

The impact of airline franchising on air service provision in the Highlands and Islands of Scotland

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Abstract

The aim of this paper is to evaluate the impact of airline franchising on levels of air service provision in the Highlands and Islands of Scotland. Results showed that while air carriers operating under franchise agreements were offering reduced levels of capacity, they were able, assisted by a more suitable mix of aircraft, to deliver significant service improvements. These improvements were manifested in the scheduling of more convenient flight times, a higher proportion of direct services and the introduction of new routes. Compared to the previous incumbent, franchised operators were also better able at managing capacity in relation to demand with increased load factors reported after 1993. The implications of these results is that little evidence could be identified of any substantial deterioration in service levels as a consequence of franchising.

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Key Words

Air services, Highlands and Islands, franchising, service frequency, maximum lapsed destination time, average seating capacity per flight, average in-flight time, capacity, traffic, load factor.

Introduction

The economic and social development of peripheral regions is highly dependant on the provision of adequate and easily affordable transportation services. In some regions of world, because of geographic location, climate and physical terrain, air transport is the only viable means of transportation for both goods and people.

Peripheral regions have two key features: low population densities and a lack of proximity to major economic and political centres. Motivated primarily by the political necessity to maintain cohesion within national jurisdictions, special arrangements are usually made with regard to the provision of air services to and within these regions. The high costs associated with providing these services coupled with the need to maintain and operate airport infrastructure to serve small communities, means that subsidy, in the form of grants from both national, regional and local levels of government, is normally required to sustain a satisfactory level of air service provision.

Methods of paying subsidy and the sources of funding vary by country. For example, in the United States, there exists a comprehensive system of subsidies organised within an Essential Air Services Programme. This was established in response to concerns regarding the future viability of air services to small communities as a result of deregulation within the domestic airline market.

Research undertaken during the late nineteen eighties and early nineteen nineties appears to validate these concerns.

Policy-makers in the European Commission, in formulating legislation to liberalise air services, implicitly recognised the possible risks to the future viability of air services to peripheral communities with provisions for the imposition of Public Service Obligations (Commission of the European Communities, 1992). These provisions grant national governments of member states the authority to protect and subsidise routes that are of vital socio-economic importance. Levels of subsidy and decisions on which routes qualify for PSO-status are left to the discretion of each member state. According to Reynolds-Feighan (1995), it is because of this that significant regional distortions exist in the quality and availability of air services to and within Europe's remote regions. For example, in France, approximately eighty domestic routes have public service obligations imposed on them. In Scotland, on the other hand, public service obligations are imposed on a limited number of ultra-peripheral routes.

Public service obligations, supported by subsidy, can guarantee for a fixed period of time, continuity of air services and low fares on routes linking peripheral regions with hub airports. In the absence of public service obligations, these markets are subject to shifting airline strategic priorities in response to developments in global markets. Such a shift in priorities can be manifested in increased management focus on providing services on high-density profitable networks while simultaneously rationalising service levels and delivery on costly and generally lower margin regional air service networks. Rationalisation can be achieved through franchising, where major airlines sub-contract unprofitable segments of their networks to

dedicated regional carriers. However, franchising also allows an airline to retain the presence of its brand in a franchised market. (Denton and Denis, 2000). Air services that are of vital socio-economic importance to communities located in peripheral regions, without regulatory protection, are therefore vulnerable to changes in levels of provision as a consequence of these developments.

Between 1994 and 1996, as a result of sustained losses incurred from directly operating air services in the Highlands and Islands of Scotland, British Airways decided to franchise its operations to two UK-based regional carriers. It is within this context that the aim of this paper is to identify and evaluate whether there have been any significant changes to the level of air service provision in the Highlands and Islands as a consequence of air service franchising.

The structure of this paper is laid out as follows. The following section provides a summary of the socio-economic characteristics of the Highlands and Islands region, a brief history of air service provision and the current regulatory framework within which these services are operated. The second section will examine past literature on the subject of air service provision to peripheral regions and franchising, with particular focus on the experience of small communities in the United States following domestic air services deregulation in 1978. In the third section, the methodology, research approach and sources of data will be specified. The following section will evaluate the results, explaining any noticeable trends and developments. The final section presents the conclusions of this paper.

Air Transport in the Highlands and Islands

Socio-economic environment

The Scottish Highlands and Islands accounts for 13% of the land area of the British Isles. A sizeable proportion of this area consists of islands and mainland communities located at a significant distance from key political and economic decision-making centres in both the United Kingdom and wider European Union. The population of the Highlands and Islands, according to the latest statistics is 373,000, with 61% living in settlements of less than 5,000 inhabitants (Highlands and Islands Enterprise, 2002). Table 3 provides population statistics for a number of Scottish islands between 1981 and 2000. It is apparent from these statistics that all of the island communities listed, with the exception of Orkney, have experienced a decline in population between 1981 and 2000. For example, Islay's population has declined by 14% over the entire period while on the larger island of Lewis and Harris, population has fallen by 8%. Worryingly, from an economic development perspective, the General Register of Scotland predicts a 13% decline in the population of the Western Isles between 2000 and 2016 (Western Isles, 2002).

The Highlands and Islands region is highly dependent on air travel where climatic conditions and topography can make direct surface routes torturous and inconvenient where sea fogs, high winds and heavy precipitation impacts on the punctuality and regularity of scheduled transportation services (UK Civil Aviation Authority, 1974). Table 1 provides a comparison of air service journey times with surface modes of public transportation between selected locations. For example, a flight time of one hour between Glasgow and Stornoway in the Western Isles compares to a surface journey time on public transport services of just over eight hours involving three

different modes, ferry, coach and rail. This serves to illustrate the significant time advantage air services enjoy over other modes and how dependent these regions are on air services to ensure convenient access to mainland population centres.

Due to low population density (9 persons per square kilometre compared with an EU average of 116), economic underdevelopment and the relative inaccessibility of communities situated in the Highlands and Islands, commercial air transport in this region is at worst, significantly unprofitable and at best marginally economic. This has been the situation ever since the first scheduled passenger services were launched in the nineteen thirties. According to a 1974 UK Civil Aviation Authority report on air services in the Highlands and Islands of Scotland (UK Civil Aviation Authority, 1974), three out of eighteen services operated by the then Scottish Airways generated an operating profit (Glasgow-Benbecula, Aberdeen-Wick and Inverness-Wick). Nearly thirty years later, despite attempts during the early nineteen eighties to rationalise services, according to Kyrou (1998), British Airways was losing approximately US\$5 million per annum on directly operating air services between the Scottish mainland and the Northern and Western Isles.

History

The history of air transport provision in the Highlands began with the pioneering flights during the nineteen thirties by Scottish and Highland Airways, both carriers subsequently taken-over by British European Airways (BEA) in the late nineteen forties. The formation of British Airways in 1974, when BEA merged with BOAC (British Overseas Airways Corporation) had little immediate effect on the pattern of air services. The first initiatives to rationalise air services were taken in 1981 with

the formation of the British Airways Highland Division as a profit-centre within the airline. These developments coincided with deregulation in the domestic market and the emergence during the nineteen eighties and nineties of Loganair, as a rival to British Airways in the Highlands and Islands. Competition between both carriers lasted until 1994 when British Airways signed a franchise agreement with Loganair and the Isle of Man-based British Regional Airlines (subsequently re-named BRAL and then BA Citiexpress), to operate services on its behalf in the Highlands. This initiative was firstly motivated by mounting financial losses the airline was incurring on directly operating air services in this region, and secondly, a belief that franchising would enable carriers better suited to operating in such an environment to manage these services at lower cost and at the same time maintaining and in some cases extending the British Airways brand in this market.

Current air service provision

At present all scheduled services within and to the Highlands and Islands, with the exception of those operating between Aberdeen and Wick are operated under a British Airways Express franchise agreement either by BA Citiexpress or Loganair.

BA Citiexpress operates services using 66-seat ATP turboprop aircraft on Aberdeen-Sumburgh, Glasgow-Stornoway and Glasgow-Benbecula). All other routes are operated by Loganair; using a mixture of Saab 340s (34 seats), Shorts 360s (34 seats), Twin Otters (20 seats) and Britten-Norman Islanders (10 seats). Due to low levels of traffic, some routes are operated as multiple sectors involving intermediate aircraft stops. For example, with regard to the two daily services between Glasgow and Sumburgh, one involves intermediate stops at Inverness and Kirkwall and the

other at Aberdeen. Many of these services also face competitive pressures from subsidised passenger ferry services such as the P&O services between Aberdeen and Scrabster to the Orkney and Shetland Islands and the state-owned Caledonian Macbrayne services on the west coast.

The map in Figure 1 shows the present structure of the Highlands and Islands network and Table 2 lists 2001 traffic data and weekly service frequency on each route in June 2001.

Regulation and Subsidy Policy

The provision of air transport in the Highlands and Islands is subject to the same licensing, safety and economic regulations that apply to other regions of the United Kingdom and European Union. However, given the unremunerative nature of air service provision to remote regions and driven by the political and socio-economic need to integrate these communities, the UK government has, under Article 4 of Regulation 2408/92 (Commission for the European Communities, 1992), imposed public service obligations (PSO) on a number of routes within the region. Public service obligations require a contracted air carrier to meet certain minimum service requirements in return for financial compensation over a fixed period of time. Public service obligations are currently on fifteen routes: Benbecula-Barra, Glasgow-Barra, Glasgow-Campbeltown, Glasgow-Tiree, Kirkwall-Eday, Kirkwall-Sanday, Kirkwall-Stronsay, Kirkwall-Westray, Kirkwall-Papa Westray, Kirkwall-North Ronaldsay, Lerwick-Foula, Lerwick-Papa Stour, Lerwick-Out Skerries, Lerwick-Fair Isle, and Stornoway-Benbecula.

Public service obligations are administered by municipal authorities on intra-island services in Orkney, Shetland and the Outer Hebrides while the Scottish Executive administers public service obligations on routes from Glasgow. Orkney and Shetland Islands Councils award annual subsidies of GBP170,000 and GBP232,000 respectively. While on Western Isles and Scottish Executive PSOs the annual subsidy awarded is GBP282,000 and approximately GBP1,000,000 respectively.

Regulatory change and services to small communities

United States

The United States was the first country in the developed world to liberalise its domestic scheduled airline market. The 1978 Airline Deregulation Act removed the structure of economic controls that had regulated the provision and pricing of scheduled air services since 1945.

By the mid to late nineteen eighties there was growing concern amongst policy-makers in the United States that airline strategic decisions in response to new opportunities offered by deregulation were adversely impacting the level of air service provision to small communities. Evidence from studies undertaken during this period identified shifts in airline operating priorities, with some carriers exiting or reducing services within and to small community markets in favour of more financially lucrative high-density routes. As a consequence of these developments, many non-hub airports lost direct services. Research by Jones and Cocke (1984), Molloy (1985) and Khil (1988), showed that the number of direct point to point services at non-hub airports declined markedly following deregulation in 1978. These arguments are, however, countered by Morrison and Winston (1986) and

Butler and Huston (1990) who claim that air service provision to non-hub airports actually improved since deregulation. This was manifested in increased flight frequencies on routes to small hubs and a greater range of destinations available to passengers through hub and spoke scheduling.

Another effect of deregulation was the trend amongst carriers to down-size aircraft. In liberalised markets, where airlines are competing for market share on the basis of improving service frequency, load factors are optimised through reducing aircraft size. Research by Huston and Butler (1988) showed that the percentage of turboprops deployed on the smallest city-pair markets increased from 52% in 1976 to 91% in 1988. This points to a shift in use from jets to turboprop aircraft which many passengers perceive as offering a lower quality of in-flight service due to increased levels of noise and vibration compared to jet aircraft.

Europe

In the European Union, the complete liberalisation of air service markets was not achieved until April 1997. In 2002, a licensed air carrier can legally operate between any two airports open to scheduled services in the European Union outside routes protected by Public Service Obligations.

Studies by the European Commission (Commission of the European Communities, 1997) and the United Kingdom Civil Aviation Authority (UK Civil Aviation Authority, 1995) have shown that air travellers within the European Union have largely benefited from deregulation. These measures encouraged carriers to compete with established airlines in previously oligopolistic and monopolistic city-pair markets. Deregulation has also spawned the emergence of so called low cost “no

frills” airlines offering a greater choice of discount fares than was previously available. However, in evaluating the effects on a route-by-route basis, results are disappointing with meaningful and effective head to head competition restricted to a small number of highly trafficked city-pairs (Commission of the European Communities 1997). In light of these conclusions, one may ask to what extent has EU liberalisation benefited Europe’s peripheral regions where traffic levels are significantly lower and air transport provision much more essential to the social and economic development?

Research by Reynolds-Feighan (1995), who sought to identify the effects of liberalisation on traffic levels at small community Irish airports, found that liberalisation created an unstable operating environment, characterised by cyclical and permanent reductions in air service provision. The author cites the example of intense competition between Ryanair and Aer Lingus during the early nineteen nineties which led to the eventual withdrawal of direct services from Irish regional airports to both London and Dublin². In citing this example, the author argues for a European Union-wide essential air services programme of financial assistance along the same lines as that in place within the United States to protect air services to small and remote communities.

In Norway, also a country heavily dependent on air transport, domestic air service deregulation was initiated in 1975 with the partial relaxation of market entry restrictions and the certification of new scheduled air carriers. According to Ludvigsen (1993), small communities benefited from these measures. This was

² Galway, Carrickfinn, Sligo, Kerry (since re-instated) and Waterford to London and the reduction in Aer Lingus feeder flights from these points to Dublin

manifested in the subsequent launch of new intra and inter-regional domestic services. The Norwegian government was restrained by socio-economic policy considerations from undertaking a process of complete liberalisation of the domestic market. This was due to a concern that deregulation followed by successful market entry would undermine the geographic integrity of the SAS and Braathens S.A.F.E air carrier networks which allowed for internal cross-subsidy between truck routes and unprofitable services to remote communities. This ability to cross-subsidise, therefore obviated the need for government to directly support services to airports located in remote regions.

Franchising air services

Air service franchising has been adopted by a growing number of airlines both in Europe and in North America over the last fifteen years. Motivated by the need to reduce and minimise costs in a highly competitive operating environment, several large carriers have out-sourced segments of their route networks to local franchise operators.

Franchisee carriers, according to Denton and Dennis (2000), as well as receiving the benefits of being aligned to the a major airline brand, are able to secure access to the global network, computer reservation system and the frequent flier programme of the franchiser and its other alliance partners. Franchising in Europe was pioneered by British Airways, where under the British Airways Express brand, several United Kingdom-based carriers operate regional services on behalf of British Airways (BA Citiexpress, Loganair). Franchising also provides an opportunity for a large airline

to access a market at minimal cost through establishing an agreement whereby a regional airline directly operates services on its behalf.

It is apparent that there are mutual benefits to both the franchiser and the franchisee. However, to what extent has franchising affected the availability of convenient services and the quality air service provision in general? One possible effect of outsourcing existing services to a franchise operator is that the franchise operator is unable to match levels of in-flight service and punctuality previously set by the franchiser. The extent to which one is able to identify if such an effect took place is rather limited since no research has been undertaken to validate this view. However, BRAL was heavily criticised by the North of Scotland press over poor punctuality not long after inheriting some Scottish internal routes from British Airways (Press and Journal, 1999).

On the other hand, it is possible that service levels in terms of increased frequency could improve with the deployment of a more appropriate mix of aircraft. A report published by the UK Civil Aviation Authority, on trends emerging from the single aviation market after five years (UK Civil Aviation Authority, 1998a), showed that markets previously not served could be served if operated by a regional franchise carrier. Robertson (1997) in an analysis of the effects of franchising on UK domestic routes, found that significant increases in traffic were recorded on those routes that become franchised and that a number of city-pairs currently without a direct service could potentially support a service if it were operated as a franchise. Denton and Dennis (2000) in their analysis of the impact of franchising on airlines and consumers conclude that franchising can expand the scope and provision of air services in terms of routes to new destinations and increased frequency. However,

the authors also note that the impact may also be averse from a consumer's perspective since there is evidence, validated by research undertaken by the UK Civil Aviation Authority (UK Civil Aviation Authority, 1998a), that franchising has reduced competition within Europe's domestic markets while lower costs incurred by the franchisee have yet to feed through into lower fares for the consumer.

Research Approach and Data Sources

The aim of this paper is to identify the effects of franchising, which occurred between 1994 and 1996, on air service provision in the Highlands and Islands of Scotland.

Analysis is based on contrasting the level and quality of service provision in 1998 and 2001 with the period 1983 to 1993 using the following measures:

- *Frequency.* Measures of total network frequency and average frequency per route are obtained. Statistics are compiled from the *ABC/OAG World Airways Guide* for the month of June in the following years: 1983, 1988, 1993, 1998 and 2001.
- *Maximum lapsed destination time.* Maximum lapsed destination time (METD), measures the total lapsed time between the earliest daily arrival time and the latest daily departure time at a given location on a specific route. This variable is able to measure the relative convenience of departure and arrival times from the perspective of the day-trip passenger. Statistics were compiled from the same source as that obtained for weekly service frequency.
- *Seating capacity per flight.* Past research has shown that most passengers prefer travelling on jet aircraft as opposed to turboprops and larger aircraft as opposed

to small (Kanafani and Ghobrial, 1985, Ghobrial, 1989). Average seating capacity per flight measures the size of aircraft deployed on a given route and is used to identify if a specific market has experienced an increase or decrease in average aircraft size. Statistics were compiled from the same source as that obtained for weekly service frequency.

- *In-flight time.* In-flight time measures the amount of time spent by a passenger in-flight on a specific route. This is determined by published scheduled departure and arrival times. Where there are different aircraft types deployed on a route, an average is obtained, weighted by the service frequency associated with each aircraft type.

Analysis will also focus on assessing changes in patterns of air services within the context of whether franchise carriers were better able to manage capacity in relation to traffic.

The sample of routes selected for analysis, including sector distances, are listed in Table 4. Only those routes that were directly affected by franchising and were operated commercially (non-PSO) throughout the entire period were considered for analysis.

Results

Weekly service frequency

One-way service frequency, aggregated across all routes, increased by a factor of 4% between 1983 and 2001, from 133 to 138 weekly flights. According to Figure 2 average weekly frequency per route, over the same period, increased marginally

from 11.08 to 11.50 flights per week. Average weekly frequency weighted by route density increased from 14.04 to 14.83 services per week during the same period.

Between 1988 and 1993 there is 23% increase in weighted average frequency per route. This is as a result of Loganair's expansion of services between 1991 and 1993 and an increase in frequency supplied by British Airways on Aberdeen-Sumburgh, Glasgow-Stornoway and Inverness-Stornoway.

Evaluating individual route service frequency trends in Table 5 shows that while in some markets, service levels have largely remained unchanged over the entire period, frequency has increased by the highest amounts on services between Edinburgh and Kirkwall, Aberdeen and Kirkwall and Inverness and Stornoway. On Edinburgh-Kirkwall, where most services involve an intermediate stop at either Inverness or Wick, service frequency increased from five round-trips in 1983 to twelve in 2001. Both markets also recorded increases in frequency between 1993 and 2001, after services were franchised. As a result of franchising the only significant reductions in frequency between 1993 and 2002 were recorded on Glasgow-Kirkwall, Glasgow-Stornoway and Kirkwall-Sumburgh while frequency on Inverness-Kirkwall increased by a factor of 50% during this period

Franchising appears not to have had an adverse effect on total network service frequency, while the decline in average frequency per route appears not to have been significant.

However, one disadvantage in adopting frequency as a measure of the level and quality of service is that no indication is provided as to the convenience of departure and arrival times on a given route.

Maximum Lapsed Destination Time (MLDT)

Schedule convenience can be measured by calculating Maximum Lapsed Destination Time (MLDT) in both directions for each city-pair. MLTD measures the total lapsed time between the earliest daily arrival time and the latest daily departure time at a given location on a specific route.

Figure 3 shows that there has been a steady and consistent improvement in both simple and weighted average MLDT over the period 1983 to 2001. Weighted MLDT increases quite markedly from 6.06 hours in 1993 to 7.27 hours in 2001, while the simple average increases from 5.94 hours to 6.90 hours over the same period.

Observation of statistics listed in Table 6 shows that there is significant variation in absolute levels of MLDT between and within city-pair markets, in the latter case through directional differences in absolute levels and in growth rates between each period. To a large extent, differences within and between city-pairs are as a result of scheduling and aircraft over-night positioning decisions taken by airlines. From 1983 to 1993, there is little change in MLDT, with a few exceptions. For example, on services from Aberdeen to Kirkwall, MLDT increases by 67%. While on services from Inverness to Glasgow, there is a fall of 64%.

After 1993, following the franchising of air services, significant changes are apparent across most routes up to 2001. Large increases were recorded on Inverness-Glasgow (173%) and Stornoway-Inverness (321%). Only five out of the sixteen directional routes recorded reductions in MLDT, Kirkwall-Aberdeen, Glasgow-Inverness, Glasgow-Stornoway, Sumburgh-Kirkwall and Stornoway-Glasgow. The

impact of franchising, therefore, on MLDT appears largely to have been positive. For example, in 1993, a passenger departing from Inverness to Glasgow could only spend a maximum of 4.25 hours in Glasgow before having to return on the last flight. BRAL, which operated the route in 1998, restored the early morning departure from Inverness, thus allowing passengers 11.17 hours in Glasgow. Loganair also introduced for the first time a morning departure from Stornoway to Inverness and an early evening return thereby increasing MLDT on Stornoway-Inverness by 321% over the period 1993-2001

Average Seating Capacity per Flight

In the Highlands and Islands, because of low traffic volumes, all internal air services have been and still are operated by turboprop aircraft. Figure 4 below shows that average seating capacity per flight increased from 35.5 in June 1983 to 52.2 in June 1993. Up to 1991, British Airways services were operated by 44-seat British Aerospace 748 turboprops. These were then replaced by 66-seat British Aerospace ATPs. This explains the sharp increase in both simple and weighted average aircraft size between 1988 and 1993. Rival carrier Loganair, prior to 1994, was operating a mix of De-Havilland Twin-Otters, BAe Jetstream 31s, Shorts 360s, and Britten-Norman islanders, all aircraft with less than forty seats.

When British Airways services were franchised to BRAL and Loganair, ten out of the twelve routes sampled recorded a reduction in average seating capacity per flight of between 4% and 47% between 1993 and 2001. For example, according to Table 7, average aircraft seating capacity per flight fell by 47% between 1993 and 2001 on

services between Aberdeen and Kirkwall. This is because BRAL replaced ATP turboprops, previously operated by British Airways, with smaller 34-seat Saab 340s. Similar scale reductions were recorded on other routes (Kirkwall-Sumburgh, Glasgow-Inverness) where ATP turboprops were replaced by older non-pressurised 34-seat Shorts 360 aircraft. These results suggest that service levels from the perspective of aircraft size have declined in so far as passengers travelling within and from the Highlands and Islands have had to endure the discomfort of not only smaller, but in some cases, non-pressurised aircraft as a direct consequence of franchising. However, it should be pointed out that between 1998 and 2001, Loganair was in the process of replacing its ageing non-pressurised Shorts 360 fleet with faster and pressurised Saab 340 turboprops.

In-flight time

Passenger's perception of the quality of service offered in a given market is, to a large extent, influenced by the amount of time spent in-flight between any two airports.

Figure 5 illustrates changes in simple and weighted average in-flight time per route between 1983 and 2001. In June 1983, average in-flight time was 0.83 hours per route. By June 1988, this had increased marginally to 0.86 hours. As far as weighted average in-flight time is concerned, there is no change between June 1983 and June 1988. Between 1988 and 1993, both simple and weighted average in-flight time decline to 0.79 hours and 1.03 hours respectively.

Up to 1993, the deployment of new and faster aircraft by both Loganair and British Airways was largely responsible for the decline in both average and weighted average in-flight time.

Franchising appears to have had the effect of reducing further, with the exception of a very slight increase in the simple average between 1993 and 1998, average in-flight time across the network. These trends occurred in spite of the fact slower Shorts 360 aircraft were being deployed in place of faster ATPs on a number of routes (Inverness-Glasgow, Inverness-Kirkwall, Edinburgh-Kirkwall, Kirkwall-Sumburgh and Glasgow-Kirkwall). The decline in average in-flight time is mainly due to an increase in the number of non-stop direct flights across the network. Figure 6 shows that the number of direct non-stop services as a percentage of total direct services declined from 77% in June 1983 to 66% in June 1993. However, as smaller aircraft are introduced to the network after franchising, a greater number of direct services are introduced increasing the proportion to 85% in June 1998.

Analysis of city-pair in-flight time data listed in Table 8 illustrates the combined effect of replacing direct with one-stop flights and *vice-versa*, and reducing aircraft size on in-flight time. For example, on services between Aberdeen and Kirkwall, the replacement of the 66-seat British Aerospace ATP with the 34-seat Saab 340 operated by BRAL did not affect in-flight time since the Saab 340, despite its lower seating capacity, is able to match cruising speeds achieved by the ATP. Furthermore, in 1993, five of the seventeen weekly flights between Aberdeen and Kirkwall involved an intermediate stop in Inverness, whereas in 1998 and 2001 all flights between both airports were non-stop.

In-flight time increases by the largest amount between 1993 and 2001 on Glasgow-Kirkwall and Edinburgh-Kirkwall. Prior to franchising, Loganair operated direct services on these routes in competition with British Airways using newly acquired British Aerospace Jetstream 31s. However, as a result of the re-structuring that followed the franchise agreement, both routes were eventually handed over to BRAL in 1994 who replaced direct non-stop services with one-stop flights operated by non-pressurised Shorts 360s involving intermediate stops at Inverness and Aberdeen. The effect of this was to increase average in-flight time on Edinburgh and Glasgow services respectively. However, services between Aberdeen and both Sumburgh and Kirkwall experienced a reduction in-flight time due to the replacement of direct one-stop with non-stop flights. Despite the substitution of ATPs with the smaller Saab 340 on the Kirkwall-Aberdeen route, there was no adverse effect on in-flight time since the Saab 340 is able to match cruising speeds achieved by the ATP.

Franchising which coincided with the deployment of smaller aircraft on the Highlands and Islands network appears to have been responsible for the overall reduction in in-flight time. Before 1993, British Airways was operating 66-seat ATP's which could only be operated commercially on a multi-sector basis, hence the low proportion of direct non-stop services in June 1993. However, the franchise carriers, especially Loganair, have a more appropriate mix of equipment for the market and were thus able to offer more direct services and a reduction in in-flight time.

Management of supply and demand

Without the benefit of government subsidies or cross-crediting revenue from profitable routes, air carriers operating in low-density markets are driven by the commercial necessity of recovering costs and generating a return on their investment. This can pose a particular economic challenge in an environment of comparatively high infrastructure use charges and low traffic volumes. Therefore, an analysis of service provision would be incomplete without adequate consideration of the management and deployment of capacity in relation to developments in the volume of passenger traffic

Table 9 provides a breakdown of seating capacity, passenger traffic levels and passenger load factor on routes within the Highlands and Islands. Statistics are separated into East Coast and West Coast services. Total passenger traffic on services in the Highlands and Islands increases from 17,821 in June 1983 to 31,053 in June 2001, an average annual growth rate of 4.1%. This compares to an average annual growth rate of 2.7% in seating capacity. Total load factor in June 1983 was 67%, increasing to 73% in June 1988.

Between 1988 and 1993, the combined effect of additional Loganair services and the replacement of BAe 748 turboprops with larger ATPs on the British Airways network results in a reduction in load factor on both East and West Coast route sectors. For example, load factor on services between the mainland (Glasgow, Inverness) and Western Isles (Stornoway, Benbecula, Islay) declines from 65% in June 1988 to 53% in June 1993. Load factor also falls on the East Coast route network from 79% to 63% over the same period³.

³ It should also be borne in mind that these statistics relate to the month of June and one would expect lower load factors between October and March.

What is also interesting is that levels of traffic and the deployment of capacity have not been affected by declining population levels of some of the island communities reported in Table 3 if one contrasts the situation in 2001 with 1983. However, it is important to note that traffic levels on some of the mainland-western isles have actually fallen between 1998 and 2001. For example, the total number of passengers carried on Glasgow-Islay in 2001 was 19,609 compared to 19,914 in 1998. This trend may be as a result of two factors; de-population or changes in service levels and prices on competing ferry services.

Increased competition during the period 1991-1994 between British Airways and Loganair and the deployment of large aircraft had the combined effect of creating an environment of excess capacity. For example, Loganair introduced direct services, for the first time between Glasgow and Kirkwall in competition with daily British Airways services which were routed through Aberdeen and Inverness in June 1993. However, such a strategy could not be sustained in the face of mounting financial losses incurred by British Airways in operating services directly in the Highlands and islands. Hence, the commercial logic in seeking to co-operate rather than compete with rival Loganair.

Where competition, though limited, has existed before, the effect of the franchise agreement was to make the British Airways brand dominant in the Highlands. The franchise agreement allowed for the air carriers to establish more financially sustainable network of services through adjustments in frequency, routings, capacity and aircraft type. The franchise carriers were able to achieve significantly higher load factors, 79% in June 2001 compared to 59% in June 1993. Indeed, load factors, which had been comparatively low on west coast routes between 1983 and

1998, had improved markedly by June 2001. The main reason for this is that Loganair had replaced BRAL on the Inverness-Stornoway route and were offering a reduced level of capacity (ATP's replaced by Saab 340s) but interestingly a more convenient schedule of services (see Table 6). What is apparent from these developments is that the rationalisation and consolidation which was inevitable in an environment of excess capacity, was achieved without any significant deterioration on service levels. Indeed, many aspects of air service provision improved, such as, the convenience of flight timings, reduced in-flight times and introduction of new routes as a consequence of franchising.

Conclusions

Air services were franchised by British Airways in order to reduce costs and to eliminate the mounting losses incurred in operating services directly. Franchise carriers, through using a more appropriate size and mix of aircraft were better able to achieve higher load factors and a more commercial successful operation. In spite of the fact that passengers had to endure the relative discomfort and inconvenience of smaller aircraft as a result of downsizing, franchising has brought improved departure and arrival times, shorter journeys, and fewer multi-stop services. Franchising has also resulted in new routes such as Edinburgh-Stornoway and a new direct non-stop service between Edinburgh and Sumburgh. Furthermore, the inconvenience suffered by the travelling public as a result of having to endure non-pressurised flight may be short lived as Loganair are in the process of deploying additional pressurised Saab 340 aircraft.

From the operator's perspective the over-provision in air services that was clearly apparent in 1993 could not be sustained and that the reduction in capacity was necessary in an environment of low traffic volumes and high costs⁴. These were the key factors that prompted British Airways to franchise its Highlands and Islands services to BRAL and Loganair. Both airlines were better able to serve the market through a combination of lower costs and more suitable aircraft types.

Although this paper is rather limited in its geographic scope, it has sought to examine how franchising has impacted on the provision of air services in one of Europe's peripheral regions. It is also very important to point out that enhanced service levels have been achieved without the imposition of public service obligations with their fixed minimum levels of service and financial compensation.

However, the extension of British Airways dominant position in the Highlands and Islands may have negative implications in that the franchise carriers who now control almost all scheduled routes would have incentives to exercise monopoly power through setting excessive air fares. Indeed, there has emerged anecdotal evidence at the time of writing which appears to suggest that the level of air fares across the Highlands and Islands air services network is perceived by the local population to be very high (Press and Journal, 2002). While this perception in part has been fuelled by expectations of low fares generated by low cost airlines operating on the main trunk markets, this presents a very real problem for policy-makers. Detailed research into the level of air fares, before and after franchising and

⁴ British Airways for example, was reported to have been losing approximately US\$5 million per annum on services between the mainland and island communities.

an analysis of the potential scope for competition would represent a very useful contribution to the current debate on air services in the Highlands and Islands.

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Figure 1: The Highlands and Islands air service network (June 2002)

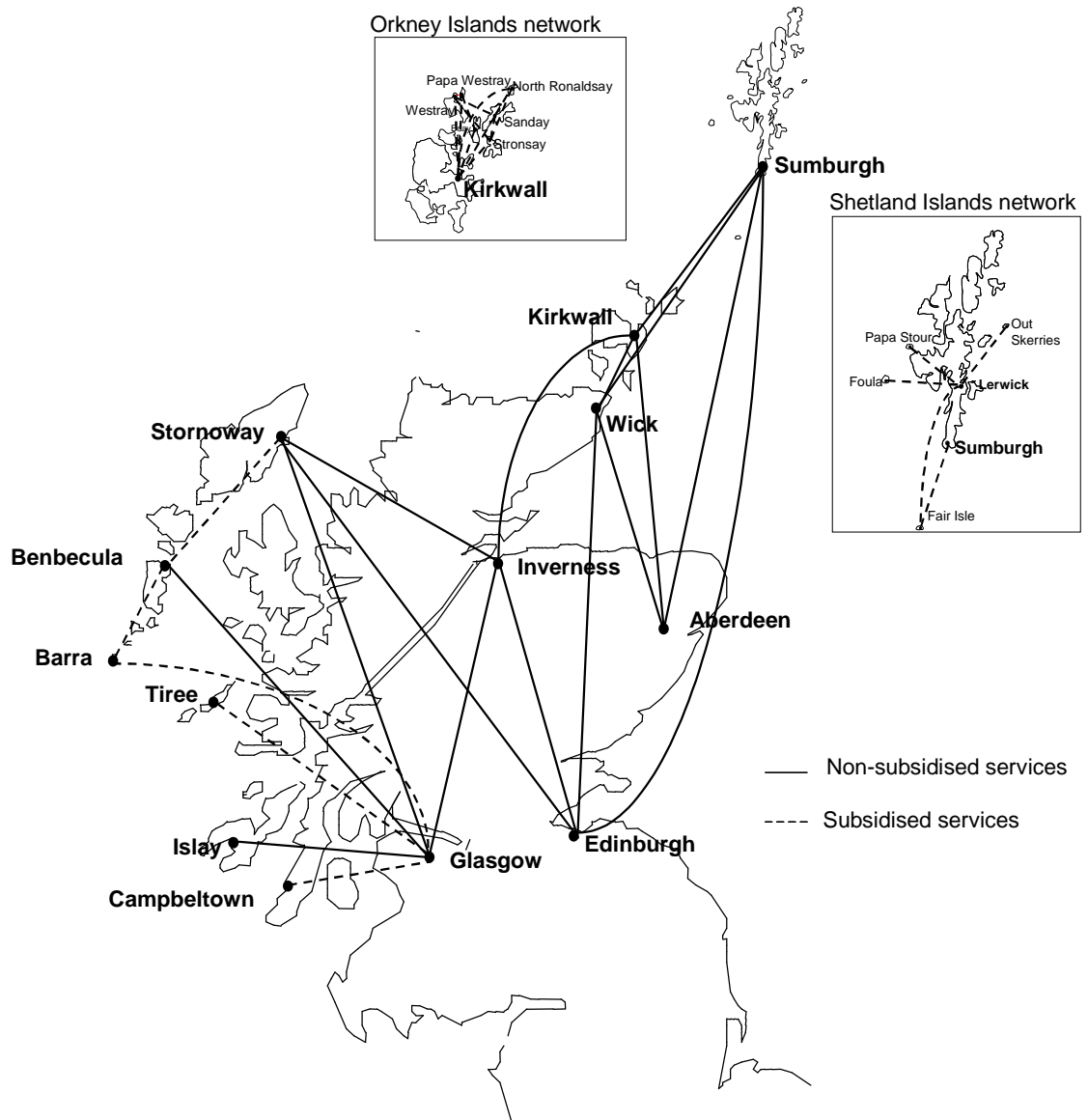
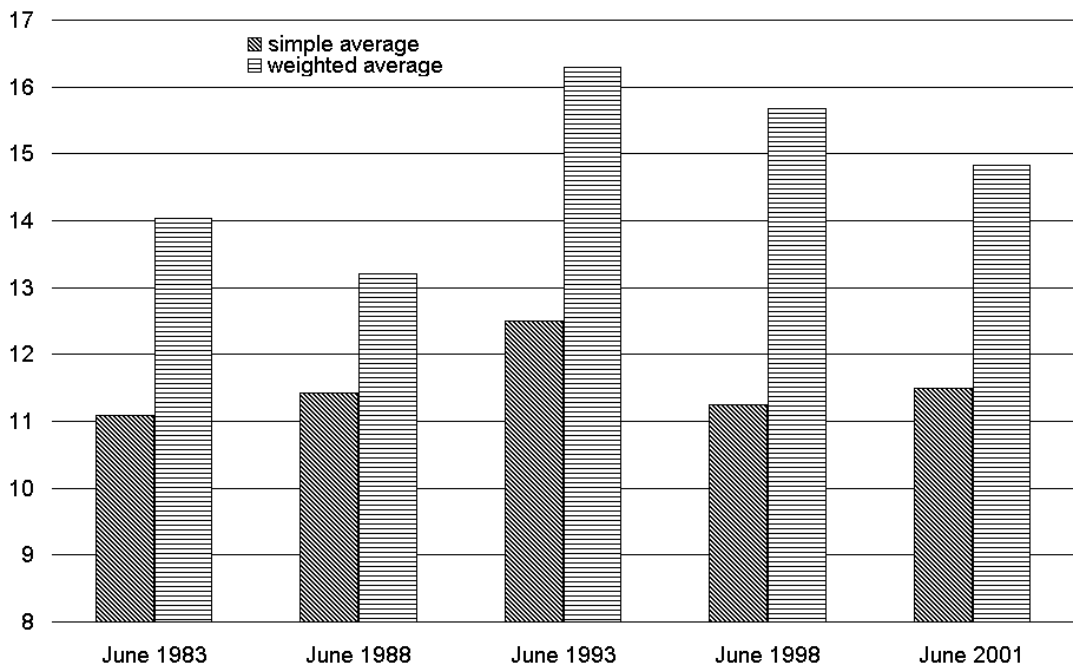


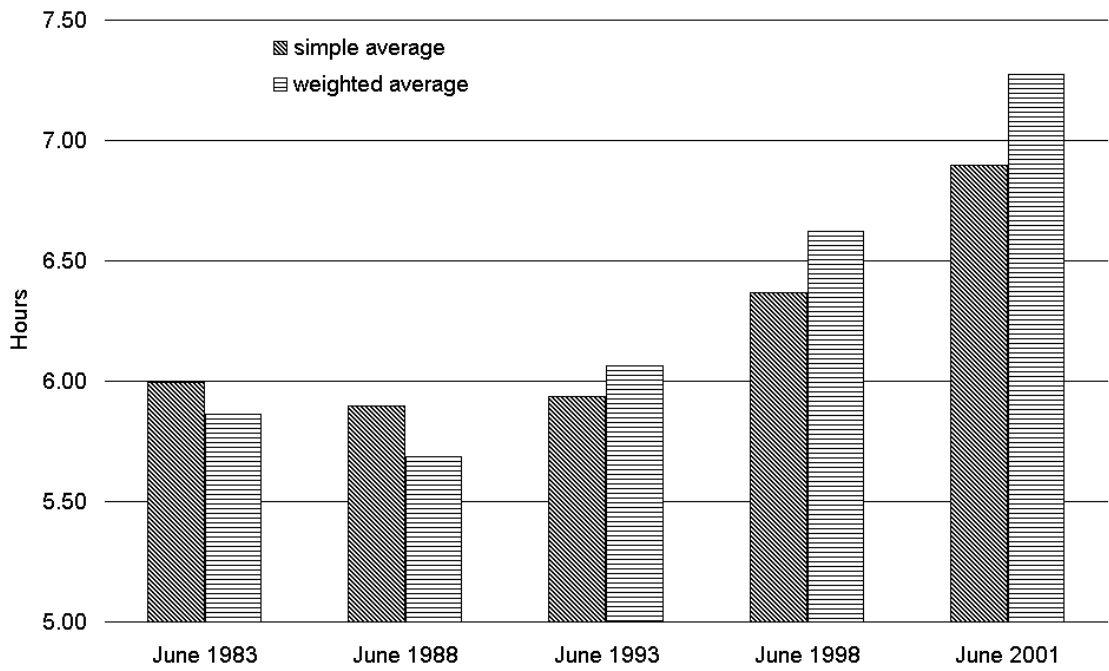
Figure 2: Simple and weighted *average weekly service frequency (one-way) per route: 1983 –2001



* Average weighted by route traffic density

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

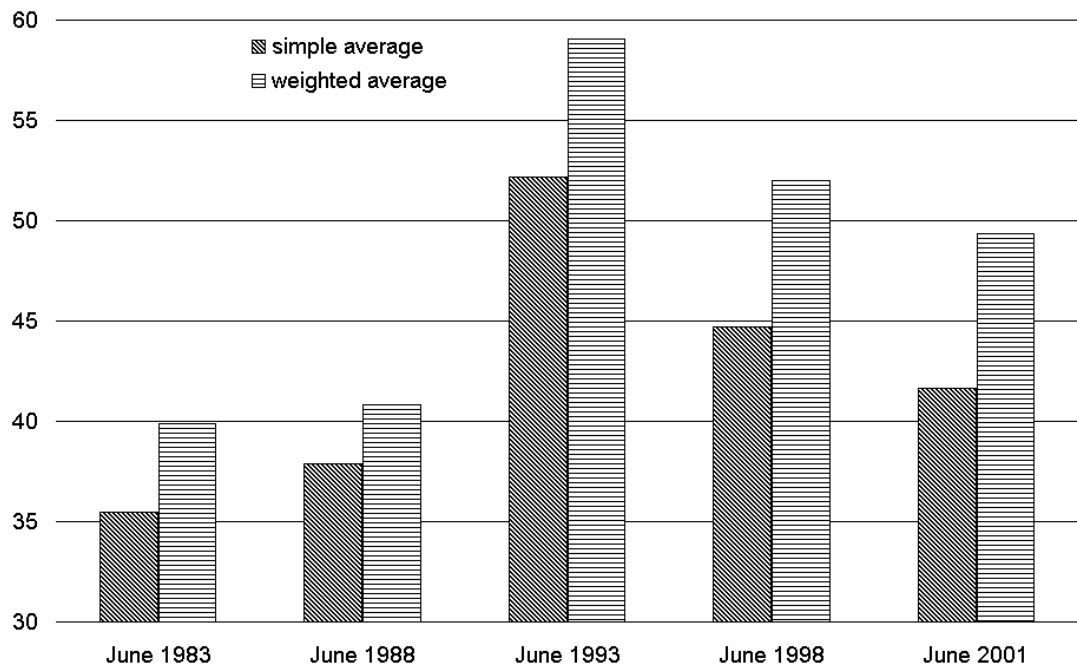
Figure 3: Simple and weighted* average MLDT(in hours) per route: 1983 – 2001



Average weighted by route traffic density

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

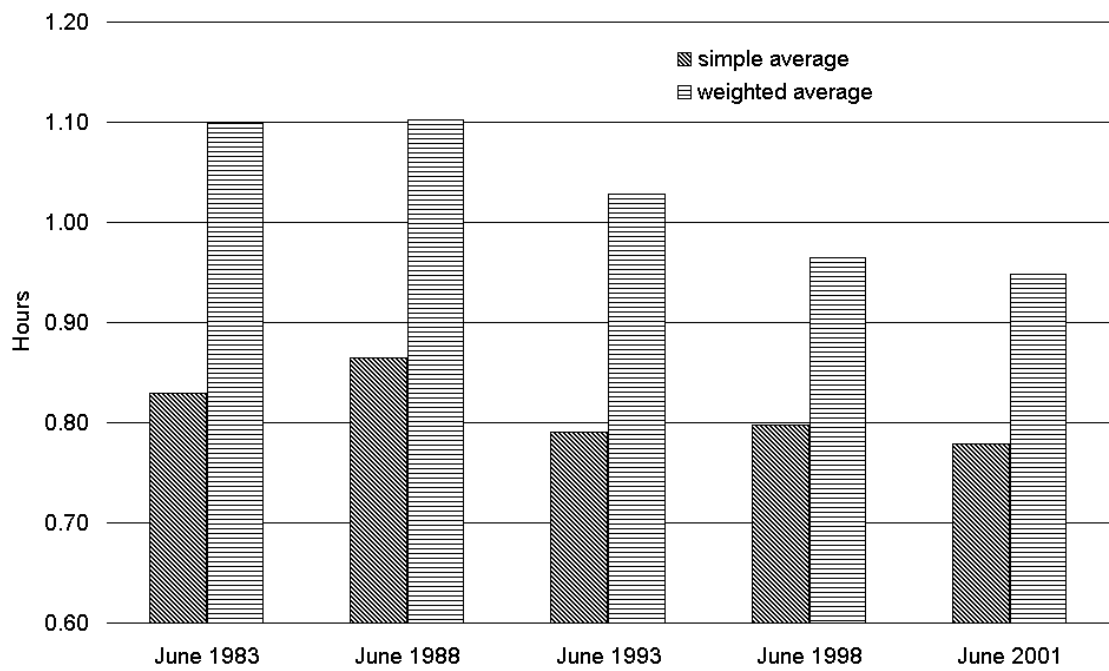
Figure 4: Simple and weighted* Average Aircraft Seat capacity per flight per route: 1983 – 2001



* Average weighted by route traffic density

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

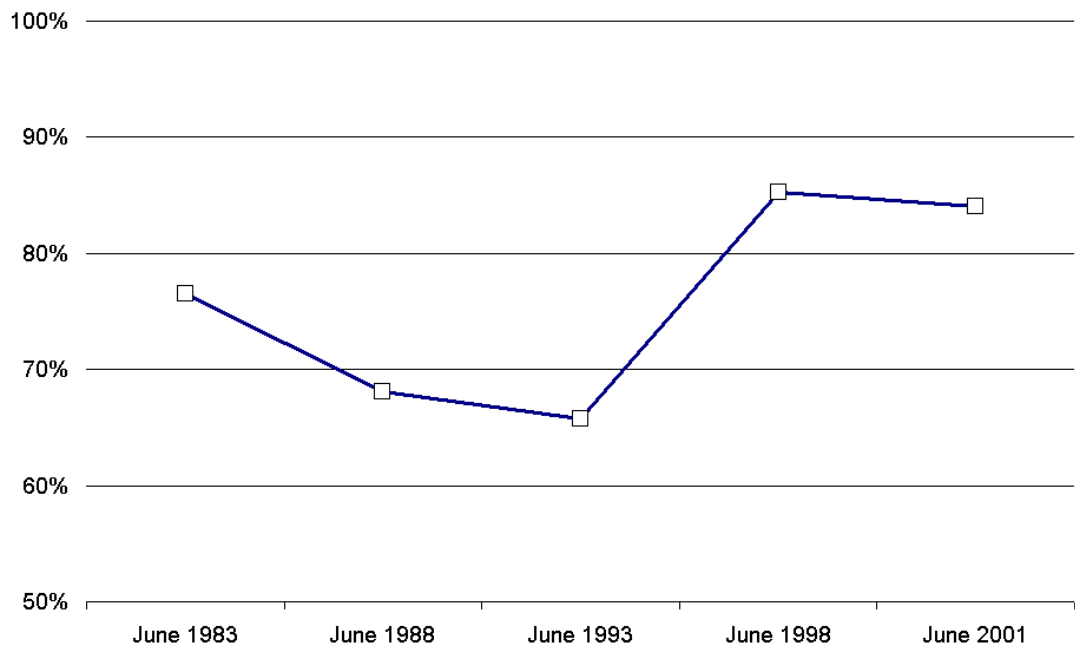
Figure 5: Simple and weighted* average in-flight time (in hours) per route: 1983-2001



* Average weighted by route traffic density

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

Figure 6: Direct non-stop services as a % of total direct services* 1983, 1988, 1993, 1998, 2001



* Total direct = non-stop, one-stop and multi-stop

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

Table 1: Air and surface journey times on selected city-pair markets (in hours): June 2001

	Air	Surface			Total
		Rail	Sea	Coach	
Stornoway-Glasgow ¹	1.0	4.2	2.6	1.3	8.1
Orkney-Inverness ²	0.9		0.7	4.1	4.8
Shetland-Aberdeen ³	1.0		14.0		14.0
Wick-Aberdeen ⁴	0.8	6.4			6.4

¹ Surface transport alternative for Glasgow-Stornoway is: Glasgow-Inverness (rail), Inverness-Ullapool (Coach), Ullapool-Stornoway (ferry)

² Surface transport alternatives for Orkney-Inverness is: Kirkwall-Burwick (Bus), Burwick-John O'Groats (Ferry), John O'Groats-Inverness (Coach)

³ Surface transport alternatives for Shetland-Aberdeen is: Lerwick-Aberdeen (ferry)

⁴ Surface transport alternatives for Wick-Aberdeen is: Wick-Inverness-Aberdeen (Rail)

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b) Cityline Scotland (2002, Railtrack (2002), P&O Scottish Ferries (2002)

Table 2: Total scheduled passenger traffic (2001) and weekly service frequency (June 2001) by route

	Total Traffic 1998	Weekly Frequency (one-way)
Aberdeen-Sumburgh	74,046	22
Glasgow-Stornoway	47,932	12
Aberdeen-Kirkwall	36,979	18
Edinburgh-Kirkwall	28,853	12
Inverness-Stornoway	23,818	11
Glasgow-Benbecula	21,296	6
Glasgow-Inverness	20,618	16
Glasgow-Islay	19,609	11
Glasgow-Sumburgh	16,539	13
Edinburgh-Stornoway	11,065	6
Inverness-Kirkwall	9,764	12
Stornoway-Benbecula	9,684	10
Glasgow-Campbeltown	8,003	10
Aberdeen-Wick	7,986	10
Kirkwall-Sumburgh	7,243	6
Glasgow-Kirkwall	6,266	6
Glasgow-Barra	5,586	6
Inverness-Sumburgh	3,894	6
Barra-Benbecula	3,021	10
Inverness-Edinburgh	1,509	11
Edinburgh-Wick	103	6

Source: UK Civil Aviation Authority (2001)

Table 3: Population Statistics: sample airport catchment areas 1991, 1998

Regions	Airport	1981	1991	2000*	1981-00 % change
Lewis & Harris	Stornoway	22,485	21,737	20,925	-6.9%
North & South Uist	Benbecula	3,630	3,510	3,646	-0.4%
Orkney	Kirkwall	18,419	19,612	19,480	5.7%
Shetland	Sumburgh	22,768	22,522	22,440	-1.4%
Islay	Islay	3,792	3,538	3,260	-14.0%
Tiree	Tiree	760	768	698	-8.2%
Barra	Barra	1,264	1,244	1,211	-4.2%

* mid-year estimates

Source: General Register Office for Scotland (2002)

Table 4: Sector distances (in miles): sample routes

Aberdeen-Kirkwall	124
Aberdeen-Sumburgh	198
Edinburgh-Kirkwall	209
Edinburgh-Wick	174
Glasgow-Benbecula	158
Glasgow-Inverness	117
Glasgow-Islay	72
Glasgow-Kirkwall	221
Glasgow-Stornoway	178
Inverness-Kirkwall	107
Inverness-Stornoway	96
Kirkwall-Sumburgh	94

Source: ABC (1993b)

Table 5: Weekly service frequency (one-way) by route in June: 1983, 1988, 1993, 1998, 2001

	June 1983	June 1988	June 1993	June 1998	June 1998	% change 1983-2002	% change 1993-2002
Aberdeen-Kirkwall	11	16	17	20	18	64%	6%
Aberdeen-Sumburgh	23	18	25	24	22	-4%	-12%
Edinburgh-Kirkwall	5	11	6	5	12	140%	100%
Edinburgh-Wick	5	11	6	6	6	20%	0%
Glasgow-Benbecula	6	7	6	6	6	0%	0%
Glasgow-Inverness	23	11	14	13	16	-30%	14%
Glasgow-Islay	9	11	11	11	11	22%	0%
Glasgow-Kirkwall	6	5	21	7	6	0%	-71%
Glasgow-Stornoway	11	12	17	14	12	9%	-29%
Inverness-Kirkwall	15	16	8	10	12	-20%	50%
Inverness-Stornoway	8	8	11	12	11	38%	0%
Kirkwall-Sumburgh	11	11	8	7	6	-45%	-25%

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b), OAG
(1998a, 1998b, 2001)

Table 6: Maximum Lapsed Destination Time in hours (MLDT) by route in June: 1983,1988,1993,1998, 2001

	June 1983	June 1988	June 1993	June 1998	June 2001	1993-2001
Sumburgh-Aberdeen	6.83	6.50	7.17	9.50	9.58	34%
Aberdeen-Sumburgh	6.17	5.25	5.58	6.33	6.25	12%
Kirkwall-Aberdeen	6.83	6.92	7.17	6.75	6.00	-16%
Aberdeen-Kirkwall	3.58	4.25	6.00	9.25	9.25	54%
Inverness-Glasgow	11.92	11.08	4.25	11.17	11.58	173%
Glasgow-Inverness	7.83	7.25	9.58	8.33	7.42	-23%
Glasgow-Islay	7.58	7.25	7.33	8.58	8.33	14%
Islay-Glasgow	5.92	5.50	5.58	6.58	6.33	13%
Glasgow-Stornoway	3.42	3.83	7.42	3.17	6.92	-7%
Stornoway-Glasgow	5.42	5.50	4.50	4.67	3.83	-15%
Inverness-Kirkwall	3.67	4.25	4.33	5.83	5.25	21%
Kirkwall-Inverness	6.25	5.92	5.92	8.83	9.50	61%
Kirkwall-Sumburgh	1.33	1.08	1.25	4.42	4.42	253%
Sumburgh-Kirkwall	9.75	10.25	9.92	0.00	0.00	-100%
Inverness-Stornoway	8.25	8.42	7.42	7.92	9.00	21%
Stornoway-Inverness	1.17	1.08	1.58	0.58	6.67	321%

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b),
OAG (1998a, 1998b, 2001)

Table 7: Average seating capacity per flight by route: 1983, 1988, 1993, 1998, 2001

	June 1983	June 1988	June 1993	June 1998	June 2001	% change 1993-01
Aberdeen-Kirkwall	44	44	64	35	34	-47%
Aberdeen-Sumburgh	44	44	64	61	62	-4%
Edinburgh-Kirkwall	20	35	36	34	34	-6%
Edinburgh-Wick	20	35	36	34	34	-6%
Glasgow-Benbecula	44	44	64	66	66	3%
Glasgow-Inverness	28	33	53	36	34	-36%
Glasgow-Islay	20	20	36	34	34	-6%
Glasgow-Kirkwall	44	44	37	39	34	-8%
Glasgow-Stornoway	44	66	64	63	66	3%
Inverness-Kirkwall	30	24	45	34	34	-24%
Inverness-Stornoway	44	44	64	63	34	-47%
Kirkwall-Sumburgh	44	44	64	39	34	-47%

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b), OAG (1998a, 1998b, 2001)

Table 8: Average in-flight time (in hours) by route: 1983, 1988, 1993, 1998, 2001

	June 1983	June 1988	June 1993	June 1998	June 2001	% change 1993-01
Aberdeen-Kirkwall	0.75	1.10	0.99	0.75	0.83	-16%
Aberdeen-Sumburgh	1.49	1.34	1.13	1.00	1.00	-12%
Edinburgh-Kirkwall	1.83	2.18	1.46	2.01	1.77	21%
Edinburgh-Wick	1.33	1.58	1.01	1.17	1.08	7%
Glasgow-Benbecula	1.00	0.92	1.00	1.00	1.00	-
Glasgow-Inverness	0.67	0.58	0.58	0.58	0.67	14%
Glasgow-Islay	0.83	0.79	1.12	0.90	0.89	-21%
Glasgow-Kirkwall	2.08	2.00	1.38	2.02	2.14	54%
Glasgow-Stornoway	1.08	1.09	1.27	1.13	1.00	-21%
Inverness-Kirkwall	0.95	1.01	0.67	0.88	0.75	13%
Inverness-Stornoway	0.67	0.67	0.67	0.67	0.67	-
Kirkwall-Sumburgh	0.58	0.58	0.58	0.67	0.67	14%

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b), OAG (1998a, 1998b, 2001)

Table 9: Passenger traffic, capacity and load factors by route sector in the month of June: 1983, 1988, 1993, 1998, 2001

	June 1983	June 1988	June 1993	June 1998	June 2001
Passenger Traffic					
East Coast ¹	11,858	12,406	16,526	19,465	21,909
West Coast ²	5,963	7,908	9,336	9,991	9,144
Total	17,821	20,314	25,862	29,456	31,053
Total seating capacity					
East Coast ¹	16,192	15,712	26,256	24,960	26,896
West Coast ²	10,240	12,192	17,504	19,064	12,496
Total	26,432	27,904	43,760	44,024	39,392
Load Factor					
East Coast ¹	73%	79%	63%	78%	81%
West Coast ²	58%	65%	53%	52%	73%
Total	67%	73%	59%	67%	79%

¹ includes all services between Aberdeen and Orkney and Shetland in addition to all routes between Glasgow / Inverness and Orkney and Shetland

² includes all services between the Scottish mainland and the Western Isles

Sources: ABC (1983, 1988a, 1988b, 1993a, 1993b), OAG (1998a, 1998b, 2001)

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