a service, but indicates that no frills long haul services, if and when they establish themselves, will likely follow a different business model to that already established in short haul markets. Indeed, of the operators currently running or proposing low cost long haul services, all have a premium or at least premium economy offering.

4 New aircraft types

4.1 The last ten years have seen a large increase in orders for all types of aircraft, but for long haul there has also been the imminent introduction of two new products: the Airbus A380 and the Boeing 787. Both aircraft offer a new dimension to long haul services. The A380 will be the world's largest passenger jet, accommodating 555 seats in a standard three-class configuration, although some airlines have proposed using the extra space to introduce facilities such as bars and casinos. By contrast, the twin-engined 787 has three variants with typical configurations of 217 to 289 passengers. So, although it is a twin-aisle widebody aircraft, it has less capacity than Boeing's 747 and 777. The long-range variant can cope with sectors of up to 16,000km and, because it is constructed from composite materials rather than aluminium and has new technology engines, Boeing claims fuel cost reductions of 20%, thereby making viable more direct long haul services on thinner routes. The A380 by contrast, is intended to maximise passenger capacity on routes at increasingly runway-constrained airports.

4.2 Following a series of well-publicised delays, the first A380 deliveries will occur in October 2007. The first 787 deliveries are due in 2008. Although Boeing initially shunned the high-capacity A380 market and is concentrating on a 'hub bypass' market with the 787, it found it necessary to update the Boeing 747 as the -8, a 'stretched' version of the original, with Lufthansa as launch customer for the passenger variant, promising a 10% improvement in per seat costs over the 747-400. Similarly, with advance orders for the 787 running very high indeed for an aircraft yet to fly (44 customers have placed orders for 544 aircraft[21], Airbus has been forced to revamp much more dramatically its A350 response as the A350XWB which is some five years behind the 787.

4.3 Each of these aircraft will have considerable impact on the market, offering a step change in seat costs. These new aircraft types have attracted a large number of orders, many from the fast-growing Middle Eastern airlines. The likely effect of their introduction in the market will be to increase capacity on frequency-constrained routes (A380), to improve the viability of long thin routes (787/A350), and to allow greater frequency on denser routes (787/A350). Prices would presumably be driven down as costs of supply are reduced and capacity increases in advance of demand.

21. Source: Boeing website.

5 Business-only services

5.1 Business-only services can be defined as those with a single cabin class, but unlike no frills carriers, their offering includes a seat pitch and service comparable to the premium cabins of traditional full-service operators. Concorde is an example of an early, scheduled long haul business-only service, based on the 'frill' of supersonic travel. More recent scheduled business-only services have used subsonic long haul aircraft, but with less than a quarter of the seats in a standard three cabin configuration. On-demand charter carriers (air taxis) and operators of fractional ownership schemes also provide long haul services, predominantly to the business market and this has been another area of recent growth.

Scheduled services

5.2 Three scheduled, business-only carriers began operating between London's secondary airports and the US in the last couple of years[22]. Each carrier initially served one of the New York airports, but Washington and Las Vegas routes have also been opened. As yet, no services have been operated from the UK to points outside the United States, but some are planned[23]. A number of services have also commenced from continental Europe. In May 2006, Eurofly began a business-only service between Milan and New York, whilst in January 2007 L'Avion launched a similar service between Paris (Orly) and New York (Newark) airport. Lufthansa, codesharing with United, offer business-only services between the Germany and the US, operating between Munich and Dusseldorf and New York (Newark) and Chicago, and in October 2007, KLM introduced a business class only service between Amsterdam and Houston using a Boeing 737-700.

5.3 A US carrier, Eos airlines, began operating a daily service between Stansted and New York (JFK) in October 2005, using a Boeing 757-200 equipped with only 48 seats. With an offering that included cashmere blankets and gourmet catering, this product was intended to compete with the first class transatlantic offering of the network carriers. Non-promotional[24], flexible return fares were set at around half the published fare for a first class return on BA from Heathrow. Eos increased its frequency to double daily in September 2006 and added a third flight for three days of the week in April 2007.

5.4 A month after Eos' first flight between Stansted and New York, another US carrier, Maxjet, opened a business-class only service on the same route, using a Boeing 767-200ER fitted with 102 seats. Maxjet advertises its product as competing with the business or premium economy classes of network airlines. Non-promotional, flexible return fares were priced significantly lower than the equivalent published BA club class fare from Heathrow (of around £4,500). Maxjet expanded its operations in April 2006 with a service from Stansted to Washington and began a bi-weekly service from Stansted to Las Vegas in November 2006, which is due to be expanded to four flights per week as of September 2007. The Washington service was suspended between February and May 2007, in order to allow it to focus on the New York and Las Vegas routes. Maxjet have announced that they will begin a London to Los Angeles service in August 2007.

22. The use of secondary airports has been enforced by the conditions of the Bermuda II ASA. With the signing of the EU-US Open Skies agreement, some of these services may relocate to London's primary airports.
23. Siverjet in a press release of 4 June 2007 state that their new aircraft will be capable of operating to "Delhi, Johannesburg, Mauritius, Shanghai".
24. Fares available year-round, and therefore excluding any short-term offers.

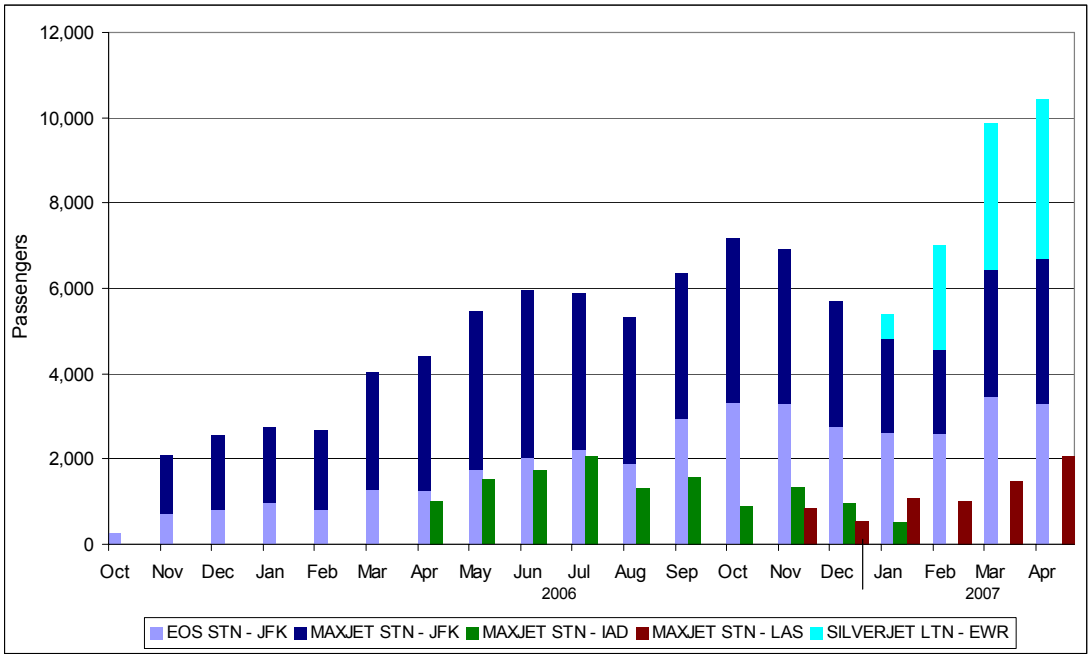
5.5 In January 2007, a UK operator, Silverjet, launched a business-only service between Luton and New York (Newark) using a Boeing 767-200ER fitted with 100 seats. Flexible return flights were priced at around £1,500 and, like Maxjet, are aimed at the traveller who would be buying business or premium economy tickets on the network carriers. It has announced an increased frequency, to a double-daily service effective from September 2007. At its UK base in Luton, Silverjet has secured the use of its own terminal, allowing its passengers access to dedicated check-in and security services.

5.6 In May and June 2007 respectively, BA and Virgin both announced that they would use the provisions of the EU-US Open Skies agreement to operate services from Continental Europe to the US, and that these services would consist of all or mostly premium class seats. Both companies benefit from a strong brand in the US for transatlantic travel, particularly for their premium product, although neither has yet suggested that they will extend the concept of business-only travel to their London routes.

5.7 Although all business-only scheduled carriers currently operating from London have reported healthy passenger numbers on their services, to be viable in the long term, they must secure a sufficient combination of yield and load factor to generate a profit. There is relatively little evidence at present of their profitability, but more will become available through annual reports, or regulatory submissions to the US or UK aviation authorities. In its latest submission to the US DOT, Eos reports losses of nearly $36m for the first six months of 2006, consisting of revenues of $10.5m, operational expenses of $15.2m and administration expenses of $28.9m. In the prospectus for its flotation on AIM, Maxjet reported a net loss of nearly £40m in the year to December 2006. However, it is not unusual for businesses to make losses when establishing themselves in a market, and it will be the carriers' long term profitability that decides what sort of future there is for this business model.

5.8 Figure 5.1 shows the growth in passenger numbers to date for those business-only services from the UK which have already commenced operations.

Figure 5.1 Passenger carryings of business-only operators serving London



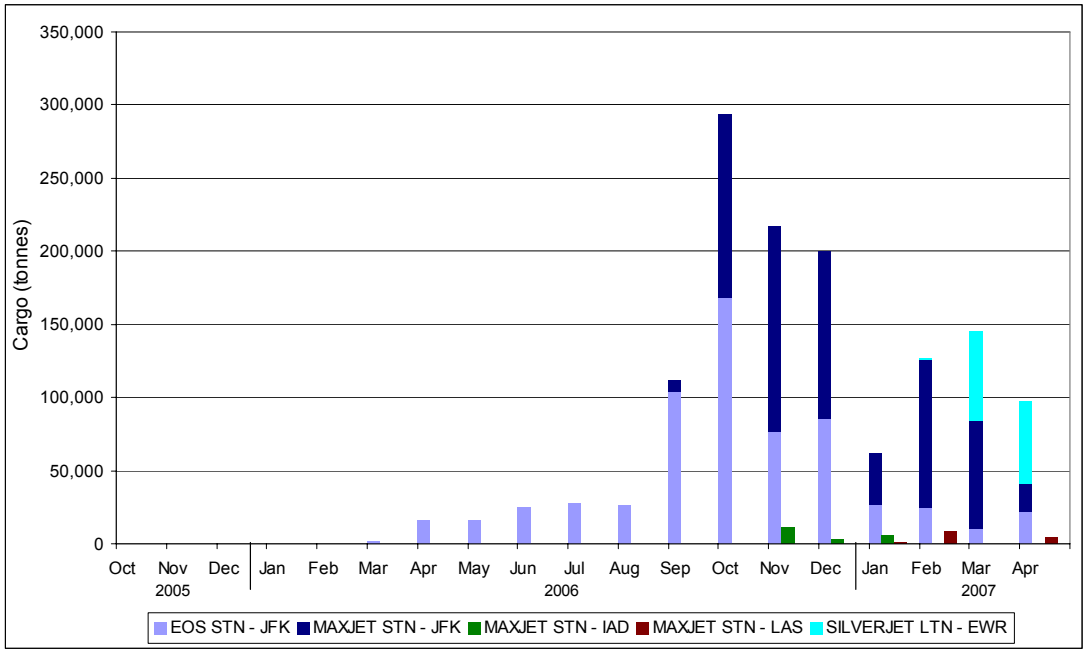
Source: *CAA Airport Statistics.*
Note: *TN=Stansted, LTN=Luton, JFK=New York(JFK), EWR=New York(Newark), IAD=Washington, LAS=Las Vegas.*

5.9 Although the traffic reported here is not significant compared to the 3.8 million passengers who travelled on London-New York services in 2006, in revenue terms they may have greater importance. The 2005 CAA Passenger Survey suggests that full service airlines carried around half a million premium-class passengers[25] between London and New York, indicating that the business-only carriers, with a total of 60,000 passengers between them on the route in 2006, served over 10% of this group. In 2007, the capacity offered by the business-only carriers on the London-New York routes is likely to be 50% higher than in 2006.

5.10 These comparative passenger numbers seem to suggest that the business-only services have made a reasonably successful initial entry onto the London-New York route. However, they do not reveal whether the yields that the airlines have managed to generate are sufficient to sustain the operation in the long term. Although the business-only carriers appear to be pricing their fully flexible fares well below the level of their network competitors, this does not take into account the discounts available to corporate clients of the larger carriers.

5.11 There is evidence that the business-only airlines are supplementing their passenger revenues by carrying bellyhold cargo. Figure 5.2 shows the volume of cargo carried on the different routes since their inception. However, as a proportion of the total bellyhold cargo carried between London and New York – 137 million tonnes in 2006 and 35 million tonnes in the last quarter of the year – the business-only carriers account for less than 2%.

Figure 5.2 Cargo carryings of business-only operators serving London



Source: CAA Airport Statistics.
Note: STN=Stansted, LTN=Luton, JFK=New York(JFK), EWR=New York(Newark), IAD=Washington, LAS=Las Vegas.

5.12 With an Open Skies agreement between the EU and US due to come into force in March 2008, the business-only carriers will face new challenges and opportunities. Increased competition, particularly between London and New York, may see a fall in premium class fares offered by the network carriers, which would put extra pressure

25. This includes passengers in the First and Business cabins, but not those in Premium Economy.

on what may already be slim margins for the business-only carriers. However, the relaxation of rules governing which carriers are allowed to serve the US from Heathrow may present them with the chance to transfer their services away from London's secondary airports. Although this would give them access to more transfer passengers and may be more attractive to Central and West London-based passengers, obtaining take off and landing slots at Heathrow could be costly[26] and would be likely to introduce more delays to their services.

Charter services and fractional ownership

5.13 Used predominantly by business travellers, an alternative to purchasing a seat on a scheduled flight is to hire or own a share in an aircraft. Often smaller aircraft than traditional scheduled airliners, the business jets used for these purposes typically have fewer than 20 seats but offer privacy, comfort and convenience, including the ability to fly from a local airport to a local airport at times suited to the customer. The attraction of using business jets has been increased by heightened security requirements for scheduled flights, and airport congestion at many of the major long haul airports.

5.14 Carriers which offer small aircraft for charter (also called air taxis) have been in existence since the end of the Second World War, and these as the range of small jets has increased, their use for long haul travel has become more common. More recently, innovative schemes have emerged, such as fractional ownership, where a number of 'owners' hold a share in one or more aircraft in a wider programme. Each owner is entitled to access to a fully crewed aircraft for up to a certain number of hours per year, and at reasonably short notice. The idea is that with a sufficient number of aircraft in the programme, conflicting demands for availability from different owners are minimised without the cost of owning and maintaining an aircraft outright. The scheme can operate equally well for longer-haul flights as well as shorter trips within Europe.

5.15 Another initiative came from Lufthansa, which launched its Private Jet scheme in 2005 in conjunction with fractional ownership operator NetJets. This is primarily intended to connect European airports with Lufthansa's long haul flights operating from its Frankfurt, Munich and Zurich hubs for First and Business passengers.

5.16 There is little information readily available about the increased use of business jets for long haul travel from the UK, although there has certainly been a large increase in all operations in this sector[27]. The larger aircraft types have operational ranges that can easily serve all but the furthest long haul destinations. The number of UK and foreign registered business jets operating in the UK has grown from 150 in 1996 to over 300 in 2005[28]. In its review of General Aviation, the CAA noted that movements at Farnborough Airport, which is exclusively dedicated to business aviation, have been growing at the rate of 10% per annum, which is higher than the average for both business aviation and commercial passenger transport.

26. Although the slot allocation rules would give them some priority as new entrants this is likely to be of little practical help as all favourable slots for transatlantic services are already in use by incumbents at Heathrow and the UK slot coordinator, ACL, notes that no new landing slots have been created between 06:00 and 12:59 since 1998. (ACL (2007) Briefing Note: EU-US Open Skies and Access to Heathrow Airport).
27. See for example "Getting to the Point: Business Aviation in Europe", Eurocontrol, May 2006.
28. Figures from JETNET/Avdata as reported on www.avbuyer.com

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Annex A Freedoms of the Air

First Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to fly across its territory without landing (also known as a ***First Freedom Right***).

Second Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to land in its territory for non-traffic purposes (also known as a ***Second Freedom Right***).

Third Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier (also known as a ***Third Freedom Right***).

Fourth Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State to take on, in the territory of the first State, traffic destined for the home State of the carrier (also known as a ***Fourth Freedom Right***).

Fifth Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined for a third State (also known as a ***Fifth Freedom Right***).

ICAO characterizes all "freedoms" beyond the Fifth as "so-called" because only the first five "freedoms" have been officially recognized as such by international treaty.

Sixth Freedom of the Air – the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States (also known as a ***Sixth Freedom Right***). The so-called Sixth Freedom of the Air, unlike the first five freedoms, is not incorporated as such into any widely recognized air services agreements such as the "Five Freedoms Agreement".

Seventh Freedom of the Air – the right or privilege, in respect of scheduled international air services, granted by one State to another State, of transporting traffic between the territory of the granting State and any third State, with no requirement to include on such operation any point in the territory of the recipient State, i.e. the service need not connect to or be an extension of any service to/from the home State of the carrier.

Eighth Freedom of the Air – the right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or (in connection with the so-called Seventh Freedom of the Air) outside the territory of the granting State (also known as an ***Eighth Freedom Right*** or "**consecutive cabotage**").

Ninth Freedom of the Air – the right or privilege of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State (also known as a ***Ninth Freedom Right*** or "***stand alone" cabotage***).

Source: *ICAO Manual on the Regulation of International Air Transport* (Doc 9626, Part 4)

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Annex B Published BA economy fares for Johannesburg case study

BA's London-Johannesburg lowest ex-UK economy class fare and World Offer, 1995-1998

Fare Type	GBP	Sale from	Sale to
LLSX2M8	625	22/11/1994	15/10/1995
LJSX2M8	685	22/11/1994	15/10/1995
LKSX2M8	790	22/11/1994	15/10/1995
LHSX2M8	940	22/11/1994	15/10/1995
VVO	699	11/08/1995	30/08/1995
LLSX2M8	657	16/10/1995	31/10/1995
LJSX2M8	720	16/10/1995	31/10/1995
LKSX2M8	830	16/10/1995	31/10/1995
LHSX2M8	987	16/10/1995	31/10/1995
LLSX2M8	657	01/11/1995	⇢⇢⇢
LJSX2M8	720	01/11/1995	⇢⇢⇢
LKSX2M8	830	01/11/1995	⇢⇢⇢
LHSX2M8	987	01/11/1995	⇢⇢⇢

Fare Type	GBP	Sale from	Sale to
LLSX2M8	657	⇢⇢⇢	17/12/1996
LJSX2M8	720	⇢⇢⇢	17/12/1996
LKSX2M8	830	⇢⇢⇢	17/12/1996
LHSX2M8	987	⇢⇢⇢	17/12/1996
VVO	549	08/03/1996	03/04/1996
VVO	599	04/04/1996	01/05/1996
VXVO1	399	18/07/1996	07/08/1996
VVO	399	21/08/1996	25/09/1996
VVO	699	07/11/1996	27/11/1996
LLSX2M8	690	18/12/1996	⇢⇢⇢
LJSX2M8	756	18/12/1996	⇢⇢⇢
LKSX2M8	872	18/12/1996	⇢⇢⇢
LHSX2M8	1036	18/12/1996	⇢⇢⇢
VVO	499	19/12/1996	⇢⇢⇢

Fare Type	GBP	Sale from	Sale to
LLSX2M8	690	⇢⇢⇢	12/08/1997
LJSX2M8	756	⇢⇢⇢	12/08/1997
LKSX2M8	872	⇢⇢⇢	12/08/1997
LHSX2M8	1036	⇢⇢⇢	12/08/1997
VVO	499	⇢⇢⇢	29/01/1997
VVO	459	03/01/1997	29/01/1997
VVO	499	31/01/1997	26/02/1997
VVO1	455	11/03/1997	20/03/1997
VXSS	455	22/03/1997	11/04/1997
VWSS	475	22/03/1997	11/04/1997
VVO	398	11/04/1997	15/05/1997
VVO	393	17/05/1997	14/06/1997
VVO	393	17/06/1997	14/08/1997
VVO56-58	449	12/08/1997	30/11/1997
LLSX2M8	559	13/08/1997	⇢⇢⇢
LJSX2M8	675	13/08/1997	⇢⇢⇢
LKSX2M8	699	13/08/1997	⇢⇢⇢
LHSX2M8	899	13/08/1997	⇢⇢⇢
VVO62	471	31/12/1997	⇢⇢⇢

Fare Type	GBP	Sale from	Sale to
LLSX2M8	559	⇢⇢⇢	09/05/1998
LJSX2M8	675	⇢⇢⇢	09/05/1998
LKSX2M8	699	⇢⇢⇢	09/05/1998
LHSX2M8	899	⇢⇢⇢	09/05/1998
VVO62	471	⇢⇢⇢	08/01/1998
VVO62/63	371	09/01/1998	18/02/1998
VVO66	449	16/04/1998	13/05/1998
VLAP1MUK	449	11/05/1998	22/05/1998
VFAP1MUK	530	11/05/1998	22/05/1998
VJAP1MUK	560	11/05/1998	22/05/1998
VHAP1MUK	590	11/05/1998	22/05/1998
VQAP1MUK	690	11/05/1998	21/05/1998
BLPX6M	833	23/05/1998	27/05/1998
BJPX6M	898	23/05/1998	27/05/1998
BKPX6M	1006	23/05/1998	27/05/1998
BHPX6M	1179	23/05/1998	27/05/1998
VLAP1MUK	449	27/05/1998	15/02/1999
VFAP1MUK	530	27/05/1998	15/02/1999
VJAP1MUK	560	27/05/1998	15/02/1999
VHAP1MUK	590	27/05/1998	15/02/1999
VQAP1MUK	814	27/05/1998	09/11/1998
VVO69	471	16/07/1998	05/08/1998
VCHEAP1	273	08/08/1998	10/08/1998
VVO71/72	339	03/09/1998	21/10/1998
VVO74	449	19/11/1998	16/12/1998

Source: Airline Tariff Publishing Company database.

BA's London-Lagos lowest ex-UK economy class fare and World Offer, 1995-1998

Fare Type	GBP	Sale from	Sale to
KHPX25	1062	22/11/1994	04/04/1995
KLPX25	948	22/11/1994	04/04/1995
KHPX1M6	1094	06/04/1995	⇢ ⇢ ⇢
KLPX1M6	976	07/04/1995	⇢ ⇢ ⇢

Fare Type	GBP	Sale from	Sale to
KHPX1M6	1094	⇢ ⇢ ⇢	17/12/1996
KLPX1M6	976	⇢ ⇢ ⇢	17/12/1996
VVO	449	07/11/1996	27/11/1996
KHPX1M6	1149	18/12/1996	⇢ ⇢ ⇢
KLPX1M6	1025	18/12/1996	⇢ ⇢ ⇢

Fare Type	GBP	Sale from	Sale to
KHPX1M6	1149	⇢ ⇢ ⇢	09/05/1998
KLPX1M6	1025	⇢ ⇢ ⇢	09/05/1998
VVO	399	31/01/1997	26/02/1997
LHSX3M1	699	21/02/1997	24/02/1997
LKSX3M1	599	21/02/1997	24/02/1997
LLSX3M1	499	21/02/1997	24/02/1997
LHSX3M1	699	25/02/1997	⇢ ⇢ ⇢
LKSX3M1	599	25/02/1997	⇢ ⇢ ⇢
LLSX3M1	499	25/02/1997	⇢ ⇢ ⇢

Fare Type	GBP	Sale from	Sale to
LHSX3M1	699	⇢ ⇢ ⇢	09/05/1998
LKSX3M1	599	⇢ ⇢ ⇢	09/05/1998
LLSX3M1	499	⇢ ⇢ ⇢	09/05/1998
VFAP1MUK	649	10/05/1998	22/05/1998
VHAP1MUK	679	10/05/1998	22/05/1998
VJAP1MUK	659	10/05/1998	22/05/1998
VLAP1MUK	587	10/05/1998	22/05/1998
VQAP1MUK	699	10/05/1998	22/05/1998
KHPX2M	1149	23/05/1998	27/05/1998
KLPX2M	1025	23/05/1998	27/05/1998
VFAP1MUK	649	27/05/1998	07/10/1998
VHAP1MUK	679	27/05/1998	07/10/1998
VJAP1MUK	659	27/05/1998	07/10/1998
VLAP1MUK	587	27/05/1998	07/10/1998
VQAP1MUK	699	27/05/1998	07/10/1998
VFAP1MUK	649	08/10/1998	⇢ ⇢ ⇢
VHAP1MUK	679	08/10/1998	⇢ ⇢ ⇢
VJAP1MUK	659	08/10/1998	⇢ ⇢ ⇢
VLAP1MUK	587	08/10/1998	⇢ ⇢ ⇢
VQAP1MUK	699	08/10/1998	⇢ ⇢ ⇢

BA's London-Mumbai lowest ex-UK economy class fare and World Offer, 1995-1998

Fare Type	GBP	Sale from	Sale to
KHPX4M12	770	22/11/1994	17/05/1995
KLPX4M12	700	22/11/1994	17/05/1995
KHPX4M12	770	26/05/1995	09/02/1996
KLPX4M12	700	26/05/1995	09/02/1996

Fare Type	GBP	Sale from	Sale to
KHPX4M12	816	10/02/1996	18/12/1996
KKPX4M12	779	10/02/1996	18/12/1996
KLPX4M12	742	10/02/1996	18/12/1996
KHPX4M12	900	19/12/1996	31/12/1996
KKPX4M12	859	19/12/1996	31/12/1996
KLPX4M12	818	19/12/1996	31/12/1996
VWVO	499	19/12/1996	08/01/1997
VXVO	489	19/12/1996	08/01/1997

Fare Type	GBP	Sale from	Sale to
KHPX4M12	857	01/01/1997	03/01/1997
KKPX4M12	818	01/01/1997	03/01/1997
KLPX4M12	779	01/01/1997	03/01/1997
KHPX4M12	900	04/01/1997	09/11/1998
KKPX4M12	859	04/01/1997	09/11/1998
KLPX4M12	818	04/01/1997	09/11/1998

Fare Type	GBP	Sale from	Sale to
KHPX4M12	900	10/11/1998	07/07/1999
KKPX4M12	859	10/11/1998	07/07/1999
KLPX4M12	818	10/11/1998	07/07/1999

Source: Airline Tariff Publishing Company database.

Annex C Variables used for yield regression

- **Yield**: the average fare per kilometre;
- **Distance**: the total great circle route distance in kilometres;
- **More than two 3rd or 4th freedom carriers**: the presence of more than two 3rd or 4th carriers is represented with a binary variable that is 1 if there are more than two 3rd or 4th freedom carriers and 0 otherwise. The greater the number of 3rd and 4th freedom carriers on a route, the more intense the competition and the lower the yields;
- **5th freedom services**: the presence of 5th freedom carrier(s) is represented with a binary variable that is 1 if 5th freedom services are available and 0 otherwise. The existence of 5th and 6th freedom services may add to the competitive pressure on 3rd and 4th freedom carriers, and can potentially result in lower yields;
- **Market concentration**: measured as the sum of the squared market shares of all the carriers operating direct services on the route (Herfindahl index). As market concentration increases, competition is likely to decline resulting in higher yields;
- **Indirect traffic**: measured as the ratio of indirect traffic to total traffic on a route. The availability of indirect services adds to the competitive pressure on 3rd and 4th freedom carriers and can potentially result in lower yields;
- **Route density**: the total number of point-to-point passengers flown by all competitors on a route. Route density could be either positively or negatively related to yields. An increased number of passengers could represent higher levels of demand and hence higher yields (the "demand effect"), or it could reflect routes with higher densities and thus lower costs and yields (the "cost effect");
- **Business traffic**: measured as the proportion of total traffic on a route travelling for business purposes. Airlines use yield management to charge business travellers higher fares than leisure travellers. Thus, other things being equal, the higher the proportion of business passengers in total traffic the higher the yield;
- **Runway congestion**: the presence of a runway-congested airport at the other end is represented by a binary variable that is 1 if the airport at the other end is runway congested and 0 otherwise. Runway congestion can increase yields in two ways. First, by increasing airline costs due to congestion (the "cost effect"), and second, by allowing airlines to charge scarcity rents (the "demand effect").

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