



Appeal by: Bristol Airport Limited

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**Proof of evidence of
John Siraut BSc, MSc, Dip Tran
Economic Impact**

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1. Introduction

- 1.1.1 My name is John Siraut, Director of Economics and Global Technical Lead for Transport Economics at Jacobs, a multi-disciplinary consultancy. I have over 30 years' experience working in both Government and the private sector; covering economic policy, regeneration, local economic development, inward investment, tourism and transport.
- 1.1.2 I have a Bachelor of Science Degree with honours in Economics from University College Swansea, a Master of Science Degree in Economics from Birkbeck, University of London and a Diploma in Transport also from Birkbeck, University of London. I am presently Chair of the Transport Economics, Finance and Appraisal Committee of the European Transport Conference.
- 1.1.3 I have acted as Expert Witness for transport and economic development matters at Planning Inquiries, Examinations in Public and Scrutiny Committees. Over the last five years these have included; the £500m A465 dualling scheme where I acted as an Expert Witness covering the direct and wider economic impacts of the scheme. The scheme was recommended for approval by the Planning Inspector and approved by the Welsh Government. I also acted as the Economics Expert Witness, covering regeneration, for the £1bn Silvertown Tunnel in east London which was recommended for approval by the Planning Inspector and approved by the Secretary of State for Transport. I have advised HS2 Ltd on socio-economic, community, health and equality impact assessments for all phases of the scheme over a ten-year period. This has included acting as adviser to HS2's expert witness during Select Committee hearings. More locally I was the Economics Expert Witness at a Public Inquiry into the proposed expansion of Sanders Garden World in neighbouring Sedgemoor Council.
- 1.1.4 In relation to airports, I have advised on the economic impacts of the proposed London Estuary Airport for Transport for London, the wider economic impacts of the proposed third

runway at Heathrow for both the Greater London Authority and the British Chambers of Commerce and the local and regional economic impacts of expanding Stansted Airport. I have also advised on the economic impacts of smaller regional airports including St Helena in the South Atlantic and Galway and Waterford airports in Ireland. I have advised the Civil Aviation Authority in relation to the regulatory aspects of surface access provision to airports and the use of economic analysis to assess proposed changes to the use of airspace.

- 1.1.5 I have undertaken regional economic studies in the UK and overseas including for South-East Wales and have previously advised national and regional inward investment agencies including Invest in Britain and, when working for HM Treasury, I was responsible for the department's interests in regional development and tourism.
- 1.1.6 I am responsible for the economic analysis presented here and have been supported by a team of economists.
- 1.1.7 The evidence which I have prepared and provide in this Proof of Evidence is true and I confirm that the opinions expressed are my true and professional opinions.

2. Scope of Proof

2.1.1 This Proof examines the economic impact of the Proposed Scheme as set out by the appellant. In my opinion while Bristol Airport is a major employer in the area the net economic benefits of its expansion are overstated and it will not provide the “significant” economic benefits claimed. In particular this Proof sets out where my views differ from the appellant’s in respect of:

- a) Business passenger productivity;
- b) Direct employment;
- c) Displacement; and
- d) Uncertainty especially regarding Brexit, outbound tourism and environmental impacts.

2.1.2 The remainder of this Proof is presented in the following structure:

- 3. Economic and Policy Context
- 4. Business passengers
- 5. Direct employment impacts
- 6. Displacement
- 7. Context for assessment
- 8. Uncertainty
- 9. Conclusion

2.1.3 It should be noted that my alternative assessments are often presented as a range of possible outcomes. This reflects the level of uncertainty inherent with assessments of this nature and their sensitivity to the underlying assumptions used.

3. Economic and Policy Context

3.1 Introduction

- 3.1.1 This chapter provides an overview of the economy of the North Somerset council area and its relevant policies and of the economy of the wider West of England region. The West of England region consists of North Somerset, Bath and North-East Somerset, Bristol, and South Gloucestershire council areas. This chapter uses the latest available official data from the Office of National Statistics.

3.2 The Economic Context

- 3.2.1 The West of England's economic output (GDP) in 2019 was £40.8bn¹ and GDP per capita was £35,000, 7% higher than the UK average. Given London's dominance of the economy, if its contribution to GDP and its population were stripped out of the figures, then GDP per capita in the West of England is 20% higher than the UK minus London average.
- 3.2.2 North Somerset has a strongly performing labour market. Economic activity, that is the proportion of the working age population in employment or seeking work, in 2020, at 85.1% was markedly higher than that for the South West (81%) and Great Britain (79.1%). Whilst employment growth, between 2012 and 2019, as shown in Table 3-1, has far exceeded the national average, increasing by 15.4% compared to a Great Britain increase of 11.4 %, over the same period. West of England employment growth has also surpassed the national average and increased by 15.9%.²

¹ ONS 2021 Regional gross domestic product: local authorities

² Office for National Statistics 2021 Annual population survey/Labour Force Survey

Table 3-1: Employment change

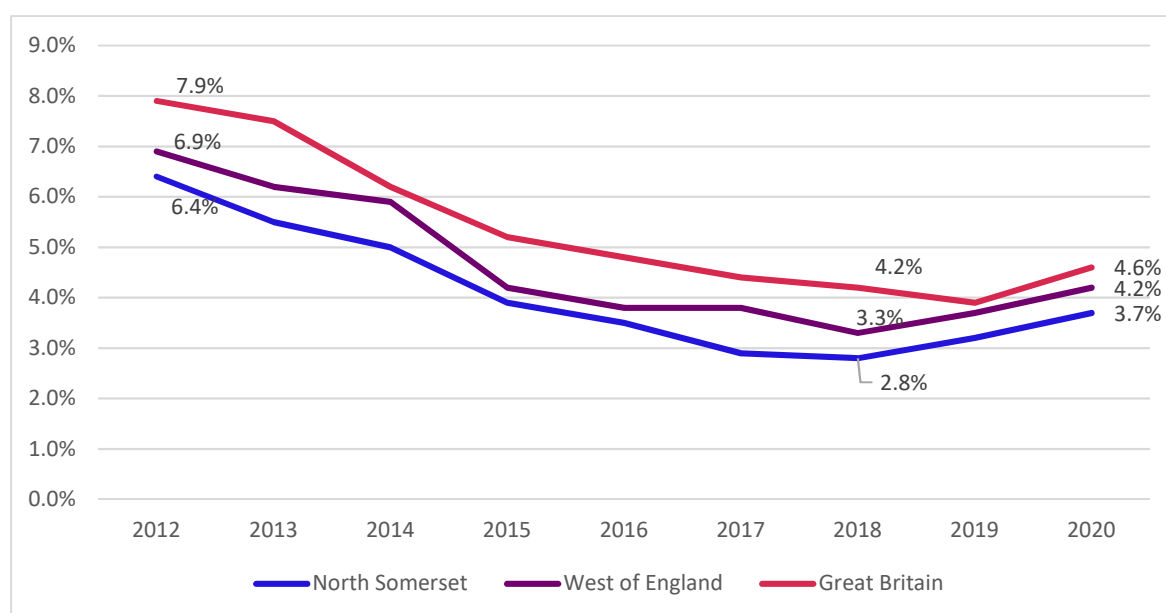
	Increase in Employment (%)	Employment CAGR (%)
Period	2012-19	2012-19
North Somerset	15.4%	2.1%
West of England	15.9%	2.1%
United Kingdom	11.4%	1.6%

Source: Business Register and Employment Survey (BRES)

3.2.3 The economic sectors in North Somerset with the largest increase in employment between 2012 and 2019 are; business administration and support services (4,000 jobs), professional, scientific and technical (2,500), accommodation and food services (2,000) and construction (1,000)³.

3.2.4 Unemployment in North Somerset has been consistently below that for the West of England which in turn has consistently been below that for Great Britain (GB) since 2012, as shown in Figure 3-1.

Figure 3-1: Unemployment Rate 2012 to 2020

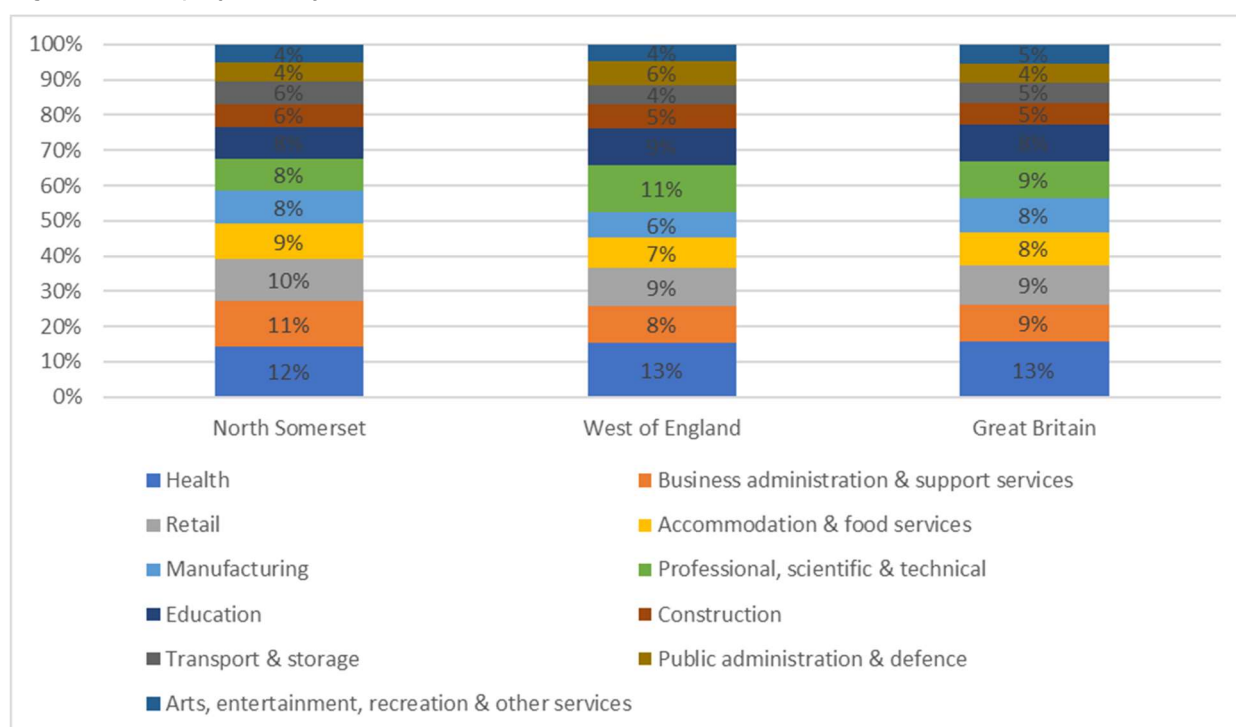


Source: NOMIS, Labour Force Survey

³ BRES Employment by local authority

3.2.5 Structurally, the economies of North Somerset and the West of England have similar profiles to the national average as illustrated in Figure 3-2. There is a greater proportion of employment within business administration and support services, retail, accommodation and food, and transport and storage industries in North Somerset relative to the West of England and the GB average. Manufacturing is still an important sector in North Somerset with a very high output per person.

Figure 3-2: Employment by main economic sectors 2019



Source: Business Register and Employment Survey (BRES)

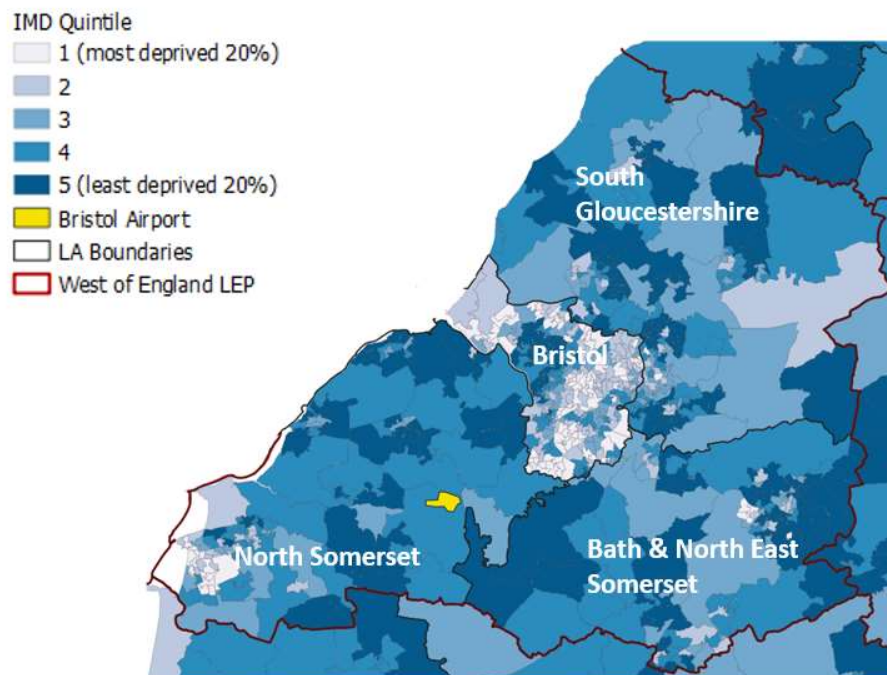
3.3 Deprivation

3.3.1 The English Indices of Multiple Deprivation (EIMD) are designed to determine relative deprivation at the local level (Lower Super Output Areas (LSOAs)) in a consistent manner across England. LSOAs have a mean population of 1,500 and, hence are much larger spatially in rural compared to urban areas.

3.3.2 Figure 3-3 shows that apart from parts of Weston-super-Mare, North Somerset Council is not

a deprived area.

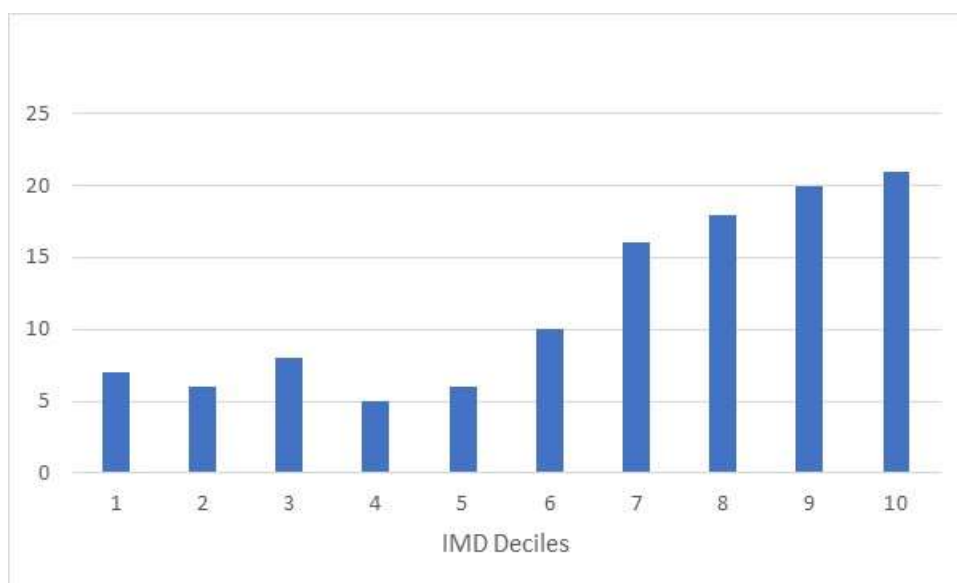
Figure 3-3: Deprivation Index – EMID 2019



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

3.3.3 shows the distribution of the 118 LSOAs in North Somerset by where they sit within the overall England wide deciles. As can be seen 75 are in the top 4 deciles, that is, in the 40% least deprived areas of the country.

Figure 3-4: Distribution of LSOAs by IMD decile in North Somerset



Source: English Indices of Multiple Deprivation 2019

3.4 Local Policy

- 3.4.1 In light of Covid, North Somerset's latest economic plan (CD11.3)⁴ focuses on supporting local SMEs and driving sustainable economic development. It sets out the following three aims:
- 3.4.2 **Provide inclusive growth and wellbeing for North Somerset people:** the economic plan's objective is to bring business ownership back into North Somerset, by encouraging entrepreneurship and employee ownership, therefore focusing on innovative SME growth in the area. The policy recognises the need to retrain the working population to have the skills for the jobs of the future, *"including those leaving struggling industries to work in growth employment sectors such as the green economy"*.
- 3.4.3 **Deliver digital access for all:** the pandemic has highlighted the importance of good digital access and North Somerset's plan is to increase digital access across the local authority. For residents, the economic plan not only sets out an increase in digital coverage but also digital skills training to ensure local communities have the technical skills for the evolving job

⁴[North Somerset Economic Plan: CD11.3](#)

market.

- 3.4.4 **Support green business and low carbon activities:** In supporting the UK to achieve net-zero carbon by 2050, North Somerset Council has declared a Climate Emergency and wants to achieve carbon neutrality by 2030 both as an organisation and for its council area. The economic plan emphasises the need for the economic recovery to be sustainable, supporting low carbon activities and the green economy. The need to move to zero Carbon is seen as *“an opportunity to promote our visitor economy as a low-carbon alternative to travelling abroad.”*
- 3.4.5 The pandemic has encouraged North Somerset council to change its position set out in previous strategies and increase its focus on investing in supporting local businesses which in turn support the local economy, improving digital access and developing a low-carbon economy and green recovery. Hence there are few references to Bristol Airport in the Economic Plan; the airport is not seen as being an integral part of North Somerset’s economic recovery plan.
- 3.5 Tourism**
- 3.5.1 North Somerset’s tourism is predominately made up of day visitors and in 2019 the area had a total of 7.7m day visitor trips spending £356m in the local economy. There were also, 0.5m trips involving an overnight stay generating local spend of £106m. In total, the tourism industry in North Somerset provides 4,855 Full-Time Equivalent (FTE) jobs, equivalent to 6% of total employment in the area⁵.
- 3.5.2 Of the 0.5m trips involving an overnight stay, only 11% are from overseas with the remaining 89% being from domestic visitors. That 11% is made up of 2% business trips, 5% visiting friends and family and 4% coming for a holiday. This demonstrates that North Somerset’s

⁵ The Economic Impact of North Somerset’s Visitor Economy 2019 by The South West Research Company

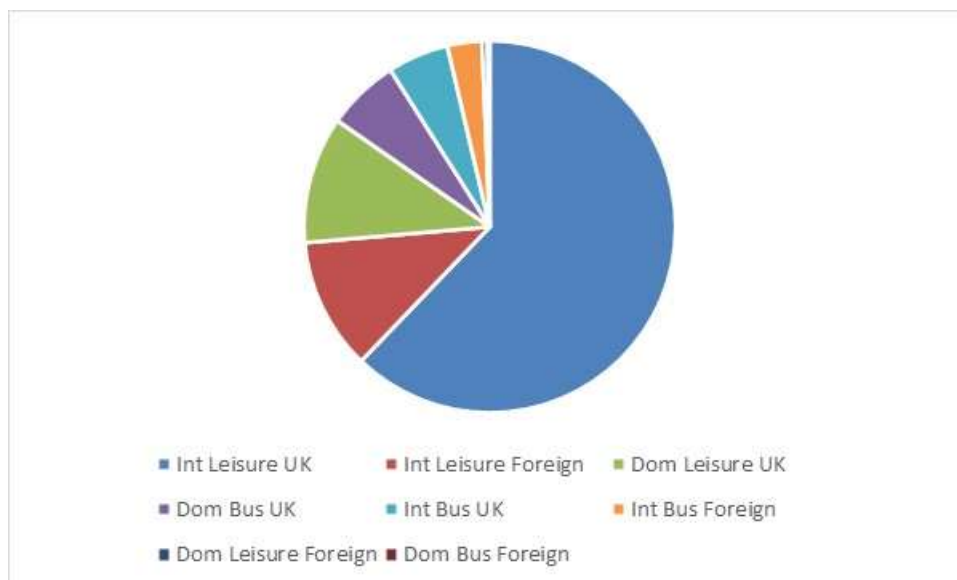
tourism industry is not reliant on overseas visitors, rather it is driven by domestic tourism.

North Somerset is expecting to have a tourism boom this summer due to Covid restrictions on overseas trips. With an increase in the number of all-weather facilities the expectation is that it can both extend its tourist season and increase its attractiveness over the long term compared to overseas locations.

- 3.5.3 Bristol airport principally serves an outbound tourist market, which accounts for nearly two thirds of its business as shown in

3.5.4 Figure 3-5.

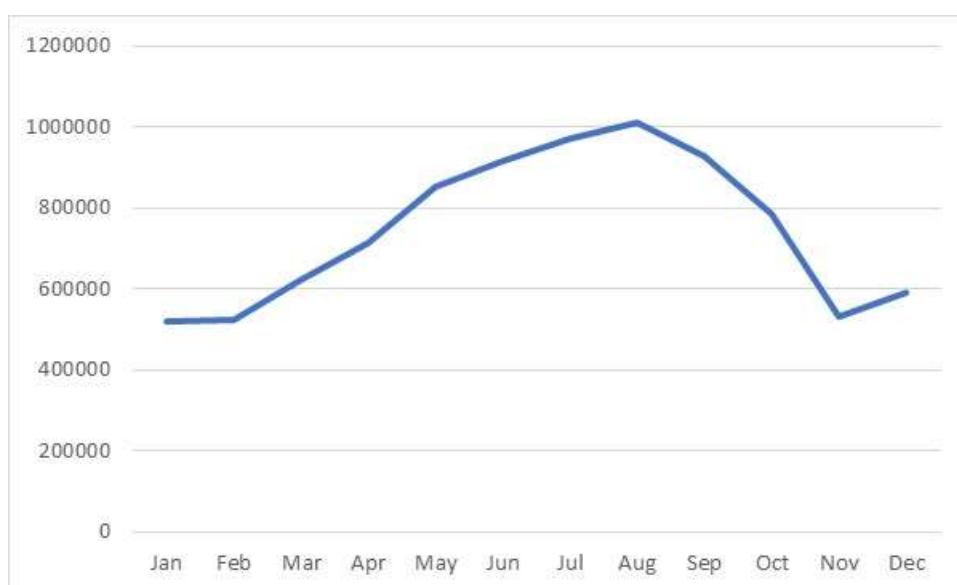
Figure 3-5: Bristol Airport Journey Purpose for UK and foreign passengers



Source: CAA 2019 Passenger Survey; CD.7.10

3.5.5 This dependence on outbound leisure traffic leads to considerable seasonality in demand, as shown in Figure 3-6, and hence employment at the airport. Demand in the peak summer month being double that in the winter.

Figure 3-6: Bristol Airport Passenger numbers by month – 2019



Source: CAA Passenger statistics, CD.7.10

3.6 Conclusion

- 3.6.1 In summary, North Somerset and the West of England are relatively prosperous areas with high levels of job growth, low levels of unemployment and high levels of productivity leading to a lower level of deprivation, relative to the rest of England, across the region. Hence expansion of Bristol Airport is not significant nor necessary for the sustainable growth of the local or wider economy.
- 3.6.2 As discussed in the next chapter there is a real risk that any expansion of the airport will displace activity from other airports in the region which are based in less prosperous areas. Table 3-2 shows the Gross Value Added (GVA) per head in the regions⁶ where airports are located in the South West and South Wales. As can be seen all the airports are located in less prosperous areas than Bristol is (the relevant ITL3 area is a subset of the ITL2 area except in the case of Cornwall and the Isles of Scilly where they are identical).

Table 3-2: GVA per head in International Territorial Level ITL2 and ITL3 regions hosting regional airports in the South West & South Wales

Airport	ITL2	ITL3	GVA per head £
Bristol	Gloucestershire, Wiltshire and Bath/Bristol area		30,200
		Bath and North East Somerset, North Somerset and South Gloucestershire	30,500
Bournemouth	Dorset & Somerset		23,000
		Bournemouth, Christchurch and Poole	26,900
Newquay	Cornwall & Isles of Scilly		20,100
		Cornwall & Isles of Scilly	20,100
Exeter	Devon		21,700
		Devon CC	22,800
Cardiff	East Wales		25,800
		Cardiff and Vale of Glamorgan	27,600

⁶ The European Union used Nomenclature of territorial units for statistics (NUTS) classifications where: NUTS 1: major socio-economic regions; NUTS 2: basic regions for the application of regional policies; and NUTS 3: small regions for specific diagnoses. Since leaving the EU the UK has renamed these classifications as International Territorial Levels.

Source: ONS 2021 Regional gross value added (balanced) per head and income components

- 3.6.3 Overseas tourism into the area is not a significant economic driver locally; rather, the airport disproportionately supports outbound tourism rather than business travel or inbound tourism. The compatibility of the proposed development with the ever-increasing importance given to a net-zero economy within the latest North Somerset and West of England policy is a matter considered in Mr Hinnell's Proof of Evidence.

4. Business Passengers

4.1 Introduction

- 4.1.1 This chapter sets out the appellant's view on business passenger productivity impacts and my view on whether the expansion of Bristol Airport will have a material impact or not in relation to business productivity.

4.2 The appellant's business passenger productivity impact

- 4.2.1 Page 6 of the Economic Impact Assessment Addendum (CD2.22) states that:

"While business travel will probably take longer to recover, we expect it to recover substantially before the time period for this assessment."

- 4.2.2 Further discussion with the appellant identified that they estimate business passengers will recover to the same proportion of total passengers as pre-Covid. Therefore, the expansion will result in an increase in the absolute number of business passengers travelling from Bristol Airport. If business travel reaches the pre-Covid 2019 proportion of total passengers (13.8%) then there would be 1.7 million business passengers i.e. an increase of 0.4m over 2019 levels and nearly 0.3m additional business passengers in the 12 versus 10mppa scenario.
- 4.2.3 The appellant estimates an increase in net productivity as a result of business passenger growth of £200m at the South West and South Wales region (Table 4-1).

Table 4-1: Appellant's Estimated Net Productivity Benefits (2030)

Addendum Forecast Overview (%) Economic Impacts	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Productivity – Proposed Development (2030)	£120m	710	560	£510m	3,470	2,820	£1,120m	10,780	8,520
Productivity – Future Baseline (2030)	£100m	580	460	£420m	2,850	2,320	£920m	8,860	7,000
Net Productivity of Expansion	£20m	130	100	£90m	620	500	£200m	1,920	1,520

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

4.3 My view on business passenger productivity impacts

4.3.1 The link between business travel and economic productivity is complex. As the appellant sets out the approach used is based on research undertaken in 2013 by Oxford Economics which identified a "10% increase in combined business air travel and air freight would result in a 0.5% increase in productivity in the economy".⁷ Since then we have seen the massive uptake in video conferencing as a result of the pandemic and changing attitudes to flying due to the climate emergency. A pan European 2021 YouGov poll⁸ of business travellers reported 40% of respondents said they would take fewer business flights when restrictions were lifted entirely, 38% would return to the same frequency, 13% would take more flights and 5% said they would stop flying for business altogether. For UK based respondents, 56% stated they would take less business flights. When asked about increased use of video conferencing and its impact on how often respondents would travel when restrictions were lifted, 42% said they would fly less as a result of video conferencing, 42% would return to the same frequency, while 11% would fly more. Again, UK respondents were less sanguine with 56% reporting that they would fly less. Asked how restrictions on flying had impacted on productivity, 19%

⁷ Impacts on the UK Economy through the Provision of International Connectivity – Oxford Economics for Transport for London (2013).

⁸ YouGov poll for European Climate Foundation 2021 <https://docs.cdn.yougov.com/c9qjhkrpk/Marketing%20data%20tables%20-%20GSCC.pdf> accessed 4 June 2021

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.

4.3.2 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.

4.3.3 Business passengers made up only 13.8% of total passengers at Bristol Airport according to the CAA 2019 Passenger Survey (CD7.10). This percentage has been gradually falling, it was 24.2% in the CAA 2000 Passenger Survey. The appellant's assumption is that by 2030, business passengers will make up the same proportion of total throughput as now. However, I believe that the pandemic and the climate emergency have changed attitudes to business travel, as evidenced by the YouGov poll discussed above. The Financial Times reported "*data from the Office for National Statistics shows that while international air travel for leisure increased 3.4 per cent per year between 2000 and 2019, international business travel grew just 0.2 per cent annually.*"⁹

4.3.4 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).

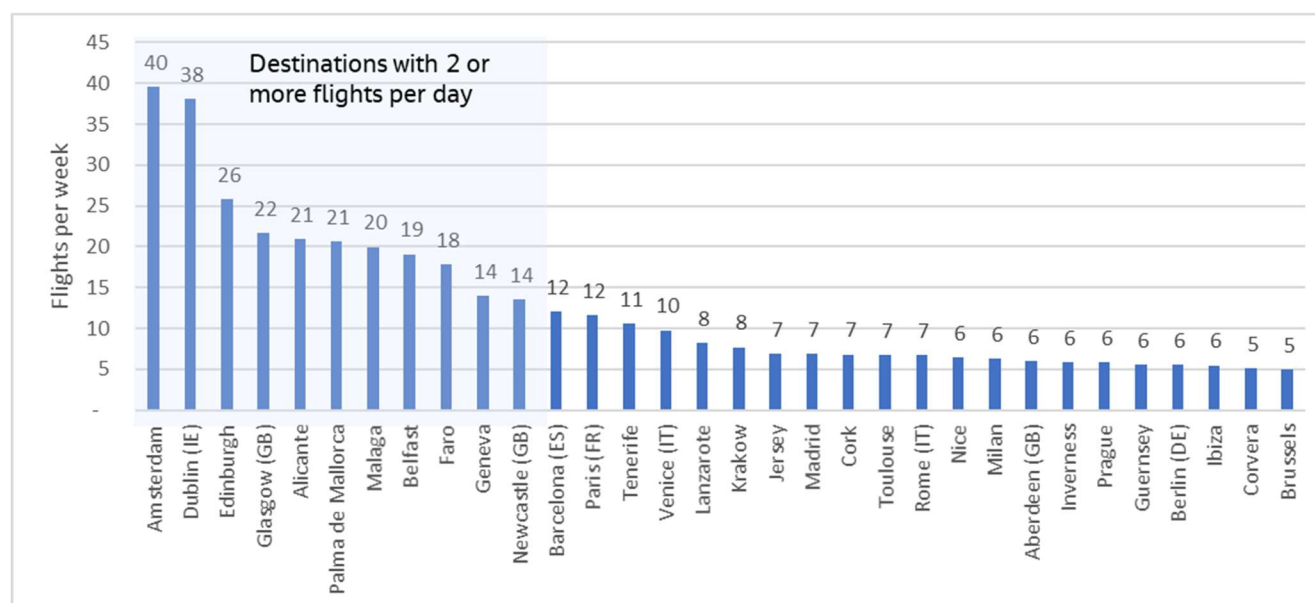
4.3.5 In addition, given business passengers are less sensitive to price, under a constrained environment, they will outbid their leisure counterpart for a given journey. Business passengers are therefore not restricted by capacity but rather choose to travel from a

⁹ Financial Times 14 Jan 2021 Business travel: 'We don't know how many people will choose to fly'

particular airport by reference to the availability of services to the destination they require.

- 4.3.6 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.
- 4.3.7 Whether there are any additional business productivity benefits arising from increasing capacity from 10 to 12mppa will depend on the net additional number of business travellers who otherwise would not have been able to conduct their desired business activity. It is also worth noting that nearly half of Bristol's business travellers are flying on domestic routes.
- 4.3.8 Of the 133 destinations Bristol Airport served in 2019, only 11 are served by regular flights, that is, an average of more than 2 flights per day, while 32 are served by more than 5 flights a week as illustrated in Figure 4 1. Of these 32 destinations, 6 are in the UK. An increase in capacity of 20% is unlikely to lead to a significant uplift in frequency or new regular services to business destinations based on the present business model. In fact, as has happened at capacity constrained airports such as Heathrow, there is potential as demand increases 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. The difference between the busiest and quietest months at Heathrow is 31% compared to 94% at Bristol (based on daily average passengers per day per month).
- 4.3.9 As indicated in Mr Folley's evidence, the appellant does not provide sufficient evidence to support the growth assumptions made with regards to business travel in their forecasts. Furthermore, Mr Folley's Proof questions whether the relative difference between leisure and business passenger growth rates calculated using DfT's elasticities are appropriate in a post-Covid and Brexit environment.

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



Source: OAG

- 4.3.10 Given the points above, I've developed two views (a balanced and an optimistic view) on business passenger productivity benefits.
- 4.3.11 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.
- 4.3.12 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.

Table 4-2: Business leisure passenger split based on differential growth rates

Year or capacity	Leisure passengers	Business passengers	Total
2019	7.77m	1.23m	8.9m
10MPPA	8.72m	1.27m	10m
12MPPA	10.67m	1.34m	12m

4.3.13 Hence under an optimistic scenario I suggest that the level of productivity benefits is effectively halved. Table 4-3 sets out the range of productivity benefits that might arise from the expansion compared with the appellant's view.

Table 4-3: Appellant's versus my estimated net productivity benefits (2030)

Net business passenger productivity impacts of expansion	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant's estimate	£20m	130	100	£90m	620	500	£200m	1920	1520
My balanced estimate	£0m	0	0	£0m	0	0	£0m	0	0
My optimistic estimate	£10m	65	50	£45m	310	250	£100m	960	760
Range of difference in estimates	£0m - £10m	0 - 65	0 - 50	£0m - £45m	0 - 310	0 - 250	£0 - £100m	0 - 960	0 - 760

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

5. Direct Employment Impacts

5.1 Introduction

- 5.1.1 This chapter reviews the appellant's estimate of direct employment impacts and presents my view on the potential impacts of technological efficiency gains. In my view, by not fully incorporating these expected productivity improvements, the appellant's estimate on direct employment impacts is overstated.

5.2 The appellant's direct employment impacts

- 5.2.1 Prior to the Covid-19 pandemic, the number of direct on-site employees at Bristol Airport in 2018 stood at 3,900. Following the pandemic, a number of staff directly employed by the airport have been made redundant¹⁰. As a result of the pandemic industries including, but not limited to, aviation have been forced to re-evaluate their existing operations. The aviation industry globally has seen a sharp drop in passenger demand. To reduce costs, it can be expected that airlines, especially the low cost operators that dominate at Bristol Airport will be seeking reductions in their cost base including airport fees which will potentially lead to further automation. We have also seen moves by the retail and catering sector to reduce costs by increasing automation, eg self-service operations. There is, therefore, a risk that Bristol airport will not employ the same number of staff as pre-Covid for the same level of passenger throughput.
- 5.2.2 At the South West and South Wales level, Bristol Airport is estimated to provide 4,080 jobs directly without expansion in 2030 with 10m passenger throughput. This is equivalent to 408 jobs per one million passengers. Similarly, with the expansion, Bristol Airport is estimated to provide 4,900 jobs directly for 12m passenger throughput, which provides the same jobs to

¹⁰ BBC News. 10 July 2020. *Bristol Airport: Almost 100 Jobs Set To Be Lost*.

passenger ratio (408 jobs per one million passengers) as in the baseline. That is, there are no economies of scale envisaged.

- 5.2.3 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.

5.3 My direct employment estimates

- 5.3.1 A report by Steer Davies Gleave (SDG) (2015)¹¹ looked at employment and working conditions in air transport and airports across all 28 countries then in the European Union. This study shows that airports increased efficiency by 1% per year between 2008 and 2013. Assuming that this occurs every year from 2018 to 2030, jobs per one million passengers should fall from 438 jobs per million passengers in the 2018 baseline to 388 jobs per million passengers (equivalent to a 11% reduction). This would result in 3,884 jobs directly supported on-site by Bristol Airport at the South West and South Wales level in 2030 with 10mppa, therefore reducing jobs by 196 compared to the 4,080 estimated in the 2030 baseline by the appellant (Table 5-1).
- 5.3.2 In contrast, the appellant have estimated an increase in the jobs to passenger ratio to 408 jobs per one million passengers in the 2030 baseline, which is equivalent to a 7% decrease in the ratio, resulting in an 5% increase in the number of direct on-site jobs supported by the airport at the South West and South Wales level (3,900 jobs in 2018 baseline versus 4,080 in 2030 baseline) as set out in Table 5-1.

¹¹ Steer Davies Gleave 2015: Study on employment and working conditions in air transport and airports

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%

Source: Jacobs analysis

5.3.3 Table 5-2 shows employment levels if the 1% job efficiency identified by SDG is achieved per year for 2030 with 12mppa and compares this with the estimates provided by the appellant.

The figures have been calculated using the following steps:

- Calculating the number of direct jobs and direct FTEs per one million passengers (job intensity ratio) in 2018;
- Applying a 1% annual reduction from 2018 to 2030 to the above job intensity ratio to calculate the job intensity ratios for jobs and FTEs in 2030;
- Estimating the total number of jobs and FTEs under 10mppa and 12mppa in 2030 using the ratios calculated in the previous steps; and
- GVA per job as implied by the appellant under 2030 baseline and 2030 core scenario were applied to my estimated job intensity ratio to estimate the total GVA if a 1% yearly efficiency occurs by 2030.

5.3.4 As can be seen, the number of direct jobs with expansion at the South West and South Wales

level is 239 and 207 FTES lower when a 1% yearly efficiency is applied. However, this does not translate to a large difference between the marginal net GVA impacts estimated by the appellant and the above stated approach. It should be noted that the long run trend before the global financial crisis was for productivity growth to average 2% a year so my assumption of 1% is conservative. In addition, some economies of scale would be expected as passengers numbers increase which has not been considered by the appellant.

5.3.5 In conclusion it is my opinion that the direct on-site employment impacts are overestimated in Bristol Airport's economic case. Continuous improvements in productivity would be expected to reduce the levels of direct employment and thereby the impacts associated with it in the appellant's case.

Table 5-2: My estimated impacts of job efficiency gains compared to the appellant's

Economic Impacts - accounting for job efficiency gains	North Somerset			West of England			South West & South Wales		
	GVA	Jobs	FTEs	GVA	Jobs	FTEs	GVA	Jobs	FTEs
Appellant's Proposed Development – 12 MPPA (2030)	£280m	1,640	1,440	£370m	3,620	3,180	£430m	4,900	4,300
Jacobs Revised Proposed Development – 12 MPPA (2030)	£267m	1,554	1,374	£355m	3,466	3,048	£409m	4,661	4,093
Difference (Jacobs – The Appellant)	-£13m	-86	-66	-£15m	-154	-132	-£21m	-239	-207
Difference in marginal net impact results between The Appellant and Jacobs Estimates	-£2m	-21	-11	-£2m	-22	-22	-£4m	-43	-38

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

5.4 My estimated impact

5.4.1 Combining both my estimates for business productivity and job intensity impacts reduces the South West and South Wales regional GVA impact of the scheme by between 24%-47% and jobs generated by between 18%-35% as set out in Table 5-3.

Table 5-3: My Revised Net Impacts of Bristol Airport Expansion with Business Productivity and Job Intensity Estimates

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
% Change vs appellant	17%-31%	12%-21%	11%-19%	21%-42%	13%-26%	13%-26%	24%-47%	18%-35%	18%-35%

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

6. Displacement

6.1.1 Displacement is the extent to which an increase in economic activity as a result of investment or policy change in one area is offset by reductions in economic activity in the same area under consideration or in areas close by¹².

6.1.2 This chapter sets out the appellant's view on displacement, my view on both the quantum of displacement and its application and a summary of my calculations. Displacement in this case is the proportion of passengers who would have travelled from other airports in the region if expansion did not occur at Bristol.

6.2 The appellant's displacement application and estimates

6.2.1 The appellant's original assessment (CD2.8) did not quantify displacement effects of passengers transferring to other airports in the South West and South Wales to undertake their journeys if the proposed development did not go ahead. The updated assessment estimates displacement under a scenario in which Bristol Airport is capped at the current 10mppa capacity. Using a logit model, the appellant has estimated 28% of passengers would be displaced at the South West and South Wales region. That is, they would have flown from other airports in this region. The remaining 72% are estimated to use airports further afield such as Gatwick and Heathrow or choose not to fly. At the UK level, therefore, virtually all economic activity is displaced.

¹² [The Green Book 2020](#)

Table 6-1: Appellant's GVA and employment impacts with and without displacement in 2030 (2018 prices)

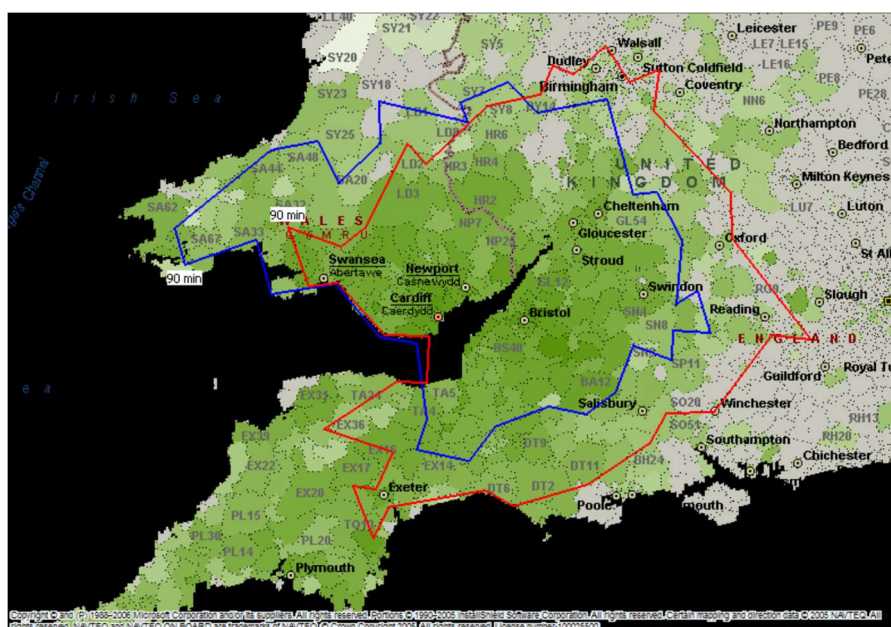
Variable	Region	Additional impact without displacement	Additional impact with displacement	Impact of applying displacement
GVA (£m)	North Somerset	70	70	0
	West of England	220	220	0
	South West & South Wales	430	310	-120
Jobs (#)	North Somerset	710	710	0
	West of England	2,460	2,460	0
	South West & South Wales	5,560	4,000	-1,560
FTEs (#)	North Somerset	570	570	0
	West of England	2,040	2,040	0
	South West & South Wales	4,470	3,210	-1,260

6.2.2 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. For example, the appellant's economic advisors have previously advised that Bristol and Cardiff airports' catchment areas overlap significantly, as shown in Figure 6-1.

6.2.3 Further the Office of Fair Trading (OFT) in a report examining alleged abuse of a dominant position by Flybe Ltd considered the degree of competition between Bristol and Exeter airports and concluded "In the OFT's view, the results show a large degree of overlap between

the two catchment areas. Using the 20 per cent threshold, a significant proportion of passengers at Exeter Airport appear to be 'exposed to competition' from Bristol Airport (marginal passengers). Based on this evidence, the OFT considers there seems likely to be competition between airlines at both airports on these routes, when considered in aggregate"¹³

Figure 6-1: 90-minute Drive Time Zones for Bristol and Cardiff Airports



Source: York Aviation 2014 *The impact of devolving air passenger duty to Wales study for Bristol Airport Ltd*

¹³ Office of Fair Trading 2007 Competition Act 1998 No Grounds for Action Decision No. MPINF-PSWA001 – 04 Alleged abuse of a dominant position by Flybe Limited Annex A – Market Definition Catchment Profile Analysis and Event Study

6.3 My displacement estimates

6.3.1 Given the level of potential overlap between airports in the region I have produced my own displacement estimates. Table 6-2 sets out the appellant's assessment, taken from its surface transport analysis (CD2.20.6),¹⁴ of the number of passengers who would use alternative airports if Bristol Airport's expansion does not go ahead. At the South West and South Wales level, which includes four competing airports (Cardiff, Exeter, Bournemouth and Newquay), the appellant's data shows:

- a) **12%** of the passengers that reside in North Somerset would travel to alternative airports in the South West and South Wales, with the remaining going outside the study area (to Heathrow, Gatwick, Birmingham, Luton and Stansted);
- b) **13%** of passengers that reside in the West of England (including North Somerset) would travel from alternative airports in the South West and South Wales region, with the remaining 87% going outside the study area; and
- c) **52%** of passengers that reside in the South West and South Wales region would travel to other airports within this region and the remaining 48% would travel from airports outside the study area.

6.3.2 The appellant's own data, therefore, clearly shows that there is competition for Bristol airport particularly from Cardiff and Exeter airports in line with their own advisor's and OFT's views (as outlined above).

6.3.3 The appellant's data on where passengers would travel to if Bristol Airport did not expand assumes that 62% of the additional 2 million passengers would travel to other airports and the remaining 38% would not fly. Hence, there will be 1.24m trips to and from other airports

¹⁴ Wood Group UK Limited, Appendix 10A, Carbon and Other Greenhouse Gas Emissions Supporting Data; (CD2.20.6)

and 760,000 passengers would not fly.

- 6.3.4 I have assumed that the spatial distribution of passengers who fly from other airports and those who chose not to fly at all is the same. Applying the figures from Table 6-2 to the marginal additional GVA, jobs and FTEs recalculated by me (i.e. net of my estimates related to business productivity and direct job impacts as shown in Table 5-3) from an extra 2m passengers a year prorated down to 1.24m passengers, provides an indication of where the benefits would accrue in the region if the expansion was not to go ahead. This is summarised in Table 6-3 which shows that at the South West and South Wales level £73m to £105m of my estimated gross £226m to £326m of GVA range is displaced, that is, would have occurred in the region anyway without Bristol airport's expansion. The corresponding displacement range of FTE jobs is 941 to 1,187 out of a gross range of 2,912 to 3,672.
- 6.3.5 Table 6-3 also shows £39m to £57m of GVA is displaced from Cardiff, £24m to £35m of GVA from Exeter, £6m to £8m GVA from Newquay and £4m to £5m from Bournemouth. All areas as outlined in the previous chapter that are less prosperous than the area around Bristol airport.
- 6.3.6 The question then arises: what about the 760,000 passengers that do not fly? Of these, 14.6% are assumed to be foreign passengers and therefore the remaining 649,040 passengers are domestic passengers¹⁵ who do not fly. One can realistically assume that the domestic passengers will spend an equivalent amount of money on other activities as they would have spent on flying from Bristol. There is no reason to suggest why a similar proportion would not have been spent locally in the region thereby supporting local GVA and jobs. Hence one view would be to state that all this spending (except that by foreign passengers) should be treated as displacement. This would mean that the only additional

¹⁵ 14.6% of total passengers flying from Bristol were foreign passengers in 2019 (CAA 2019 survey data); (CD 7.10)

spend arising in the South West and South Wales comes from those who decide to fly from airports outside the region and foreign travellers.

- 6.3.7 **Error! Reference source not found.** Table 6-4 shows the level of displacements under this scenario. At a North Somerset level FTE displacement is between 177 and 197 jobs, while at a South West and South Wales level it is 1,742 to 2,197 FTE.
- 6.3.8 Table 6-5 compares the appellant's and my calculations of the net marginal impact of expanding Bristol Airport from 10 to 12mppa. At a North Somerset level, the appellant states that expansion will deliver additional GVA of £70m and FTEs of 570. My view is that if a more balanced assessment is undertaken in relation to business productivity and direct employment then the GVA impacts are reduced to between £48m and £58m and the number of FTEs to between 459 to 509 jobs. Once displacement is taken into account these numbers reduce still further. If on an optimistic basis no account is taken of those who choose not to fly then the level of displacement is relatively low at the North Somerset level, £4m GVA and between 34 and 38 FTE jobs. Reducing the benefit to between £44m and £54m GVA and 425 to 471 FTE jobs. A more balanced approach that takes into account the displacement arising from those not flying then the impact is to reduce GVA by between £19m to £22m and FTE by between 177 to 197 jobs. This gives a net impact of between £29m to £36¹⁶m GVA and 282 to 312 FTE jobs. That is the net impact is up to half that proposed by the appellant. The reduction in benefits at the other spatial levels is equally significant.
- 6.3.9 The above analysis highlights how dependent the assessment is on the assumptions used. Hence the need for undertaking and presenting a range of sensitivities so decision makers are aware of the level of uncertainty in the assessment.

¹⁶ Note, the range in reduction is set out in the tables below. The £29m to £36m range has been calculated by subtracting £19m from £48m and £22m from £58m.

Table 6-2: The appellant's demand data for passenger journeys under the 'Without Development' case to alternative airports.

Origin Region	Airport: South West & South Wales				Airport: Outside Study Area					Airport Aggregation	
	Cardiff Airport	Newquay Airport	Exeter Airport	Bournemouth Airport	Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Study areas	Outside Study Area
North Somerset	12%	0%	0%	0%	35%	16%	26%	11%	0%	12%	88%
West of England	13%	0%	0%	1%	27%	18%	19%	14%	9%	13%	87%
South West & South Wales	28%	4%	17%	3%	15%	10%	13%	6%	4%	52%	48%
Outside Study Area	3%	0%	0%	0%	2%	8%	73%	13%	2%	3%	97%

Source: Wood Group UK Limited, Appendix 10A, Carbon and Other Greenhouse Gas Emissions Supporting Data; (CD2.20.6)

Table 6-3: My estimated amount of displacement by geographical region if 62% of passengers are displaced to other airports¹⁸

		South West & South Wales				Outside Study Area					Aggregation	
	Net additional impact from expansion ¹⁷	Cardiff Airport	Newquay Airport	Exeter Airport	Bournemouth Airport	Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Study areas	Outside Study Area
North Somerset												
% of passengers that would fly to other airports from the area		12%	0%	0%	0%	35%	16%	26%	11%	0%	12%	88%
GVA (£m)	58-48	4-4	-	-	-	13-10	6-5	9-8	4-3	0-0	4-4	32-26
Jobs (#)	624-559	47-42	-	-	-	136-122	61-54	101-91	44-39	0-0	47-42	342-306
FTEs (#)	509-459	38-34	-	-	-	111-100	50-45	83-74	36-32	0-0	38-34	279-251
West of England												
% of passengers that would fly to other airports from the area		13%	0%	0%	1%	27%	18%	19%	14%	9%	13%	87%
GVA (£m)	173-128	14-10	-	-	1-0	29-21	20-15	20-15	15-11	9-7	14-11	94-69
Jobs (#)	2128-1818	167-143	-	-	8-7	356-305	244-208	248-212	186-159	116-99	175-149	1150-983
FTEs (#)	1768-1518	139-119	-	-	7-6	296-254	202-174	206-177	155-133	96-83	145-125	956-821
South West & South Wales												
% of passengers that would fly to other airports from the area		28%	4%	17%	3%	15%	10%	13%	6%	4%	52%	48%
GVA (£m)	326-226	57-39	8-6	35-24	5-4	30-21	21-15	26-18	13-9	7-5	105-73	98-68
Jobs (#)	4557-3597	795-627	116-92	489-386	73-57	426-336	296-234	368-291	175-138	99-78	1473-1162	1365-1077
FTEs (#)	3672-2912	641-508	94-74	394-312	59-46	343-272	239-189	297-235	141-112	80-64	1187-941	1100-872

Source: Jacobs analysis of appellant's data

¹⁷ Net additional impact from expansion is my estimate of the impact taking account of revisions to the business productivity and job intensity impacts

¹⁸ The reason why figures are shown from high to low is due to the method of calculation. For example, for North Somerset, I estimate business productivity and job intensity impacts together should be £12m-£22m less than the GVA impact estimated by the appellant. Therefore, subtracting this range from the £70m estimated by the appellant gives £58m-£48m, hence the table illustrating figures from high to low.

Table 6-4: My estimated amount of displacement by geographical region if account is taken of those who do not fly

	Net additional impact from expansion	Outside Study Area					Aggregation	
		Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Study areas	Outside Study Area
North Somerset								
% of passengers that would fly to other airports from the area		35%	16%	26%	11%	0%		
GVA (£m)	58-48	13-10	6-5	9-8	4-3	0-0	22-19	32-26
Jobs (#)	624-559	136-122	61-54	101-91	44-39	0-0	241-216	342-306
FTEs (#)	509-459	111-100	50-45	83-74	36-32	0-0	197-177	279-251
West of England								
% of passengers that would fly to other airports from the area		27%	18%	19%	14%	9%		
GVA (£m)	173-128	29-21	20-15	20-15	15-11	9-7	68-50	94-69
Jobs (#)	2128-1818	356-305	244-208	248-212	186-159	116-99	835-713	1150-983
FTEs (#)	1768-1518	296-254	202-174	206-177	155-133	96-83	694-596	956-821
South West & South Wales								
% of passengers that would fly to other airports from the area		15%	10%	13%	6%	4%		
GVA (£m)	326-226	30-21	21-15	26-18	13-9	7-5	195-135	98-68
Jobs (#)	4557-3597	426-336	296-234	368-291	175-138	99-78	2726-2152	1365-1077
FTEs (#)	3672-2912	343-272	239-189	297-235	141-112	80-64	2197-1742	1100-872

Source: Jacobs analysis of appellant's data

Table 6-5: Comparison of appellant's impacts estimates with displacement versus mine

		Appellant's estimates		My estimates				
Variable	Region	Additional impact without displacement	Net additional impact ie with displacement	Net of Business Productivity & Job Intensity	Balanced Level of Displacement	Optimistic Level of Displacement	My estimate of net additional impact ie with displacement, business productivity and direct job impacts	Difference between Appellant's estimate and my estimate
GVA (£m)	North Somerset	70	70	58-48	22-19	4-4	54-29	16-41
	West of England	220	220	173-128	68-50	14-11	162-78	58-142
	South West & South Wales	430	310	326-226	195-135	105-73	253-91	57-219
Jobs (#)	North Somerset	710	710	624-559	241-216	47-42	582-343	128-367
	West of England	2,460	2,460	2,128-1,818	835-713	175-149	1,979-1,105	481-1355
	South West & South Wales	5,560	4,000	4,557-3,597	2,726-2,152	1,473-1,162	3,395-1,445	605-2,555
FTEs (#)	North Somerset	570	570	509-459	197-177	38-34	475-282	95-288
	West of England	2,040	2,040	1,768-1,518	694-596	145-125	1,643-922	397-1,118
	South West & South Wales	4,470	3,210	3,672-2,912	2,197-1,742	1,187-941	2,731-1,170	479-2,040

Source: Jacobs analysis, York Aviation Addendum 2020 (CD2.22), Wood Group UK Limited, Appendix 10A, Carbon and Other Greenhouse Gas Emissions Supporting Data (CD2.20.6)

6.3.10 The appellant estimates a large proportion of passengers would use airports outside the study area if Bristol did not expand as shown in Table 6-6.

Table 6-6: Applicant's assumption on use of alternative airport

Origin Region	Destination: outside study area					Total
	Heathrow Airport	Gatwick Airport	Birmingham Airport	Luton Airport	Stansted Airport	Outside Study Area
North Somerset	35%	16%	26%	11%	0%	88%
West of England	27%	18%	19%	14%	9%	87%
South West & South Wales	15%	10%	13%	6%	4%	48%
Outside Study Area	2%	8%	73%	13%	2%	97%

Source: Wood Group UK Limited, Appendix 10A, Carbon and Other Greenhouse Gas Emissions Supporting Data; (CD2.20.6)

6.3.11 However, the routes and destinations offered by some of these airports are very different to those available in the South West and South Wales. At present around 28% of passengers residing in the South West of England fly from Heathrow. This is principally due to Heathrow providing flights to destinations not served by South West airports, e.g. in North America, the Middle East and Asia. In addition, flights out of Heathrow to European destinations tend to be more expensive than those from regional airports. It would, therefore, appear unrealistic to suggest that 24% of passengers living in the West of England who were unable to fly from Bristol airport for a week's holiday in Alicante, if it was unable to expand, would end up flying out of Heathrow to say New York. More likely they would fly from another airport in the region to their preferred holiday destination as airlines expanded services to meet that displaced demand. Hence, my view is that the displacement figures used by BAL represent a significant overestimate of the number of passengers who would fly from outside the region.

6.3.12 The consequence of this is that the economic benefit of the proposed development has been significantly overstated by the appellant.

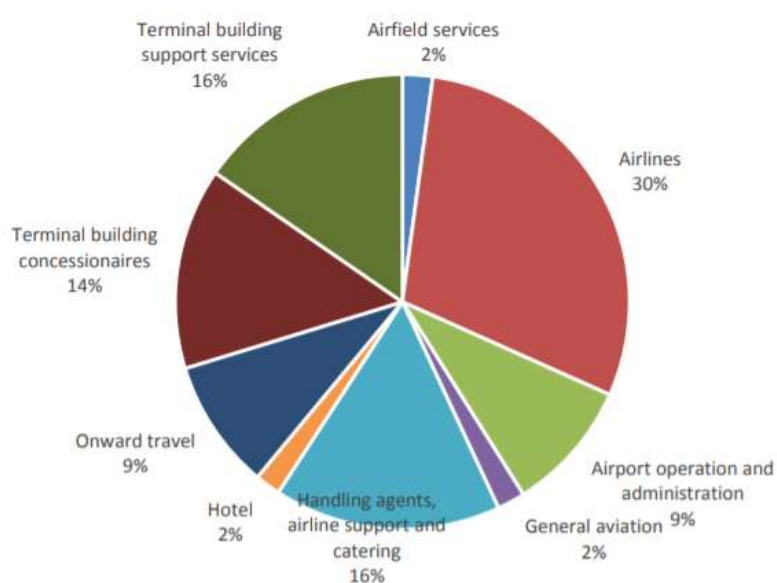
7. Context for Assessment

7.1.1 An economic benchmarking exercise has been undertaken to place the impacts of Bristol Airport's expansion into context. The impacts estimated by the appellant have been compared against employment levels and growth at the three geographic levels, economic footprint against other airports and other businesses and GVA per job impacts.

7.2 Contribution to Local Economy

7.2.1 Bristol Airport is presently estimated to support 4,000 direct jobs in the South West and South Wales. The structure of this onsite employment is illustrated in Figure 7-1. As stated in the appellant's 2018 economic assessment document (CD2.22), *"the majority of direct jobs are likely to require either basic skills or supervisory skills at the equivalent of NVQ Levels 1 & 2, and with a range of managerial jobs at a higher level."*¹⁹

Figure 7-1: Structure of onsite employment at Bristol Airport 2015



Source: Development of Bristol Airport to accommodate 12 million passengers per annum – economic impact assessment, York Aviation November 2018 (CD2.22)

¹⁹ Development of Bristol Airport to accommodate 12 million passengers per annum – economic impact assessment, York Aviation November 2018

- 7.2.2 This highlights that most of the direct jobs provided by the expansion are likely to be low-value and low-skilled, posts which are generally at high risk of being automated. Bristol Airport is a large employer in North Somerset and the expansion, if it does require additional employment in 2030, will reduce the labour supply pool for other firms in the area. Given that the area's unemployment rate is already below the national average, this may particularly impact local SMEs struggling to find employees.
- 7.2.3 This contrasts with North Somerset's economic policies that are aiming to improve the skill sets of its resident population. Particularly in deprived areas such as Weston-super-Mare through providing training and improving living conditions through contributions to developing affordable homes, thereby developing a sustainable employment growth model, similar to that being undertaken within the Junction 21 Enterprise area.
- 7.2.4 The Junction 21 Enterprise area is located in Weston-super-Mare. Currently it accommodates 2,000 jobs with the aim of reaching a total of 9,000 to 10,000 jobs and 6,000 new homes by 2030²⁰. The enterprise area aims to provide employment for those living in the more deprived parts of the North Somerset council area. The enterprise area supports North Somerset's economic policies, particularly in terms of supporting local SMEs and creating jobs for the local economy.
- 7.2.5 My estimates of the direct employment generated as a result of the expansion for North Somerset (343 to 582 jobs, 282 to 475 FTEs) are minimal when compared with the 7,000 to 8,000 additional direct employment Junction 21 Enterprise area is planning to bring to the local North Somerset economy.

²⁰ [Junction 21 Enterprise Area](#)

7.3 Contribution to Employment Growth

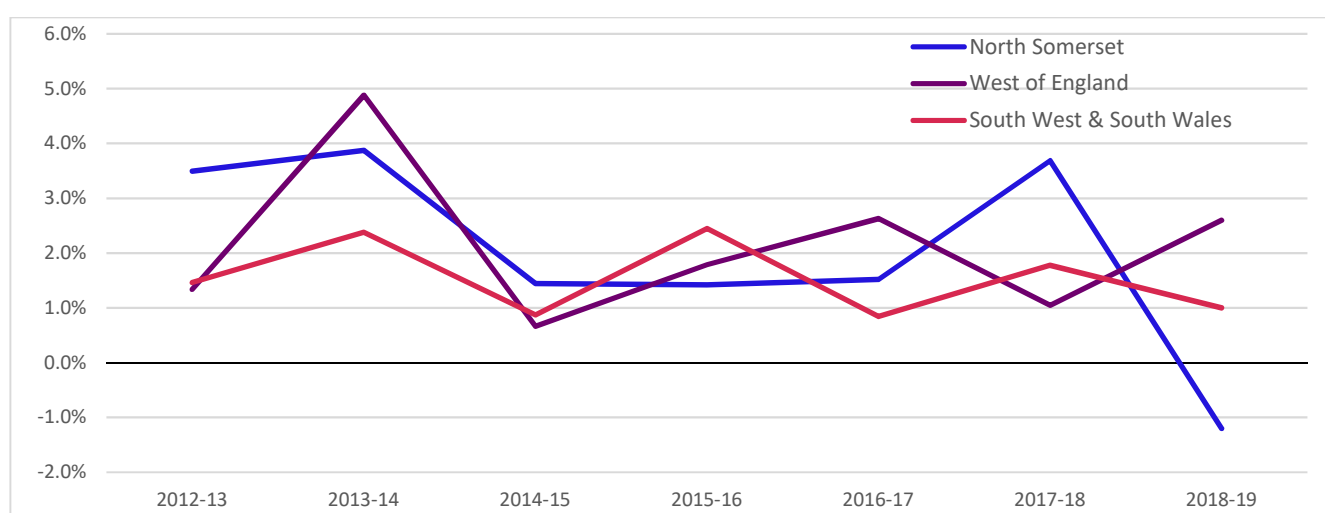
7.3.1 North Somerset and the West of England have seen considerable employment growth in recent years. Bristol, for example, is one of Europe's fastest growing cities in terms of job creation and is a growing creative and digital hub. ONS data suggests that the studied geographies have been growing at an annual compound rate between 1.4%-2.0% between 2012-2019.

Table 7-1: Total Employment (Studied Areas), 2012-2019

Total Employment (000s)	2012	2013	2014	2015	2016	2017	2018	2019	CAGR (2012-18)
North Somerset	77.3	80.0	83.1	84.3	85.5	86.8	90.0	88.9	2.0%
West of England	537.7	544.9	571.5	575.3	585.6	601.0	607.3	622.9	2.1%
South West & South Wales	3,162.7	3,199.2	3,287.9	3,310.9	3,392.5	3,408.1	3,454.2	3,489.4	1.4%

Source: ONS Business Register and Employment Survey, Table 6

Figure 7-2: Year over Year changes in Total Employment for Studied Areas (2012-2019)



Source: BRES

7.3.2 Our revised assessment of the impact of estimate that the expansion in terms of net additional jobs ranges between:

- a) North Somerset | 343 to 582 jobs (282 to 475 FTEs) equivalent to 0.4% to 0.7% of total

employment in 2019

- b) West of England | 1,105 to 1,979 jobs (1,074 to 1,393 FTEs) equivalent to 0.2% to 0.3% of total employment in 2019
- c) South West and South Wales | 1,445 to 3,395 jobs created (1,475 to 1,971 FTEs) equivalent to 0.04% to 0.1% of total employment in 2019

GVA Supported by Roles at the Airport

7.3.3 Oxford Economics estimated that the average air transport service employee generates £84,000 in GVA annually in 2014²¹. This is equivalent to £90,000 in 2018 prices²². A similar average is estimated upon their assessment of London Luton Airport. Using figures within the appellant addendum (CD2.22) including displacement, direct GVA per job supported by the airport is estimated between £84,746 to £142,857, depending on the region. However, the appellant's figures for North Somerset and West of England appear to be far higher than those estimated by Oxford Economics. The reason why this should be the case is not immediately obvious to me especially given the points raised in section 7.2 on the level of employee qualifications.

7.3.4 To examine the point in more detail ONS GVA and employment values have been used to compare the appellant's implied GVA per job at the airport, to the GVA per job for the region.

Table 7-2: Comparison of the appellant's implied and Jacobs ONS calculations of GVA per job by region

Region	ONS Calculation	The appellant Implied
	GVA / Job (£)	GVA / Job (£)
North Somerset	58,415	142,857
West of England	56,073	100,000
South West & South Wales	49,373	84,746

Source: Jacobs analysis using BRES employment, ONS Regional GVA and Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020;

²¹ Oxford Economics, 2014. *Economic Benefits From Air Transport In The UK*.

²² GDP deflator applied

(CD2.22)

7.4 Construction Impacts

7.4.1 An updated assessment of the construction impacts of the proposed development has not been prepared by the appellant. The ES addendum (CD2.22) produces an assessment on the basis that the construction timetable has simply moved to a later year and has not changed materially since the original submission (CD2.8).

7.4.2 The appellant estimates GVA and job creation impacts to be:

d) North Somerset | £28m additional GVA and 285 temporary jobs created (255 FTEs)

e) West of England | £40m additional GVA and 755 temporary jobs created (705 FTEs)

f) South West and South Wales | £57m additional GVA and 1,335 temporary jobs created (1,165 FTEs)

7.4.3 Table 7-3 compares the GVA per construction job implied by the appellant and ONS GVA per construction job estimates. The appellant 's figures indicate GVA per construction job is significantly higher at the North Somerset area than the ONS data would suggest is reasonable.

Table 7-3: Comparison of Appellant's implied and ONS calculations of GVA per job by region

Region	ONS calculation	The appellant implied
	GVA / Job (£)	GVA / Job (£)
North Somerset	58,415	98,246
West of England	56,073	52,980
South West & South Wales	49,373	42,697

Source: Jacobs analysis using BRES employment dataset, ONS Regional GVA dataset and Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; (CD2.22)

7.4.4 Applying the ONS calculated rate of £58,415 GVA/job to the estimated 285 temporary jobs created by construction at the North Somerset level provides a GVA estimate of £17m. This is £11m (39%) less than the £28m figure calculated by the appellant. I believe the appellant's GVA per construction job is significantly overstated as a result.

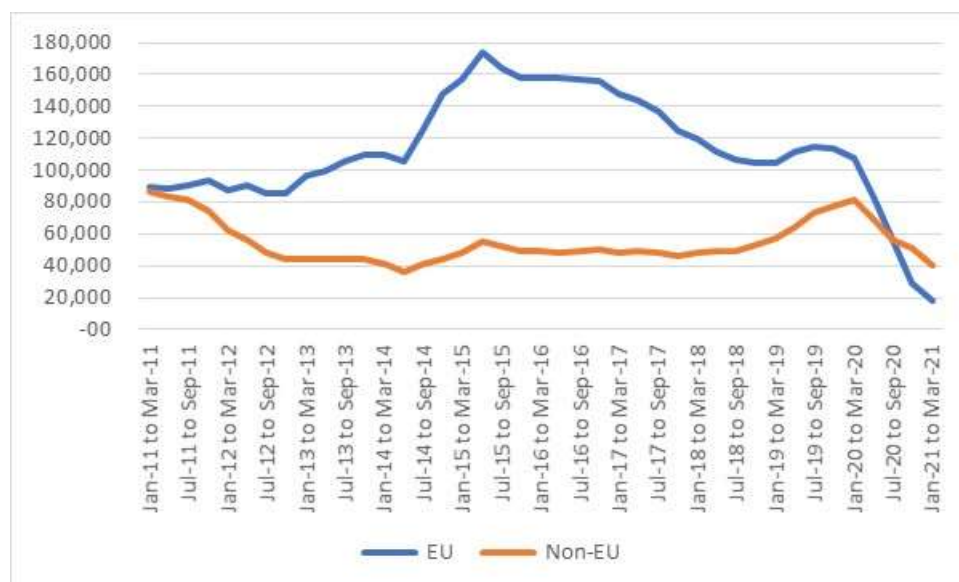
8. Uncertainty

- 8.1.1 In assessing the economic impact of the proposed expansion, the appellant has not fully taken account of a number of factors which may have a considerable impact on its analysis. These include Brexit, outbound tourism and environmental factors.

8.2 Brexit

- 8.2.1 There is considerable economic uncertainty following Brexit. This uncertainty relates to the growth of the economy, which tends to drive demand for travel, and the changing nature of the UK's workforce. With the ending of the free movement of labour with EU member states, the number of people from the EU and especially eastern and central Europe travelling to and from the UK is likely to fall. Prior to Brexit, nearly 10% of passengers at Bristol airport were travelling to and from destinations in eastern and central Europe with routes often underpinned by EU nationals travelling to and from their home countries.
- 8.2.2 The number of EU nationals coming to work in the UK has been on the decline since the last quarter of 2015 as evidenced by the issue of National Insurance numbers (see Figure 8-1). The rate of decline increased significantly since the referendum vote, signalling that in the long term, with fewer EU nationals residing in the UK, passenger levels will be impacted.

Figure 8-1: National Insurance numbers issued to EU and non-EU nationals (four quarter moving average)



Source: NINo Registrations 2021, Department for Work and Pensions

8.2.3 In the South West the number of National Insurance numbers issued to EU nationals has also fallen in recent years as shown in Table 8-1, down by nearly a third since the EU referendum. .

Table 8-1: Number of national insurance numbers issued to EU nationals entering the UK in the South West

Year ending March	Number of national insurance numbers issued to EU nationals
2015	34,200
2016	34,300
2017	32,300
2018	26,600
2019	22,900
2020	24,300
2021	3,400

Source: NINo Registrations 2021, Department for Work and Pensions

8.2.4 In addition, recent research by the Economic Statistics Centre of Excellence (ESCE) highlights a large decline in the UK's foreign population (Figure 8-2). This shows ONS estimates that the non-UK born population has declined by almost 0.9 million between 2019 and 2020, whilst the ESCE's estimates this decline to be 1.3 million people. While the impact in the South West

is relatively small, it is all part of the changes occurring that will impact future European travel patterns from Bristol Airport.

Figure 8-2: ESCE estimate of change in UK and foreign born population

Resident population (all ages): change from Jul-Sep 2019 to Jul-Sep 2020				
	ONS for UK-born	Our estimate	ONS for non UK-born	Our estimate
Northern Ireland	-1,282	-610	9,133	9,652
Scotland	-24,218	-47,690	42,612	40,749
Wales	2,205	24,767	6,897	11,161
South West	43,293	10,713	-4,549	-6,840
South East and East	178,687	-29,186	-73,328	-108,359
Inner London	209,870	-34,778	-183,668	-336,635
Outer London	231,924	2,690	-180,386	-332,121
West Midlands	255,362	56,567	-224,486	-253,512
East Midlands	136,237	1,933	-109,493	-129,404
Yorks and Humber	135,504	-2,563	-117,299	-127,508
North West	64,995	-30,719	-43,415	-47,442
North East	20,379	-6,704	-15,755	-13,569
Total	1,252,956	-55,579	-893,737	-1,293,828

Source: ESCE 2021 <https://www.escoe.ac.uk/estimating-the-uk-population-during-the-pandemic/>

8.2.5 Regional airports including Bristol have benefited considerably from the growth in EU migration. The rapid decline in that growth, which now appears to have turned negative, will lead to a period of uncertainty, especially with regard to destinations in central and eastern Europe.

8.3 Outbound Tourism

8.3.1 The appellant states *"We have also considered the potential negative impacts of outbound travel from Bristol Airport in terms of the extent to which it removes expenditure from the local economy. This effect is highly complex and, primarily due to the extent of substitutability of UK airports for outbound travel, we have concluded that it is unlikely to be significant."*

8.3.2 However, the appellant reports 38% of the additional 2 MPPA following expansion are assumed not to travel if expansion of the airport does not take place. This represents 760,000 additional passengers.

- 8.3.3 As the appellant notes assessing the economic disbenefits of outbound tourism is a complex matter and is generally excluded from airport impact assessments. This would appear contrary to the overarching guidance on Government decision making as outlined in HM Treasury's Green Book. This explains that "Appraisal is the process of assessing the costs, benefits and risks of alternative ways to meet government objectives. It helps decision makers to understand the potential effects, trade-offs and overall impact of options by providing an objective evidence base for decision making." It goes on to state "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" (my highlighting).
- 8.3.4 This is not an argument to suggest government should be constraining people from flying, in the same way that assessing the full costs and benefits of surface transport policies and interventions is not seen as constraining people's ability to drive. Rather it is ensuring that decision makers are aware of all the costs and benefits before coming to an opinion.
- 8.3.5 To give an indication of the scale of the economic disbenefit that the proposed development might give rise to the following analysis has been undertaken. An assessment has been made of the additional outbound trips that will occur as a result of the expansion and the level of spend that is incurred outside the UK associated with those trips. Offsetting that, account is taken of the spend that occurs in the UK in relation to overseas trips.
- 1) Additional International Leisure Passengers travelling as a result of the expansion
- a) 38% of the additional 2 MPPA following expansion are assumed by the appellant not to travel if expansion of the airport does not take place. This represents 760,000 passengers.
 - b) 64.3% of the above passengers are UK international leisure passengers (CAA Survey

2019; CD 7.10). This represents ~489,023 passengers.

- c) A passenger makes an outbound and inbound trip hence the estimated additional international leisure passengers travelling as a result of the airport's expansion is:

244,512

2) An individual's average outbound leisure expenditure from Bristol Airport

- a) the average spend per night and duration of trip for UK residents travelling abroad by air for the purpose of a holiday by destination has been taken from ONS TravelPac, 2019
- b) Using the top 20 international departures from Bristol Airport by total number of seats (OAG), I have weighted the above averages to estimate an average spend per individual of £837.7, over an average stay of 9.6 nights.
- c) Those travelling overseas spend 40% of their expenditure in the UK²³.

8.3.6 The result is an annual negative impact of £123m due to the increase in outbound tourism. This negative factor of outbound expenditure is currently not included within the appellant's economic assessment.

8.3.7 My estimates do not include the welfare impacts of travelling abroad on holidays. While there is evidence of clear benefits of taking a holiday, it is not clear how much greater, if any, a benefit may be obtained from travelling abroad. The main benefits of travelling overseas are generally associated with those who really engage in the local environment for a considerable period of time.

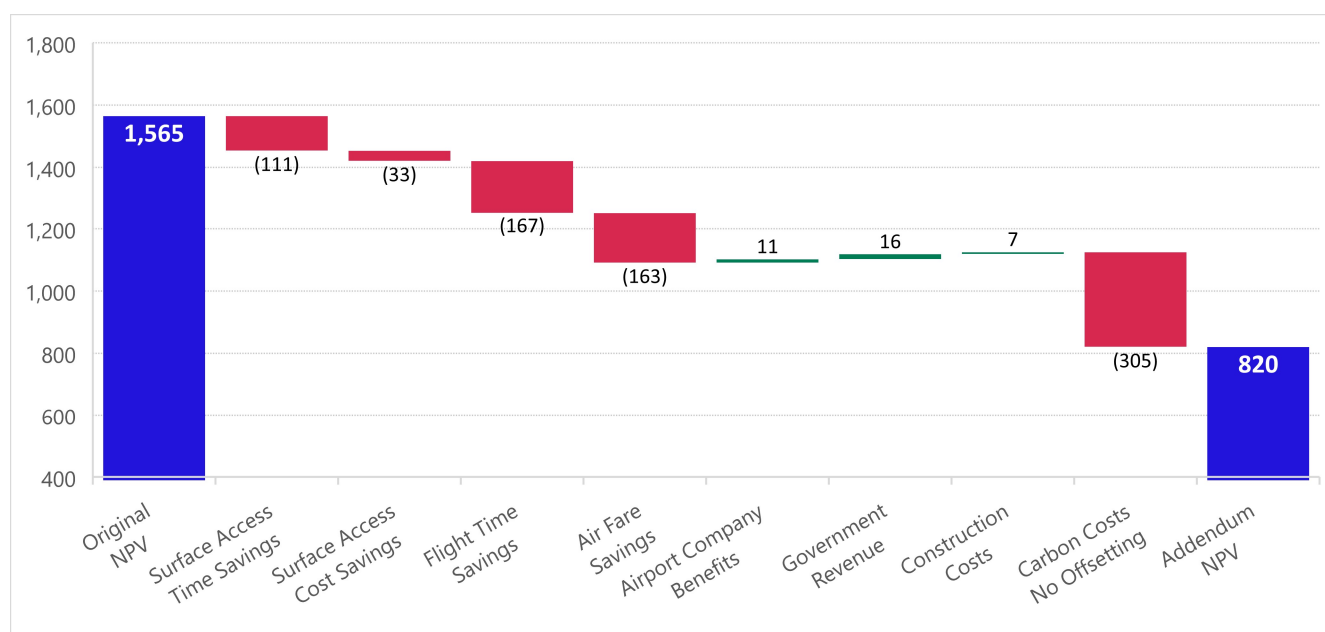
8.4 Net Present Value (NPV)

8.4.1 The addendum assessment (CD2.22) includes a refreshed socio-economic cost benefit

²³ UK Tourism Satellite Account, ONS

analysis (CBA), providing an NPV of the proposed development for the Core Case over a 60-year appraisal period. Note, it is not clear from the addendum (CD2.22) whether the start of the appraisal is from 2018, or when the airports proposed development begins in 2022. Two estimates have been provided, one including offsetting for carbon costs, the other without offsetting carbon costs. The refreshed CBA offers an NPV for the scheme between £820m to £863m. This is significantly lower than the original submission (CD2.8) NPV of £1,565m. If the impacts of outbound tourism are taken into consideration the NPV will be negative by over £1bn.

Figure 8-3: Changes in NPV between Appellant's Original and Addendum Economic Impact Assessment (£m)



Source: Jacobs analysis of Development of Bristol Airport to accommodate 12 million passengers per annum: economic impact assessment addendum, York Aviation 2020; (CD2.8; CD2.22)

8.5 Cost Benefit Analysis and Analysis Not Undertaken by Appellant

8.5.1 Carbon-costs: The attempt to include these costs as a part of the cost benefit analysis is welcomed. Although there is a lack of clarity regarding how carbon costs have been calculated and which carbon values were applied to the estimated increase in carbon emissions arising from the expansion.

- 8.5.2 However, their inclusion represents a significant reduction in the expected NPV (between £262m to £305m) highlighting the importance of fully catching all the costs and benefits associated with the proposed expansion.
- 8.5.3 Further analysis to quantify the robustness of this estimate should have been conducted to ensure the true extent of carbon emissions from additional aircraft movements and future changes to airline fleet mix are captured. This should be done in terms of sensitivity testing around both the quantum of emissions and carbon values (high, low and central) should have been presented to provide a range in terms of the economic cost.
- 8.5.4 Furthermore, the appellant's case does not consider the impact on carbon emissions from the introduction of Jet2's fleet. Jet2 has historically bought second hand or older generation aircraft, which are then operated for a long period, and this is expected to have material implications on the carbon impact assessment, as well as noise and air quality. These implications are addressed in the Proofs of Evidence of the relevant consultants on behalf of the Council.
- 8.5.5 **Inclusion of all environmental impacts in CBA:** The appellant has not provided an assessment of the economic cost of worsening air quality and noise impacts within the CBA analysis. These should be estimated as per the Department for Transport's TAG Unit A5.2 and Unit A3 (CD11.8) guidance which also sets out the values that are appropriate to apply for noise and air quality disbenefits
- 8.5.6 The assessment of these additional environmental impacts as a result of expansion would provide a more comprehensive view of the impact of the proposed development.
- 8.5.7 **Sensitivity Testing:** The appellant has only provided sensitivity testing related to passenger forecasts under a slower recovery and faster recovery. However, the impact of these sensitivities has not been fully estimated and assessed as part of the GVA and employment

impacts and the socio-economic cost benefit analysis. Given discounting is applied in calculating the NPV, this will have an impact such that if benefits are realised later, the NPV of these benefits will be further reduced and vice versa if benefits are realised earlier. This would have provided an indication of the robustness and level of sensitivity of the core passenger growth NPV.

8.5.8 Furthermore, the impact of carbon emissions, noise and air quality have not been estimated for all three recovery scenarios (slower, core and faster). This should have been undertaken to understand the full impact on the NPV of these different passenger growth scenarios.

8.5.9 In addition, the appellant has also failed to provide sensitivities on applying different values (high, central and low as set out in DfT's TAG Unit A3; CD11.8) on carbon emissions, noise and air quality estimates. This would further identify how robust the core impacts of the expansion are and if the NPV is sensitive to changes in the value applied to carbon emissions, noise and air quality, so to understand the range of the impact for each environmental variable.

8.5.10 As this Proof has demonstrated changes in the assumptions used can have a material impact in the level of economic benefit.

8.6 Conclusions from the absence of above analysis

8.6.1 The absence of the analysis set out above, demonstrates that there are a number of impacts which the appellant has not estimated or fully explained. Taking these impacts into account, particularly the inclusion of all environmental impacts will lead to a weaker impact of the expansion scheme.

9. Conclusion

- 9.1.1 The economic benefits of Bristol Airport's expansion are overstated by the appellant and will not provide "significant" economic benefits as claimed. The appellant's position is overstated in respect to the following principal areas:
- 9.1.2 **Business Passengers** – Business passengers made up only 13.8% of total passengers at Bristol Airport according to the CAA 2019 Passenger Survey (CD 7.10). The appellant's assumption is that by 2030 business passenger numbers will make up the same proportion of total throughput. The pandemic and the climate emergency have changed attitudes to business travel which had already been stagnant for many years.
- 9.1.3 Business passenger numbers grew by 4.2% a year while leisure passenger numbers grew by 8.1%. If this discrepancy 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 business passenger expected by the appellant (ie 13.8% of the extra 2mppa). In addition, given business passengers are less sensitive to price, under a constrained or expanded environment, business passengers will outbid their leisure counterpart for a given journey. Business passengers are therefore not restricted by capacity but rather by which routes are available. As a result, I've estimated a range between 50% to 100% reduction in productivity benefits estimated by the appellant.
- 9.1.4 **Job intensity** – The appellant's case assumes a fairly limited improvement in productivity and no economies of scale arising from a larger passenger throughput. This has been recalculated to include efficiency gains of 1% per year. This reduces the number of direct jobs the appellant estimated by 239 jobs (207 FTEs). The job intensity (jobs per passenger) at the airport is expected to include future technological changes which may reduce the level of direct employment and the associated impacts. However, this does not translate to a large

difference between the marginal net GVA impacts estimated by the appellant and the above stated approach. It should be noted that the long run trend before the global financial crisis was for productivity growth to average 2% a year so my assumption of 1% is conservative.

- 9.1.5 **Displacement** – Any expansion at Bristol Airport is likely to lead to displacement from other airports in the South West of England and South Wales all of which have spare capacity. The appellant presently assumes no displacement arising from expansion. I have re-calculated the displacement impacts using the appellant's data on the number of passengers expected to travel to other airports if Bristol did not expand. Based on these, my estimates suggest there is displacement at all geographic regions studied by the appellant. Displacement for North Somerset is estimated at 12%, West of England at 13% and South West and South Wales at 52%.
- 9.1.6 Applying all the above reduces the South West and South Wales regional GVA impact of the scheme by between 41%-79% and jobs generated by between 39%-74% (Table 9-1).

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)

- 9.1.7 **Construction impacts** - the magnitude of GVA per job implied by the appellant is significantly higher than ONS data suggests, questioning the level of construction benefits to the economy. This suggests that the appellant's case is overstating the positive impacts from construction impacts.
- 9.1.8 **Uncertainty** - There is considerable economic uncertainty arising from the Covid-19 pandemic and Brexit. This uncertainty relates to the growth of the economy which tends to drive demand for travel and the changing nature of the UK's workforce. The pandemic is changing the way in which some businesses operate and increasing the number of employees engaging with colleagues, clients and suppliers remotely. This could significantly hinder business passenger recovery to the extent that the pre-Covid levels might not be reached again.
- 9.1.9 Furthermore, with Brexit ending of the free movement of labour the number of people from eastern and central Europe travelling to and from the UK is likely to fall. Nearly 10% of passengers at Bristol airport are travelling to destinations in this region with routes often underpinned by EU nationals travelling to and from their home countries.
- 9.1.10 The shape of outbound passenger recovery can be debated at length given Brexit and Covid. However, the number of EU nationals coming to work in the UK has been on the decline since the last quarter of 2015 as evidenced by the issue of National Insurance numbers. The rate of decline increased significantly since the referendum vote, signalling that in the long term, with fewer EU nationals residing in the UK, passenger levels will be impacted. With this general trend occurring before the referendum vote, there is higher uncertainty surrounding passenger recovery rates for the airlines.
- 9.1.11 **Outbound tourism** – This negative factor of outbound expenditure is currently not included within the appellant's economic assessment. Indicative estimates suggest that the value may be significant and should be considered to provide a holistic view of the expansion.
- 9.1.12 **Carbon costs and other environmental impacts** - Carbon costs have been included as part of

the appellant's sensitivity test, however, it is unclear how these carbon costs have been monetised. Furthermore, noise and air quality impacts have not been assessed in the economic case and have not been included in the CBA. All three of these environmental impacts should be included in the core CBA.

- 9.1.13 **Sensitivity testing** – The appellant has only provided sensitivity testing related to passenger forecasts under a slower recovery and faster recovery. However, the impact of these sensitivities has not been fully estimated and assessed as part of the GVA and employment impacts and the socio-economic cost benefit analysis, as the impact of carbon emissions, noise and air quality have not been estimated for all three recovery scenarios (slower, core and faster).
- 9.1.14 The appellant has also failed to provide sensitivities on noise and air quality estimates. In terms of using low, central and high values in both, so understand the range of the impact for each environmental variable
- 9.1.15 **In conclusion**, from the above assessment of the appellant's economic case, I believe the benefits have been overstated across a number of different areas and a comprehensive estimation of negative impacts has not been undertaken, including environmental impact monetisation.