



Development of Bristol Airport to Accommodate 12 Million Passengers Per Annum

Socio-Economics

James Brass

Rebuttal Proof of Evidence BAL/5/3

Section 78 Town and Country Planning Act 1990 Appeal by
Bristol Airport Limited Relating to Bristol Airport, North Side
Road

Planning Inspectorate Reference: APP/D0121/W/20/3259234
North Somerset Council Reference: 18/P/5118/OUT

1. Introduction

1.1.1. This Rebuttal Proof of Evidence is provided principally to address points made by Mr Siraut in his proof of evidence relating to economic impact (NSC/W5/1 Siraut, 2021) and by Dr Chapman in his proof of evidence on economic impacts (PCCA/W5/1 Chapman, 2021).

1.1.2. Mr Siraut has raised a number of issues in relation to the socio-economic impacts of the Appeal Proposal. Mr Siraut focusses principally on four areas of disagreement:

- benefits from business passenger travel;
- the scale of productivity growth on-site at Bristol Airport and the consequent effect on direct employment;
- the extent of displacement of economic benefits associated with the appeal proposal;
- the effect of uncertainty especially regarding the UK's exit from the EU, outbound tourism and environmental impacts.

1.1.3. These broad issues raised by Mr Siraut in his proof of evidence are not new and I have addressed these in my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021). However, Mr Siraut's evidence does provide additional detail as regards his thinking and rationale in some areas. I have therefore commented and presented further evidence in relation to some areas below.

1.1.4. Similarly, Dr Chapman has raised a number of issues in relation to the socio-economic impact of the appeal proposal, again focussing on a number of areas:

- economic appraisal methodology, suggesting that a WebTAG appraisal should have been used;
- sensitivity testing, claiming that insufficient sensitivity testing was undertaken;
- appraisal geography, claiming that a national level assessment should have been undertaken;
- displacement of economic effects, suggesting that displacement effects have been underestimated;
- direct employment and the extent of productivity growth on-site at Bristol Airport;
- business productivity benefits from travel;
- the effect of outbound tourism;

- the treatment of climate and other environmental impacts.

1.1.5. Again, in the main, these are not new issues that Dr Chapman has put forward and I have presented my position on them in my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021). However, again, Dr Chapman has expanded on his position in a number of places in his Proof of Evidence (PCCA/W5/1 Chapman, 2021) and I have, therefore, provided additional commentary and evidence in a number of places.

1.1.6. For the avoidance of doubt, I should add that the evidence put forward by Mr Siraut and Dr Chapman in their Proofs of Evidence does not change my conclusions in relation to the socio-economic impact of the Appeal Proposal. I continue to conclude that the growth of Bristol Airport to 12 mppa will provide significant net economic benefits to North Somerset, the West of England, and the South West and South Wales.

1.1.7. There is some commonality in terms of the themes raised by Mr Siraut and Dr Chapman. As a consequence, I have sought to address their points under these main topics:

- Benefits from Business Travel;
- Direct Employment and On-site Productivity Growth;
- Displacement of Economic Benefits;
- Outbound Tourism.

1.1.8. In addition, I have also commented more briefly in relation to other issues raised in a further section.

2. Benefits from Business Travel

2.1. Introduction

2.1.1. Below, I have considered the comments made by Mr Siraut and Dr Chapman as regards the business productivity effects of the Appeal Proposal. These comments primarily focus on two areas:

- the future growth of business travel from Bristol Airport;
- the appropriateness of the adopted elasticity for assessing the economic impact of increased business travel.

2.2. The Future Growth of Business Travel from Bristol Airport

2.2.1. Mr Siraut in Section 4.3 of his Proof of Evidence (NSC/W5/1 Siraut, 2021) expresses doubts as to the extent to which business travel will grow in the future, highlighting particularly concerns around attitudinal change and the effect of communications technologies following the COVID-19 pandemic and as a result of the climate emergency. This is similar to the argument made by Mr Folley, which I have addressed in detail in my Rebuttal Proof on air traffic forecasting (BAL/1/3 Brass, July 2021, pp. 8-10 Section 3.3). He also draws on Mr Folley's heavily flawed evidence that past trends suggest leisure travel at Bristol Airport has grown at nearly twice the rate of business travel, based on analysis of CAA Passenger Survey data. In my Rebuttal Proof of Evidence on air traffic forecasting, I have demonstrated that Mr Folley's evidence is flawed and misleading (BAL/1/3 Brass, July 2021, p. 6 Section 3.2). I return to this point and its implications below. He also seeks to suggest that Bristol Airport will not develop the necessary business destinations to support growth in business travel in the future, which again was raised by Mr Folley, and I have addressed in my Rebuttal Proof of Evidence on air traffic forecasting (BAL/1/3 Brass, July 2021, p. 10 Section 3.4). He also appears to suggest that growth at the airport may in fact hinder the development of new business focussed services, but the point is not clearly articulated.

2.2.2. Dr Chapman considers issues around the recovery of business travel in Section 7.1 of his Proof of Evidence (PCCA/W5/1 Chapman, 2021). His primary areas of focus are attitudinal change and communication technologies following COVID-19, alongside the trend in business passenger numbers at Bristol Airport.

2.2.3. I have already addressed the issue of the recovery in some detail in my Proof of Evidence on air traffic forecasting (BAL/1/2 Brass, June 2021) in Section 4.9. I have also considered the matter further in my Rebuttal Proof on air traffic forecasting (BAL/1/3 Brass, July 2021) in Section 3. I highlight some of the key points from my previous evidence and add some additional evidence in relation to the issues raised.

Attitudinal Change and New Technologies

2.2.4. In relation to attitudinal change in relation to business travel post COVID-19, I note that Mr Siraut relies on a YouGov poll undertaken in 2021 (para.4.3.1 (NSC/W5/1 Siraut, 2021)). I would make three points in relation to this evidence:

- the research was undertaken between December 2020 and January 2021, in the midst of the ‘second wave’ of COVID-19 and renewed lockdown in the UK. In other words, it was undertaken at the very height of the pandemic. It would seem inappropriate to place significant weight on statements made in the midst of the pandemic to consider a position in nearly 10 years time;
- the poll ultimately reflects a ‘stated preference’ from respondents. It does not represent actual behaviour. Clearly, there is limited evidence in relation to actual passenger behaviour following the easing of travel restrictions, but what evidence there is suggests that markets, including business markets are recovering. I have commented on this in my Proof of Evidence (BAL/1/2 Brass, June 2021) on air traffic forecasting at paras. 4.4.5 and 4.9.5;
- it is also important to note the phrasing of the question response in relation to individuals flying less. The question asks *“Thinking about when Covid19-related restrictions are lifted entirely, do you expect your business flights will...Recover but to a lower frequency than before health restrictions were imposed”*¹. The important point to note is that respondents do expect the business travel market to recover but that they will personally fly less. It does not comment on overall levels of business travel. The statement is entirely consistent with my view, as expressed at para. 4.9.9 of my Proof of Evidence on air traffic forecasting (BAL/1/2 Brass, June 2021) that *“that each individual may travel less for business but that more individuals will travel”* driven by the needs of an increasingly globalised economy.

¹ <https://docs.cdn.yougov.com/c9qjhkrpk/Marketing%20data%20tables%20-%20GSCC.pdf>. Page 25. Excerpt included in Appendix A at para. 8.1.

2.2.5. I also note Mr Siraut's comments at para. 4.3.2 (NSC/W5/1 Siraut, 2021):

"It is clear that the massive take up of video conferencing has reduced the need for business flights and the extent of the link between business travel and productivity identified by Oxford Economics is now questionable."

2.2.6. Firstly, I would point out that Mr Siraut presents no evidence to support this statement. Furthermore, I am unclear as to why this should make business travel less productive or damage the link between a region's connectivity and its level of productivity. I would also point out, as I have in my response to Mr Folley's evidence on this point, that video conferencing is not new (see para. 3.3.3 to 3.3.5 in my Rebuttal Proof on air traffic forecasting (BAL/1/2 Brass, June 2021)). There has clearly been an increase in uptake during the pandemic due to necessity but ultimately it is part of a long term trend that is reflected within time-series econometric models, such as those that support the Oxford Economics work the link between business connectivity and productivity and the Department for Transport's research on demand elasticities.

2.2.7. Dr Chapman similarly cites a range of evidence that seeks to suggest that business air travel will not recover following the COVID-19 pandemic, particularly given the rise in the use of what he terms 'novel' technologies (para. 7.1.4, page 21 (PCCA/W5/1 Chapman, 2021)). The first point I would make is that it is not correct to describe technologies such as Microsoft Teams and Zoom as 'novel'. They are evolutions of communications technologies that have been developing for decades. As I have said above, the growth of their use during the pandemic has been a function of necessity and an acceleration of a long term trend in increased uptake. As such, it is reasonable to assume that long run elasticities associated with air travel demand reflect technological change. Again, I discuss this point in my Proof of Evidence on air traffic forecasting at para. 4.9.8 to 4.9.10 (BAL/1/2 Brass, June 2021) and in Section 2.3 of my Rebuttal Proof on air traffic forecasting.

2.2.8. In regards to the articles and reports presented by Dr Chapman as evidence of attitudinal change, again, these are essentially speculating on the speed of recovery of business travel. They highlight that there are significant challenges facing the air transport industry caused by a downturn in corporate travel and there are a range of views expressed, with themes that it will take time for business demand to return and that people individually will fly less. My response is similar to that in relation to Mr

Siraut's evidence. It should be recognised that these opinions and this research have been written in the midst of the pandemic, in what is an extremely difficult time for the air transport industry. They need to be viewed through that lens. They primarily express concerns in relation to the short term and do not on the whole make definitive judgements about the long term. They do highlight some valid concerns but they are not inconsistent with my position in relation to future business travel and they ultimately do not appear to consider the positive long term drivers of increasing business demand, notably the ongoing internationalisation and globalisation of economies. Furthermore, I would strongly reject Dr Chapman's suggestion that the business passenger forecasts in the Appeal Proposal are unsubstantiated. They are based on a detailed air traffic forecasting exercise, as described in my Proof of Evidence on air traffic forecasting (BAL/1/2 Brass, June 2021, p. 27 Section 3.1).

Past Trends in Business and Leisure Demand at Bristol Airport

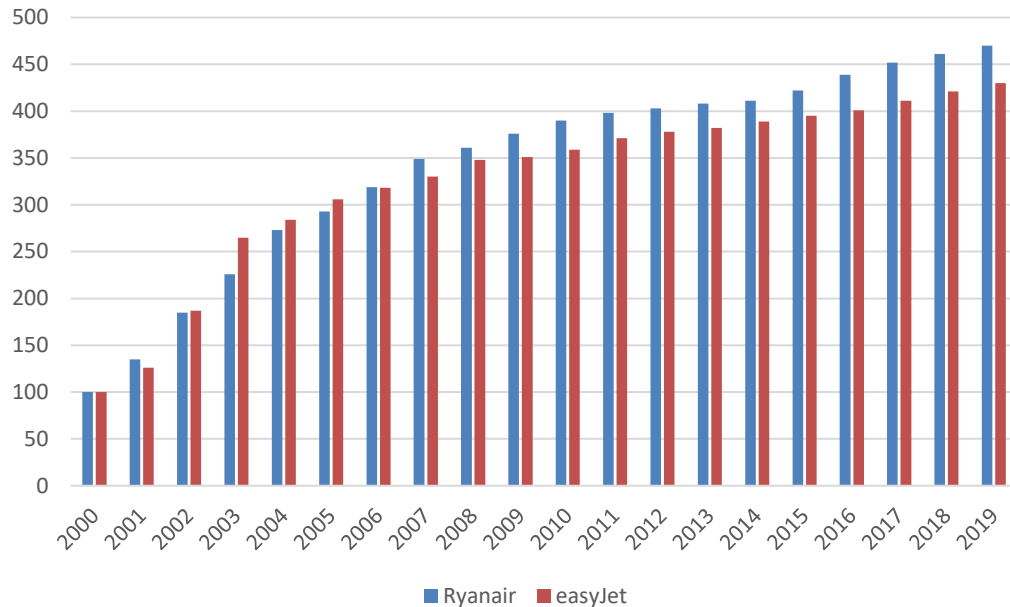
2.2.9. I now turn to Mr Siraut's position in relation to past trends in business and leisure demand growth at Bristol Airport, which he has taken from Mr Folley's Proof of Evidence (NSC/W1/1 Folley, June 2021). Mr Siraut states:

"As set out in Mr Folley's Aviation Forecasting Proof of Evidence, between 2000 and 2019 business passenger numbers grew by 4.2% a year while leisure passenger numbers grew by 8.1%. If this differential in the growth rate at best remains and more likely grows then the number of additional business passengers is likely to be far less than the extra 276,000 expected by the appellant (ie 13.8% of the extra 2mppa)." (para. 4.3.4 (NSC/W5/1 Siraut, 2021))

2.2.10. As I have shown in my Rebuttal Proof of Evidence on air traffic forecasting (Section 3.2 (BAL/1/3 Brass, July 2021)), Mr Folley's position is heavily flawed. The time period chosen by Mr Folley, 2000 to 2019, includes at the beginning the so-called 'low cost bubble', when low cost airlines, such as easyJet and Ryanair, were growing very rapidly and significantly lowering the price of air travel in the market, as can be seen in Figure 1 (supporting data can be found in Appendix A, at para. **Error! Reference source not found.** of my Rebuttal Proof on air traffic forecasts (BAL/1/3 Brass, July 2021)). This had a disproportionate impact on leisure markets where passengers are substantially more price sensitive. This period of explosive growth is generally considered to have ended with the onset of the Global Financial Crisis in around 2009. Since that time the market has stabilised as operating models have matured. It is,

therefore, vastly more appropriate to look at the market post the disruptive effect of the 'low cost bubble'.

Figure 1: Growth of Ryanair and easyJet passengers between 2000 and 2019 (Index: 2000 = 100)



Source: Ryanair and easyJet corporate statements.

2.2.11. Using the same data source as Mr Folley, the CAA Passenger Survey, I have examined two time periods, 2008 (CD7.6 CAA, 2008, p. 10) to 2019 (CD7.10 CAA, 2020, p. Table 3.4) and 2012 (CD7.9 CAA, 2013, p. 12 Table 3.4) to 2019. Over these time periods, the picture is quite different. Since 2008, business passengers at Bristol Airport have grown at 2.6% per annum, compared to 2.5% per annum for leisure passengers. Since 2012, after recovery from the Global Financial Crisis, business passengers have grown at a rate of 4.9% per annum, compared to 4.7% for leisure passengers. In other words, business passenger numbers have in fact been growing faster than leisure passengers for some time. This is shown in Table 1. This is completely opposite to the trend suggested by Mr Folley, suggesting that the evidential basis for his entire line of argument is illusory and his conclusions, therefore, profoundly misplaced. This has significant implications for Mr Siraut's analysis of the business productivity impacts of the Appeal.

Table 1: Business and Leisure Passengers at Bristol Airport

	Passengers (000s)				CAGR		
	2000	2008	2012	2019	2000 to 2019	2008 to 2019	2012 to 2019
Business	503	834	792	1,106	4.2%	2.6%	4.9%
Leisure	1,579	5,267	5,012	6,925	8.1%	2.5%	4.7%
Total	2,082	6,101	5,804	8,031			
Business %	24.2%	13.7%	13.6%	13.8%			

Note: Only includes passengers that answered the survey question.

Source: CAA Passenger Surveys.

2.2.12. I also note that Dr Chapman has made the same fundamental error in his Proof of Evidence, albeit he has expressed the position slightly differently. Dr Chapman identifies that *“The proportion of travellers flying for business at Bristol Airport has fallen from a high of 24% in the year 2000.”* (para. 7.1.2 of Dr Chapman’s Proof of Evidence (PCCA/W5/1 Chapman, 2021)). Again, his timeseries analysis has failed to allow for the effect of the ‘low cost bubble’. Since 2008, as I have described above, business demand at Bristol Airport has been growing more quickly than leisure demand, and, consequently, the proportion of passengers travelling for business has in fact risen slightly over the last decade. This is a far more appropriate trend to consider when analysing future growth at Bristol Airport.

Implications for Mr Siraut’s Analysis of Business Productivity Impacts

2.2.13. This flawed trend analysis has significant implications for Mr Siraut’s assessment of the business productivity impacts of the Appeal Proposal. Mr Siraut has used Mr Folley’s analysis as the basis for his so-called ‘optimistic’ approach to assessing business productivity impacts, suggesting that the number of business passengers would in fact be lower than suggested in the Appeal Proposal, and that as a result the business productivity impacts should be significantly reduced.

2.2.14. At para. 4.3.4 of his Proof (NSC/W5/1 Siraut, 2021), Mr Siraut states:

“As set out in Mr Folley’s Aviation Forecasting Proof of Evidence, between 2000 and 2019 business passenger numbers grew by 4.2% a year while leisure passenger numbers grew by 8.1%. If this differential in the growth rate at best remains and more likely grows then the number of additional business passengers is likely to be far less than the extra 276,000 expected by the appellant (ie 13.8% of the extra 2mppa).”

2.2.15. This clearly establishes that Mr Siraut is using Mr Folley’s flawed analysis as the basis for his consideration. He then moves on to state the following at para. 4.3.12 (NSC/W5/1 Siraut, 2021):

“An optimistic approach might be to assume that the differential growth rates between business and leisure passengers (which over the last 20 years were 4.2% versus 8.1%), would grow to the extent that it doubles, that is, leisure traffic grows four times faster than business travel. As Table 4-2 highlights this would mean business passenger numbers increase by 70,000 effectively half the level suggested by the appellant.”

2.2.16. This clearly demonstrates that Mr Siraut’s entire position in relation to his ‘so called’ optimistic approach is reliant on Mr Folley’s flawed analysis. If the appropriate trends in business and leisure travel, as set out in Table 1, are applied alongside Mr Siraut’s own logic, the results of his assessment are quite different.

2.2.17. If, adopting the same logic as Mr Siraut, I assume that business and leisure demand retains the same differential as it has since 2012, after recovery from the Global Financial Crisis, then there would in fact be around 3% more business passengers than assumed in the Appeal Proposal by 2030. I have set out a corrected version of Mr Siraut’s calculation in his Table 4-3 on page 25 of his Proof in Table 2 (NSC/W5/1 Siraut, 2021).

Table 2: Corrected Version of Mr Siraut’s Business Productivity Assessment – Optimistic Approach

	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appeal Proposal	£20m	130	100	£90m	620	500	£200m	1920	1520
Mr Siraut’s Optimistic Approach	£10m	65	50	£45m	310	250	£100m	960	760
Corrected Mr Siraut’s Approach	20.6	134	103	92.7	639	515	206	1,978	1,566
Corrected Difference	+£0.6m	+4	+3	+£2.7m	+19	+15	+£6m	+58	+46

2.2.18. This demonstrates that with the appropriate assumptions, Mr Siraut’s approach actually yields results slightly higher than the Economic Impact Assessment Addendum report (EcIA Addendum). This invalidates all Mr Siraut’s subsequent

tables, which rely on his erroneous analysis. This includes Table 5-3 on Page 30, Table 6.5 on Page 40, and Table 9-1 on Page 58.

2.2.19. At this point, I would also comment on Mr Siraut's so-called balanced approach. At para. 4.3.11 (NSC/W5/1 Siraut, 2021), Mr Siraut states:

"My balanced view is that an economic assessment would assume that the marginal productivity benefits from expansion are effectively zero. There is no guarantee that additional business destinations will be available in 2030 or that businesses will not be able to successfully undertake their activities on-line in future."

2.2.20. This highlights that Mr Siraut's supposedly balanced position is based entirely on an assumption that there will be no growth in business travel as a result of the Appeal Proposal. He bases this on there being no guarantee that additional business destinations will be available by 2030 and that there is no guarantee that businesses will not be able to undertake activities on-line in the future. I consider that by this logic no airport would ever be expanded.

2.2.21. I note that this position is not in line with North Somerset Council's own forecasting witness, Mr Folley (NSC/W1/1 Folley, June 2021). In my Rebuttal Proof of Evidence on air traffic forecasting (BAL/1/3 Brass, July 2021), I note at para. 3.6.2 on page 12, that at no point does Mr Folley suggest that he does not believe that there will be any growth in business travel as a result of the Appeal Proposal. He merely states that he believes that insufficient evidence has been provided to support the air traffic forecasts. While I completely reject Mr Folley's position in relation to the evidence base, the lack of a statement that he believes that there will be no business demand growth is important in the context of Mr Siraut's balanced view. I have commented in relation to the potential to develop business focussed destinations in sub-section 3.4 on page 10 of my Rebuttal Proof on air traffic forecasting (BAL/1/3 Brass, July 2021). I make some further comments based on Mr Siraut's comments below. However, prior to that, I would comment briefly on Mr Siraut's contention that businesses will simply be able to undertake their business on-line in the future. This seems to assume that all business air travel is about meetings and meetings that can be undertaken online. This is patently untrue. Companies move people around the world for many reasons, including I would note for such activities as to build or repair items, to undertake physical experiments or research, or to inspect and monitor overseas factories or

other facilities. None of these activities can be undertaken online. Mr Siraut's statement is completely inaccurate.

Development of Destinations to Support Business Travel

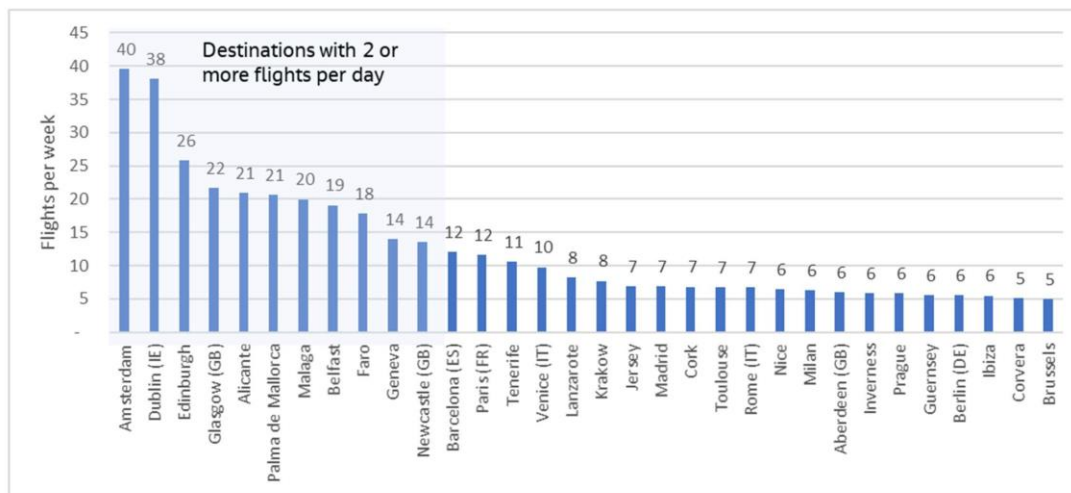
2.2.22. In relation to the potential for Bristol Airport to develop destinations that will support business travel in the future, I have again considered this issue previously in my Proof of Evidence on air traffic forecasting at paras. 4.9.11 to 4.9.12 (BAL/1/2 Brass, June 2021) and in my Rebuttal Proof on air traffic forecasting at Section 2.4 (BAL/1/3 Brass, July 2021). I would, however, make two additional comments here. Mr Siraut states at para. 4.3.6 (NSC/W5/1 Siraut, 2021):

"At this stage we do not know what the additional destinations which may be served in 2030 as a result of the proposed development may be. However, Bristol Airport predominately serves an outbound leisure market and it is likely that additional routes will primarily serve holiday destinations rather than locations which are particularly attractive to business passengers."

2.2.23. This paragraph implies that for Bristol Airport to achieve the business productivity impacts set out in the EclA Addendum, that it will need to significantly change in character in some way. I would highlight, as I have done previously, that this is not the case and not what is being suggested by Appeal Proposal forecasts. The air traffic forecasts in fact suggest the opposite, that the airport will not ultimately change in character significantly and that the business percentage at Bristol Airport will remain around 13.8%, as it was in 2019. The business productivity benefits set out in the EclA Addendum are what comes with the airport remaining largely similar in character.

2.2.24. I would also note Mr Siraut's Figure 4-1 on page 24 in respect of the availability of business destinations. I have reproduced this below.

Figure 4-1: Regular destinations served from Bristol Airport in 2019



Source: OAG

2.2.25. I would point out that Amsterdam, Dublin, Edinburgh, Glasgow, Belfast, Geneva, Barcelona, Paris, Jersey, Madrid, Toulouse (with its particular links to Airbus, which is also located near Bristol), Rome, Milan, Aberdeen, Berlin and Brussels are all significant business centres with a value to business travellers and that these airports are already served from airport. There is, of course, scope for additional business demand on these services. I would also note that this list includes a number of hubs, notably Amsterdam, Dublin and Paris are significant hub airports, which can provide indirect connectivity. This will be supplemented by the new Lufthansa Frankfurt service from the airport.

The Effect of Future Growth on Airline Behaviour

2.2.26. Finally, with regard to Mr Siraut's apparent contention that growth at Bristol Airport will not result in new business focussed services (para. 4.3.8 (NSC/W5/1 Siraut, 2021)), I would again make a number of comments over and above what has been said previously:

- firstly, I am unclear as to why the ability to grow at Bristol Airport would result in airlines behaving differently in terms of the way they have grown the route network at Bristol Airport. The headroom, in terms of capacity, granted by the Appeal Proposal would be far more likely to give comfort to airlines to invest in growth at Bristol Airport and to develop new markets, including ones that would be appealing to business travellers, and to seek to clawback some of the estimated 680,000 short haul international business travellers from the South

West that used the London airports in 2019². I note that this confidence to invest is cited as one of the advantages of granting planning permission in relation to the recent Stansted Airport Appeal:

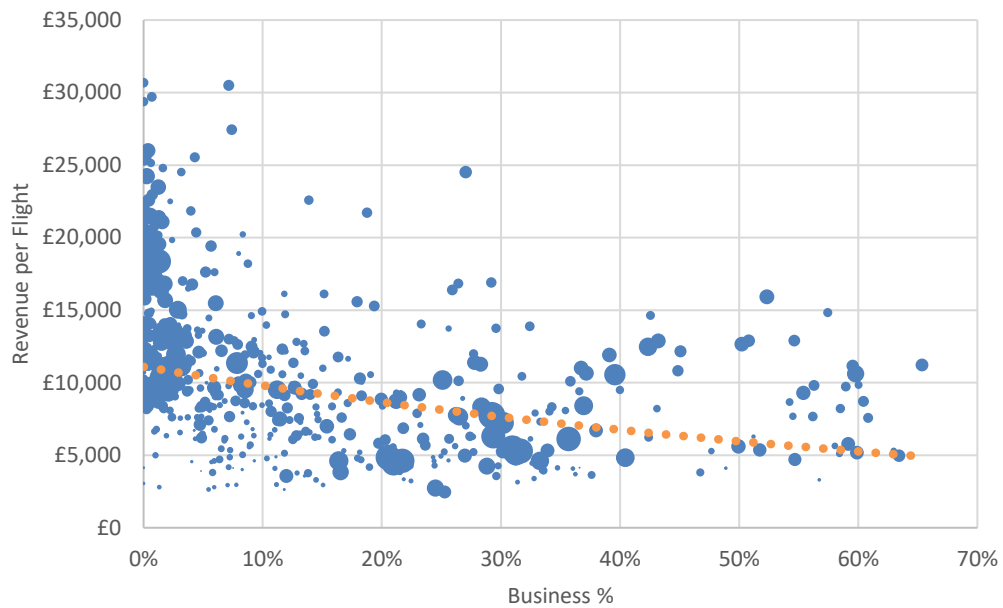
“Conversely, securing planning permission now would bring benefits associated with providing airline operators, as well as to other prospective investors, with significantly greater certainty regarding their ability to grow at Stansted, secure long-term growth deals and expand route networks, potentially including long haul routes.” (CD6.13 The Planning Inspectorate, May 2021, p. 6 para. 30)

secondly, I would contend that, as Mr Siraut suggests, it is constraint that will result in changed behaviour by airlines at Bristol Airport, but that the effect will not be “to deepen services on existing routes and remove infrequent holiday routes to provide a more stable year round offering which would be more beneficial to business travellers” (para. 4.3.8 of Mr Siraut’s Proof of Evidence (NSC/W5/1 Siraut, 2021)) but to push airlines towards focussing on the most revenue intensive routes. At UK regional airports these are not business friendly, city routes but high volume leisure routes. I have demonstrated this point in

- Figure 2, which shows the estimated revenue per flight for routes from UK regional airports based on fares and passenger demand data from CAA Passenger Surveys. The size of individual ‘bubbles’ is determined by the passenger volumes on the route. It shows, clearly, that the most revenue intensive routes for airlines at UK regional airports are high volume, leisure focussed routes. This is the type of route that airlines will focus on in the event an airport is constrained. It should be noted that I have not assumed such an effect within the EcIA Addendum in quantitative terms. Such an effect would increase the business productivity impact associated with the Appeal Proposal.

² CAA Passenger Survey data 2019.

Figure 2: Estimated Revenue per Flight vs Business Percentage at UK Regional Airports

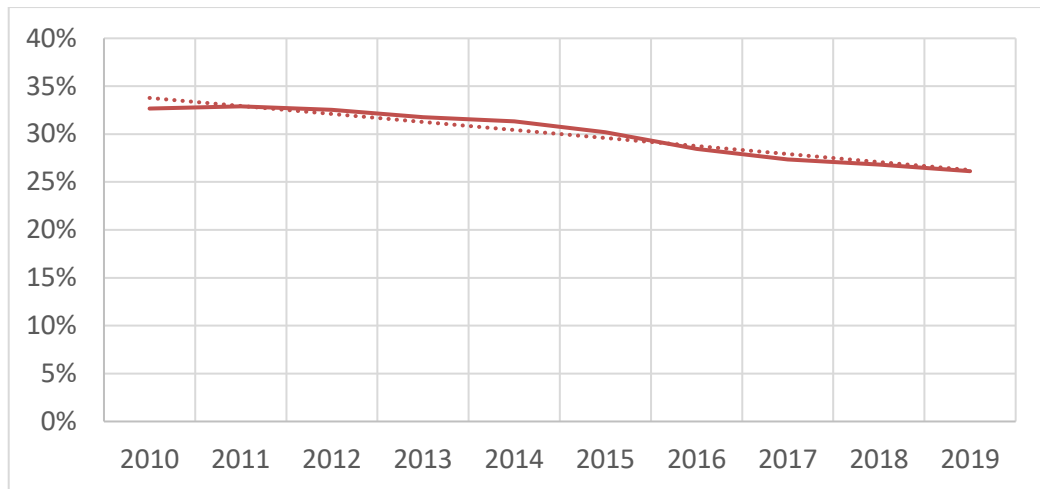


Source: CAA Passenger Surveys.

- I would also note that Mr Siraut's citing of Heathrow as an example of airlines focussing on more business focussed services in the face of constraint is difficult to reconcile with the available evidence. While it is true that Heathrow's route network has shrunk with constraint, it has not made the airport more business focussed. Heathrow has actually seen its percentage of business passengers fall over recent years. The route network may well have focussed on core routes but that has been more about exploiting volume markets with strong leisure components than it has been about satisfying business demand. This trend may also explain why, at a UK level, business demand has been slow to recover from the Global Financial Crisis, as cited by Mr Siraut (para. 4.3.3 (NSC/W5/1 Siraut, 2021)) and Dr Chapman (para. 7.1.5 (PCCA/W5/1 Chapman, 2021)), given the overall importance of Heathrow in the UK market and the extent of constraint it faces.

2.2.27. For these reasons, I would conclude that Mr Siraut's so-called balanced position on business productivity impacts is without foundation. He has simply no evidence for his statement that there is no guarantee that new business destinations will be delivered and his contention that all future business activity can simply be undertaken online is patently false.

Figure 3: Percentage of Business Passengers at Heathrow Airport



Source: CAA Passenger Surveys.

2.3. Appropriateness of the Business Productivity Elasticity

2.3.1. At para. 4.3.2 of his Proof (NSC/W5/1 Siraut, 2021), Mr Siraut states:

“It is clear that the massive take up of video conferencing has reduced the need for business flights and the extent of the link between business travel and productivity identified by Oxford Economics is now questionable.”

2.3.2. The sole basis for this position appears to be the research undertaken by YouGov and cited by Mr Siraut in the paragraph above. Mr Siraut states that this research says *“Asked how restrictions on flying had impacted on productivity, 19% reported that it had improved, 60% that it had had no impact and 28% stated that it had made it worse. That is, overall, respondents reported that not being able to fly had had little impact on productivity.”* First of all, it should be pointed out that the figures cited are incorrect. The YouGov report states that 12% of respondents rather than 19% of respondents suggested that their productivity has improved³. I would at this point take significant issue with Mr Siraut’s conclusion based on the responses. I would suggest that the survey identifies a significant number of respondents have had their productivity adversely affected by being unable to travel (28%) and that that number was nearly 2.5 times higher than those that felt they had been positively affected. I, therefore, cannot see any basis for Mr Siraut’s conclusion in relation to the Oxford Economics relationship between business travel and productivity.

³ <https://docs.cdn.yougov.com/c9qjhkrrpk/Marketing%20data%20tables%20-%20GSCC.pdf>. Page 115. Excerpt in Appendix A at para. 0.

2.3.3. Furthermore, I would highlight again, as I have in my Proof of Evidence on socio-economics at para. 4.2.8 (BAL/5/2 Brass, June 2021), that Jacobs has previously assessed and accepted the approach as appropriate and robust.

2.3.4. Dr Chapman has also sought to question the appropriateness of the elasticity used to assess business productivity impacts (Section 7.2 of his Proof of Evidence (PCCA/W5/1 Chapman, 2021)). The primary focus of Dr Chapman's argument is that the elasticity used is too high. This appears to be solely based on a comment within another Oxford Economics report from 2014 (CD11.1 Oxford Economics, November 2014), which in turn cites an InterVISTAS report for IATA from 2007 (InterVISTAS, 2007). I would make a number of comments at this point:

- firstly, contrary to Dr Chapman's assertion, the 2014 Oxford Economics report does not comment on the 2013 Oxford Economics (CD11.48 Oxford Economics, 2013) report that is the basis for the assessment of business productivity benefits in the EclA Addendum;
- the work undertaken by InterVISTAS does not in fact comment on the link between business travel and productivity. It examines the link between a more general measure of air connectivity based around total seat capacity offered by airports to individual destinations and productivity. I have included an excerpt from the report at Appendix A, para. 8.6. It is intuitively sensible that the link between business travel and productivity would be stronger, given that business travellers are those that drive this benefit rather air passengers generally. I would also note that the InterVISTAS research is geographically much broader in its scope than the UK. I also note Dr Chapman's comment at para. 7.2.8 (PCCA/W5/1 Chapman, 2021) that *"The same 2007 IATA study estimated that a 10% increase in connectivity would result in just a 0.01% rise in productivity in the UK – even less than the lower estimate used by Oxford Economics."* This is not correct. The 0.01 is the coefficient on a dummy variable used within the econometric model to reflect UK related data in the model (InterVISTAS, 2007, p. 35 Table A1). In fact it suggests that effects in the UK are likely to be higher than elsewhere;
- Notwithstanding the point above, I would also note that it is not the 0.05 elasticity used in the EclA Addendum that appears out of step with other assessments but the 0.007 suggested by Dr Chapman. I would note that more recent work by InterVISTAS for ACI EUROPE has identified an elasticity of 0.05

(CD11.11 InterVISTAS, 2015, p. 51), research by Oxford Economics for Eurocontrol identified an elasticity of around 0.06 (Oxford Economics, 2005, p. 42), research by PwC for the Airports Commission identified an elasticity of around 0.1 (CD11.22 PwC, 2013, p. 27), and that as recently as September 2020 Oxford Economics for ATAG in its Aviation: Benefits Beyond Borders report has cited an elasticity of 0.05 (ATAG, 2020, p. 25). In other words, the elasticity used in the EclA Addendum is in line with other research, whereas that suggested by Dr Chapman is substantially out of line.

2.3.5. Dr Chapman then moves on to suggest that productivity effects are likely to be subject to diminishing returns over time (paras. 7.2.7 to 7.2.12). In the main, this analysis appears to be speculative and seeks to suggest that relationships in other research are out of date. I would note that a number of the studies above are post-2010. Particularly, I would highlight Dr Chapman's contention that adding connectivity to advanced economies would reduce productivity as simply being illogical. Furthermore, I would also note that in all cases the econometric modelling work cited above considered connectivity relative to GDP, thereby controlling for differences in larger, more mature markets. Specifically in relation to diminishing returns in this particular case, I would highlight the underlying air traffic forecasts specifically include assumptions around market maturity that reduce the 'reactiveness' of business demand to economic growth in the future, thereby reflecting the diminishing returns described by Dr Chapman. This is described in the Appeal Proposal air traffic forecasts report (CD2.21 York Aviation, 2020, p. 5 para. 2.10).

2.3.6. Dr Chapman then seeks to suggest that *"the business productivity relationship the Appellant's model relies on was originally developed using national data and designed for an assessment of the London Airport system. The business productivity-air travel relationship is likely to be very different in London to its relationship in the South West."* (para. 7.2.13 (PCCA/W5/1 Chapman, 2021)). I would note that this statement is not correct. The model was developed using national level data but is not adapted to the London airport system. It was simply used to consider the situation in London. I would also note that, following Dr Chapman's logic as regards diminishing returns, the likely result of seeking to adjust the model to the South West, which is less mature and less productive economy than London and less well connected, would like result in a higher elasticity, thereby increasing the productivity impacts of the Appeal Proposal.

2.3.7. Finally, in relation to the business productivity modelling, I note Dr Chapman's comment at para. 7.2.16 (PCCA/W5/1 Chapman, 2021) with regards to displacement of business productivity impacts. His interpretation of the analysis is not correct. The analysis uses business passenger numbers as a measure of business focussed connectivity to / from an area and it is this that impacts on productivity. The impacts do not directly relate to whether a passenger flies or not or whether they are diverted to / from elsewhere. For instance, it is perfectly possible for a business passenger's overall productivity to be reduced without them being prevented from flying. Their trip may take longer, may be at less convenient times, may involve having to hub or may cost more. Any of these factors would reduce productivity but the passenger has still made the journey. There is in fact a reasonable argument to suggest that the results of the business productivity impacts analysis are inherently net of displacement and should not be reduced by displacement assumptions at all.

2.4. Mr Siraut's and Dr Chapman's Conclusions

2.4.1. Mr Siraut concludes by presenting two alternative views of the potential impacts of business productivity, what he terms a 'Balanced View' and an 'Optimistic View'. I would strongly reject both positions (paras. 4.3.11 to 4.3.13).

2.4.2. Mr Siraut's 'Balanced View' suggests that there will be no incremental benefit essentially because growth will not result in any additional business passengers and that there will be no impact on productivity if business passengers cannot travel. This is simply not a credible position. To suggest that a 20% increase in capacity at an airport where business traffic has been growing faster than leisure traffic, where the long-term drivers of business demand remain strong and which has consistently added potentially useful city destinations (see my Proof of Evidence on air traffic forecasting at Section 4.9 (BAL/1/2 Brass, June 2021)) will not result in more business passengers seeking to travel to or from the region defies logic. It would also appear to be at odds with the position of Mr Folley, North Somerset Council's own expert witness on air traffic forecasting. Similarly, to suggest that being unable to fly or having to use sub-optimal airports will have no effect on productivity is also illogical, not least given the evidence presented by Mr Siraut himself in relation to the number of air transport users reporting impaired productivity from being unable to fly during the pandemic.

- 2.4.3. Mr Siraut's 'Optimistic View', as I have described above, is based on a false premise taken from Mr Folley's evidence. If the same logic is applied with the correct extrapolation of relative growth between business and leisure traffic, the results of Mr Siraut's analysis as set out in Table 4-3 would be higher than those set out in the EcIA Addendum, as I have demonstrated in Table 2 above.
- 2.4.4. Dr Chapman adopts a similar position to Mr Siraut's 'Balanced View' in his conclusions at para. 12.1.2 (PCCA/W5/1 Chapman, 2021). His position is predicated on speculation about future business travel and an inaccurate assessment of the size of the elasticity between business travel and productivity. I would make the same comments as in relation to Mr Siraut. Dr Chapman's position is not credible.

3. Direct Employment and On-Site Productivity Growth

3.1.1. Both Mr Siraut in Section 5 of his Proof of Evidence (NSC/W5/1 Siraut, 2021) and Dr Chapman in his Proof of Evidence at paras. 6.2.4 to 6.2.11 (PCCA/W5/1 Chapman, 2021) seek to claim that the EclA Addendum does not take sufficient account of productivity growth on-site at Bristol Airport over the period to 2030 and that, as a consequence, direct job creation is overstated. I have already addressed this issue in my Proof of Evidence on socio-economics at Section 5.5 (BAL/5/2 Brass, June 2021) and these points remain valid and I continue to regard the treatment of productivity on-site as appropriate. I would, however, make a number of additional comments based on the further evidence presented by Mr Siraut and Dr Chapman.

3.1.2. I have addressed the points being made by each party separately below, as, although they are linked, my comments are different.

3.2. *Mr Siraut's Position*

3.2.1. At the outset, it is important to point out that Mr Siraut's calculations have a significant error in their starting point, which invalidates his conclusions thereafter. At para. 5.2.3 (NSC/W5/1 Siraut, 2021) Mr Siraut states *"In the 2018 baseline, there are 438 jobs per million passengers."* This is not correct. Mr Siraut has derived this initial employment density from the baseline employment for 2018 of around 3,900 employees but he has then calculated the employment density based on the passenger throughput for the airport at the end of 2019, 8.9 million passengers per annum. This is confirmed by CAA Statistics (see excerpt in Appendix A, at para. 8.3). I would also note that Mr Siraut has mis-rounded the number. It should read 9.0 million passengers. This has the effect of significantly underestimating his starting point in considering the employment density at Bristol Airport. This error can be seen in Mr Siraut's Table 5-1 on Page 28 of his Proof (NSC/W5/1 Siraut, 2021), which I have reproduced below.

3.2.2. The result is that Mr Siraut's entire analysis of direct job effects is incorrect. The error in his starting point means that he has significantly underestimated the productivity growth associated with direct job growth in the Appeal Proposal assessment. It results in him stating at para. 5.2.3 (NSC/W5/1 Siraut, 2021) that:

“In the 2018 baseline, there are 438 jobs per million passengers. Thus, the appellant’s appraisal reveals an airport and its ancillary services improving efficiency by 7% between 2018 and 2030.”

Table 5-1: Job intensity (direct employment per million passengers) comparison of appellant’s estimates and my estimates

Appellant’s estimates				
	Direct employment - South West & South Wales	MPPA	Direct jobs per million passengers	% change from 2018
2018	3,900	8.9	438	-
2030	4,080	10.0	408	-7%
2030	4,900	12.0	408	-7%
My direct employment estimates				
	Direct employment - South West & South Wales	MPPA	Direct jobs per million passengers	% change from 2018
2018	3,900	8.9	438	-
2030	3,884	10.0	388	-11%
2030	4,661	12.0	388	-11%

3.2.3. Mr Siraut’s assertion is entirely inaccurate, as I will demonstrate. The 2018 baseline for the Appeal Proposal was set in the original economic impact assessment undertaken for the Planning Application (CD2.8 York Aviation, 2018). This was commissioned in March 2018 (see para. 1.1 on Page 1). The assessment work on direct economic impacts was undertaken primarily between March and June 2018, using data collected by Bristol Airport Limited during late 2017 and the early part of 2018. Hence, from the perspective of calculating the baseline job density, the correct passenger throughput is that handled by the airport at the beginning of 2018. At the end of 2017 / beginning of 2018, the airport handled 8.2 million passengers per annum (see extract from CAA Statistics in Appendix A at para. 8.4). This is the basis upon which the Appeal Proposal baseline was set. This made the employment density in the 2018 baseline around 476 jobs per million passengers per annum and not 438 jobs per million passengers per annum, as cited by Mr Siraut.

3.2.4. Mr Siraut has correctly calculated the employment density in 2030 as 408 jobs per million passengers per annum (para. 5.2.2 on page 26 (NSC/W5/1 Siraut, 2021)). This means that, when corrected, productivity has improved by 14% between 2018 and 2030 in the Appeal Proposal assessment. Not 7% as suggested by Mr Siraut. This equates to an annual improvement of 1.3%.

3.2.5. Mr Siraut then moves on to highlight a report by Steer Davies Gleave that shows that airports increased efficiency by 1% per year between 2008 and 2013. A figure that is

actually lower than that used in the Assessment. He then uses this analysis as a basis to calculate that on-site employment should be lower than in the EcIA Addendum by 2030. I would point out that if Mr Siraut used the correct starting employment density in his calculations in relation to Table 5-1 on page 28, his productivity assumption would actually result in a higher direct on-site job estimate than that set out in the EcIA Addendum. I have demonstrated this point in Table 3. This shows the Appeal Proposal estimates, Mr Siraut's estimates and the corrected version of Mr Siraut's estimates. On this basis, at 10 mppa Bristol Airport would support an extra 156 direct jobs, while at 12 mppa it would support an extra 184 jobs. The difference between the two is an additional 27 jobs. This would result in an approximately 3% increase in direct economic employment effects compared to the Appeal Proposal.

Table 3: Direct Employment Estimates for the South West and South Wales with Corrected Original Employment Density

	Direct employment - South West & South Wales	Passengers (millions)	Direct Jobs per million passengers per annum	% change from 2018
Appeal Proposal Estimates				
2018	3,900	8.2	476	-
2030	4,080	10	408	-14%
2030	4,900	12	408	-14%
Mr Siraut's Estimates				
2018	3,900	8.9	438	-
2030	3,884	10	388	-11%
2030	4,661	12	388	-11%
Mr Siraut's Estimates with Correct Original Employment Density				
2018	3,900	8.2	476	-
2030	4,236	10	424	-11%
2030	5,084	12	424	-11%
Additional Jobs to the Appeal Proposal				
2030	156	10		
2030	184	12		
2030 Diff.	27			

This invalidates Mr Siraut's findings in Table 5-2, which I have adjusted below in

3.2.6. Table 4. This clearly demonstrates that Mr Siraut's productivity assumption actually results in a higher direct impact for the Appeal Proposal. It also further invalidates all Mr Siraut's subsequent tables that rely on his erroneous analysis. This includes Table 5-3 on Page 30, Table 6.5 on Page 40, and Table 9-1 on Page 58.

Table 4: Corrected Version of Mr Siraut's Table 5-2

	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appeal Proposal at 12 mppa	£280m	1,640	1,440	£370m	3,620	3,180	£430m	4,900	4,300
Mr Siraut's Optimistic Approach at 12 mppa	£267m	1,554	1,374	£355m	3,466	3,048	£409m	4,661	4,093
Corrected Mr Siraut's Approach at 12 mppa	£291m	1,702	1,494	£384m	3,756	3,299	£446m	5,084	4,461
Corrected Difference	+£11m	+62	+54	+£14m	+136	+119	+£16m	+184	+161
Mr Siraut's Corrected Net Difference	+£1	+10	+8	+£2	+20	+18	+£2	+28	+25

3.2.7. I also note Mr Siraut's comment at para. 5.3.4 (NSC/W5/1 Siraut, 2021) that the 1% identified by Steer Davies Gleeve may be conservative given that prior to the Global Financial Crisis productivity was growing at around 2% per annum. Just as in relation to the growth of business passengers versus leisure passengers described above, this figure needs to be seen in the context of what was happening in the air transport market at the time, namely the very rapid growth and rising market share of low cost airlines during the so-called 'low cost bubble', as I have set out in relation to Mr Siraut's position on future business demand growth at para 2.2.10. This did lead to significantly higher productivity growth rates in the airport sector over that period. However, that type of very rapid growth is not expected in the future and hence applying a productivity growth rate in line with that observed over the period would not be appropriate.

3.2.8. Overall, I see no basis for Mr Siraut's position based on this analysis.

3.3. Dr Chapman's Position

3.3.1. In broad terms, Dr Chapman's position is similar to that of Mr Siraut. He feels that the rate of productivity growth on-site at the airport should be higher.

3.3.2. I note that Dr Chapman's estimate of the initial employment density at the airport is slightly low at 453 jobs per million passenger per annum (para. 6.2.5 (PCCA/W5/1

Chapman, 2021)). I assume that this is based on end of year 2018 traffic numbers for the airport, which would not have been available at the point the baseline was set and is not appropriate to a baseline set during the early part of the year. This means that, as with Mr Siraut, he has the wrong starting point in his analysis. The correct employment density, as discussed above, is 476 million passengers per annum. However, it is the rate of productivity growth suggested by Dr Chapman that is the primary issue. In Table 6 on page 20, Dr Chapman suggests an improvement in productivity of 25% between 2018 and 2030 based on his analysis. I consider this position further below.

3.3.3. Commenting substantively on Dr Chapman's analysis is hampered by the fact that no standard industrial classification (SIC) code definition has been provided for his assessment of the aviation sector. I would note that understanding direct on-site employment at airports is not as simple as just including SIC 51: Air Transport and that, in reality, there is no effective way to establish direct on-site employment at a national level given the plethora of different sectors involved and the potential for differing interpretations of sector definitions. Dr Chapman appears to recognise this point at para. 6.2.5 (PCCA/W5/1 Chapman, 2021), where he states *"In 2018 Bristol Airport provided 453 jobs per million passengers. The aviation sector at-large provided around 454 jobs per million passengers in 2018 (although this figure may not be directly comparable due to variations in how airports account for direct employment)."* He is correct to say that the figures are not comparable and this is at the centre of the problem with his analysis. His analysis only considers an unspecified part of the aviation sector in which productivity grew at 2.6% between 2001 and 2018. It does not consider patterns across all activities that occur at airports. I would also make three further comments:

- again, the time period over which Dr Chapman has considered productivity growth is again inappropriate. As with Mr Siraut's comments, it includes the effects of the 'low cost bubble' on passenger growth and productivity growth is therefore likely to be inflated;
- Dr Chapman's comparison of the employment density of Bristol Airport in 2018 to his partial view of air transport across the UK just serves to show that operations are already highly efficient. There will be, therefore, more limited opportunities to increase productivity at Bristol Airport than elsewhere. This is

a point I have made previously (para. 5.5.2 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021));

- Dr Chapman's statement at para. 6.2.5 (PCCA/W5/1 Chapman, 2021) that "*As an airport increases in size, its employment intensity will generally fall as it is able to make efficiency saving on a per-passenger basis.*" also needs to be treated with some caution. Some individual functions can realise economies of scale but others cannot and, equally, airports as they grow have more infrastructure and potentially more complex infrastructure. They also often offer a broader range of ancillary services to passengers or develop other on-site functions, such as increased hotels or Maintenance Repair and Overhaul provision. Dr Chapman's statement is somewhat simplistic.

3.3.4. Overall, based on the evidence presented by Dr Chapman, I do not consider that the effects of productivity growth are understated in the EclA Addendum. I believe that the 14% improvement (when calculated correctly) implied by my analysis is robust. I believe that Dr Chapman has overstated the potential for productivity improvements having failed to appropriately analyse the totality of on-site employment, having examined a time trend that covers an inappropriate time period, and having failed to consider the baseline levels of productivity at Bristol Airport in context. Dr Chapman's Table 6 on page is inaccurate and unfounded.

4. Displacement of Economic Benefits

4.1.1. I turn now to the comments made by Mr Siraut (Section 6 of his Proof of Evidence (NSC/W5/1 Siraut, 2021)) and Dr Chapman (Section 5 of his Proof of Evidence (PCCA/W5/1 Chapman, 2021)) in relation to the displacement of economic impacts.

4.1.2. I note that Mr Siraut and Dr Chapman appear to have slightly different views on displacement, which in part demonstrates the complexities around this topic. Again, I have addressed issues around displacement previously in my Proof of Evidence at Section 5.6 (BAL/5/2 Brass, June 2021) and discuss my views on the issue in the EclA Addendum report (CD2.22 York Aviation, 2020, pp. 13-14). I do, however, make some additional comments based on the evidence presented, including some further consideration of the conceptual issues around displacement.

4.2. *The Concept of Displacement*

4.2.1. As I have previously highlighted, the concept of displacement remains a difficult issue and needs to be treated with considerable care when articulating the economic impacts of a development. There is a very real danger of engaging in ‘reductio ad absurdum’. It is relatively simple to just assume away the significant economic benefits that a private sector investment, such as the Appeal Proposal, will bring. It’s very easy to say that, essentially, some other investment will come along or people will find some other jobs to do somewhere in the economy, and that as such there is no or very limited net benefit from an investment. This is sometimes referred to as factor displacement. If that were the case, unemployment would not exist and the areas of deprivation near the airport in Weston Super Mare and South Bristol would not be there. Mr Siraut and Dr Chapman have both pointed out that UK Government guidance in relation to public sector interventions suggests that 100% displacement should be assumed at a national level unless an alternate can be proved otherwise. Notwithstanding my previous comments as to the appropriateness of WebTAG guidance in this instance, this is important from the perspective of government intervention in the market, as it ensures that government activity does not take the place of private sector activity that would have been brought forward by the market anyway or prevent other market led activity being brought forward. I would note that the same concern does not apply to a private sector investment such as the Appeal Proposal.

4.2.2. In this context, I would also note the change in focus within HM Treasury's Green Book guidance on appraisal in central government, which was published in November 2020 (CD11.55 HM Treasury, November 2020). This document represents a marked change in thinking in relation to the way that public sector interventions are considered. In particular, in this context, I note the addition of a specific module in relation to place based analysis that removes the 100% displacement requirement when considering projects with a specific local or regional focus, such as the Appeal Proposal (Page 93, para. A2.6 to A2.8). This change clearly recognises the importance of considering projects with a regional focus in the context of their regions and not simply assuming away the benefits that come with investment. The Appeal Proposal is a significant private sector investment that will support significant numbers of jobs, and which will support central Government policy around 'levelling up', the City of Bristol's aspirations as an international city, as set out in its international strategy (CD11.5 Bristol City Council, 2017), and North Somerset Council's aspirations for the nationally and internationally focussed Junction 21 Enterprise Area, as cited by Mr Siraut (para. 7.2.4 (NSC/W5/1 Siraut, 2021)), and its efforts to address regeneration in the deprived areas around the airport, which is the subject of the skills and employment plan set out in the draft Section 106 agreement.

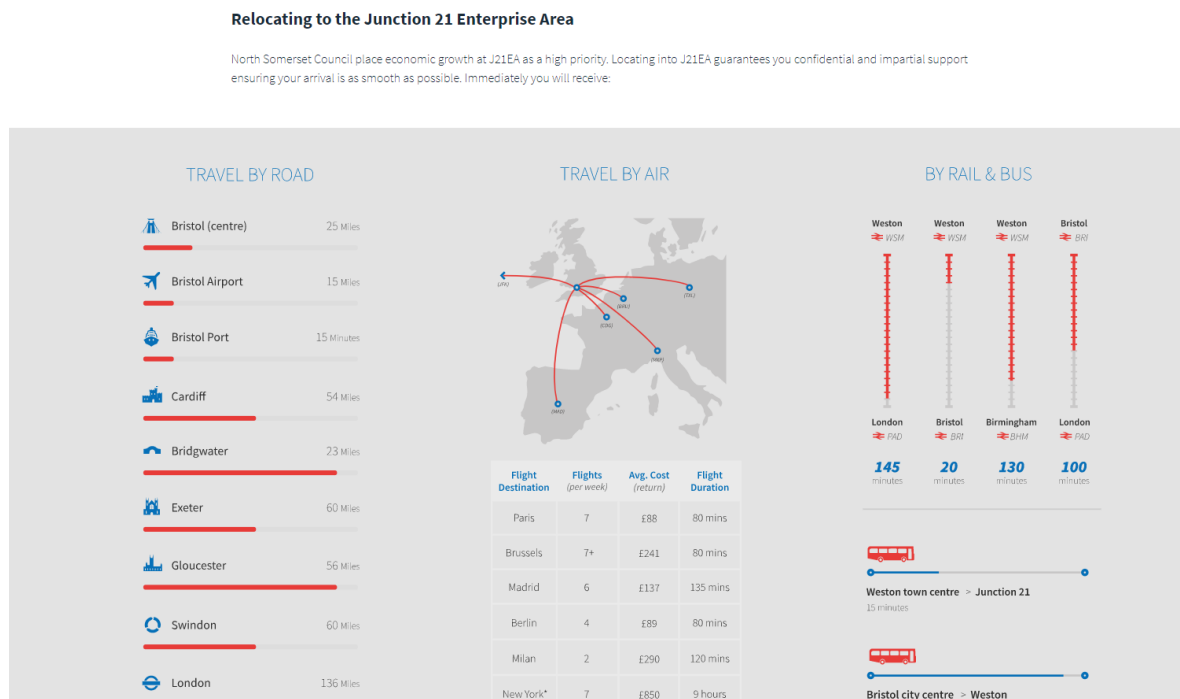
4.2.3. Further in relation to the concept of displacement, I note that Mr Siraut and Dr Chapman seem to take the view that Bristol Airport's growth will take away growth from other airports. That is not the case. It is a competitive market. Future growth does not 'belong' to any airport, including Bristol. The Appeal Proposal forecasts suggest that, in such a competitive market, the preferred choice for passengers is Bristol Airport. The development of Bristol Airport to accommodate 12 mppa does not stop other airports from growing.

4.2.4. For these reasons, the EclA Addendum considered displacement within the product market in which it operates, air transport, and used the number of passengers diverting to other airports within the study areas as a basis for adjusting downward the economic impacts of Bristol Airport growing to 12 mppa on a flat rate basis (CD2.22 York Aviation, 2020, pp. 13-14 paras. 3.26 to 3.34). I continue to believe that this is an appropriate basis on which to consider the impact of displacement. I have not made adjustments to reflect that any economic activity that does not occur anywhere because Bristol Airport is unable to grow to 12 mppa (that related to the 39% of passengers that choose not to fly if they cannot fly Bristol Airport (BAL/1/2 Brass, June

2021, p. 4.11.8) will simply be absorbed into the regional economy in some other form. I believe that such an assumption simply serves to mask the economic benefits that will come from Bristol Airport's growth and that, in the context of a local and regional assessment in particular, it is not a safe assumption. For instance, it assumes that:

- there is no unemployed labour in the economy;
- there will be no labour migration if employment is not available;
- the air connectivity provided by Bristol Airport has no impact on attracting or retaining foreign direct investment or, indeed, investment from other parts of the UK;
- the airport has no effect on in migration given its role in making the region an attractive place to live and work;
- other private sectors investments might come forward to provide growth in the labour market;
- furthermore, it assumes that such private sector investments are in no way facilitated by the availability of connectivity at Bristol Airport. A conclusion which, I would note, seems to be at odds with North Somerset Council's own view, given its marketing materials for the North Somerset Council backed Junction 21 Enterprise Area (see Figure 4). These materials highlight clearly the importance of Bristol Airport to the development and the connections it provides.

Figure 4: Extract from the Junction 21 Enterprise Area Website



Source: <http://www.j21.co.uk/relocating-to-j21>.

- that there is no success from schemes such as those laid out in Skills and Employment Plan in the draft Section 106 in getting economically inactive people back into work.

4.2.5. An assumption of complete displacement is, in my view, one with little or no basis in evidence. Essentially, it is saying that there is never any point in seeking to invest to grow local GVA or employment as something else will come along to replace it. This would seem profoundly at odds with UK Government's 'levelling up' agenda.

4.2.6. I would also highlight that the potential impact of factor displacement was not considered as a relevant issue in the recent Stansted Airport appeal decision.

4.2.7. I now consider some specific comments in relation to Mr Siraut and Dr Chapman.

4.3. Mr Siraut's Comments

4.3.1. Mr Siraut makes a number of comments as regards displacement before presenting his own view on the issue.

4.3.2. At para. 6.2.2 of his Proof (NSC/W5/1 Siraut, 2021) Mr Siraut states that "However, the appellant argues displacement should not be considered part of the core analysis

but rather only by way of a sensitivity. Given the overlapping catchment areas of airports in the South West and South Wales with Bristol Airport and the capacity available at them, in my view it is clear that, if the objective is to understand the total economic effect of the proposed development, displacement should be part of the core analysis.”. I feel it is important to emphasise that - while I do believe that considerable care needs to be taken when considering economic impacts post displacement, particularly given that the Appeal Proposal is a private sector investment as opposed to a public sector one and hence the issue of ‘crowding out’⁴ is not relevant, - the assessment set out in the EcIA Addendum and the subsequent assessment of significance in the Environmental Statement Addendum does reflect net effects after appropriate displacement. I also note that Mr Siraut states in his conclusions in para. 9.1.5 (NSC/W5/1 Siraut, 2021) that no displacement has been included in the assessment. This is clearly not true.

4.3.3. I turn now to Mr Siraut’s approach to considering displacement. I have essentially two comments to make:

- Mr Siraut appears to use the passenger displacement data taken from the Appeal Proposal air traffic forecasting modelling, which means that he is assuming the same displacement of demand as I have used. Where the difference appears to lie is in how that displacement of demand is applied. Mr Siraut appears to suggest that displacement should follow where passengers are located and that, as a result, jobs and GVA will be supported at those locations. I would disagree and would maintain that demand is displaced to other airports and that GVA and job creation is hence reliant on those other airports for increased economic activity and connectivity. As such, there are no other airports in North Somerset or the West of England for demand to be displaced to and that it is only at the South West and South Wales level that alternative airports are available;
- Mr Siraut then moves on to consider to suggest that additional displacement should be considered in relation to passengers that do not continue to fly if Bristol Airport is not able to grow to 12 mppa. This precisely the point I have addressed above in sub-section 4.2 In this case Mr Siraut states that this is on

⁴ Crowding out is a phenomenon that can occur when increased government involvement in a market economy results in private sector entities, which are subject to market forces, reducing or changing their behaviour.

the basis that if these passengers did not travel they would spend money and support economic impact in the local economy anyway (para. 6.3.6 on page 35 (NSC/W5/1 Siraut, 2021)). Firstly, I would point out that this would have to be regarded as a form of factor displacement and I note that the limited relevance of this effect has previously been accepted by Jacobs following York Aviation's Regulation 25 response on this point (CD3.4.3 York Aviation, March 2019, p. 8 para. 3.6). As I have described above, if factor displacement is considered it becomes very difficult for any development project to demonstrate significant net benefits as impacts are simply absorbed into the broader economy. The economic benefits generated by any form of investment are simply assumed away. I would also point out that the particular assumption that spend would simply revert to the local area is profoundly unsafe in this case. If individuals are not able to travel from the area via air for leisure, the most likely alternative is that they will still travel in some form via another mode and the expenditure will still leave the area. This precisely the effect we are seeing at present in relation to 'staycations' and COVID-19 travel restrictions. The same would apply to business travellers. If they do not travel, the expenditure will not revert to the local area.

- 4.3.4. I would also note that Mr Siraut's position on displacement seems to have altered markedly since Jacobs original consideration of this issue, which is set out in the NSC Officers Report (CD4.13 North Somerset Council, 2020, p. 41) and which I have previously highlighted in my Proof of Evidence on socio-economics (para. 5.6.2 (BAL/5/2 Brass, June 2021)).

"The table below (prepared by the Council's consultants) summarises the estimated additional economic impact at local, regional and South West and Wales levels. It provides the Council's consultants estimation of the cumulative net additional impacts, in response to those shown in Table 5.3 shown earlier in this section."

Region	Cumulative Gross Economic Impact (£m GVA, York Aviation)	Incremental GVA Impact by Region (£m)	Proportion of Passengers (based on forecast; %)	Net Additional GVA Impact (£m)	Cumulative Additional GVA Impact (incl. displacement; £m)	Implied displacement factor (%)
North Somerset	90	90	0%	90	90	0%
West of England	210	120	36%	77	167	20%
South West & South Wales	390	180	55%	81	248	36%

Source: Jacobs Consultants based on York Aviation data

(CD4.13 North Somerset Council, 2020, p. 60)

4.3.5. Finally, Mr Siraut does make some comment in relation to potential extent of passenger demand displacement to airports outside of the South West and South Wales (para. 6.3.11 (NSC/W5/1 Siraut, 2021)). I have explained in some detail the approach in my Proof of Evidence on air traffic forecasting (BAL/1/2 Brass, June 2021) and responded directly in relation to this issue at Section 4.11. I do not repeat that evidence here. I would also re-emphasise that Mr Siraut's comments in his proof of evidence appear to be entirely at odds with the statements on this issue made in the NSC Officers Report, and presumably advised upon by Jacobs, and highlighted again in my Proof of Evidence on socio-economics at para. 5.6.1 (BAL/5/2 Brass, June 2021):

"In response, BAL say airports are not homogenous and the four other airports in the South West / Wales offer a substantially different range of services in terms of destination and flight frequency compared to BAL. They suggest these airports will continue to serve their own smaller markets even if BAL expand, but this is unlikely to directly compete with the much broader range of routes at Bristol Airport. A point accepted by officers. Objectors disagree and say that the increased passenger growth from South Wales would be reduced if Cardiff Airport was expanded. BAL say the proposed development will have at most, a minimal impact on passenger displacement within the South-West and South Wales due to the different offers from the two airports. They do however consider that the growth of services at Bristol Airport could reduce the level of longer distance displacement to airports beyond the South West / Wales e.g. Birmingham or Heathrow. Officers, for the reasons set out above in relation to determining benefits, agree with BAL's position." (CD4.13 North Somerset Council, 2020, p. 57)

- 4.3.6. I would continue to contend that the passenger demand displacement identified in the Appeal Proposal is entirely reasonable and robust. Bristol Airport will grow in the future primarily by meeting new demand and clawing back demand that is currently travelling to the London airports, either by developing competing services to those destinations served by London airports but not currently by Bristol or by enhancing services on existing routes where there is significant leakage to the London airports.
- 4.3.7. Overall, I do not accept Mr Siraut's comments in relation to displacement. I continue to believe that his assessment of the effects of demand displacement is flawed and that his inclusion of factor displacement is inappropriate to consideration of a private sector investment and that his premise in applying this displacement is incorrect.

4.4. Dr Chapman's Position

- 4.4.1. Dr Chapman's comments in relation to displacement are set out in Section 5 of his Proof of Evidence (PCCA/W5/1 Chapman, 2021).
- 4.4.2. His initial comments in sub-section 5.1 repeat the general theme set out early on in his Proof of Evidence about compliance with WebTAG guidance. I have already considered in some detail the relevance of WebTAG in this circumstance at sub-section 5.7 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021) and concluded that it is not appropriate. I do not repeat these comments here. I do, however, also note that Mr Siraut, in his evidence, has made no reference to WebTAG as an appropriate standard. He only mentions WebTAG briefly in relation to the specific issue of quantifying negative environmental effects. I also do not accept that a national level assessment should have been undertaken. I have previously acknowledged that at a national level net effects are likely to be limited. The purpose of this assessment is to identify significant effects within the region around the airport.
- 4.4.3. In relation to Dr Chapman's comments on the EclA Addendum approach, I note his view that the assessment of demand displacement to airports in the South West and South Wales "*do seem more reasonable than those presented in the original planning application*" (para. 5.2.1 (PCCA/W5/1 Chapman, 2021)). I am, however, confused as to why Dr Chapman feels that the reporting of displacement to other airports is unclear.

- 4.4.4. I would also highlight that Dr Chapman's point about the way round in which displacement is described at para. 5.2.3 (PCCA/W5/1 Chapman, 2021) is not appropriate. If Bristol Airport is able to grow in line with market demand to 12 mppa and is not constrained by the 10 mppa planning limit, then passengers will choose it as the best option for them. They are not 'displaced from' other regional airports. Those other airports have no 'right' to that traffic (and neither does Bristol Airport). It will only displace to them in the event of a disruption in the functioning of the market.
- 4.4.5. Dr Chapman then moves onto suggest that a more 'granular' displacement analysis should have been undertaken and that distributional effects should have been considered (para. 5.3.2 and para. 5.3.3 (PCCA/W5/1 Chapman, 2021)). Firstly, I would reject the point that a distributional analysis has not been undertaken. The EclA Addendum considers effects in North Somerset, West of England, and the South West and South Wales. In terms of granularity, I would contend that in terms of the displacement of GVA and employment relating to changes in where passengers fly from, there is not likely to be a significant difference between the jobs and GVA generated at different airports for services to meet the displaced demand.
- 4.4.6. This brings me to Dr Chapman's re-modelling of displacement (Section 5.4 in his Proof). I would regard this analysis as heavily flawed and completely inappropriate. My understanding is that he has assumed that passengers displaced to other airports will generate GVA and employment at those airports at the base productivity levels and employment density levels associated with those airports. This is completely inappropriate. It totally ignores the nature of service, structure of traffic and relative infrastructure position of the other airports he considers. To take Heathrow as an example, the Volterra Report cited by Dr Chapman (CD11.16 Volterra, 2020, p. 8 Footnote 3) cites an on-site employment for the airport of 932 jobs per million passengers per annum. This is broadly twice that for Bristol Airport in 2018. This is not because Heathrow requires twice as many people to process a short haul passenger as Bristol Airport. It is because it is a fundamentally different airport. It is a two-runway, multi terminal, global hub airport, catering for a wide range of different airlines, and offering a large range of ancillary services to passengers. Adding or losing an additional passenger does not mean that all of its activities are affected, even fractionally. Its ability to absorb incremental passengers without adding to employment would be significant. Conversely, at Exeter, for instance, the proposition is different again. It is a small airport, with limited capacity utilisation. It is not large

enough to optimise capacity as larger regional airports can. Adding traffic at such airports will likely increase employment in some functions, but because of the spare capacity available, it will not be at anywhere near the rate implied by the airport's employment density. The EclA Addendum has assumed that other airports are able to meet demand displaced from Bristol Airport at an equivalent productivity level to that which it was being met at Bristol Airport. This is the only sensible assumption that can be made. I would also note that this in itself may overstate the economic effects associated with the displacement of demand given the fact that this displaced demand will be spread across a range of routes at a range of airports. As a consequence, the ability of airlines and airports to absorb this displaced demand within existing operations may in reality be quite high, thereby limiting additional job creation at the alternate airports.

4.4.7. I note at para. 6.2.2 (PCCA/W5/1 Chapman, 2021) Dr Chapman makes a similar argument to Mr Siraut as regards the inclusion of factor displacement:

"The Appellant estimates that 38% of new Bristol Airport passengers would not fly in the absence of the scheme. This means at least a proportion of their money would likely be spent in other areas of the regional economy, hence creating jobs elsewhere."

4.4.8. I have already discussed this issue in some detail above in sub-section 4.2 and in relation to Mr Siraut's evidence at sub-section 4.3. I do not repeat these comments here. I continue to believe a 28% reduction in economic impacts relating to displacement of passengers between airports in the UK is the appropriate way to consider the issue in this circumstance. In this context, I also note Dr Chapman's comment at 8.2.1 in relation to the calculation of displacement for inbound tourism. While I would agree that inbound tourists using airports outside of the South West will still come to the area, the 28% flat displacement factor has been retained for a number of reasons:

- in line with my evidence on the likely asymmetric behaviour of inbound and outbound passengers (CD2.22 York Aviation, 2020, pp. 19-20 Paras. 3.50-3.52), it is likely that significantly larger numbers of outbound passengers will use airports outside the region than inbound passengers given the information available to them and the lack of alternative options for outbound passengers;

- it is reasonable to assume that if inbound visitors are travelling from more distant, harder to access airports then a proportion of their expenditure within their overall budgets will be spent outside of the region. Particularly, this might include significant items such as surface transport and airport hotel stays resulting from the additional travel time or the switch of airport;
- by necessity visitors will spend less time in the area as they will have to travel to and from. This will again result in less expenditure within the region. I would also note that it is likely to lead to some travellers 'making a virtue' of having to fly via another airport and staying for periods outside of the either before or after coming to the South West and South Wales. For example, if a visitor were to fly into London rather than Bristol, it would be quite normal for that visitor to choose to spend a day or night in London at the expense of time in the South West and South Wales.

4.4.9. Overall, I believe for these reasons that the use of the 28% is appropriate from a rounded perspective.

4.4.10. For these reasons I reject Dr Chapman's re-modelling of displacement and specifically the analysis he puts forward in his Table 3 on page 17 and in Table 5 on page 18 of his Proof.

5. Outbound Tourism

5.1.1. Both Mr Siraut and Dr Chapman raise the issue of the impact of outbound tourism from the Appeal Proposal. This is a topic that has been raised previously and has been discussed in some depth and detail. I have made clear my position in relation to outbound tourism in Section 5.3 of My Proof of Evidence (BAL/5/2 Brass, June 2021). I continue to be of the view that outbound tourism is not a significant negative impact on the economy and that there are significant positive impacts such that any negative effects are likely to be largely offset or indeed eradicated. I do not repeat my previous evidence here other than to highlight again the UK Government's position on this matter:

"Consultation responses were divided on the economic impacts of outbound tourism. Some respondents considered that there was a 'tourism deficit', as more UK residents travelled abroad than overseas residents travelled to the UK. Other respondents highlighted that outbound tourism supports UK-based jobs in the travel and airline industry and boosts high street consumer demand before trips are made. The latter has been valued at around £27 billion per year. Responses confirmed that the 'tourism deficit' question is a complex one and that the evidence available to us does not show that a decrease in the number of UK residents flying abroad for their holidays would have an overall benefit for the UK economy. UK residents made 57 million visits abroad in 2011 and spent £32 billion, 84% of which was spent by residents who travelled abroad by air. The Government believes that the chance to fly abroad also offers quality of life benefits including educational and skills development. Overall the Government believes continuing to make UK tourism more attractive is a better approach both for residents and attracting new visitors." (CD6.1 Department for Transport, 2013, p. para. 1.16)

5.1.2. In particular, I would highlight the phrase *"that the evidence available to us does not show that a decrease in the number of UK residents flying abroad for their holidays would have an overall benefit for the UK economy"*.

5.1.3. I would also highlight the inconsistency between NSC's and Dr Chapman's previous stated positions and their positions now, as set out in my Proof of Evidence on socio-economics at paras. 5.3.6 and 5.3.7 (BAL/5/2 Brass, June 2021).

5.1.4. I do, however, make some additional comments below in relation to the evidence presented by Mr Siraut and Dr Chapman.

5.2. *Mr Siraut's Evidence*

5.2.1. Mr Siraut's comments in relation to outbound tourism are included within sub-section 8.3. This sits within Mr Siraut's section on uncertainty, which I take to suggest means that he believes that this issue is something for decision makers to be aware of rather than a fundamental tenet of the assessment.

5.2.2. I note that Mr Siraut acknowledges that outbound tourism effects is a highly complex area and not typically included within economic impact assessment (para. 8.3.3 (NSC/W5/1 Siraut, 2021)). However, I also note his comment in relation to the HM Treasury Green Book, highlighting that it says:

"The appraisal of social value, also known as public value, is based on the principles and ideas of welfare economics and concerns overall social welfare efficiency, not simply economic market efficiency. Social or public value therefore includes all significant costs and benefits that affect the welfare and wellbeing of the population, not just market effects"

5.2.3. Notwithstanding the fact that the Appeal Proposal is not a public sector scheme, the passage raises an interesting philosophical point. As Mr Siraut acknowledges there are both potential negatives and potential positives to outbound tourism⁵. The Green Book also acknowledges that some things are not quantifiable. I would contend that outbound tourism comes into this category. It is possible to do a simple arithmetic calculation of the negatives, as Mr Siraut has done, but it is not possible to quantify effectively some of the offsetting effects, such as changing consumer behaviours in terms of mode, length of stay or alternate holiday destinations, changing spending patterns, or the effect of alternate spending on imports or saving, nor is it possible to quantify the quality of life or educational benefits or indeed the long term GVA and employment benefits associated with the availability of outbound tourism making areas attractive places to live and work. I continue to be of the view that quantification of outbound tourism is, therefore, inappropriate as it gives only a

⁵ This is notwithstanding the fact that there are a wide range of offsetting factors that mean outbound expenditure is not in reality likely to be significantly additional (see Para. 5.3.4 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021)).

skewed and partial picture of the issue. It should be dealt with qualitatively, as the EclA Addendum has done (CD2.22 York Aviation, 2020, p. 23 para. 3.63).

5.2.4. In this regard, while I understand Mr Siraut's calculation, I simply do not accept its premise, as it does not consider offsetting factors from changing traveller behaviour or changing modes or reflect the benefits of outbound leisure travel.

5.2.5. I also note Mr Siraut's comment at 8.3.7 as regards the benefits associated with holidays and note he presents no evidence to support this position.

5.3. *Dr Chapman's Position*

5.3.1. Dr Chapman's position in relation to outbound tourism is set out in Section 8 of his proof of evidence. Although Dr Chapman engages in more discussion on the topic than Mr Siraut, the fundamental point made by Dr Chapman is the same. He believes that outbound tourism expenditure should be included within the economic impact assessment. For the same reasons as stated above and in my Proof of Evidence on socio-economics at sub-section 5.3 (BAL/5/2 Brass, June 2021), I simply disagree with him. I still believe that it is inappropriate to include the negative effects of outbound tourism if you cannot similarly quantify the offsetting effects and positive effects. It simply results in a skewed position and I would highlight again the UK Government's position *"that the evidence available to us does not show that a decrease in the number of UK residents flying abroad for their holidays would have an overall benefit for the UK economy"*. I would note that this is the conclusion reached by Volterra in relation to the Leeds Bradford Airport planning application, when Dr Chapman raised the same issue:

"there are fundamental flaws in NEF's simplistic presentation of outbound tourism impacts being wholly negative. Volterra does not consider this to be a robust assessment" (CD11.16 Volterra, 2020, p. 17 para. 3.32)

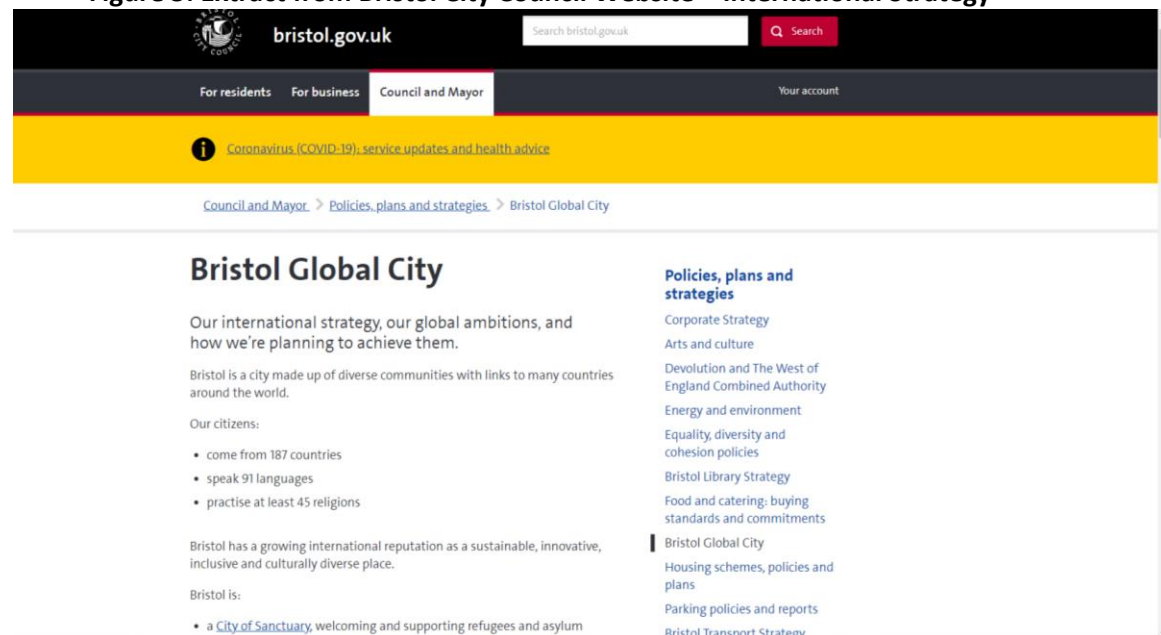
5.3.2. Volterra cites a number of reasons for its position, but I would highlight particularly:

"The NEF methodology does not consider two other important factors: (i) it does not quantify the positive welfare impacts of outbound tourism on LCR residents, although it does acknowledge that these positive welfare benefits (such as freedom of choice and freedom of movement) would occur; and (ii) the methodology does not quantify the potential positive impact on the LCR economy that would occur through the

location being more accessible. It is likely that the area would become a less attractive and hence less economically prosperous place to live if travel options were restricted out of LCR, as less UK residents would want to live in the area.” (CD11.16 Volterra, 2020, p. 17 para. 3.32)

5.3.3. I note in this context, the preamble to the City of Bristol International Strategy on its website. It highlights the international diversity of Bristol. Diversity which is supported by Bristol Airport’s role as a provider of air connectivity.

Figure 5: Extract from Bristol City Council Website – International Strategy



Source: <https://www.bristol.gov.uk/policies-plans-strategies/bristol-global-city>.

5.3.4. I would also highlight that around 26% of students at Bristol University come from overseas⁶, demonstrating the importance of Bristol Airport in making the city an attractive place to study and live.

5.3.5. In this circumstance, the most appropriate course of action is to consider the issue qualitatively and in the round, which is how it is treated in the EcIA Addendum.

5.3.6. I would also make a number of additional comments in relation to Dr Chapman’s position on outbound tourism:

- Dr Chapman also seeks to use the Green Book, alongside a research report by Peak Economics, to suggest that a quantified assessment of outbound tourism is an essential decision-making factor; it is not. As I have explained above, the

⁶ Bristol University. <http://www.bristol.ac.uk/ssio/statistics/>. Excerpt in Appendix A at

Green Book acknowledges that some things are unquantifiable and the net effect of outbound tourism is such an item. It has been dealt with as such;

- at para. 8.2.7 (PCCA/W5/1 Chapman, 2021) Dr Chapman seeks to suggest that the UK Government's position on outbound tourism might not apply at Bristol Airport. I would respond that there is simply no evidence to support his contention;
- in Section 8.3 (PCCA/W5/1 Chapman, 2021), Dr Chapman seeks to critique the arguments made in the EclA Addendum as regards potential offsetting effects that reduce the actual net outbound tourism expenditure. I do not accept the arguments made but I do note that on a number of occasions he does actually accept that the points made are valid, notably at 8.3.4 in relation to changing traveller behaviours, at 8.3.8 in relation to expenditure on imports or saving, and at 8.3.9 in relation to the existence of positive non-economic and economic benefits from air travel. I would also note that Dr Chapman is missing the point of these arguments. He suggests that each one individually is not sufficient to offset outbound tourism expenditure losses. This is not the argument that I am making. My position is that in combination such effects are sufficient to offset any outbound expenditure loss, such that the overall effect of outbound tourism is not a significant impact on the assessment. The possible exception to this is the long term effect on GDP and employment relating to air services' ability to attract people to live and work in an area, which could be large. There is, however, not sufficient evidence on this effect to make an informed judgement. I would also at this point re-emphasise Dr Chapman's previous position in relation to my assessment of outbound tourism in relation to the original planning application, which included these arguments. I remain unclear as to what has changed:

"Following this analysis, the Assessment moves on to consider the impact of outbound tourism. Generally, the discussion of this topic is robust and, while it understates any negative effects of outbound tourism, the Response correctly points out that the UK Government has made a judgement that outbound tourism is of sufficiently little negative consequence to not be considered when making plans to boost inbound tourism." (CD11.13 NEF Consulting, July 2019, p. 11)

- specifically in relation to Dr Chapman's comments in para. 8.3.10 (PCCA/W5/1 Chapman, 2021) and his assertion that plenty of leisure flying will still occur, it is true that the air traffic forecasts do suggest that a significant proportion of passengers will divert to other airports. However, this is not without cost to those individuals in terms of lost time and convenience, potentially higher fares and more difficult and costly surface access journeys. It does not enhance the position of the areas around the airport as places to live and work. This will have an economic cost over time. Similarly, I would also refute the assertion that the 38% of passengers that no longer fly "*would have been repeat trips by individuals who already take multiple leisure flights every year*". I would contend in fact that it is not wealthy individuals that fly multiple times a year that will lose out. These individuals will likely continue to fly albeit at a greater cost. It is much more likely to be relatively price sensitive leisure travellers that may fly only once a year for an annual holiday, who are no longer able to afford to as prices rise.

5.3.7. Dr Chapman moves on to estimate the cost of outbound leisure expenditure, just as Mr Siraut has done, although I note the estimates appear to be quite different, perhaps suggesting that calculating this effect is not quite as simple as they suggest. My comment in relation to this is largely the same as for Mr Siraut. I do not comment on these calculations in detail as it is ultimately not relevant. Their inclusion within the assessment is flawed, as they are not a robust and complete assessment of the net effects of outbound tourism.

5.3.8. Overall, based on this evidence, I conclude that Dr Chapman's position is ultimately misplaced.

6. Other Comments

6.1.1. In this Section, I have considered a range of other issues raised by Mr Siraut and Dr Chapman in their Proofs of Evidence. In the main these are issues that have already been considered in my Proof of Evidence (BAL/5/2 Brass, June 2021) or where the points made are relatively simple to address.

6.2. *Compliance with WebTAG*

6.2.1. Dr Chapman in Section 2 of his Proof (PCCA/W5/1 Chapman, 2021) primarily but also throughout the document makes substantial comment in relation to compliance with WebTAG guidance. WebTAG is not appropriate guidance in this case and I have explained why in some detail in sub-section 5.7 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021). I do not repeat this evidence here.

6.3. *Inclusion of Monetised Noise and Air Quality Impacts*

6.3.1. Both Mr Siraut (para. 8.5.5 (NSC/W5/1 Siraut, 2021)) and Dr Chapman (para. 9.1.4 (PCCA/W5/1 Chapman, 2021)) seek to suggest that negative environmental effects should have been included within the socio-economic cost benefit analysis. Again, I have previously addressed this point in my Proof of Evidence (para. 5.8.4 (BAL/5/2 Brass, June 2021)). However, as Mr Siraut in particular has raised this point by reference to WebTAG guidance, I would make further comment. Notwithstanding that the EclA Addendum was not a WebTAG appraisal and was not intended to be one, it is worth highlighting what the WebTAG guidance in relation to air transport appraisal actually says in relation to the assessment of noise and air quality impacts:

“3.3.1 Noise – TAG Unit A3 sets out the methodology for quantifying the disbenefits of noise, providing methods and values for road, rail and aviation schemes. Any appraisal of aviation schemes ought to take into account the impact of the scheme on noise, where these impacts are likely to be significant, such as for a major airport development. Aviation appraisal should use the values set out in that Unit. Where appropriate, supplementary noise metrics such as N703 (in addition to LAeq, 16h and Lnight) should be considered4.

3.3.2 Air Quality – TAG Unit A3 sets out the methodology for quantifying the air quality impacts in the context of road and rail schemes. Any appraisal of aviation schemes ought to take into account the impacts on local and regional air quality

where these impacts are likely to be significant, such as for a major airport development. In the absence of any aviation specific valuation, aviation appraisal should use the values set out in the Unit.” (CD11.8 Department for Transport, 2018, p. 7)

6.3.2. Although important locally and, indeed, regionally, the Appeal Proposal is not a major airport development scheme that has ‘significant’ impacts in terms of noise or air quality. It is a 2 mppa increase in a planning condition on passenger numbers and some enabling works. Furthermore, as has previously been pointed out, the impacts on noise and air quality have been assessed as part of the environmental impact assessment and were not found to be significant. In other words, not including monetised estimates of these negative externalities is entirely consistent with WebTAG guidance in this case.

6.4. Inclusion of a National Study Area

6.4.1. In section 4 of his Proof of Evidence (PCCA/W5/1 Chapman, 2021), Dr Chapman seeks to suggest that the economic impact assessment of the Appeal Proposal should have considered a national study area. I entirely disagree with this point. The Appeal Proposal is not a Nationally Significant Infrastructure Project (NSIP). It is far too small to be considered one. The Appeal Proposal does not have national level implications from a socio-economic perspective. The fact that its impact at national level is likely to be limited is not at issue. The purpose of this assessment is to determine whether there are likely to be significant socio-economic effects within the local and regional areas it serves. The study areas selected of North Somerset, the West of England, and the South West and South Wales are entirely appropriate to this task.

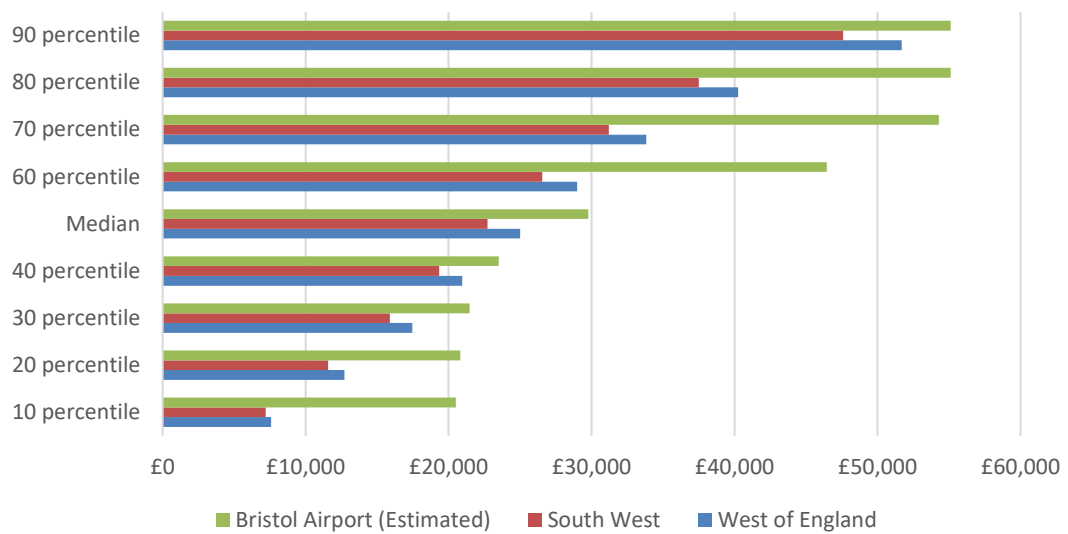
6.4.2. I note that Dr Chapman mentions specifically the importance of considering climate change effects at a national level (para. 4.1.7 (PCCA/W5/1 Chapman, 2021)). In this regard, I agree with him. Given the potential for carbon leakage nationally and globally and the need for co-ordinated action, consideration of the effects of climate change and how to address it, are matters for national government. They are not appropriate issues for consideration at local or regional level. This is entirely consistent with my view on inclusion of carbon costs within the appraisal as expressed in my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021) at paragraph 4.5.2 and in the EclA Addendum (CD2.22 York Aviation, 2020, pp. 35-36).

6.5. Contribution to the Local Economy

6.5.1. At Section 7.2 on page 42 of his Proof, Mr Siraut makes a number of comments in relation to Bristol Airport's contribution and potential contribution to the local economy. He states *"that most of the direct jobs provided by the expansion are likely to be low value and low-skilled"* (para. 7.2.2 (NSC/W5/1 Siraut, 2021)). He then goes on to state that *"this contrasts with North Somerset's economic policies that are aiming to improve the skill sets of its resident population."* I would respond that, as I have outlined in the EclA Addendum (CD2.22 York Aviation, 2020, p. 26 para 3.75), airports are economies in microcosm. Companies on-site at the airport undertake a wide range of different activities and offer a significant range of job opportunities at a wide range of different skill levels with varying pay scales. To a significant degree, there are opportunities for everyone and the potential for advancement through training and development. This is actually vitally important in supporting efforts to address the significant areas of deprivation close to Bristol Airport, in Weston-super-Mare and South Bristol. The Skills and Employment Plan set out in the draft Section 106 agreement is aimed at securing jobs for local people and upskilling the population (see para. 4.5.6 on page 29 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021)).

6.5.2. I would also highlight Figure 6, which is reproduced from the EclA Addendum (CD2.22 York Aviation, 2020, p. 26). Figure 6 presents an analysis of the estimated distribution of salaries at Bristol Airport compared to the West of England and the South West as a whole. This suggests that average salaries at the airport are in fact somewhat higher than in the rest of the economy, with a broad range of salary levels represented. This suggests that the airport offers the type of good quality, jobs that are essential addressing deprivation and developing opportunity at all levels.

Figure 6: Average Salaries at Bristol Airport, in the West of England and in the South West



Source: ONS Annual Survey of Hours and Earnings and York Aviation analysis.

6.5.3. I note that Mr Siraut seeks to contrast employment at the Airport with that expected to be supported at the North Somerset Council supported Junction 21 Enterprise Area (para. 7.2.4 (NSC/W5/1 Siraut, 2021)). I note that no detail is provided in relation to the job estimates set out and hence it is impossible to know on what basis they have been calculated. However, perhaps the more germane issue is the extent to which the jobs Mr Siraut cites are reliant on Bristol Airport and the connectivity it provides. I have set out below three screenshots from the Junction 21 Enterprise Area website. They show Bristol Airport as a core feature of Junction 21's marketing materials, highlighting, particularly, some of the key European business destinations it serves, alongside a statement that clearly shows that the Enterprise Area is aimed at national and global companies. The very companies are likely to be reliant on air connectivity from Bristol Airport.

Figure 7: Screenshots from the Junction 21 Enterprise Area Website

Commercial opportunities in the South West with the Junction 21 Enterprise Area

The 72 hectare Junction 21 Enterprise Area is a key element in the West of England growth story, creating a new and attractive mixed use destination at the gateway to the region and rapidly expanding Weston-super-Mare.

Positioned alongside the M5 corridor, Junction 21 is strategically located at the access points to the South West and South Wales being 20 minutes' south of Bristol in close proximity to a deep-water port and international Airport. It is also home to

On completion, the Enterprise Area will provide over 2 million square foot of commercial space, 10,000 jobs and 6,000 new homes by 2026. Junction 21 Enterprise Area is part of the wider £1bn expansion and regeneration of Weston.

£90m has been invested to date in developing c.30 Ha of Junction 21 Enterprise Area to date through a mix of public and private investment from Persimmon Homes, Homes England, St Modwen, Dowlas Developments Ltd, Landmore Developments, Mead Realisations, Abbey Manor Group and North Somerset Council – many of these forming a strategic joint marketing and delivery group for Junction 21 Enterprise Area.

[THE ENTERPRISE AREA](#) [CONTACT](#)

REQUEST THE J21 PROSPECTUS

DISCOVER THE BENEFITS OF RELOCATING TO THE JUNCTION 21 ENTERPRISE AREA

DESIGNED FOR LIFE. BUILT FOR BUSINESS.

DISCUSS COMMERCIAL OPPORTUNITIES AT J21EA

Companies in the Junction 21 Enterprise Area

Global and National companies including: Network Rail, Lidl, Safelab Systems Limited, Travelodge, Quest Global Engineering and Knightstone Housing sit alongside a growing number of SME businesses; all recognising J21EA as a well-connected location providing easy access to commercial opportunity.

Relocating to the Junction 21 Enterprise Area

North Somerset Council place economic growth at J21EA as a high priority. Locating into J21EA guarantees you confidential and impartial support ensuring your arrival is as smooth as possible. Immediately you will receive:

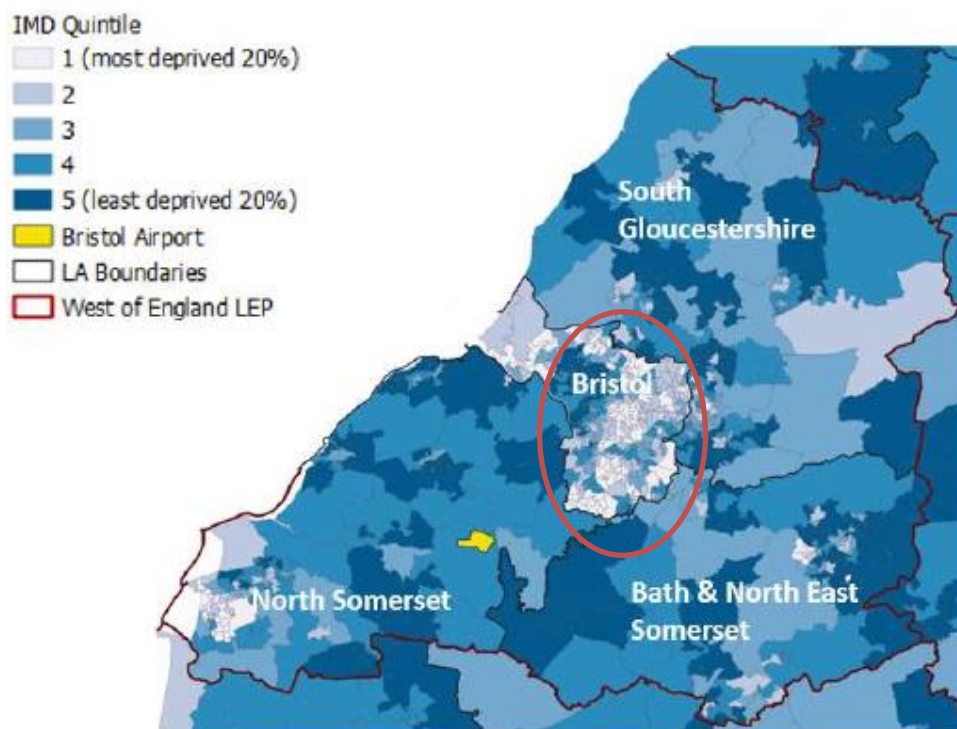


6.6. Economic and Policy Context

6.6.1. In Section 3 of his Proof of Evidence (NSC/W5/1 Siraut, 2021), Mr Siraut embarks on an analysis of the economic and policy context in which Bristol Airport is operating. In the main I do not dispute the data presented in relation to the economy. It is essentially matters of fact. I would, however, highlight a number of points:

- Mr Siraut shows in Figure 3-3 on page 12 a map showing the Index of Multiple Deprivation 2019 at a lower super output area level. This is recreated below for ease of reference. On the map, the lighter the colour of the area, the more deprived it is. Mr Siraut comments that apart from some areas in Weston-super-Mare, North Somerset is not a deprived area (para. 3.3.2 (NSC/W5/1 Siraut, 2021)). This is a fair comment. However, it is rather disingenuous as it completely ignores the large parts of Bristol, particularly to the south of Bristol near the airport, that are also significantly deprived (shown in red). Bristol Airport sits between two significantly deprived areas, which require investment and jobs to support regeneration. To minimise this issue, as Mr Siraut does, is inaccurate and misleading;

Figure 3-3: Deprivation Index – EMID 2019



Source: Jacobs analysis of the English Indices of Multiple Deprivation 2019

- this approach of focussing solely on North Somerset and ignoring the airports wider catchment is something of a theme for this section of Mr Siraut's Proof. His policy analysis is limited to considering the North Somerset Council Economic Recovery Plan (see section 3.4 on page 13). It ignores national and regional policy despite the airport's role as an economic asset for the West of England and the wider South West and South Wales region. It is a highly selective assessment. In Section 3 on page 12 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021), I present a much more comprehensive assessment. I conclude that both nationally and regionally, there is strong recognition of the economic value of air connectivity and its importance to future economic prosperity and this translates to strong policy support. Regionally, there is specific recognition of the role that Bristol Airport plays in providing international connectivity and of the importance of infrastructure in supporting growth. Overall, national, regional and local policy is strongly supportive of airport growth to support economic development and future prosperity. More recent policy has not changed this original position that was set out in the EclA. In fact, the clear articulation of the Government's national economic strategy and its focus on levelling up and Global Britain, alongside the Government's statements within Aviation 2050, strengthen this position.
- the same can be said of his assessment of the tourism context, which focusses solely on North Somerset. This is despite Bristol Airport serving Bristol, the eight most visited city in the UK in 2019 according to VisitBritain⁷, and the broader South West being one of the most popular tourism destinations in the UK.

6.6.2. Furthermore, it is notable that Mr Siraut does not consider the context in the area around the airport in terms of the importance of foreign direct investment. This is despite the presence of globally significant clusters of aerospace activity and high tech / ICT. These are outlined in the EclA Addendum (CD2.22 York Aviation, 2020, pp. 23-26). Mr Siraut's failure to examine the context for the Appeal Proposal properly means that his Proof fails to examine the strategic case for the Appeal Proposal. Mr Siraut does, however, cover more in this area than Dr Chapman, who does not consider strategic issues at all within his Proof.

⁷ <https://www.visitbritain.org/town-data>.

6.7. The Impact of Jet2 on Fleet Mix

6.7.1. Mr Siraut at para. 8.5.4 (NSC/W5/1 Siraut, 2021) raises the specific issue of the potential impact of Jet2's arrival at Bristol Airport on the fleet mix and the corresponding effect on noise, air quality and carbon emissions. Notwithstanding my comments as to the inclusion of such effects in the socio-economic cost benefit analysis, I would highlight that this issue has been addressed in my Proof of Evidence on air traffic forecasting (BAL/1/2 Brass, June 2021) at sub-section 4.12 and in my Rebuttal Proof on air traffic forecasting in section 3 (BAL/1/3 Brass, July 2021). I do not comment further here.

6.8. The Impact of BREXIT on EU Nationals Residency

6.8.1. Mr Siraut comments on the potential decline of EU residents in the UK following the UK exit from the European Union. I remain unclear as to the point that Mr Siraut is seeking to make here from a socio-economic perspective but from an air traffic forecasting perspective, I have addressed this point in my Rebuttal Proof of Evidence on air traffic forecasting at sub-section 4.3 (BAL/1/3 Brass, July 2021). I would also note that recent press reports have highlighted around 5.6 million EU nationals applying for 'settled status', more than was originally expected, suggesting that the UK remains an important place for EU nationals to live and work despite its exit from the EU⁸.

6.9. Treatment of Costs and Benefits in the Socio-Economic Cost Benefit

6.9.1. Both Mr Siraut and Dr Chapman comment on the socio-economic cost benefit analysis (CBA) included within the EcIA Addendum. I have previously addressed the majority of these comments in my Proof of Evidence on socio-economics at sub-section 5.8 (BAL/5/2 Brass, June 2021). I do not repeat these comments here but I do make further comment on some of the additional detail provided by Mr Siraut and Dr Chapman.

6.9.2. Mr Siraut makes limited comment on the socio-economic CBA other than in relation to carbon cost calculation, which I have addressed in my Proof at para. 5.8.3 (BAL/5/2 Brass, June 2021), the potential impact of Jet2 on fleet mix, which I have addressed

⁸ BBC Website (June 2021). Brexit: How many more EU nationals in UK than previously thought? <https://www.bbc.co.uk/news/56846637>

above at sub-section 6.5, the inclusion of noise and air quality effects, which I have addressed at sub-section 6.3, and sensitivity testing, which I have addressed below. I do, however, note his comment at para. 8.4.1 (NSC/W5/1 Siraut, 2021) *“the impacts of outbound tourism are taken into consideration the NPV will be negative by over £1bn.”* Notwithstanding my comments in section 5 as regards the negative impact of outbound tourism, I would point out that it is not a cost in terms of economic welfare. If anything, in welfare terms, it would be a representation of benefits to passengers in terms of their willingness to pay.

6.9.3. Again, in relation to Dr Chapman’s comments, these have largely been addressed in my Proof of Evidence at sub-section 5.8 (BAL/5/2 Brass, June 2021). I would, however, make some additional comments and provide some clarification in response:

- I note Dr Chapman’s discussion around discount rates at para. 10.2.2 and 10.2.3 (PCCA/W5/1 Chapman, 2021). I note that Dr Chapman is speculating in the main about future changes. I continue to believe that a flat 3.5% remains an appropriate rate to use in the context of a high-level CBA as presented in the EcIA Addendum;
- in regards to Dr Chapman’s point about the starting point of the assessment at 10.2.1, to clarify, the 60 years is from the base year for the environmental assessment as a whole, 2018;
- in relation to Dr Chapman’s question around the calculation of impacts on passengers at para. 10.2.5 (PCCA/W5/1 Chapman, 2021), I can confirm that switching passengers are calculated with full costs and benefits. Non-switching passengers are subject to the so called ‘rule of a half’, as is common practice;
- Dr Chapman’s comments in relation to the treatment of the Airport Company at para. 10.2.5 (PCCA/W5/1 Chapman, 2021) that the assumption here is contradictory to the employment assessment. This is not the case. The employment assessment covers all companies on-site at the airport not just the airport company. As such, it is not appropriate to compare the two positions;
- I have addressed Dr Chapman’s comments at para. 10.2.6 (PCCA/W5/1 Chapman, 2021) in relation to the inclusion of environmental effects at sub-section 6.3 above. I do, however, note his specific comment in relation to airspace change. The Appeal Proposal does not involve an airspace change and there is no reason to believe that it would be a driver for one.

6.9.4. Overall, I continue to believe that the high-level CBA undertaken is a useful demonstration of the fact that Appeal Proposal will offer substantial net economic benefits.

6.10. Sensitivity Testing

6.10.1. I note that both Mr Siraut and Dr Chapman have suggested that additional sensitivity testing should have been undertaken as a general point within their Proofs of Evidence, particularly given the current levels of uncertainty.

6.10.2. I would note that the primary source of uncertainty in relation to socio-economic effects at present is the future speed of passenger demand growth, the impact of which on the Assessment has been considered qualitatively. Otherwise, the Assessment has used reasonable central assumptions to consider a range of issues and provide a rounded assessment of the socio-economic impacts of the Appeal Proposal. I believe that this is entirely proportionate to the scale of the Appeal Proposal. The Appeal Proposal does not represent a major airport development and it is not a Nationally Significant Infrastructure Project. Notwithstanding my previous comments as regards compliance with WebTAG, I would note that WebTAG clearly recognises that consideration of effects should be proportionate (CD11.8 Department for Transport, 2018, p. 3 para. 1.1.3). I note in this context that the economic impact assessment of the recent successful Stansted Airport did not include such sensitivity testing and that related to an incremental increase in passenger traffic of 8 mppa, four times that being considered here.

6.11. Recalculation of Carbon Costs

6.11.1. I note Dr Chapman's efforts to re-calculate carbon costs in Section 9 of his Proof. Notwithstanding my comments as regards the inappropriateness of the inclusion of carbon costs (see para. 4.5.2 of my Proof of Evidence on socio-economics (BAL/5/2 Brass, June 2021)), I note that on what appears to be a like for like basis, Dr Chapman's and my assessments of carbon costs are in fact similar. The EclA Addendum estimates the carbon costs of the Appeal Proposal, excluding offsetting, to be around £305 million (CD2.22 York Aviation, 2020, p. 36). I believe Dr Chapman's equivalent figure, as set out in Table 14 on page 37 of his Proof, is £298.5 million, referred to as Bristol Expansion, Central Prices. I conclude from this that the primary issue being raised here by Dr Chapman is, therefore, one of the quantum of emissions

involved in the calculations. This is the subject of evidence from Mr Osund-Ireland and I do not comment further, other than to say that I do not accept the figures put forward by Dr Chapman in Table 14 as regards their effect on the socio-economic CBA.

6.11.2. In relation to carbon prices used by Dr Chapman and in the Appeal Proposal. I would note that they are very similar. I have reproduced Dr Chapman's Table 13 from page 36 of his Proof (PCCA/W5/1 Chapman, 2021) below and also the equivalent carbon prices used in the Assessment, as set out in the air traffic forecasting report in Appendix A (CD2.21 York Aviation, 2020, p. 22).

Table 5: Dr Chapman's Carbon Prices

Table 13: Carbon costs used in the carbon model⁸⁸

2018 £/tCO ₂ e	Carbon Price, Traded, Central	Carbon Price, Traded, High
2017	5	5
2024	41	65
2030	81	121
2040	156	234
2050	231	346

Table 6: Appeal Proposal Carbon Prices

Scenario Name	Low	Central	High
Source	Department for Business, Energy and Industrial Strategy		
Probability	12.5%	75%	12.5%
2020	£0	£13	£27
2021	£4	£20	£36
2022	£8	£26	£45
2023	£12	£33	£54
2024	£16	£39	£63
2025	£19	£45	£71
2026	£23	£52	£80
2027	£27	£58	£89
2028	£31	£65	£98
2029	£35	£71	£107
2030	£39	£78	£116
2031	£42	£85	£127
2032	£46	£92	£138
2033	£50	£99	£149
2034	£53	£106	£160
2035	£57	£114	£170
2036	£60	£121	£181
2037	£64	£128	£192
2038	£68	£135	£203
2039	£71	£142	£214
2040	£75	£150	£225

6.11.3. I would also note that many of Dr Chapman's comments in this area do not appear to be directly related to the Assessment. They appear more to be a challenge to Government in terms of how it accounts and deals with carbon emissions. That is not a matter considered here.

6.12. Construction Impacts

6.12.1. I note Mr Siraut's comments in relation to the estimates of construction impacts being overstated in Section 7.4 of his Proof. This is not the case. The supposed discrepancy identified relates to how GVA and employment effects are allocated within the model used in the Economic Impact Assessment. The GVA associated with the operating surplus of companies based at the airport is reported in all study areas as the airport site is within all study areas. However, GVA associated with the wages and salaries paid to employees is assumed to follow the residency patterns of employees. Hence, within North Somerset only a relatively small

proportion of the reported GVA relates to wages and salaries payments to the employees living within the area. Within West of England, the proportion is larger as the increase in GVA entirely reflects increased wages and salaries payments and hence a relatively large increase in the number of FTEs. This does not effect the underlying GVA per job assumption used to calculate the impacts. This is why the GVA per job figures for the West of England and the South West and South Wales set out in Mr Siraut's Table 7-3 are much more similar. Jacobs have been made aware of this approach previously in response to a query raised and answered in a Regulation 25 response (CD3.4.3 York Aviation, March 2019, pp. 2 para. 2.5-2.6).

6.12.2. I would note that this approach also explains Mr Siraut's comments in relation to the level of GVA per job supported at Bristol Airport in para. 7.3.3 (NSC/W5/1 Siraut, 2021).

6.13. Mr Siraut's Revised Estimates of the Appellant's Net Impacts of Bristol Airport Expansion

6.13.1. I have discussed above in some detail the flaws in Mr Siraut's analysis of the impacts of the Appeal Proposal. I have identified significant flaws in analysis of business productivity effects and a clear error in his estimates of direct job creation. Furthermore, I have highlighted the inappropriateness of his approach to displacement. This invalidates the conclusions that have been drawn by Mr Siraut. I do not accept any of his conclusions in this regard. However, despite these flaws it is worth considering the final position he reaches in Table 9-1 on page 58 of his Proof (NSC/W5/1 Siraut, 2021). I have reproduced this below.

Table 9-1: My Revised Estimates of the Appellant's Net Impacts of Bristol Airport Expansion

Net Economic Impacts	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant Net Impacts	£70m	710	570	£220m	2,460	2,040	£430m	5,560	4,470
(-) Productivity Impacts	£10m - £20m	65-130	50 - 100	£45m - £90m	310 - 620	250 - 500	£100m - £200m	960 - 1,920	760 - 1,520
(-) Job Intensity	£2m	21	11	£2m	22	22	£4m	43	38
Jacobs Revised Net Impacts	£58m - £48m	624-559	509-459	£173m-£128m	2,128-1,818	1,768-1,518	£326m - £226m	4,557-3,597	3,672 - 2,912
(-) Optimistic Displacement Estimate	£4m-£4m	47-42	38-34	£14m-£11m	175-149	145-125	£105m-£73m	1473-1162	1187-941
(-) Balanced Displacement Estimate	£22m-£19m	241-216	197-177	£68m-£50m	835-713	694-596	£195m-£135m	2726-2152	2197-1742
Jacobs Revised Net Impacts	£54m-£29m	582-343	475-282	£162m-£78m	1979-1105	1643-922	£253m-£91m	3395-1445	2731-1170
% Change vs appellant	23%-59%	18%-52%	17%-51%	26%-65%	20%-55%	19%-55%	41%-79%	39%-74%	39%-74%

Source: Jacobs analysis of Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; (CD2.22)

6.13.2. While I do not accept these figures, it is worth highlighting that Mr Siraut's analysis still suggests that the Appeal Proposal will offer substantial net benefits. Despite his best efforts to reduce effects and assume away the economic impacts of Bristol Airport's expansion to 12 mppa, he is still estimating that the Appeal Proposal will support:

- £54 million to £29 million in annual GVA in 2030 and between 582 and 343 jobs in North Somerset;
- £162 million to £78 million in annual GVA in 2030 and between 1,979 and 1,105 jobs in the West of England;
- £253 million to £91 million in annual GVA in 2030 and between 3,395 and 1,445 jobs in the South West and South Wales.

6.13.3. These are substantial impacts and represent a significant positive impact on the economy.

7. Conclusions

7.1.1. In this Rebuttal Proof, I have provided further evidence in relation to a number of issues raised by Mr Siraut and Dr Chapman:

- I have provided further evidence in relation to the recovery of business travel post-COVID. I have considered and rejected the evidence presented in terms of the influence of attitudinal and technology change, noting that it is largely speculation and focussed primarily on the short-term, with no consideration of the ongoing growth in the drivers of business demand. I have also highlighted that Mr Siraut and Dr Chapman's analysis of past trends in business travel at Bristol Airport is flawed and misleading. I have also presented further evidence that airlines will grow services at Bristol Airport that will support business travel in the future;
- I have considered concerns as regards the appropriateness of the elasticity used to consider business productivity effects and noted that it is in line with a range of other research and that it is in fact the elasticity highlighted by Dr Chapman that is out of line. I have also noted that the elasticity highlighted by Dr Chapman is not actually comparable;
- I have ultimately rejected Mr Siraut and Dr Chapman's comments in relation to business productivity on the basis of the evidence presented;
- I have analysed Mr Siraut's and Dr Chapman's comments around on-site productivity growth at Bristol Airport, identifying substantial flaws in their analysis, such that their conclusions on direct jobs are unfounded;
- I have considered the arguments put forward in relation to displacement of economic effects and have concluded that Mr Siraut and Dr Chapman's comments are misplaced and do not affect my conclusions;
- I have, once again, considered the issue of outbound tourism and the arguments put forward by Mr Siraut and Dr Chapman. I note again that these arguments are not new and are flawed. I maintain my conclusion that outbound tourism is unlikely to have a significant net effect on the Assessment;
- I have noted in relation to Mr Siraut's evidence that, despite his efforts to reduce effects and assume away benefits through displacement, his net impacts of the Appeal Proposal still offer substantial economic benefits to North Somerset, the West of England, and the South West and South Wales;

- I have also considered a range of other issues raised, and in places offered clarification. In each case I have concluded that the comments do not affect the conclusions of the Assessment.

7.1.2. Overall, I continue to conclude that the Appeal Proposal will offer significant net economic benefits to North Somerset, the West of England, and the South West and South Wales.

8. Appendix A: Document Excerpts

8.1. Extract from YouGov Poll on Business Air Travel – Future Business Travel

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YOUGOV SURVEY RESULTS
Sample size: 1414
 Sample: 14th December 2020 - 20th January 2021



Total	country								Flight type		
	UK	DK	ES	FR	NL	SE	DE		Domestic flights	Short haul	Mid haul
Thinking about when Covid19-related restrictions are lifted entirely, do you expect your business flights will...											
Base	1414	202	203	200	207	201	201	200	62	137	33
Increase to a frequency greater than before health restrictions were imposed	13%	4%	6%	20%	17%	17%	10%	15%	5%	4%	6%
Return to the same frequency before health restrictions were imposed	38%	32%	45%	44%	39%	38%	31%	40%	32%	31%	45%
Recover but to a lower frequency than before health restrictions were imposed	40%	56%	39%	26%	37%	35%	48%	38%	56%	57%	48%
I will not be taking any more flights for business, even if health restrictions are lifted entirely	5%	4%	4%	7%	5%	6%	5%	5%	5%	4%	-
Don't know	4%	3%	6%	4%	2%	3%	6%	3%	2%	4%	-

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8.2. Extract from YouGov Poll on Business Air Travel – Impact on Productivity

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YOUGOV SURVEY RESULTS

Sample size: 1414

Sample: 14th December 2020 - 20th January 2021



	Total	country							Flight type		
		UK	DK	ES	FR	NL	SE	DE	Domestic flights	Short haul	Mid haul
Productivity to do my job											
Base	1414	202	203	200	207	201	201	200	62	137	33
Better	19%	12%	13%	16%	31%	31%	15%	14%	13%	12%	30%
Has had no impact	55%	60%	60%	52%	46%	51%	59%	56%	50%	58%	30%
Worse	26%	28%	28%	32%	22%	18%	26%	31%	37%	30%	39%

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8.3. CAA Statistics 2019 – Airport Passenger Numbers

Size of Reporting Airports 2019
Comparison with 2014

Table 1



	<----- 2019 ----->		<----- 2014 ----->		
	Terminal passengers (000)	Percentage of Passengers at all airports	Terminal passengers (000)	Percentage of passengers at all airports	Percentage Change (2019/2014)
HEATHROW	80,887	27.2	73,371	30.8	10.2
GATWICK	46,575	15.7	38,094	16.0	22.3
MANCHESTER	29,367	9.9	21,950	9.2	33.8
STANSTED	28,124	9.5	19,958	8.4	40.9
LUTON	18,214	6.1	10,482	4.4	73.8
EDINBURGH	14,734	5.0	10,159	4.3	45.0
BIRMINGHAM	12,646	4.3	9,698	4.1	30.4
BRISTOL	8,960	3.0	6,333	2.7	41.5
GLASGOW	8,843	3.0	7,709	3.2	14.7
BELFAST INTERNATIONAL	6,278	2.1	4,032	1.7	55.7
NEWCASTLE	5,199	1.8	4,513	1.9	15.2
LONDON CITY	5,122	1.7	3,648	1.5	40.4
LIVERPOOL (JOHN LENNON)	5,044	1.7	3,984	1.7	26.6
EAST MIDLANDS INTERNATIONAL	4,674	1.6	4,507	1.9	3.7
LEEDS BRADFORD	3,992	1.3	3,263	1.4	22.3
ABERDEEN	2,913	1.0	3,723	1.6	-21.8
BELFAST CITY (GEORGE BEST)	2,455	0.8	2,555	1.1	-3.9
SOUTHEND	2,036	0.7	1,102	0.5	84.7
SOUTHAMPTON	1,781	0.6	1,830	0.8	-2.6
CARDIFF WALES	1,655	0.6	1,020	0.4	62.3
DONCASTER SHEFFIELD	1,408	0.5	724	0.3	94.4
EXETER	1,022	0.3	767	0.3	33.3
INVERNESS	938	0.3	611	0.3	53.4
BOURNEMOUTH	803	0.3	660	0.3	21.6
PRESTWICK	639	0.2	912	0.4	-30.0
NORWICH	530	0.2	459	0.2	15.6
NEWQUAY	461	0.2	219	0.1	110.6
SUMBURGH	267	0.1	263	0.1	1.8
CITY OF DERRY (EGLINTON)	204	0.1	350	0.1	-41.8
HUMBERSIDE	202	0.1	237	0.1	-15.0
KIRKWALL	162	0.1	151	0.1	7.1
TEESSIDE INTERNATIONAL AIRPORT	148	-	142	0.1	3.9
STORNOWAY	130	-	127	0.1	1.8
SCATSTA	109	-	280	0.1	-60.9
ISLES OF SCILLY (ST.MARYS)	94	-	91	-	3.3
LANDS END (ST JUST)	64	-	44	-	44.2
ISLAY	35	-	27	-	26.8
BENBECULA	35	-	31	-	11.1

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8.4. CAA Statistics 2017 – Airport Passenger Numbers

Size of Reporting Airports 2017
Comparison with 2012

Table 1



	<----- 2017 ----->		<----- 2012 ----->		
	Terminal passengers (000)	Percentage of Passengers at all airports	Terminal passengers (000)	Percentage of passengers at all airports	Percentage Change (2017/2012)
HEATHROW	77,988	27.4	69,983	31.7	11.4
GATWICK	45,554	16.0	34,219	15.5	33.1
MANCHESTER	27,773	9.8	19,654	8.9	41.3
STANSTED	25,903	9.1	17,465	7.9	48.3
LUTON	15,989	5.6	9,614	4.4	66.3
EDINBURGH	13,409	4.7	9,194	4.2	45.8
BIRMINGHAM	12,982	4.6	8,916	4.0	45.6
GLASGOW	9,895	3.5	7,150	3.2	38.4
BRISTOL	8,233	2.9	5,916	2.7	39.2
BELFAST INTERNATIONAL	5,837	2.1	4,312	2.0	35.3
NEWCASTLE	5,298	1.9	4,355	2.0	21.7
LIVERPOOL (JOHN LENNON)	4,897	1.7	4,459	2.0	9.8
EAST MIDLANDS INTERNATIONAL	4,878	1.7	4,068	1.8	19.9
LONDON CITY	4,530	1.6	3,017	1.4	50.2
LEEDS BRADFORD	4,075	1.4	2,969	1.3	37.2
ABERDEEN	3,090	1.1	3,329	1.5	-7.2
BELFAST CITY (GEORGE BEST)	2,560	0.9	2,246	1.0	14.0
SOUTHAMPTON	2,070	0.7	1,693	0.8	22.2
CARDIFF WALES	1,464	0.5	1,013	0.5	44.5
DONCASTER SHEFFIELD	1,336	0.5	693	0.3	92.7
SOUTHEND	1,092	0.4	617	0.3	77.0
EXETER	908	0.3	695	0.3	30.7
INVERNESS	874	0.3	602	0.3	45.4
PRESTWICK	696	0.2	1,067	0.5	-34.8
BOURNEMOUTH	694	0.2	690	0.3	0.6
NORWICH	528	0.2	397	0.2	33.2
NEWQUAY	460	0.2	166	0.1	176.6
SUMBURGH	256	0.1	149	0.1	72.2
CITY OF DERRY (EGLINTON)	194	0.1	398	0.2	-51.3
HUMBERSIDE	190	0.1	234	0.1	-18.5
SCATSTA	171	0.1	304	0.1	-43.9
KIRKWALL	164	0.1	132	0.1	24.4
STORNOWAY	132	-	116	0.1	13.9
DURHAM TEES VALLEY	128	-	165	0.1	-22.3
ISLES OF SCILLY (ST.MARYS)	92	-	97	-	-5.3
LANDS END (ST JUST)	59	-	32	-	84.1
BENBECULA	33	-	31	-	7.8
ISLAY	32	-	21	-	52.6

8.5. Bristol University Student Numbers and Demographics



Bristol University Student Population – Faculty Breakdown

2020/21 figures taken from the 01 December 2020 snapshot.

2020/21

Please note

The following students are included in the below figures:

- Students with an enrolled registration status including successful, temporarily suspended studies, registered, withdrawn, repeating a year or pending board

The following students are not included in the below figures:

- Status of No Show, Provisional, Provisional Returner, In-Year Transfer, Dormant or Writing Up
- Faculty 0 (Non Faculty)
- Students on non standard programmes including visiting students, incoming study abroad, non degree, occasional students, students studying at Theological college, pre-sessional, or life long learning

Total Student Numbers by...

Level of study

Level of Study	Undergraduate		Postgraduate Taught		Postgraduate Research		Grand Total	
	2020/21		2020/21		2020/21		2020/21	
Faculty of Arts	4496	20.73%	414	7.69%	251	11.01%	5161	17.58%
Faculty of Engineering	3251	14.99%	668	12.41%	520	22.81%	4439	15.12%
Faculty of Health Sciences	2886	13.30%	650	12.08%	241	10.57%	3777	12.87%
Faculty of Life Sciences	2678	12.34%	276	5.13%	351	15.39%	3305	11.26%
Faculty of Science	3034	13.99%	196	3.64%	593	26.01%	3823	13.02%
Faculty of Social Sciences & Law	5348	24.65%	3179	59.06%	324	14.21%	8851	30.15%
Grand Total	21693	100%	5383	100%	2280	100%	29356	100%

Mode of Attendance

Mode of Attendance	Full Time		Part Time		Grand Total	
	2020/21		2020/21		2020/21	
Faculty of Arts	4827	17.58%	334	17.66%	5161	17.58%
Faculty of Engineering	4361	15.88%	78	4.12%	4439	15.12%
Faculty of Health Sciences	3289	11.98%	488	25.81%	3777	12.87%
Faculty of Life Sciences	3133	11.41%	172	9.10%	3305	11.26%
Faculty of Science	3658	13.32%	165	8.73%	3823	13.02%
Faculty of Social Sciences & Law	8197	29.85%	654	34.58%	8851	30.15%
Grand Total	27465	100%	1891	100%	29356	100%

Ethnicity

Ethnicity	White		BAME student		Not disclosed		Grand Total	
	2020/21		2020/21		2020/21		2020/21	
Faculty of Arts	4187	22.50%	737	8.96%	237	9.39%	5161	17.58%
Faculty of Engineering	1934	10.39%	1720	20.92%	785	31.09%	4439	15.12%
Faculty of Health Sciences	2651	14.25%	989	12.03%	137	5.43%	3777	12.87%
Faculty of Life Sciences	2405	12.92%	618	7.52%	282	11.17%	3305	11.26%
Faculty of Science	2881	15.48%	698	8.49%	244	9.66%	3823	13.02%
Faculty of Social Sciences & Law	4551	24.46%	3460	42.08%	840	33.27%	8851	30.15%
Grand Total	18609	100%	8222	100%	2525	100%	29356	100%

Disability

Disability	No disability		Declared a disability		Not disclosed		Grand Total	
	2020/21		2020/21		2020/21		2020/21	
Faculty of Arts	4241	16.50%	896	25.61%	24	15.89%	5161	17.58%
Faculty of Engineering	4097	15.94%	306	8.75%	36	23.84%	4439	15.12%
Faculty of Health Sciences	3308	12.87%	468	13.38%	<5		3777	12.87%

Public

Faculty of Life Sciences	2823	10.98%	471	13.46%	11	7.28%	3305	11.26%
Faculty of Science	3337	12.98%	467	13.35%	19	12.58%	3823	13.02%
Faculty of Social Sciences & Law	7901	30.73%	890	25.44%	60	39.74%	8851	30.15%
Grand Total	25707	100%	3498	100%	151	100%	29356	100%

Gender

Gender	Female		Male	
	2020/21		2020/21	
Faculty of Arts	3328	20.71%	1823	13.76%
Faculty of Engineering	949	5.91%	3483	26.29%
Faculty of Health Sciences	2618	16.29%	1155	8.72%
Faculty of Life Sciences	2228	13.87%	1076	8.12%
Faculty of Science	1537	9.57%	2278	17.19%
Faculty of Social Sciences & Law	5408	33.66%	3434	25.92%
Grand Total	16068	100%	13249	100%

Age on Entry

Faculty	<21		21+		Total	
	2020/21		2020/21		2020/21	
Faculty of Arts	4239	20.80%	922	10.27%	5161	17.58%
Faculty of Engineering	3132	15.37%	1307	14.56%	4439	15.12%
Faculty of Health Sciences	2493	12.23%	1284	14.30%	3777	12.87%
Faculty of Life Sciences	2503	12.28%	802	8.93%	3305	11.26%
Faculty of Science	2913	14.30%	910	10.13%	3823	13.02%
Faculty of Social Sciences & Law	5097	25.01%	3754	41.81%	8851	30.15%
Grand Total	20377	100%	8979	100%	29356	100%

Fee Status

Fee Status	Home		Overseas		Grand Total	
	2020/21		2020/21		2020/21	
Faculty of Arts	4839	20.94%	322	5.15%	5161	17.58%
Faculty of Engineering	2673	11.57%	1766	28.25%	4439	15.12%
Faculty of Health Sciences	3471	15.02%	306	4.90%	3777	12.87%
Faculty of Life Sciences	2924	12.66%	381	6.10%	3305	11.26%
Faculty of Science	3433	14.86%	390	6.24%	3823	13.02%
Faculty of Social Sciences & Law	5765	24.95%	3086	49.37%	8851	30.15%
Grand Total	23105	100%	6251	100%	29356	100%

Home / Overseas / EU

Faculty	UK		European Union		Overseas		Grand Total	
	2020/21		2020/21		2020/21		2020/21	
Faculty of Arts	4675	21.48%	170	12.07%	316	5.11%	5161	17.58%
Faculty of Engineering	2352	10.81%	354	25.14%	1733	28.01%	4439	15.12%
Faculty of Health Sciences	3358	15.43%	118	8.38%	301	4.87%	3777	12.87%
Faculty of Life Sciences	2734	12.56%	197	13.99%	374	6.04%	3305	11.26%
Faculty of Science	3270	15.03%	162	11.51%	391	6.32%	3823	13.02%
Faculty of Social Sciences & Law	5372	24.69%	407	28.91%	3072	49.65%	8851	30.15%
Grand Total	21761	100%	1408	100%	6187	100%	29356	100%

8.6. Excerpt from InterVISTAS 2007 Report: Measuring the economic rate of return on investment in the aviation industry, Page 17

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A connectivity indicator was developed for a range of countries using the SRS Analyser and OAG databases of scheduled airline flights. The countries chosen cover different regions and levels of economic development, split into one of the following categories:

- **North America and Western Europe:**

Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

- **Developed Asia:**

Australia, Japan, New Zealand.

- **Emerging Europe:**

Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia, Turkey.

- **Transitioning Asia and South America:**

Argentina, Brazil, Chile, Hong Kong, Israel, Korea, Mexico, Singapore.

- **Emerging Asia and Africa:**

China, Egypt, India, South Africa.

The connectivity indicator is based on the number of available seats to each destination served for the first week in July in each year between 1996 and 2005. The number of available seats to each destination are then weighted by the size of the destination airport (in terms of number of passengers handled in each year). The weighting for each destination gives an indication of the economic importance of the destination airport and the number of onward connections it can provide.

For example, Atlanta airport, as the world's largest airport, is given a weighting of 1 while Paris CDG airport, which handles 61% of the number of passengers handled by Atlanta, is given a weighting of 0.61. Therefore, if an airport has 1000 seats available to Atlanta it is given a weighted total of 1000. But if it also has 1000 seats available to Paris CDG, these are given a weighted total of 610.

The weighted totals are then summed for all destinations (and divided by a scalar factor of 1000) to determine the connectivity indicator. Therefore, the connectivity indicator can be represented as:

$$\frac{\sum (\text{Frequency} * \text{Available Seats per Flight} * \text{Weighting of destination airport})}{1000}$$

A higher figure for the connectivity indicator represents a greater degree of access to the global air transport network. It is a qualitative indicator, reflecting the importance of not just serving a large number of destinations, but serving those destinations that have a high economic importance and the ability to access a large number of onward connections for the business passenger. For example, as shown in Table 2, in 2005 London Heathrow served around twice as many destinations as Johannesburg airport and five times as many destinations as Nairobi airport. However, Heathrow served a larger number of major airports, also with higher frequencies, giving the UK significantly greater access to the global air transport network than South Africa and Kenya. This is reflected in the connectivity indicator, with the value for London Heathrow over 7 times greater than for Johannesburg and over 26 times greater than that for Nairobi.

Table 2: A Measure of Connectivity to the Global Air Transport Network, 2005

	Number of Destinations Served	Number of Available Seats per week	Connectivity Indicator
Chicago O'Hare	222	1,056,350	290.9
London Heathrow	197	988,056	267.3
Beijing	145	595,908	106.4
Copenhagen	128	297,489	63.9
Johannesburg	97	221,540	34.9
Budapest	89	119,645	28.6
Nairobi	37	51,477	10.1

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