

Volterra

Leeds Bradford Airport

Economic Peer Review

Leeds City Council

A report by Volterra Partners, November 2020

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1 INTRODUCTION

The brief

- 1.1 Leeds City Council ('the client') has commissioned Volterra Partners LLP ('Volterra') to undertake a peer review of the relevant economic documents – both those in favour and those opposed – submitted as part of the recent planning application to construct a new terminal at Leeds Bradford Airport (LBA). Volterra is an economic consultancy with expertise in the economic impacts of airports. Volterra's task was to undertake an independent review of these documents, and summarise the findings in a concise manner that is easy to understand and digest for council members.

Focus of this peer review

- 1.2 The focus of Volterra's peer review has been on testing the impact assessment methods carried out by York Aviation, whilst also assessing whether the arguments put forward by the New Economics Foundation (NEF) – in opposition to the airport expansion – are valid. It is important to note that there is no industry standard method to carry out an economic impact assessment, and hence assessments are generally based on the professional judgment of personnel within a given economic consultancy. As such, methods used to carry out economic impact assessments tend to vary slightly across different consultancies. The focus of an economic impact assessment should therefore be placed on making the methodologies used and assumptions made as transparent and robust as possible.
- 1.3 Throughout this summary note, we present sense check exercises that have been carried out, along with other accepted findings in the wider literature, to provide a robust assessment of the conclusions put forward by both sides. The review has been necessarily high level and has focused on the key areas of disagreement between the two opposing viewpoints.

Report structure

- 1.4 The peer review itself was split into the following three tasks:
- First, we reviewed the economic assessment documents authored by York Aviation and submitted as part of the planning application itself. This included the initial economic assessment for the new terminal application, and the further information economic assessment submitted in light of the impacts of COVID-19.
 - Second, we reviewed the independent economic review of York Aviation's economic assessment documents carried out by GENECON, to assess whether we agreed with the findings of that peer review.
 - Finally, we reviewed the objection documents submitted by NEF on behalf of the Group for Action for Leeds Bradford airport (GALBA), who publicly oppose terminal expansion at Leeds Bradford Airport.
- 1.5 This note concludes with a key findings and recommendations section, which draws out the findings of this peer review and makes recommendations for council members based on these findings. Our detailed peer review of the individual documents can be found in **Appendix A**.

2 KEY FINDINGS

York Aviation

- 2.1 GENECON carried out a peer review of York Aviation's 2019 economic impact assessment of LBA and concluded the following:

“The overall approach, methodology and impact assessment results appear reasonable and the overall finding of the peer review is that YA estimates are robust, if not conservative estimates of LBA's economic impact.”

- 2.2 Volterra Partners LLP carried out our own independent review of the 2020 economic impact assessments submitted by York Aviation as part of the planning application to expand LBA. Similar to GENECON, on the whole we believe that the overall approach, methodology and impact assessment results appear reasonable and the overall finding of the peer review is that the impact estimates are robust. We differ slightly from GENECON, however, in that we find the estimates of LBA's economic impact to be a little bullish in places, albeit not enough to materially impact the findings of the assessment. The minor differences in conclusions between York Aviation, GENECON and Volterra can be partly explained by the fact that there is no single method considered the 'industry standard' when carrying out economic impact assessments. As such, methodologies tend to vary slightly across different economic consultancies. Based on our expert judgement, however, the methodologies carried out by York Aviation are considered to be broadly reasonable and well justified.

- 2.3 A summary of the most interesting and important findings of York Aviation's impact assessment is provided below:

- Despite the NEF's claim that direct employment is 33% overstated, Volterra's sense check suggests that York Aviation's estimate of direct employment is reasonable and robust. The top down approach of comparing employees per million of passengers per annum (whilst also a widely used approach) fails to consider specific local factors, whereas the approach of using employee surveys (used by York Aviation) does.
- Whilst the indirect and induced employment multiplier could be considered to be too high given the sub-regional geography at which impacts are assessed, the methodologies carried out for inbound tourism, business productivity and welfare benefits are considered to be broadly robust.

- 2.4 Two other potential weaknesses in the assessment were identified in the peer review. Firstly, the definition of the study area (Leeds City Region) means that technically no product displacement can occur, as LBA is the only airport in the region. Impacts would be reduced to some degree through displacement if impacts were considered at a wider geography. The appropriate level of this displacement that would be applied is up for debate, however, as nearby airports (particularly Manchester) tend to serve a wider variety of routes (e.g. international long haul) and hence have a wider variety of passengers to LBA. Finally, the recent loss of the British Airways London Heathrow route could feasibly reduce the scale of business productivity impacts expected to occur after expansion. At a high level, we estimate that this would only reduce total benefits by a total of 5% in the worst-case scenario, whilst some of this productivity loss would be offset by Amsterdam Schiphol's (another hub) intention to fill some of the void.

- 2.5 Volterra considers the findings of the further information report to be robust. Whilst there remains considerable uncertainty around the scale and persistence of economic impacts resulting from COVID-19, the two-year delay is reasonable given previous bounce backs

of LBA¹ and the IATA forecasts that air travel will bounce back to pre-COVID levels by 2023.

New Economics Foundation

- 2.6 NEF consulting, on behalf of GALBA, centre their arguments around four main points:
- Overestimation of direct jobs by York Aviation;
 - Inconsistent application of displacement and monetisation;
 - Inclusion of outbound tourism costs; and
 - Alterations to the net impacts, through inclusion of adverse social welfare impacts such as noise, air quality, surface access costs and carbon emissions.
- 2.7 In summary, NEF consulting put forward some valid arguments in their rebuke of the proposed expansion of LBA. Given the variation in direct employment supported at UK airports, it is considered a fair challenge to query the direct employment estimate, although having reviewed the approach and queried the methodology with York Aviation, Volterra does not consider it to be overestimated in this case. Furthermore, the arguments put forward about product displacement are valid – there [would be product displacement if impacts were to be considered at a wider \(e.g. national\) study area](#). Despite the reasoning being logical, the [product displacement impacts claimed by NEF, such as the ‘impoverishment’ of Manchester Airport, are considered to be overstated](#). For example, even in the unrealistic worst-case scenario whereby all additional passengers forecast at LBA are displaced from Manchester Airport, this would only amount to approximately 10% of Manchester Airport’s 2019 total passenger numbers.
- 2.8 Finally, the [inclusion of social welfare costs](#) – such as noise, air quality and surface access costs – present a [more balanced view of the social welfare impacts](#), albeit some of the costs appear slightly too high.
- 2.9 By far the most material of NEF’s challenges is the inclusion of outbound tourism costs. This peer review has concluded that the simplistic estimate of outbound tourism losses likely does not truly reflect the net impact. This is because the methodology fails to consider the following factors:
- A body of the literature suggests that almost as much (if not more) expenditure is spent on outbound tourism within the UK as it is outside, effectively cancelling out the majority of the impact;
 - It does not consider the positive welfare effects associated with outbound tourism through freedom of choice and movement; and
 - There is little evidence presented that this outbound expenditure would be spent otherwise in Leeds/LCR.
- 2.10 Fundamentally, the premise of restricting outbound tourism by reducing capacity is a regressive policy in the sense that it would price out people from lower socio-economic backgrounds at the expense of wealthier residents being able to fly. Whilst there are clearly monetary leakages from the UK economy as a result of outbound tourism and there are national objectives to both improve our domestic tourism offering and attract more international tourists to visit the UK, the approach put forward by NEF in quantifying this impact is too simplistic as it fails to take into consideration the factors outlined above. As such, given the [substantial uncertainty surrounding the methodology and failure to take into consideration the net impact](#), it is deemed appropriate to at least partially exclude the [outbound tourism estimates put forward by NEF](#) in their assessment from the final comparison of costs and benefits. It would be reasonable to include this within the cost

¹ Refer to para 3.14 for more information on the reasons underpinning LBA’s previous recession bounce backs.

benefit consideration to some degree, but for the reasons set out above, the NEF figures are likely to be materially overstated.

Comparing the costs and benefits

- 2.11 In their report, NEF consulting usefully present cost-benefit analysis tables presenting the net loss that the expansion of LBA would cause, in terms of economic cost and social welfare, in their professional opinion. It is clear from these tables that the [biggest driver of NEF's claim that the development imposes more economic costs than benefits is outbound tourism](#).
- 2.12 Volterra have undertaken a similar, albeit very high level, cost benefit analysis exercise following our review. The purpose of this exercise was to identify whether, even allowing for uncertainties, the likely impact of the LBA expansion, at the Leeds and LCR level, would be positive. The conclusion reached is that it would be overwhelmingly positive when economic and social welfare impacts are considered together.
- 2.13 In order to present this simple comparison, we have made some high-level assumptions when adjusting NEF's accounting CBA tables:
- York Aviation's estimate of direct employment is considered to be accurate, and is therefore not discounted by 33%. We therefore uplift NEF economic footprint values presented in Table 15 of their report by this discount factor which they previously applied;
 - However, as we deemed the indirect and induced multiplier to be on the high side given the sub-regional study area, we have instead reduced the economic footprint benefits by a conservative 20%;
 - Inbound tourism impacts are assumed to reduce by a conservative 20% as what is presented by NEF, to counter the fact that indirect and induced impacts were originally applied to what Volterra already considers induced employment;
 - Outbound tourism impacts are discounted by 83%, to account for the fact that a large proportion of the outbound tourism 'losses' are recovered by net GVA impacts within the UK²;
 - Business productivity impacts are reduced by a conservative 17%, to account for the loss of business passengers due to the ceasing of the LBA-LHR route; and
 - Carbon subsidy costs, and all welfare impacts, are assumed to remain the same as what NEF presented, despite the fact that some welfare costs (noise and air quality) may have been slightly overstated.
- 2.14 The tables below present the benefit-cost breakdown by element, as well as the overall anticipated net impact from this high-level peer review assessment. As the table shows, [even after factoring down some of the estimated benefits, the partial exclusion of outbound tourism costs in the impact assessment leads to a significant positive overall socio-economic impact as a result of the expansion of LBA, at both the Leeds and the LCR level](#). Whilst this exercise is naturally high level and therefore to some extent indicative in nature, the difference between total benefits and total costs expected at both the Leeds and the LCR level is large enough that small tweaks to the assumptions outlined above would not make a material difference. The question of whether the impacts would be net positive at the national study area level remains unanswered as it was not the primary purpose of this review; it is up to the members of Leeds City Council to decide the geographical area at which they believe it is most appropriate to assess the net impacts of the proposed development.

² Refer to para 3.32 for more detail.

- 2.15 Note that the in the tables below, it is conservatively assumed that all social welfare costs are borne at both geographical levels, despite the fact that you could argue for factoring down some of the costs (e.g. surface access taxpayer and climate change costs) from a UK level to a more localised geography.

Table 1 High level cost-benefit breakdown by impact stream (£m, 2024-2050)

Geography	Economic footprint	Inbound tourism	Outbound tourism	Productivity	Carbon subsidy
Leeds	1,920	211	-291	478	-102
LCR	1,949	346	-533	797	-102
	Passengers welfare benefits	Noise costs	Air quality costs	Surface access costs	Climate change cost
Leeds	88	-16	-19	-70	-865
LCR	88	-16	-19	-70	-865

Table 2 High-level overall net impact (£m, 2024-2050)

Geography	Benefits	Costs	Net
Leeds	2,697	-1,363	1,334
LCR	3,179	-1,605	1,574

3 APPENDIX A - REVIEW OF EXISTING DOCUMENTS

- 3.1 It should first be noted that in order to keep this report as concise as possible, **not all methodologies in every assessment are discussed**. Instead, within this section, we only review impact assessment approaches where either (i) Volterra have carried out a sense check, or (ii) Volterra believes there is a flaw in the methodology that could alter the conclusions to some degree. Any impacts that have been assessed by the different stakeholders, and the methodologies that underpin them, that **have not been mentioned within this section, should be assumed to be valid and robust in Volterra's professional opinion**.

York Aviation documents

- 3.2 Volterra began our economic peer review by reviewing the documents submitted on behalf of Leeds Bradford Airport by York Aviation. It should be noted upfront that the minor differences in conclusions between York Aviation and Volterra - all of which are considered to be broadly immaterial when considering the impact of the proposed development as a whole - can be partly explained by the fact that there is no single method considered the 'industry standard' when carrying out economic impact assessments. As such, methodologies tend to vary slightly across different economic consultancies.

Appendix 11.1 Economic Impact Report (April 2020)

- 3.3 The Economic Impact Report, submitted as an appendix to the Socio-Economics ES Chapter, possesses a lot of information on (i) the context behind the application and (ii) the methodologies undertaken to carry out the economic impact assessment for the proposed development. On this basis, we reviewed this document first.

Critique of approach

- 3.4 This peer review focuses specifically on the methodology used by York Aviation to carry out the impact assessment for the proposed expansion of LBA and hence, the review focuses on chapters 5-7 of the Economic Impact Report. Broadly, the socio-economic impacts assessed with this report can be split into the following categories:
- Direct employment;
 - Indirect and induced employment;
 - Business productivity impacts;
 - Inbound tourism impacts; and
 - Socio-economic welfare effects.
- 3.5 **Table 3** provides a brief summary of the impact methodology utilised by York Aviation, along with a summary of sense checks carried out by Volterra to assess the validity of this methodology.

Table 3 Summary of YA findings and sense checks

Impact	Methodology	Sense checks
Direct employment	<p>Current employees at LBA estimated using data from a 2019 on-site survey.</p> <p>Future employment then rises in line with million passengers per annum (mppa) growth, accounting for efficiency and automation.</p>	<p>On-site surveys are considered an accurate 'bottom-up' way of estimating direct employment at airports.</p> <p>Assessing based on employees per mppa (as done by NEF), a 'top down' approach, provides a useful sense check and is also an accepted methodology within aviation economics. This method does not, however, consider the fact that different airports have many different operating models, in terms of the level of outsourcing versus direct employment supported.³ Building in this variation across UK airports, the employees per mppa at LBA seems reasonable.</p> <p>It is also noted that GENECON carried out a sense check previously by looking at employment within the LBA LSOA, which also suggested direct employment estimates were reasonable.</p>
Indirect and induced employment	<p>Multipliers that estimate indirect and induced employment supported are developed using UK input-output (IO) tables, and applying regional location quotients to adjust these multipliers for the localised geographies.</p>	<p>The use of location quotients is a common approach undertaken in economic impact assessments of indirect and induced employment. Although York Aviation do not specifically state their multipliers, it can be inferred that employment multipliers of approximately 1.3 and 1.8 were applied at the Leeds and LCR geographical levels respectively, before 10% and 25% factor displacement assumptions were applied.</p> <p>The HCA additionality guide⁴ does not provide aviation specific multipliers, but it does provide ready reckoner multipliers. These composite multipliers range from 1.05-1.15 at the neighbourhood level and 1.3-1.7 at the regional level depending on strength of supply chain linkages. The neighbourhood level would typically be smaller than the district (in this case Leeds) whereas the regional level would typically be larger than the LCR (in this instance Yorkshire). Comparing to these benchmarks, the multipliers used by YA appear to slightly on the high side, although not unfeasible dependent upon strength and geographical extent of supply chains.</p> <p>For further context, GENECON state that national scale employment multipliers for the air transport and transport support services sector vary from between 1.8 and 2.0. Volterra's own sense check shows that national level employment multipliers could be even higher – a study by Steer Davies Gleave⁵ finds that at a national level, based on IO tables, the multiplier varies between 2.06 and 2.72.</p>

³ Volterra sense checked the implied LBA employees per mppa in 2019 (693 jobs per mppa) with other UK airports – Heathrow 2017 (932), Manchester 2016/17 (822), Gatwick 2014/15 (550), Stansted 2015/16 (487), Luton 2013/14 (969), Liverpool 2015 (418), Southampton 2018 (477), Bristol 2015 (494), London City 2019 (429), and Newcastle 2017 (651). The conclusion of this sense check was that employees per mppa varies substantially by airport, and therefore cannot be considered as reliable a methodology as an on-site employee survey.

⁴ Homes & Communities Agency, 2014. Additionality Guide – fourth edition.

⁵ Steer Davies Gleave, 2015. Study on employment and working conditions in air transport and airports.

Impact	Methodology	Sense checks
Business productivity	Uses generalised cost modelling to estimate the level of business travel from within LCR that is solely reliant on LBA. Impacts are converted to productivity based on an Oxford Economics (OE) statistical relationship that suggests a 10% increase in combined business air travel and air freight would result in a 0.5% increase in productivity in the economy.	<p>The OE relationship has been applied on multiple economic impact assessments of UK airports and is an accepted approach. An alternative method to look at the impact on productivity would be to apply the statistical finding from IATA that a 10% increase in overall connectivity leads to a 0.07% increase in productivity at a national level.</p> <p>At a very high level – proxying connectivity using mppa – this relationship would imply the LBA expansion would lead to a approx. £42m uplift in GDP at the national level. York Aviation estimates that the uplift in business productivity in 2030 would be £7m at the LCR level. This is only 17% of the national uplift via the alternate method and hence appears reasonable.</p>
Inbound tourism	Impacts on inbound tourism are estimated by combining passenger data with average expenditure per trip to obtain direct GVA and employment estimates. Indirect and induced impacts are then estimated using multipliers for the tourism sector.	<p>The method to estimate direct employment supported by inbound tourism is standard and is what Volterra would use to estimate such an impact. York Aviation estimate that the LBA expansion would lead to 100 additional jobs at the Leeds level and 150 additional jobs at the LCR level (Table 6.7). This is considered a small and reasonable uplift when compared to 2018 employment in tourism supporting sectors⁶ in both areas – 48,000 (0.2% uplift) and 146,500 (0.1% uplift) respectively.</p> <p>Volterra would not typically apply indirect and induced multipliers to this estimate as the direct tourism employment supported could already be considered 'induced'. As noted, however, the relative magnitude of these impacts is small.</p>
Welfare effects	York Aviation assess the positive impacts on welfare through surface access time savings, surface access cost savings and air fare savings.	No sense checks have been carried out for these impacts, as the approaches appear reasonable and are based on government guidance where possible.

Potential weaknesses in the assessment

- 3.6 No weaknesses were found in this assessment that would be considered to materially impact the general finding of the impact assessment, that the expansion of Leeds Bradford Airport would have a substantial positive impact on the economies of Leeds and the wider Leeds City Region.
- 3.7 Volterra does believe, however, that in some cases the beneficial economic impacts of the proposed development have been overstated to a small degree. These potential weaknesses in the assessment are summarised in **Table 4**.

⁶ The definition of tourism supporting employment sectors is taken from: Tourism Leadership Group, 2018. Tourism in Scotland: The economic contribution of the sector – Appendix 1.

Table 4 Potential weaknesses in the economic impact assessment

Potential weakness	Justification	Why does this not materially impact findings?
Direct employment	<p>The baseline estimate of employment is deemed robust. In the with development scenario, employment per mppa at LBA is projected to decline approximately 0.9% each year, from 693 employees per mppa in 2019, to 646 in 2024 and 633 in 2030.</p> <p>This could be considered a relatively small decline, particularly given the 2030 employees per mppa is higher in the with development scenario (633) than the without development scenario (591).</p>	<p>The 0.9% a year decline is lower than the 2.6% annual decline estimated by the NEF.⁷ However, this is a faster efficiency decline than the 0.7% Volterra used in our work on the socio-economics of Heathrow expansion, which was based on projecting forward historic trends over time. This automation assumption therefore seems reasonable.</p> <p>Volterra also understands that York Aviation used a granular elasticity (of different types of employment to passenger growth) to account for automation over time. This reasonable approach explains the discrepancy between the employees per mppa in the 2030 with and without development scenarios. Employment categories heavily related to mppa growth at LBA are those where it is hardest to make efficiency savings.⁸</p>
Indirect and induced multipliers	<p>Sense checks suggest the employment multiplier could be considered quite high, given that:</p> <ol style="list-style-type: none"> (1) Direct employment is slightly above average at LBA; and (2) The LCR economy is 'sub-regional' when considered in GVA terms⁹, yet the multiplier at this level is slightly below a national figure. 	<p>The methodology used to calculate the employment multiplier specific to LBA – based on IO tables – is considered to be robust and a well-accepted method. The strong linkages within LCR may be due to the presence of head offices around the airport, such as Jet2 for example. It is acknowledged that whilst this 'top down' IO approach may not always be completely accurate, it is not always possible given time and data constraints to carry out a 'bottom up' approach and hence this estimate is considered reasonable.</p>

⁷ NEF, 2020. Crisis support to aviation and the right to retrain.

⁸ For example, airlines need two pilots per plan and the number of cabin crew is determined by regulatory requirements.

⁹ In 2017, the GVA of LCR was estimated to be £75bn. This is higher than the North East (£53bn) but lower than all other regions: East Midlands (£106bn), Yorkshire and the Humber (£120bn), South West (£136bn), West Midlands (£136bn), East (£159bn), North West (£177bn), South East (£271bn) and London (£435bn).

Potential weakness	Justification	Why does this not materially impact findings?
Product displacement	<p>The assessment assumes no product displacement as there are no other airports in LCR.</p> <p>However, this could be considered a bullish assumption given that other airports nearby (e.g. Manchester) are known to have a catchment within the LCR.</p>	<p>LCR was chosen as the study area for the EIA, which is considered reasonable given it contains high proportions of the receptors in question (passengers and employees). The question of whether a national study area should have included is a strategic/political one and is not the purpose of this review.</p> <p>York Aviation assume that there cannot be any product displacement at the LCR level, because LBA is the only airport in the region. Technically, at the LCR level, no product displacement would therefore be true.</p> <p>In reality, it is the passengers that ultimately support the economic impacts (e.g. jobs) and with 33% of domestic UK passengers and 58% of international passengers in LCR using other airports over LBA, at a wider level, there will be some passengers deciding to use the expanded LBA over other UK airports – predominantly Manchester. Product displacement would currently be low, however, given that LBA's market penetration for long haul international routes is weak, with Manchester Airport fulfilling the majority of the LCR's demand for international long haul travel. In the with development scenario, connectivity at LBA could increase by six direct links and 19 indirect connections. To put this into context, Manchester Airport serves over 220 direct destinations each year¹⁰, so even if these six direct connections at LBA were competing, it would likely amount to a low level of additional product displacement. After also accounting for the fact that only a quarter of LCR's flying residents travel to Manchester Airport, the level of product displacement that could be applied would likely be such a level that it would not materially impact York Aviation's findings.</p>

¹⁰ Airport City Manchester – Airport city & beyond, connectivity.

Potential weakness	Justification	Why does this not materially impact findings?
Loss of Heathrow route	British Airways has this year pulled the LBA to London Heathrow (LHR) route. This could arguably lead to a reduction in the benefits associated with business productivity.	<p>It is Volterra's understanding that the LHR route has never been overly successful, due to competing travel modes – the only business passengers using this route tend to come from the M4 corridor rather than London itself. In 2017, 46.5k of the 274.3k business passengers used the LHR route – 17% of the total.</p> <p>Conservatively discounting the business productivity benefits for this 17% of business passengers who could potentially be lost would not substantially impact the quantum of benefits. Productivity gains in GVA account for 30% of total net additional benefits in 2030 at the LCR level. Total benefits would therefore only be reduced by approximately 5% in this worst-case scenario.</p> <p>In reality, this discount would be overly conservative. The link to Schiphol is more successful and this airport has already stated its ambition to increase connectivity to LBA to fill the void and hence not all of the 17% of business passengers will be lost as a result of the discontinuation of the LHR route.</p>

Conclusion

- 3.8 Whilst Volterra would have been slightly more conservative in its estimation of the beneficial economic impacts associated with the expansion of LBA, the methodologies undertaken in the economic impact assessment are based on standard guidance or methods that are commonly used in the aviation industry's economic impact assessment. On this basis, the findings of the economic impact assessment are considered to be of a reasonable scale, with any slight recommended adjustments to the methodology unlikely to cause a material impact.

Socio-economics ES Chapter 11

Summary of findings

- 3.9 The socio-economics chapter takes the findings of the Economic Impact Report (discussed above) and put them into a format that meets the 2017 Environmental Impact Assessment regulations. Therefore, no new methodologies are contained within this chapter that have not already been reviewed above.

Potential weaknesses in the assessment

- 3.10 A minor methodological point to note is that the author does occasionally tend to muddle the difference between defining the sensitivity of receptor and the magnitude of impact, which when combined should assist the assessment of effect significance. For example, the existing and potential economic footprint employees are judged to be of high sensitivity. The justification is that "unemployment in Leeds and the LCR is relatively low compared to other comparable cities but the development of the Airport will result in a broad range of opportunities in a range of occupations and at different skill levels" (para 11.3.36). Volterra would consider the first half of this sentence a justification for defining sensitivity, whilst the latter part would more be considered a magnitude of impact. Low unemployment levels do not usually imply a high sensitivity receptor. It is acknowledged, however, that pockets of high deprivation are presented in the baseline, which could be

have been used to justify a higher sensitivity of receptor. As a result, it could be argued that some socio-economic effects are later deemed to be significant when perhaps they should not be based on the 2019 sensitivity of receptors.

- 3.11 Similar to this, there are some inconsistencies in the assessment on defining magnitudes of impacts. Whilst it is acknowledged that socio-economics assessments are based solely on the professional opinion of the author, there are some cases where magnitudes assigned are inconsistent when assessing on a quantitative basis. For example, in para 11.7.29, a 0.3% increase in employment within Leeds is judged to be a high magnitude impact, typically much lower than the threshold level Volterra would judge to be high, whilst in para 11.7.18, a 5% impact on direct and indirect connectivity is judged to be a low magnitude of impact.
- 3.12 Whilst the two points above suggest the conclusions of effect significance could have been slightly more conservative, the methodology underpinning the impact assessment – as concluded above – is considered broadly robust. Furthermore, the chapter was authored prior to the emergence of the COVID-19 pandemic. Although a health crisis, the pandemic is expected to cause a substantial economic downturn, with rising unemployment a significant factor in this. This would likely mean that the receptors within the socio-economic assessment, if carried out now, would be judged to be more sensitive and hence the significance of effects can be considered likely generally acceptable, given that this economic stimulus has since become more crucial to the LCR.

Conclusion

- 3.13 The findings of the socio-economics chapter appear reasonable and are underpinned by robust impact assessment methodologies. Whilst Volterra does not always agree with the significance of effects judgement – due to a different opinion on current sensitivities of receptors – this is likely to be offset by the fact that the COVID-19 pandemic and its associated economic downturn will likely make the sensitivities of receptors higher in the future. As such, Volterra considers the findings in the socio-economics chapter to be broadly robust.

Further Information Report (July 2020)

Summary of findings

- 3.14 The further information report presents evidence that LBA has historically rebounded faster in response to global downturns than other UK airports, due to a relatively affluent and large catchment, a dynamic airline base, and the airport being the main gateway to Yorkshire. On this basis, the report then predicts that the impacts of the LBA expansion would be delayed by approximately two years.

Potential weaknesses in the assessment

- 3.15 This report acknowledges that British Airways has since withdrawn its Heathrow service from LBA. Whilst this could potentially reduce the productivity benefits associated with the development, as discussed above this is likely to be partially offset by the anticipated expanding of services to Amsterdam Schiphol Airport, another one of Europe's major hub airports.
- 3.16 Furthermore, it could be argued that business travel may never bounce back following the COVID-19 pandemic, and hence productivity benefits associated with this type of travel are now overstated. Volterra considers the business productivity estimates to be still be valid, however, for the following reasons:
- The OE relationship is based on how easy/difficult it is to access an area, which will not change because of the pandemic;

- IATA and DfT forecasts do still predict that business travel will bounce back in the next few years; and
- Whilst total business trips could be expected to reduce longer term, the higher value business trips which are more important economically are likely to be the ones which will still continue to occur even in a future scenario where business trips are generally reduced.

Conclusion

- 3.17 Volterra considers the findings of the further information report to be robust. The two-year delay is reasonable given previous bounce backs of LBA and the IATA forecasts that air travel will bounce back to pre-COVID levels by 2023.

GENECON review (March 2020)

Summary of findings

- 3.18 It should be noted that GENECON reviewed the May 2019 report authored by York Aviation, titled 'The Economic Impact of Leeds Bradford Airport'. They concluded that "the overall approach, methodology and impact assessment results appear reasonable and the overall finding of the peer review is that York Aviation estimates are robust, if not conservative estimates of LBA's economic impact".
- 3.19 GENECON carried out useful sense checks – comparing direct employment estimates with local area employment and indirect employment with national multipliers – that have not been repeated by Volterra.

Conclusion

- 3.20 GENECON concluded that the two aspects where York Aviation's approach could be strengthened were:
- Inclusion of displacement effects to obtain net impacts – Volterra agrees with this, and it is note that York Aviation have now appropriately accounted for factor displacement in their 2020 report; and
 - Exclusion of indirect and induced effects from the assessment of inbound tourism impacts – Volterra again agrees with this, although York Aviation do still seem to include indirect and induced impacts in their inbound tourism methodology in the 2020 report.

NEF / GALBA documents (September 2020)

New Economics Foundation (NEF) – Findings on independent research commissioned by the Group for Action on Leeds Bradford Airport (GALBA)

Summary of findings

- 3.21 NEF consulting were commissioned by GALBA to provides its own supplementary analysis supporting the argument that LBA should not be allowed to expand. In their review and analysis, NEF identified the following issues with the Applicant's economic submission:
1. Overestimation of direct jobs created by the scheme;
 2. Inconsistent application of displacement and monetisation;
 3. Exclusion of outbound tourism; and
 4. Net impacts – to incorporate adverse social welfare impacts, such as noise, air quality, surface access costs and climate change costs.

- 3.22 It should be stated here that **Volterra have not reviewed the estimates put forward by NEF quantifying the adverse carbon impacts of the proposed LBA expansion**. These estimates are therefore not considered in this peer review. Whilst Volterra acknowledges that there are carbon emission costs associated with the expansion of airports, this issue is currently considered to be more of a political and legal issue. The legal and policy frameworks put in place regarding airport expansions are key to deciding how costs associated with carbon emissions should be incorporated into the impact assessments, which lies outside of our realm of expertise.
- 3.23 On the topic of **direct employment**, Volterra has already concluded in our review of the York Aviation documents that the estimates appear reasonable, rather than overstated by the 33% that NEF's response claims. The reason for having a higher jobs intensity in the with development scenario is 2030 is due to the granular nature of York Aviation's elasticity model, with the majority of additional jobs created in the 'with development' scenario in the occupations that are hard to make efficiency savings, and hence these categories would be expected to grow disproportionately. Whilst NEF quite rightly points out that LBA has a higher ratios of employees per mppa than some of its comparators, there is too much uncertainty in this top down approach to conclude with certainty that direct employment estimates have been overstated. This method would not pick up, for example, the fact that Jet2 has based its head office near LBA, likely pushing up direct employment estimates relative to other regional airports that do not have a large airline's head office nearby. Volterra's own sense check (refer to footnote 2) also highlighted that whilst some airports have fewer jobs per mppa, some also have higher rates – highlighting the wide variation and the limitation of this approach in capturing the results of different operating models.
- 3.24 NEF does not agree with the **zero product displacement** assumption applied to the impact estimated by York Aviation. Volterra believes that in their assessment, NEF put forward a relatively robust assessment for why there would be product displacement at a national study area level. Volterra acknowledges that product displacement would need to be applied at a wider study area level. However, the purpose of this review is not to determine whether the study area used was appropriate; instead, this review simply critiques the methodology that have been used in the existing impact assessments.
- 3.25 NEF argue that when considering the impacts in terms of GDP/GVA, **outbound tourism** should be assessed in terms of the flow of expenditure out of the study area. Applying the same method as York Aviation use for inbound tourism, NEF estimate that by 2030, Leeds and LCR could experience an annual GVA/GDP outflow ('loss') of £91.9m and £202.3m respectively. Essentially, the outbound tourism outflow estimates put forward by NEF drive the majority of the quantitative cost (adverse impacts) estimate – **across their NPV of economic costs and social welfare costs, outbound tourism costs account for 61% of the total (£1,711m of £2,783m)**.
- 3.26 Finally, the principle of including potential **welfare costs** associated with the LBA expansion appears reasonable, offsetting the socio-economic welfare benefits put forward by York Aviation.

Potential weaknesses in the assessment

- 3.27 On the topic of **displacement inconsistencies**, Volterra does not support the NEF's strong claim that there is a direct contradiction between the zero-displacement assumed on economic footprint impact and significant displacement assumed on socio-economic welfare benefits. It is possible for these to work in tandem – by nature of the study area, there would not be any product displacement on the economic footprint as LBA is the only airport that exists in the study area. For socio-economic welfare benefits, however, the

impact occurs on passengers who reside in the LCR region. Therefore, some passengers within this study area could feasibly be displaced from other UK airports and experience welfare benefits. The issue is more to do with the definition of the LCR study area, which as repeated above, is not for Volterra to determine whether this geography is appropriate or not.

3.28 On the topic of displacement, NEF state in their report that:

“Where the report [York Aviation assessment] does acknowledge displacement effects, it attempts to frame this as a rebalancing away from London airports towards the Leeds City Region. However, the baseline data presented shows that a far more likely outcome is the impoverishment of other UK regions, such as Manchester.”

3.29 Volterra finds this statement to be a likely **overstatement of the true displacement impacts**. It is not considered a reasonable assumption that Manchester Airport will be ‘impoverished’ as a result of the proposed LBA expansion. The reasoning for this is simple, given that the expanded airport will be limited in terms of its capacity. According to CAA data¹¹, in 2019 there were a total of 297m passengers moving through UK airports, of which 4.0m were attributable to LBA. This meant that LBA accounted for 1.3% of UK airport passengers in 2019. To put this into context, the three largest airports by passenger numbers in 2019 were Heathrow (80.9m), Gatwick (46.6m) and Manchester (29.4m).

3.30 Once operational, LBA is anticipated to be able to support a total of 7m passengers when reaching capacity according to forecasts produced in the York Aviation report. Comparing this to existing passenger numbers, this equates to an increase of approximately 3m passengers. It is noted that, in line with NEF’s claims presented above, the baseline data presented in York Aviation’s Economic Impact Report does suggest that Manchester Airport will likely suffer larger displacement impacts than London Airports (refer to Figure 2.2 for a market penetration breakdown within the LCR). However, this displacement impact is not considered large enough to materially impact Manchester Airport, let alone ‘impoverish’ it. Even under a worst-case scenario whereby all 3m additional passengers forecast at LBA are assumed to be displaced from existing passengers at Manchester Airport, this would **amount to a maximum 10% reduction in Manchester Airport’s total yearly passengers**, based on 2019 passenger numbers. This is naturally considered to be an overly conservative assumption as it is highly unlikely displacement from Manchester Airport will be anywhere near 100%, but this analysis demonstrates that even under an unrealistic worst-case scenario, Manchester Airport is unlikely to be materially impacted by LBA’s proposed expansion.

3.31 Next, whilst Volterra believes it is correct to include estimate of potential **social welfare costs**, we do believe that these costs are in some cases overstated:

- In their assessment of aviation emissions, NEF acknowledge that “the impacts of aviation emissions are likely to be over-estimated when using a damage cost approach”. Yet, NEF continue to apply this approach to provide a quantification of aviation emissions – “despite this, we have included these monetised impacts as indicative values” – suggesting that the costs provided in the accounting comparison are overstated.
- Similarly, for noise costs, NEF have used a simple approach whereby they have scaled down the estimated noise costs associated with Heathrow Airport. This approach is not considered particularly robust, given that noise costs occur on ‘receptors’, namely people and sensitive assets within close proximity of the airport. As such they are very location specific; assuming a similar population density and

¹¹ CAA, 2020. Passengers per annum by airport, 2019.

prevalence of sensitive noise receptors around Heathrow Airport and LBA does not seem a particularly robust approach to estimate noise costs.

3.32 Finally, and certainly most importantly, 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 for the following reasons:

- Outbound tourists often spend significant amounts still in the UK, on travel equipment, transport to the airport, travel agents, and others. The Centre for Economics and Business Research (CEBR) has produced analysis¹² for the Association of British Travel Agents (ABTA) - in this they estimate that in 2017 UK outbound visitors spent a total of £44.8bn abroad, but £45.7bn still in the UK on their outbound journey. The spending of outbound visitors within the UK was actually marginally higher than their spending abroad. This suggests that, there is a significant indirect amount of expenditure (and hence employment) supported that has not been considered by NEF.
- This is supported is another report published by ABTA¹³, which found that the net GVA impact of the outbound tourism sector is estimated at £37.1bn (including direct, indirect, and induced impacts). While lower than the total UK travellers spent abroad, the sector made up for 83% of the “losses” of UK outbound travellers spending their money outside the UK. Put another way, for every £1 spent abroad by outbound travellers from the UK, economic activity worth £0.83 was generated within the UK, suggesting that the negative economic impacts of outbound tourism are strongly overstated.
- 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.
- There is little evidence presented that all of this outbound expenditure that would have been spent by LCR residents travelling abroad would have been spent otherwise in the Leeds/LCR areas. Again, this comes down to what are the appropriate study areas for different impacts.
- It could be argued that the premise of restricting outbound tourism by reducing capacity is a regressive policy in the sense that it would price out people from lower socio-economic backgrounds at the expense of wealthier residents being able to fly.

3.33 Whilst there are clearly monetary leakages from the UK economy as a result of outbound tourism and there are national objectives to both improve our domestic tourism offering and attract more international tourists to visit the UK, the approach put forward by NEF in quantifying this impact is too simplistic as it fails to take into consideration the factors outlined above.

Conclusion

3.34 The NEF put forward some valid arguments in their rebuke of the proposed expansion of LBA. Given the variation in direct employment at UK airports, it is considered a fair challenge of direct employment, although Volterra does not consider it to be overestimated

¹² CEBR, 2018. The economic value of outbound travel to the UK economy.

¹³ ABTA, 2019. Driving growth – the economic value of outbound travel.

in this case. Furthermore, the arguments put forward about product displacement are valid – there would be product displacement if impacts were to be considered at a wider (e.g. national) study area, although not to the extent that it would materially harm the viability of Manchester Airport. Finally, the inclusion of social welfare costs – such as noise, air quality and surface access costs – present a more balanced view of the social welfare impacts, albeit some of the costs appear slightly too high.

- 3.35 This peer review has shown, however, that the simplistic estimate of outbound tourism losses likely does not truly reflect the net impact. As such, given the substantial uncertainty surrounding the methodology and failure to take into consideration the net impact, it is deemed appropriate to at least partially exclude the outbound tourism estimates put forward by NEF in their assessment from the final comparison of costs and benefits.

GALBA Letter – Consultation Response to EIA Further Information Report

Summary of findings

- 3.36 In GALBA's letter of objection in response to the EIA Further Information Report, they draw on NEF's reports to highlight the following points:
- 33% over-estimation of job creation;
 - Two very large costs are ignored by LBA – cost of emissions and cost of outbound tourism;
 - Methodological flaws on displacement and the choice of study area; and
 - Failures to factor in COVID-19 impacts.
- 3.37 After amending for these perceived flaws in the original methodology, GALBA concludes that the "net GDP/GVA impact of the scheme is likely strongly negative at the Leeds City Region (-£239m) and UK (-£1.1bn) levels and that the social welfare impact of the scheme is likely to be strongly negative (-£883m), even if the very significant social costs of carbon emissions are excluded (-£18m)."

Conclusion

- 3.38 Volterra has addressed all of these points within the review summaries of the various other documents above. In summary, Volterra does not consider direct employment to be overstated by this large amount, nor does it think that COVID-19 impacts are not appropriately considered in the face of current uncertainty.
- 3.39 Whilst the cost of emissions is acknowledged, it is outside of our realm of expertise to be able to comment on how and whether this should be monetised within the cost benefit analysis in the way presented by NEF. This issue is a political/legal one as the framework for how to assess and trade off such factors must be set.
- 3.40 We do not, however, believe it is appropriate to include outbound tourism within the cost benefit analysis in the way done by NEF. The choice of the study area is not for Volterra to decide; in reality, it is a question for council members – at what geography are they interested in the impacts? If the answer is LCR, then the study area is appropriate for this assessment.

Other considerations

Viability of Manchester Airport

- 3.41 As part of our review, Leeds City Council officers requested that we consider the impact that the expansion of LBA could have on the viability of Manchester Airport. Based on the evidence we have reviewed, Volterra does not believe that expanding LBA would have a material impact on Manchester's viability. Whilst Manchester Airport does attract a

sizeable proportion of passengers from the LCR region, this is because the two airports serve mainly different routes to each other. This is not likely to substantially change as a result of LBA's expansion; for example, it was suggested that Dubai would be the only additional long-haul destination at LBA after expansion.

- 3.42 Furthermore, as discussed above (refer to paras 3.29 and 3.30), the two airports are completely different in terms of the passenger numbers they attract. As such, even under an unrealistic worst-case scenario where all of the 3m additional passengers forecast at an expanded LBA are displaced from Manchester Airport, this would only amount to approximately 10% of Manchester Airport's yearly passengers (in 2019). Even in this worst-case scenario, this sort of reduction would be unlikely to significantly impact the viability of Manchester Airport.

Competitiveness of the Leeds City Region

- 3.43 Leeds has long suffered from a level of productivity below other comparable cities across the UK. Over the last 20 years the gap in productivity between Leeds and the UK average has widened from 10% below the UK level to 17% below it. An effective transport network is fundamental therefore to enabling the increase in productivity required to bring Leeds in line with other cities nationally. Not only does the transport network provide the connectivity required for the growth in knowledge-intensive industries anticipated by Leeds, but (at a more local level) provides the access required to match job opportunities to those who need them most.
- 3.44 Through expanding the reach of Leeds' labour market through investment into the transport network, the increased connectivity and accessibility provided will enable the delivery of jobs that can be accessed by all residents across the city region. Wider connectivity, such as that facilitated by aviation, contributes towards the city region's business and international connectivity. This connectivity is important to business location choices and attracting inward investment.

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