

Towards A Short to Medium Term Mitigation Strategy to Address the External Air and Sea Connectivity Challenges posed by the COVID-19 Pandemic for Northern Ireland

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1. Overall Aim and Objectives

The overall aim of the research reported in this paper was the preparation of a short to medium term Access Mitigation Strategy to respond to the challenges posed for the business, travel, leisure and tourism sectors by the physical and psychological impacts on travel access to/from Northern Ireland during/post the COVID-19 Pandemic. The research programme reflects the need to understand the implications of the COVID-19 crisis on accessibility to/from Northern Ireland given the region's heavy reliance on air and sea access for trade, Foreign Direct Investment (FDI) and tourism. This includes the fall-out from COVID-19 (and additional factors including the collapse of Flybe and Brexit) on the capacity of air and sea routes, how demand has and will be impacted in the future because of changing behaviours and what actions need to be taken to minimise these effects and keep Northern Ireland open for business.

The project objectives were as follows: to establish the current position and near to medium term prospects for air and sea connectivity to Northern Ireland (including Irish Sea ports and airports); review the contribution of air and sea links to the performance of the Northern Ireland Economy and wider society; assess the factors shaping this position and their impact on demand for external travel before, during and post the Coronavirus Pandemic; develop a range of future scenarios around passenger transport by air and sea to inform the development of a range of mitigation policy interventions to maximise the accessibility of the region; table recommendations for a mitigation policy to maximise accessibility of the region; and assess the potential for funding and financing a short to medium term Access Mitigation Strategy for the region. The research findings and its recommendations are informed by robust empirical evidence bases and include proven public policy interventions to maximise the region's access and openness to business and tourism related travel going forward.

2. External Connectivity: A Northern Ireland Perspective

The Context: External Connections matter hugely for Northern Ireland

Northern Ireland has made significant strides in recent years to make the region more attractive and externally focused, through increased trade, investment and tourism reaching a much more expansive range of countries, businesses and people located across the globe. The movement of goods, services and people to and from the region has grown significantly in importance.

Great Britain is Northern Ireland's largest partner in terms of Inward Investment, Tourism and Trade. Across a range of areas including trade, tourism, FDI, foreign students and international workers a total of 30 countries across the world are listed as top 10 partners for Northern Ireland highlighting just how extensive its reach is as a very small region within a much larger trading entity in the UK.

Northern Ireland does have that unique position in having a 'sea barrier' between it and the rest of the UK which makes connectivity by air and sea critical to how the region trades with Great Britain (and worldwide) and a major influence on how the local economy prospers and grows. Thus, connectivity matters hugely in terms of what has and will drive improvements in economic growth, productivity and job quality in Northern Ireland.

The importance of connectivity and its contribution to the economy is further emphasised in terms of considerations around student access, migration and work travel patterns. Accessibility is important to student flows with around 18,000 students travelling to Great Britain to study annually and 7,400 students coming from Great Britain and other parts of the world to Northern Ireland, the lowest share of international students across the UK regions. Connectivity is likely to play some part in the decision to come and study in the region. Although Brexit has impacted on the numbers of EU residents coming/staying in Northern Ireland, non UK/Irish workers make up around 7% of the labour force in Northern Ireland. These workers come from EU26 countries (56%) and countries outside the UK and EU (44%), again involving many global destinations. On a weekly basis, 5,000 people in Northern Ireland travel to Great Britain to work. All of this activity around education and work supports the local economy along with existing and potential jobs again emphasising the critical role that connectivity plays in economic development and growth.

External Connectivity: What is it and how can it be measured?

External connectivity can be defined as the ability and ease with which passengers (and freight) can reach destinations by land, air or sea. Facilitating connections between individuals and firms can promote the diffusion of ideas, and hence to spur innovation and technological development.

There is no single best approach to defining and measuring connectivity. In the case of air transport, the approaches range from simple metrics that are relatively easy to obtain from schedule or traffic data to more complex metrics that rely on modelling techniques, multiple data sets, and expert judgment.

Network connectivity assessments are being extensively used by the air transport sector to measure network connectivity performance of airports against one another. Comprehensive network connectivity assessments capture the following components:

- Direct connectivity: The level (number and quality) of connections offered from the assessed airport.
- Indirect connectivity: the level (number and quality) of reasonable connections offered from one assessed airport indirectly through other airports.
- Hub connectivity: The level (number and quality) of reasonable indirect connections offered through the assessed airport.

A review of different approaches to measuring network connectivity reveals that there are at least three that account for all three components of connectivity and are capable of assessing changes to the route network from different exogenous factors, such as changes to government policy or airline business models serving the network. These are: Network quality models; Quickest path length models, and Generalised travel cost models. Network connectivity metrics however, based on each of these techniques requires significant resources in terms of modelling capacity, data collection, and expert judgment.

The decision on the choice of an appropriate approach to measuring connectivity depends upon the objectives and resource availability. Most network connectivity studies conducted by governments do not rely on such modelling techniques. The most common connectivity metrics used by policy makers are derived from statistics on flight schedules, as well as passenger and cargo flows data. The most common metrics derived from such statistics include the number of available destinations, flight frequencies, seat capacity, seat-kilometres, cargo-hold capacities, passenger and cargo volumes, and market shares. The approach to assessing connectivity and choice of measurement metric(s) in this study has been informed by the considerations set out above and available funding.

In the case of passenger travel by sea the role of ferries is to act as a bridge between Great Britain and the island of Ireland. It is quite simple in terms of the numbers of routes and largely caters for road based onward travel. Therefore, connectivity for passenger movements can be reviewed on the basis of route development.

In the case of air transport another approach was employed to benchmark Northern Ireland with airports serving other areas of the UK and the Republic of Ireland. The two Belfast airports are significant airports serving the majority of Northern Ireland's external passenger travel requirements.

To assess air connectivity the following airports were selected to compare their performance with Belfast:

- Dublin
- Edinburgh
- Glasgow
- Newcastle
- Manchester
- Leeds Bradford
- Bristol
- Cardiff

Given the resources available to this investigation and these features of Northern Ireland airports' market profiles it was deemed appropriate to assess connectivity on the basis of a bespoke approach focusing on what we have termed **Basic Connectivity, Frequency and Business Connectivity, and Hub Connectivity**. The measurement of each of these was undertaken for the first week of July over a twenty-year period 1999 – 2019. This week was chosen for analysis as that represents the peak summer season, but it does also include business routes which are reduced or withdrawn during the holiday period later in July and August. Three years were selected for detailed measurement for the study: 2019 which represents the most recent situation before the COVID-19 crisis and before the collapse of Flybe - which was a major provider of services at many of the UK regional airports. 2007 is used as the midpoint, which represents the previous peak before the downturn during the economic crisis or 'credit crunch' period from 2008-10. 1999 is taken as the historic base position in the heyday of the traditional airline industry before the '9/11' downturn and the rapid growth of the Low Cost Carriers (LCCs) which changed airline networks dramatically during the 2000-04 period.

Basic Connectivity

The measure adopted here is the number of destinations with non-stop scheduled service from the city during the study periods. Locations with multiple airports such as Belfast City/International and

Glasgow/Prestwick are grouped together for this purpose to look at the combined route network from the region. This takes no account of the frequency of operations.

Table 4.1 demonstrates Belfast has seen a significant expansion, in line with Glasgow or Newcastle but it is now far behind the network scale of Dublin, Edinburgh or Manchester. It has been also overtaken by Bristol, while Leeds Bradford has caught up.

Frequency and Business Connectivity

Additional measures have been created to assess the suitability of flights for business travel or other time sensitive or urgent requirements. There are two measures adopted here – the first is the number of routes with at least 2 frequencies per day in each direction on Monday-Friday (this still takes no account of the schedule but indicates where passengers have a reasonable choice of frequency on the route concerned and the second is one we have called the business connectivity where the route has a flight departing before 10.00 hrs and after 16.00 hrs in both directions so permitting a day trip between both airports concerned, starting from either end of the route. The frequent routes have been stable over the years at most locations, only showing significant growth at the two largest airports Dublin and Manchester where a range of busier routes have reached the threshold to support at least 2x737 or A320 flights per day. This implies that most of the expansion in Basic Connectivity has come from low frequency routes, typically to leisure destinations. Belfast has 20 frequent routes but 16 of these are domestic and 3 are holiday routes to Alicante, Faro and Malaga; Amsterdam is the only major European city served twice per day.

Business connectivity has somewhat surprisingly stayed the same or declined over the twenty-year period at most of the cities in the sample (Table 1). This is a function of larger aircraft sizes and the growth of LCCs who put price competition above frequency. It also reflects the low growth of the business market leading to a relative decline in its importance. Most routes in this category are either the longer domestic sectors or to major cities and hub airports in Europe. Thus, the key destinations haven't really changed very much over the years leading to stability in the network. At Belfast the 14 such routes are all UK domestic (helped by the sea crossing required in all cases). Improved rail services in Great Britain have reduced the need for some domestic air routes, particularly in the middle of the country, serving Newcastle, Manchester and Leeds.

Much of the business connectivity in Table 1 below was provided by Flybe in 2019, leading to concerns as to how essential business links will be maintained if these routes are taken over by LCCs at poor timings and frequency or dropped altogether. In a few cases, Loganair or Aer Lingus Regional (Stobart) stepped in with small aircraft but at the time this research was undertaken it was unclear whether this would be commercially sustainable where LCCs also have a service in the vicinity.

Table 1: Business Connectivity at Sample Cities 1999-2019

	1999	2007	2019
Belfast	17	17	14
Dublin	23	23	23
Edinburgh	17	19	18
Glasgow	19	18	17

Newcastle	11	13	4
Manchester	28	30	22
Leeds Bradford	8	9	3
Bristol	8	9	7
Cardiff	5	4	5

Source: OAG, Dennis, TAA

Hub Connectivity

To measure the potential links via hubs to the rest of the world from each regional centre, two measures have been adopted. One is the weekly frequency of services **by the hub airline** to airports which can be considered a hub for that traditional network airline who markets connecting flights (LCC bases are not hubs in this context even though e.g. Ryanair has a large number of flights at Stansted or Dublin). In contrast Dublin is a hub for Aer Lingus. Some airports are not hubs for the entire time period if they fall below a frequency of 500 flights per week e.g. BA at Gatwick was a hub in 1999 and 2007 but no longer in 2019.

Thus, KLM flights to Amsterdam will count as hub links but EasyJet or British Airways flights to Amsterdam do not count as hub links. There has to be a code-share in place with the hub carrier for third party services to be included in this category e.g. in 2019, Flybe on Cardiff-Paris has a code share with Air France hence is counted as Air France and similarly for Aer Lingus with BA on Belfast-Heathrow but Flybe on Manchester-Amsterdam has no code share with KLM and hence is not counted as a hub feeder. British Midland was treated as a hub link with Star Alliance carriers at Heathrow in 1999 and 2007.

Hub frequencies have declined everywhere except Dublin and Cardiff. Although starting from a much lower base than Manchester, Dublin has become a 'must have' location in the networks of major airlines. Belfast (which in previous years enjoyed service by KLM from Amsterdam, Sabena from Brussels, Continental from Newark and BA from the Birmingham Eurohub as well as both BA and bmi from Heathrow) is now down to only the BA Heathrow link, albeit at a high frequency. In contrast, in 2019 Cardiff Wales had no Heathrow link but adequate services to Amsterdam and Paris CDG as well as Qatar operating daily to Doha.

To provide a combined measure of both the frequency of hub feeder links and the scale of the hub they are connecting with, a Hub Connectivity measure has been derived (Table 2). This combines the weekly frequency from the regional airport with the weekly frequency from the hub to all destinations. In all cases only the hub airline and code-share partners are counted. This provides a crude measure of the total potential connectivity.

Table 2: Hub Connectivity from Sample Cities 1999-2019 (thousands)

	1999	2007	2019
Belfast	426	144	321
Dublin	860	951	2231
Edinburgh	981	1054	1124

Glasgow	904	803	724
Newcastle	590	436	572
Manchester	1642	1614	1721
Leeds Bradford	243	146	176
Bristol	197	267	174
Cardiff	108	121	180

Source: OAG, Dennis, TAA

The table above indicates that Belfast has very weak global connectivity, behind all the airports in the table except Leeds Bradford, Bristol and Cardiff. The take-over of bmi by BA did improve the situation compared to 2007 however when only bmi operated on Belfast-Heathrow. Dublin has powered ahead while Edinburgh, Manchester and Newcastle have also held their ground. Glasgow and Leeds/Bradford are the other big losers, suffering from being overshadowed by their larger neighbours in the same way that Belfast is by Dublin. It is more efficient for airlines to only serve one airport in a region than multiple ones although a wider network can help maximise market share (the strategy adopted by KLM in the UK and in past years, Continental).

As the size of almost all the hubs has grown over the years, the Hub Connectivity would be expected to increase if the same network and frequencies from the sample airports were maintained. That has not happened in some cases, indicating fewer frequencies or some hub links being dropped altogether (N.B. if e.g. Air France is replaced by EasyJet on a route to Paris this is no longer a hub link).

Connectivity by Passenger Ferry

The network of ferries catering for passenger movements across the Irish Sea can be grouped into main corridors, the Northern Corridor serving Northern Ireland, the Diagonal Corridor serving Northern Ireland ports from England, the Central Corridor linking ports in England and Wales with Dublin and the Southern Corridor linking West Wales with the southern part of the island of Ireland. The pattern of routes has in recent years experienced considerable consolidation in the Northern Corridor in particular. Advances in fast ferry technology acted as a catalyst for establishing longer routes and/or relocation of ferry routes to different or newly constructed port facilities. Ultimately these innovations proved unviable due in part to the economics of the operation of fast ferries with the result that in the Northern Corridor during the last decade the number of routes had reduced to two, Larne Cairnryan and Belfast Cairnryan. Across the Diagonal Corridor the pattern of routes has tended to exhibit greater stability.

3. Impact of the Coronavirus Pandemic and the Flybe collapse on Northern Ireland's External Connectivity

The COVID-19 Pandemic and the financial collapse of Flybe have had major impacts on Northern Ireland's external connectivity. Apart from two routes to London all scheduled passenger services ceased by the end of March 2020. Air travel from Northern Ireland was limited to Aer Lingus flights between Belfast City Airport and London Heathrow, and a Loganair link between City of Derry Airport (CODA) and London Stansted Airport. Other routes to Great Britain from CODA were suspended.

At Belfast City, Flybe, which operated 80% of flights and carried over 1.6 million passengers across 14 routes, ceased operations in March 2020. During last winter up to February 2020 Flybe provided around 500 flights a week to 12 destinations throughout Great Britain.

As of October 2020, a number of these routes had been re-established, albeit with lower capacity in many instances. Flights to Aberdeen, Glasgow, and Inverness restarted in March 2020. In August 2020 services to Birmingham, East Midlands, Edinburgh, Exeter, Leeds/Bradford and Manchester restarted while flights to London City restarted in September 2020.

All scheduled passenger services had ceased operation from Belfast International by late March 2020, a situation that continued through to June 2020. The airport’s principal carrier, EasyJet announced it would resume flights to Birmingham, Bristol, Edinburgh, Glasgow, Gatwick, Liverpool and Newcastle from Belfast International Airport from June 15. As of October 2020, the following domestic UK routes from Belfast International were operating: Birmingham, Bristol, Edinburgh, Glasgow, Liverpool, London (Gatwick, Luton, Stansted), Manchester, and Newcastle.

In summary, for a period of up to three months the vast majority of routes did not operate. This is illustrated dramatically for the case of Belfast’s two airports (Belfast City and Belfast International) in Table 3. Connectivity fell by more than 90% across a range of indicators.

Table 3: Basic, Frequency, Business and Hub Connectivity by Air - Belfast 2019 and Spring 2020

To/from	Basic			Frequency			Business			Hub		
	2019	Spring 2020	% Chg	2019	Spring 2020	% Chg	2019	Spring 2020	% Chg	2019	Spring 2020	% Chg
Belfast	67	1	-99	20	1	-95	14	1	-93	59	5-10	-83/-92

Basic Connectivity = No. of Routes

Frequency Connectivity = No. of Frequent Routes (2 per day)

Business Connectivity = No. of Routes without & Back in 1 day facility

Hub Connectivity = No. of services per week (each way) to Hub

Source: OAG, Dennis, TAA

4. External Connectivity: The Challenges for Northern Ireland before COVID-19 and posed by the Pandemic, Government Lockdowns and other Public Health Measures

The audit of external connectivity demonstrates that overall, the air connectivity of Northern Ireland has highlighted improving performance in relation to the overall extent of air links offered by Belfast’s two airports taken together over the 20-year period 1999 – 2019. However, the audit also revealed in recent years Belfast’s connectivity performance trailed behind a number of its peer regions in these islands. Moreover, before the emergence of the COVID-19 Pandemic Belfast exhibited relatively weak global connectivity.

Self-evidently Northern Ireland's geography points to the importance of sea transport to provide a key element of its external connectivity. The network of ferry services catering for passenger movements across the Irish Sea has in recent years exhibited consolidation in the Northern Corridor in particular. Across the Diagonal Corridor the pattern of routes has tended to exhibit greater stability. The dependence of Northern Ireland on air and sea transport to provide its external connectivity, both domestically and internationally, is well illustrated by the audit as is the frailty of its air links in the wake of the COVID-19 Pandemic and the collapse of a dominant carrier (Flybe).

The first half of 2020 witnessed a dramatic decline in Northern Ireland's connectivity by air with additional threats to its connectivity by sea. For a period of up to three months the vast majority of domestic air routes did not operate. Northern Ireland's external connectivity was reduced to two to three flights per day between Belfast City and London Heathrow and City of Derry to Stansted. No air connections were available to Scotland and the regions of England and Wales for at least three months. The only alternative during that period for travel between Northern Ireland and these regions was by travelling to London and then taking onward transport or by ferry to Scotland or Liverpool imposing an additional 3 to 9 hours on overall journey times covering the majority of cases.

This loss of supply is reflected in and reinforced by the collapse in demand for air travel. The Belfast - Heathrow route was down to 5% of normal passenger numbers in the Spring of 2020 while overall demand for air travel to/from Northern Ireland was as little as 0.5% of 2019 levels. The in-depth assessment reported in the report commissioned by the Department for the Economy (NI) prompted the following overall observations:

- External travel has exhibited a dramatic and unprecedented decline outside of wartime or during the very short-term disruption caused by the Icelandic Ash Cloud incident in 2010.
- There is evidence of substantial changes in the relative significance of selected trip origins and destinations both among residents and prospective visitors to Northern Ireland.
- There is a significant change in mode of travel used from air to ferry.

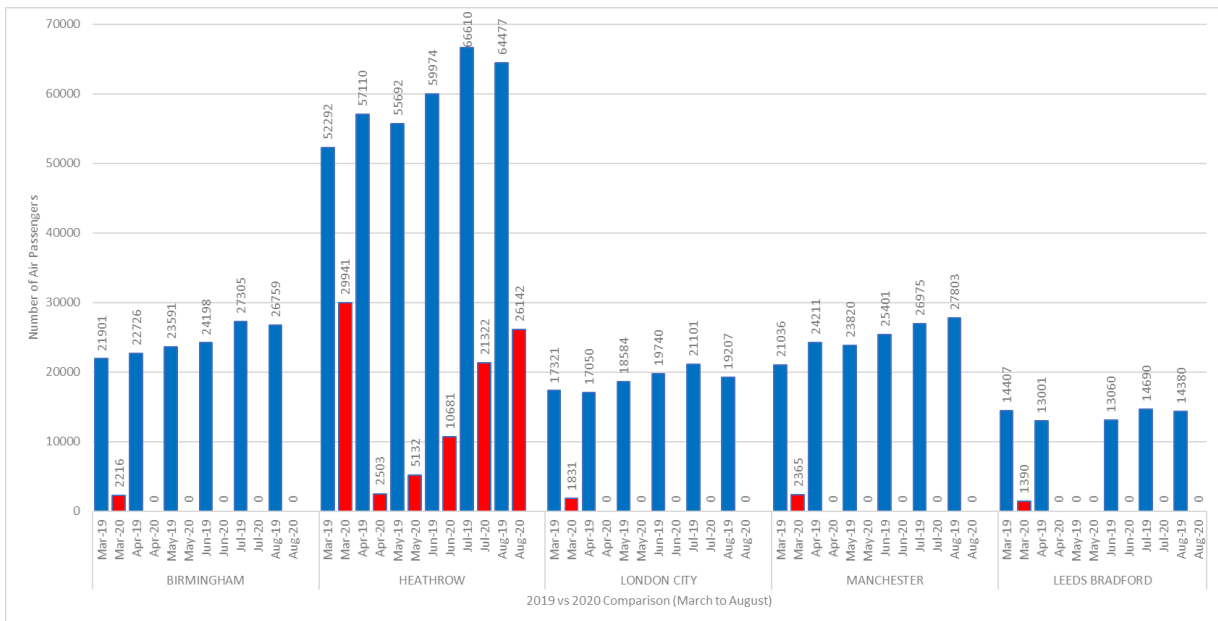
The research also demonstrates among residents of Great Britain who had travelled to Northern Ireland 15% had done so during the first 6-month period covering the spring and summer of 2020. 35% had done so during the previous six months covering the autumn and winter of 2019/20. The imbalance in travel was most marked in areas that had lost air services. In contrast in the case of London that retained its links with Northern Ireland 38% of residents of London who reported travelling to Northern Ireland had done so within the first six months following emergence of the pandemic. For the previous six months the figure for London residents the figure was 12%. The key factors underpinning these unprecedented changes include the following:

- It is evident that during the weeks running up to announcement by the Government of the first UK wide lockdown air travel was already experiencing a significant reduction in demand.
- Initially this decline appears to have been prompted by fear of contracting the virus from fellow passengers or crew while travelling on a plane.
- The rate of decline in demand for air travel increased significantly in the wake of Government regulation, guidance and public health messaging relating to the COVID-19 Pandemic.

- The evidence assembled in early autumn of 2020 suggested approximately half the population are unlikely to return to air travel under current circumstances while for ferry this figure is markedly lower.

The period from early March 2020 throughout the remainder of 2020 has experienced dramatic changes in the pattern of air travel worldwide due to the impact of the COVID-19 Pandemic. In Northern Ireland the collapse of the airline Flybe came just before the UK Government imposed the first UK wide national lockdown. For Belfast City these effects are graphically illustrated in Figure 1 for Belfast City covering the periods March – August 2019 and 2020. This figure highlights the loss of routes to Birmingham, London City, Manchester and Leeds Bradford all together and the reduction of passenger numbers on the Heathrow route by more than 95% in April 2020 compared to April 2019. Apart from the City of Derry to Stansted route this is the only route continuing to operate throughout the lockdown period and since the low point of April 2020 has managed to recover to around 40% of its normal carryings by August 2020 compared to August in 2019.

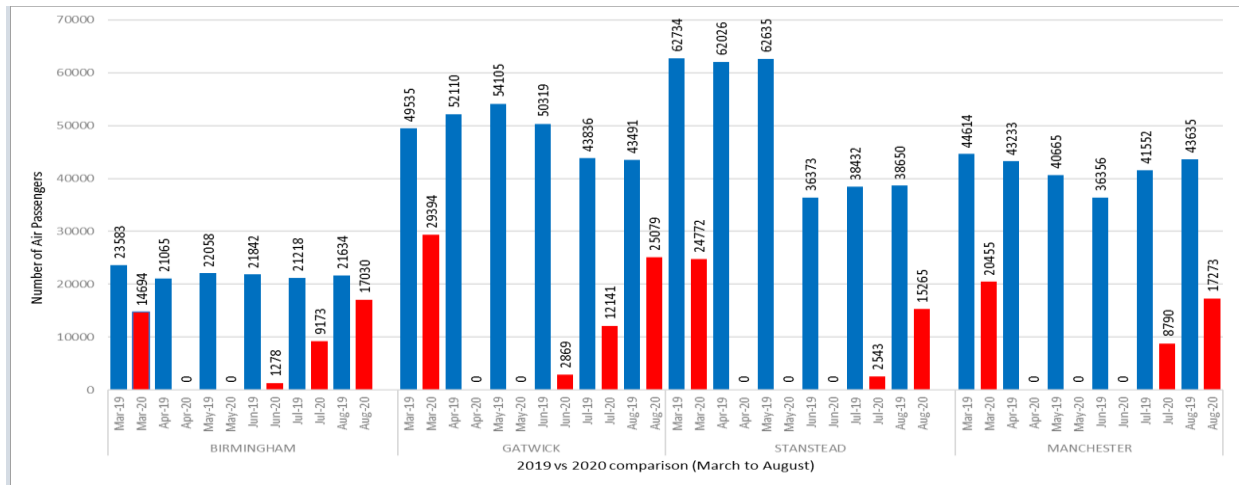
Figure 1 - Total Number of Air Passengers to and from Belfast City Airport by Route (March to August 2019 versus 2020)



Source: CAA/TAA

In the case of routes served by Belfast International the UK wide lockdown resulted in passenger flight ceasing by April 2020 as shown in Figure 2. A number of these ultimately resumed operation in mid-June 2020 with Birmingham route recovering 79% of the previous August, Gatwick 58% and Manchester to 40%.

Figure 2 - Total Number of Air Passengers to and from Belfast International Airport by Route (March to August 2019 versus 2020)

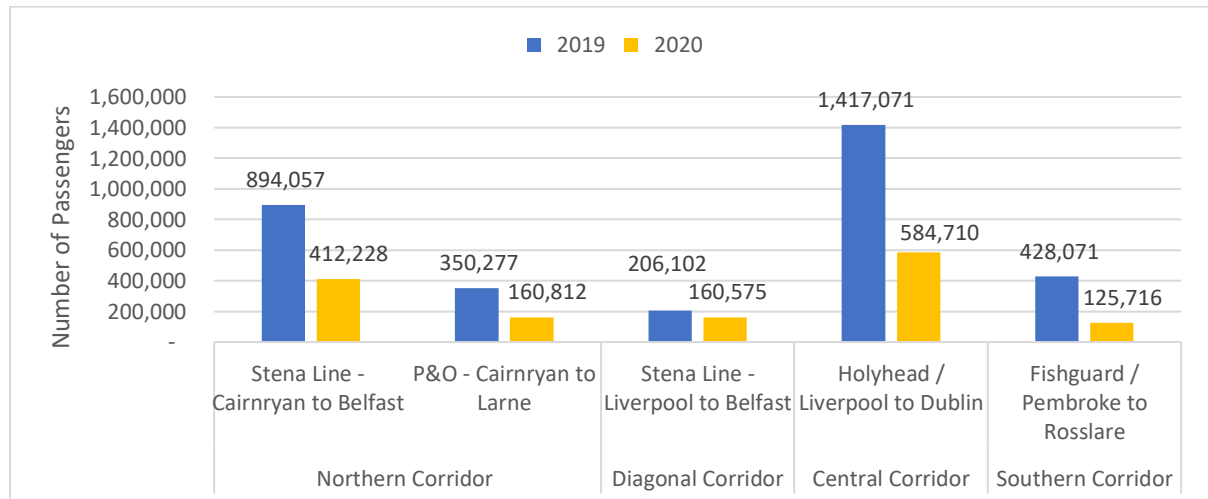


Source: CAA/ TAA

Turning to travel by sea, the overall pattern of passenger movement between Great Britain and Northern Ireland exhibits considerable stability during the last decade following a dip in the early 2000s. Within that overall pattern however, the growing share of traffic through Belfast at the expense of Larne is apparent. Overall, the pattern of travel across the Irish Sea shows a growing share of passenger movement moving through ports in Northern Ireland. Within that overall pattern Dublin - Holyhead continues to dominate flows between Great Britain and the Republic of Ireland.

The period since early March 2020 has experienced very substantial reductions in the ferry travel across the Irish Sea (Figure 3). Within that overall pattern considerable volatility is evident with reductions of 90% in passenger movements following the imposition of the lockdown restrictions, regulation and guidance being followed by partial but significant recovery during the summer months. The position for the Year to date at August 2020 compared to the Year to date at August 2019 demonstrates an overall reduction of 54% on the Northern Corridor and 22% on routes serving the Diagonal Corridor and 59% on the Central Corridor.

Figure 3 – Total Number of Ferry Passengers – GB to NI and Rol (Yr to date at August 2019 & 2020)



Source: Dft/Ferrystat/TAA

5. The COVID-19 Pandemic and Patterns of External Travel to/from Great Britain and Northern Ireland

Since 2019 the percentage of people indicating they had undertaken no overseas trips increased markedly across all regions of the UK. This is most marked in the case of London. A similar pattern is apparent in the case of Scotland for UK short breaks where the number reporting not having undertaken such a trip rose from 45% to 84%. This compares to 14% in the case of London. The overall figure for Great Britain is 27% while for Northern Ireland the percentage taking no UK short breaks rose 43% to 75%.

The patterns of external movement indicate that among the respondent's resident in Great Britain 7% have visited Northern Ireland at least once during the last 5 years for any purpose. The figure for residents of Scotland is 23% while, apart from London at 11%, for the remainder of the UK less than one in ten have visited Northern Ireland for any purpose during the last five years. In the case of Northern Ireland residents 66% report having visited England and Wales at least once in the last five years while for Scotland the figure is 40%.

Turning to the trip purposes reported for their most recent trip to Northern Ireland overall 40% of residents of Great Britain indicate the primary purpose as holidays/short breaks and a further 22% reported visiting family/friends. 14% reported their last trip was for business and the same proportion reported for work or commuting trips.

Inbound Trips: Routes and Modes

Of those residents in GB who travelled to Northern Ireland 27% left from London's airports, at least 33% travelled from Cairnryan Port or Liverpool by ferry with smaller numbers below 10% by plane from Manchester, Liverpool, Birmingham, East Midlands, Edinburgh and Glasgow. For trips from Scotland almost half reported their most recent trip was made by ferry from Cairnryan Port. The three main points of arrival were Belfast Port and the city's two airports. Overall, 53% reported travelling by plane although, in the case of Scotland, this fell to 36% while for the South East it was 78%. The remainder travelled by ferry in combination with other surface modes including private vehicles. Notably in the case of London 19% reported travelling by rail and ferry.

Outbound Trips: Routes and Modes

Among residents of Northern Ireland 31% reported England as the destination outside the island of Ireland of their last external trip. Spain was reported by 23% as the last external destination and Scotland 11% (Table 6.6). No other destination among a long list was reported by more than 7% with the Netherlands at that level

The significant changes in patterns of movement and connectivity prompted a requirement to establish both the perceived and objective level of risk by air and sea. The research reported in this document indicates between 45% and 60% of people believe it is likely or very likely they would become infected if they travelled by plane. Among UK residents this figure is highest for Northern Ireland (58%). These findings contrast with the perceived risk of travel by ferry. 29% of residents of Northern Ireland believe it is likely or very likely they would become infected if they travelled by ship. This figure is the lowest in the UK.

6. How COVID-19 has influenced business and consumer sentiment towards travel

COVID-19 Impacts on Business Travel

Business travel share of turnover pre-COVID was relatively small among an industry focused group of consultees, averaging around 1.9%. Among the Manufacturing and Professional Services sectors in Northern Ireland this would amount to spend of around £341m¹.

The findings suggest that only a quarter of that spend will be incurred during 2020. Expectations are that business travel might reduce by one third in 2021, although this ranges from some companies that believe their spend on business travel will reduce to zero to some expecting it to expand next year.

Impact of travel restrictions on business travel patterns

The evidence suggests a more negative effect on business travel going forward. Around 50% of consultees believe they would engage in less business travel in the future while 27% said that they wouldn't reduce business travel. Around 37% believe that it is very likely that they will reduce business travel to Great Britain going forward and 33% believe it very likely that they will reduce international business travel (Figure 7.2).

These findings reveal very mixed views among consultees about the impact of the virus on business travel patterns going forward. On the other end of the spectrum are those businesses that have found remote working has worked largely well since the crisis emerged and has had little impact on productivity within the business. These are more likely to be professional services type businesses that don't have the same requirement to be 'on site'.

The greatest concerns going forward focused around not having face-to-face contact with customers/clients, the limitations posed by quarantine measures in place, the availability and cost of travel services and not being able to attend trade shows/events. For those with headquarters or operations in other parts of the UK/Internationally there is a concern around not being able to work.

COVID-19 Impacts on Consumer Sentiment around Travel and Tourism

The main findings suggest that as of autumn 2020 most people believed the worst had yet to come in terms of the pandemic with only 20% or less believing that the worst had passed (although this sentiment pre-dates the recent news on the vaccine trials). The pandemic made many people anxious and most are particularly stressed about holidaying abroad and being in enclosed spaces including bus tours and indoor attractions. Confidence is low to travel within the island of Ireland (39%, confidence to travel in Ireland, RoI 37%).

The evidence suggests that it could take at least a year for the majority of consumers to feel confident to travel and with that largely within their own jurisdiction. Tourism Ireland evidence suggests that people are making travel decisions on the ability to self-repatriate quickly and ease of changing plans. This is reflected in the fact that cross-border travel by car is a relatively comfortable travel option for holidaymakers based in mainland Europe.

¹ Based on 2018 turnover figures from the Annual Business Inquiry

Northern Ireland has been particularly badly impacted in terms of willingness to travel, most notably in the GB market which is one of its most important tourism markets. The VisitBritain research (October 2020) suggests that Northern Ireland is least likely to receive visitors from the rest of the UK. Only 1% of GB residents are planning to visit Northern Ireland for their next UK overnight trip in early winter rising to 4% for late winter trips. This preceded the latest set of restrictions introduced in England in November 2020.

7. The COVID-19 Pandemic, Expectations about Future Travel to/from Northern Ireland

Expectations about future propensity to undertake longer distance travel are likely to reflect what course people think the COVID-19 Pandemic will follow in the coming months and years. The evidence available to this study indicates that in late summer only 16% of people resident in Northern Ireland thought the worst had passed while 46% anticipated the worst was yet to come. The views of people in Northern Ireland were marginally more pessimistic than those in Great Britain as a whole while residents of London were significantly more optimistic than people here.

This provides the context for consideration of future expectations about travel. In response to questions concerning how confident people were about taking short UK breaks or holidays fewer than a third were confident of doing so this year in Great Britain. The figure in Northern Ireland was less than a quarter and the evidence suggest it would be the second half of 2021 before a small majority of people here would be confident of taking a short UK break or holiday. Even for early 2022 one third of residents of Northern Ireland were not confident of being able to take such a trip, a figure slightly more than Great Britain as a whole. The main outlier in this pattern was London where a small majority indicated they were confident of making such a trip by the spring of 2021.

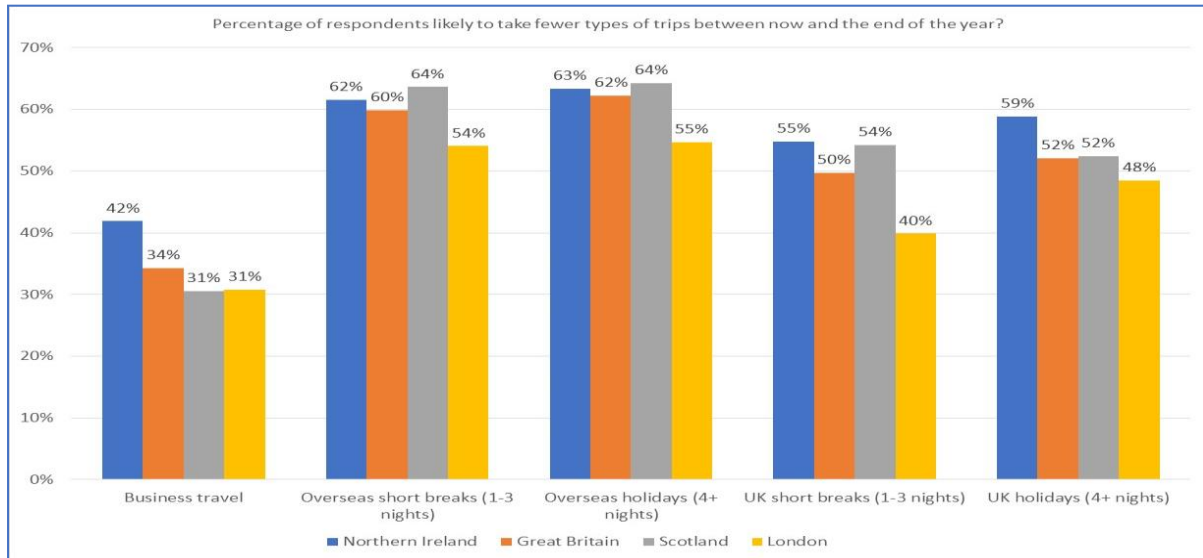
Turning to consideration of future expectations about overseas travel only 17% of Northern Ireland residents were confident of doing so this year, marginally higher than for residents of Great Britain.

The findings indicate that it would be early 2022 before a small majority reported they would be confident again about overseas travel. Again, London residents were noticeably more confident with once again a small majority expressing confidence in travelling overseas by next spring. Other restrictions about destinations and socialising were also significant deterrents to such trips.

The principal factors discouraging people taking an international trip were fear of infection, 67% in the case of Northern Ireland (similar to GB), and risk of the UK Government introducing quarantine restrictions while people are abroad at 52% (56% GB) or because other countries were already subject to quarantine restrictions upon return 47% (50% GB). 50% of Northern Ireland residents reported it not being responsible to travel during the Pandemic (48% GB).

These reported levels of confidence are also broadly consistent with reported numbers of trips likely to be made during the second half of 2020 across a range of trip purposes. For all trip purposes a greater proportion of Northern Ireland residents report fewer trips are likely to be made than among people in Great Britain. The evidence suggests that as of the summer 2020 trips during the remainder of the year were likely to be reduced overall by at least 50% in the case of Northern Ireland, marginally more than for Great Britain (Figure 4). For business travel, the reduction could be somewhat less particularly for residents of Great Britain while for overseas leisure travel it is likely to exceed 60%.

Figure 4 Percentage of respondents likely to take FEWER trips



Source: TAA

Turning now to the likelihood of people living in Great Britain visiting Northern Ireland in the foreseeable future the reported responses suggest that overall, 9% would be likely to visit Northern Ireland within the following six months across all purposes. If it is assumed a 'very likely' response to a question on travelling to Northern Ireland equates to an approximate 90% probability of actually undertaking such a trip within 6 months the likelihood of such trips reduces to approximately 4% of the residents of Great Britain. Over a year the value rises to 7% undertaking a trip to Northern Ireland. Within 2-3 years that percentage rises to 10% and 11% over 5 years.

8. Implications of Quarantine Restrictions and Industry Initiated Mitigation Measures for the Propensity for Air Travel

These findings suggest that air travel will be suppressed significantly at least until 2022 or 2023 and possibly for many years to come. It has been highlighted above that the Coronavirus generates greater levels of anxiety for air travel than travel by ferry. It is worth noting that 70% of people in Northern Ireland would be reassured about travelling by air if they were confident other people would abide by existing self-isolation/quarantine regulations. The figure for GB is however less at 63%.

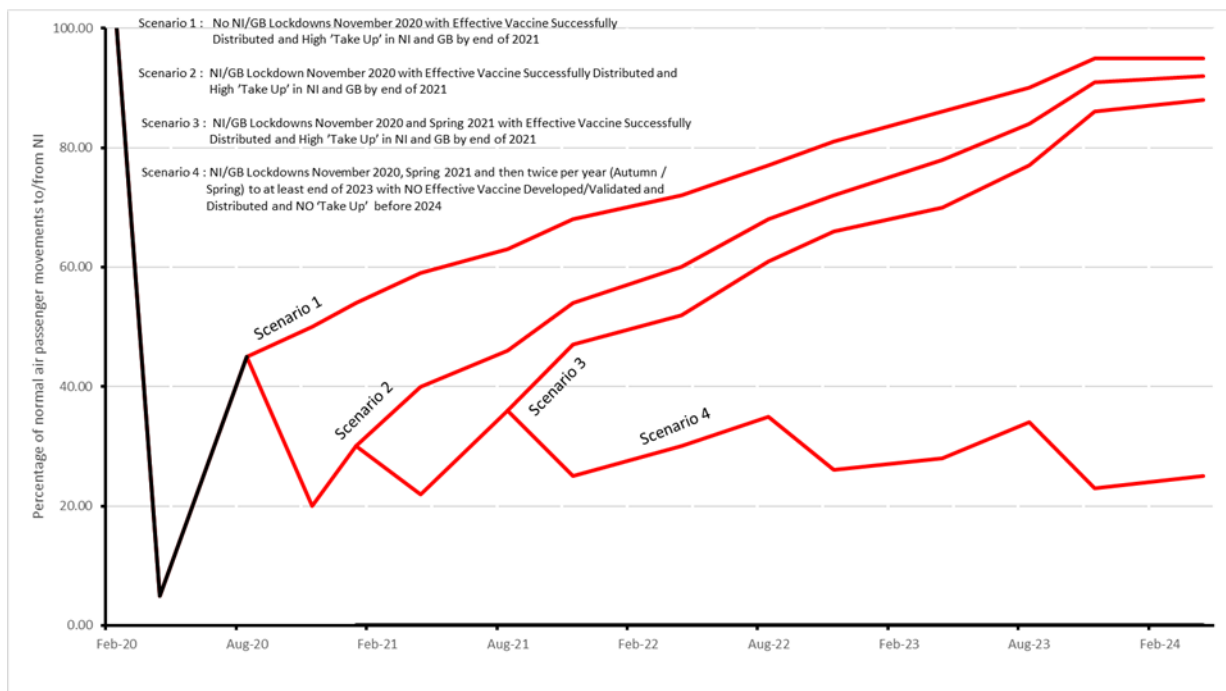
What measures are likely to impact strongly on that outcome either encouraging or discouraging travel by plane? The evidence indicates deep cleaning of the plane after each flight is the measure that most strongly encourage or encourage air travel (80% of NI residents indicated this with 75% among GB residents) followed by guaranteed refunds in the event of not being able to travel (73% NI and GB residents). Temperature checks before departure was reported by 69% in both NI and GB residents as strongly encouraging or encouraging air travel followed by 68% of NI residents reporting the effect of HEPA filters (ensuring the air in aircraft cabins is replaced ever 2-3 minutes) (67% in GB). Reducing flight occupancy was reported by 63% of residents of Northern Ireland (61% GB) as strongly encouraging or encouraging air travel followed by 90-minute Coronavirus testing facilities at airports (51% NI residents and 49% GB residents).

Among the main deterrents to air travel are higher fares to ensure an adjacent empty seat to the traveller. 45% NI residents indicated this would strongly discourage or discourage air travel (46% GB residents) although 27% said this would encourage them to fly. The other main deterrent at 35% is the UK Government imposing quarantine restrictions on other countries while travellers are abroad and requiring returning travellers from those countries having to quarantine upon arrival back in the UK. On the other hand, 44% said this would encourage them to fly.

9. Implications of Lockdowns and Vaccines for the Propensity for Air Travel and Connectivity

What does this evidence suggest for future demand for air transport in the near term? As of the summer of 2020 the data and analysis for the remainder of 2020 pointed to a likely reduction overall of at least 50% in the case of Northern Ireland, marginally more than for Great Britain. This was based on evidence collated before Northern Ireland's *partial* lockdown was implemented in October and the announcement by the UK Government of a further England wide lockdown beginning on 5th November 2020. This scenario is illustrated in Figure 5. It also sets out a number of other outcomes encompassing no further or repeated lockdowns and the success or otherwise of the development and distribution of really effective vaccines and other medical measures to tackle the COVID-19 Pandemic.

Figure 5. Air Travel Market Projections for Scenarios 1-4



Source: TAA

Figure 5 demonstrates the current restrictions in Northern Ireland and the second lockdown in England, along with restrictions in Scotland and Wales, will have the effect of significantly blunting recovery of external travel to/from Northern Ireland. These are likely to reduce air travel to 20% - 30% of normal levels with a slower recovery in 2021 after the restrictions are eased than was experienced in the summer of 2020. This could push back recovery of demand for external travel by a further 6 months depending upon when these restrictions are lifted.

A significant caveat to anticipating the future path for external travel is the potential impact of widely distributed and effective vaccines with high rates of take up in the wider population. At the time of writing (late November 2020) considerable uncertainty remains about the efficacy, approval and the logistics of distributing enough vaccines and securing confidence in its effectiveness among the population to complete mass vaccination in the short term. This will most likely require a further period of 6 months to a year before any such vaccine has been widely taken up in Northern Ireland. However, if this outcome emerges the evidence reported suggests that air travel could recover to around 90% of 2019 levels by 2023 or 2024. The absence of such a turning point could well lead to demand being suppressed significantly below 2019 levels for many years to come.

The implications of any of these scenarios unfolding for external connectivity are likely to be very significant in the short term. Evidently even under the most optimistic of these scenarios air fares are likely to rise significantly while services will be cut and/or routes abandoned. One very likely outcome will be the loss of 'out and back in a day' opportunity to/from many regional centres in Great Britain. The implications for businesses located in Northern Ireland and their competitiveness will be readily apparent. The question that arises is what public policy measures could be applied to mitigate this erosion of external connectivity and how can these be funded and financed? We turn to consideration of the potential public policy intervention tools below and offer some observations on their likely efficacy and the practicality of their implementation.

10. Potential Public Policy Interventions to Support External Connectivity and Principal Study Recommendations

The study recommendations took into consideration the limitations in the latitude the Northern Ireland's Executive, along with the other devolved administrations, enjoys in relation to its authority in air and sea transport matters. The recommended short-term access mitigation strategy to respond to the challenges posed by COVID-19 Pandemic and the public health measures envisages a stepwise approach to safeguarding external domestic connectivity that could comprise the following steps:

Air Transport APD discount scheme for domestic routes (Time Limited)

Subject to agreeing extension of APD rate setting powers to Northern Ireland during the current emergency it should be feasible to design and implement within 2-3 months after agreement is reached with the UK Government, a time limited air transport APD discount scheme for domestic routes involving substantial distance across water e.g. the Irish Sea. This would be time limited to the period of the COVID-19 Pandemic/lockdowns and for a recovery period thereafter. Under an APD discount scheme ferries could be put at a relative competitive disadvantage. Measures are put forward in this report to address this. It is estimated the overall cost for Northern Ireland of implementing the proposal to introduce an APD discount for the specified services at 100% would be in the range £1.5 - £3.5 million per month, after allowing for a split in accrual of costs between the UK Government and the Northern Ireland Executive. The estimated cost range also reflects the very substantial suppression of travel that is anticipated during the period of recovery even under the most optimistic background conditions.

Public Service Obligations (PSOs)

This would take the form of extensive PSO designation of additional domestic air routes serving airports in Northern Ireland involving substantial distance across water e.g. the Irish Sea. These would be in addition to the existing PSO designated City of Derry – Stansted route. Given their vital role as lifeline services during the current crisis it is also appropriate to apply continuing PSO status to Northern Ireland's ferry routes as happened during the later stages of the first UK wide lockdown. Finally, in the context of the Common Travel Area consideration should be given to the merits of designating PSO status to a future City of Derry – Dublin route. Routes designated with PSOs in the UK are exempt from passengers being charged APD and therefore the PSO model could incorporate any existing APD discount on those routes designated PSO status. The PSO mechanism provides security to prospective users as well as wider beneficiaries of the service will continue to operate. The PSO mechanism does not imply an automatic subsidy being paid to airlines awarded contracts. It is estimated the overall cost of implementing the proposal to introduce PSO arrangement for a limited number of destinations in Great Britain would be in the range £2.5 million - £5 million per month. Based on airline industry costs for operating existing PSO routes in the UK this could be expected to cover at least 10 thin routes serving at the lower end of the overall cost range. The estimates also allow for potential support to PSO designated ferry services during lockdowns or similar periods when passenger traffic is severely limited by Government regulation and guidance or high levels of infection. An important consideration with PSOs as noted above is they usually take more time to set up than establishing an APD discount scheme. However, during the Pandemic the UK Department for Transport (DfT) for air links was able to fast track designation to permit emergency payments to be made. Moreover, an 'Open PSO' offers a streamlined application process to establishing services.

Route Development Funds (RDFs)

An alternative to PSO designation is the use of Route Development Funds (RDFs). In combination with a co-operative marketing agreement it may be more attractive to LCCs in enhancing services frequencies more tailored to business needs.

Funding the Study Recommendations

COVID-19 recurrent funding from the UK Government to the Northern Ireland Executive has risen further to £2.8 billion in the wake of the second lockdown in England. The £121 million (£15.1 million per month) received by the Northern Ireland Executive from emergency COVID-19 spending on public transport in Great Britain (outside London) represents an underestimate of the total funding received by the Northern Ireland Executive attributable to spending on public transport elsewhere in the UK. Moreover, Northern Ireland's transport connectivity needs have different characteristics to those that exist in GB. Among the UK's four nations it depends uniquely on external links by sea and air to ensure its connectivity with the rest of the UK.

A thorough review of the funding streams that have been allocated to all public transport modes in Northern Ireland indicates, at the time of writing, that those modes have received substantially less in emergency COVID-19 allocations in aggregate than their counterparts in GB. Funding equates to approximately 58% of what it would have received elsewhere in the UK. On 24th September 2020 the NI Executive £54.8 million of the funding set aside for Transport (and PPE) had yet to be allocated. At that point limited amounts of funding from the Executive had been allocated to maintaining external domestic connectivity support.

Both the UK Government and NI Executive have had to deal with a wide range of complex and competing demands as they have shaped their response to the pandemic. However, it is evident that for this financial year sufficient funding has been made available by the UK Government to the Northern Ireland Executive to meet both the on-going funding requirements for public transport in Northern Ireland and the funding and financing required to sustain operation of both Northern Ireland's key infrastructure Gateways. Should flexibility with funding at year end be possible and additional COVID-19 emergency funding be made available for 2021/2022 it is vitally important that both the UK Government and the NI Executive seek to prioritise funding both now and over the recovery period in order to support maintenance of these vital external links, given the profound economic and social need that has been identified in this report for sustained connectivity between NI and GB.

2021 Postscript

It has been noted for a period of up to three months the vast majority of domestic air routes serving Belfast's two airports did not operate. Connectivity fell by more than 90% across a range of indicators. Following completion of the study on behalf of the Department for the Economy (NI) as reported in Smyth and O'Reilly (2021) levels of connectivity at Belfast and four other airports in the northern half of the British Isles have assessed for July 2021 and compared with July 2019. Table 4 demonstrates something of a recovery in levels of connectivity during 2021 compared to 2020. However, across all indicators substantial declines in connectivity compared to pre pandemic levels are evident for all airports, although the pattern vary somewhat between all locations. Notable outliers include Dublin and Edinburgh.

Table 4: Basic, Frequency, Business and Hub Connectivity by Air - Belfast 2019 and 2021

To/from	Basic			Frequent			Business			Hub			Hub Connectivity		
	2019	2021	% Chg	2019	2021	% Chg	2019	2021	% Chg	2019	2021	% Chg	2019	2021	% Chg
Belfast	67	53	-21	20	14	-30	14	5	-64	59	47	-20	321	128	-60
Dublin	178	157	-12	54	31	-43	23	13	-43	446	303	-32	2231	861	-61
Edinburgh	143	114	-20	26	15	-42	18	5	-72	268	158	-41	1124	344	-69
Glasgow	89	66	-26	26	15	-42	17	9	-47	167	111	-34	724	262	-64
Newcastle	57	48	-16	10	6	-40	4	2	-50	94	64	-32	572	174	-70
Basic Connectivity = No. of Routes Frequency Connectivity = No. of Frequent Routes (2 per day) Business Connectivity = No. of Routes with out & Back in 1 day facility Hub Connectivity = No. of services per week (each way) to Hub															

Source: OAG, Dennis, TAA

For Belfast the key points to note are the number of routes is not down much (67 to 53) due to holiday routes maintained at low frequency. Domestic routes have also held up relatively well compared to international. Some new routes have been added. However, frequent routes are down from 20 to 14 while only 5 routes offer business connectivity. Hub frequency is not down much but reduction in international services to link with reduces hub connectivity by more than 50%.

Dublin has held up rather better. This is mainly due to EU services running at around 70% of 2019 frequency although intercontinental is badly down. That is the main difference with Belfast. Ireland-UK routes and UK domestic are similar but UK-Europe is only at about 40% of 2019 frequency. The hub airlines have also been maintaining frequencies better than average which LCCs can't do - and because the hub feed allows more services to operate in a weak demand environment). Nevertheless, Dublin has also been hit by a loss of business connectivity and hub connectivity

Edinburgh is worst hit of all so far. The route network has held up quite well because the LCCs can't do much else but keep the same routes and halve the frequency to a typical minimum of 2 per week so it is just the routes which only had 2 or 3 to start with that have fallen out altogether. Frequencies are overall badly down on the European network.

The domestic market has been decimated at Edinburgh however (unlike Belfast) presumably because it can't compete with the high frequency highly subsidised rail services. Gatwick has gone from 8 a day to 3 and London City from 9 to 2. Manchester is no longer served and Birmingham has gone from 7 to 2. None of these offer a full schedule for business trips (all of them were possible in 2019). The demise of flybe is another key factor here – Belfast has got away with it because Aer Lingus Regional has

plugged the gaps. At Edinburgh the ex flybe routes are either no longer served or else it is easyjet on a poor frequency. Heathrow has 7 flights a day instead of 14 which is still a reasonable service (every 2 hours instead of hourly before).

Glasgow actually fares less badly than some of the others as the PSO routes to the Highlands and Islands have been maintained at previous service levels (suitable for business pax). It is also more outbound and leisure traffic focused than e.g. Edinburgh which may have helped maintain its relative position. Emirates and Delta are still flying in there long-haul as it has a longer runway than Edinburgh. It also boasts a BA Gatwick service! (in addition to Heathrow and City).

The overshadowing effect will be accentuated by the pandemic. This probably hits Glasgow v Edinburgh, Leeds v Manchester, East Midlands v Birmingham etc. The international border may give Belfast a degree of protection however. It is clear in London that Heathrow is dominating with very patchy services to the others. The other interesting point is that KLM is becoming even more of a lifeline to the regional airports in Britain and its international network less ravaged by covid disruption than BA's.

Newcastle results for July 2021 demonstrate UK domestic and international are both weak. Most of the basic connectivity comes from 2 or 3 per week flights to holiday resorts. Heathrow has fallen behind Amsterdam on hub connectivity from Newcastle. Regional carriers using smaller aircraft have sustained links with the south coast to offer business frequencies and timings. The long distances to the northern cities and poor train services coupled with the presence of some high yield traffic presumably make these viable.

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