Leeds City Council

Leeds Bradford Airport Economic Impact Assessment

GENECON Independent Review

March 2020 – Final Report

Peer Review Context

GENECON has been instructed by Leeds City Council to undertake an independent review of York Aviation's (YA) May 2019 report - *The Economic Impact of Leeds Bradford Airport*.

Leeds Bradford Airport is located around 7 miles from Leeds City Centre and 9 miles from Bradford City Centre. In 2018 it was the UK's 10th largest regional airport by passenger numbers, handing around 4.0m passengers (PAX). The Department for Transport's (DfT) Aviation Forecasts predict significant growth in UK PAX movements to and from UK airports, and given known runway capacity challenges at various airports nationally, LBA has set out its ambition to increase PAX to 7.1m by 2030 (+77% on 2018 levels).

Economic impact assessments are developed for a range of purposes from promoting development schemes in funding business case submissions to more general lobbying and promotion. There are numerous approaches to estimating the economic impacts arising from both large-scale development proposals and existing assets / activities.

The start of the impact assessment logic chain is in understanding the likely impact mechanisms / sources of observed / possible impacts that could arise and from this, impact modelling then typically seeks to quantify the likely scale of effects in each impact strand by drawing on a range of 'best available' comparator evidence and/or recognised metrics.

Economic impact assessment work in the UK typically first seeks to assess 'gross' impacts and then considered the 'net additionality' of each impact strand to the relevant spatial area/s under review. This often relies on making adjustments for 'deadweight', 'leakage', 'displacement / substitution' effects and also assessing the wider 'indirect' effects that could occur through supply chain spending and the 'induced' of wider direct and indirect employee spending in the economy.

Adjustments from 'gross' to 'net' are typically based on judgement, but they generally draw on various government produced guidance, including the HM Treasury Green Book, which sets out the principles for judging the scale of adjustments required, alongside providing ready reckoner benchmarks.

The focus of GENECON's peer review has been on testing the validity and robustness of the methodology and benchmarks utilised to calculate the airport's economic impact as reported in the May 2019 update. The peer review has been supported by a helpful consultation session held between GENECON and York Aviation, with representatives of Leeds City Council and West Yorkshire Combined Authority also present in an observer capacity. Where required, GENECON has held follow up discussions with YA as needed on more technical aspects and YA have been fully cooperative throughout.

The YA Economic Impact Approach

The YA LBA Economic Impact Assessment (EIA) first seeks to assess the current economic impact of the airport's 'economic footprint' to the Leeds City Region (LCR), defined as being largely 'on estate' operational and supporting activities, including airline operators. The approach taken first considers the current gross direct, indirect (supply chain) and induced (wage-related) employment supported by the airport and the resultant annual Gross Value Added (GVA) contributions.

Alongside this primary focus, the YA work also considers number of wider economic benefits, largely relating to an assessment of current impacts within the visitor economy arising from inbound tourism and the wider business productivity impacts associated with business PAX.

The EIA report then provides estimates for the possible future economic impact associated with PAX growth to 7.1m, as envisaged in the airport's updated Master Plan published in 2017 and this has largely been assessed through a 'scaling up' of current (2018) impacts estimates.

Finally, to estimate the spatial distribution of current and future impacts claimed across LCR, YA has undertaken an apportionment assessment of impact results by LCR district.

Comparisons between YA Assessments

YA's modelling for the May 2019 report updates its earlier 2015 commission to carry out a similar assessment of LBA economic impacts, with results from the 2015 work reported in the 2017 Airport Masterplan.

On gross direct employment impacts, both commissions report broadly similar estimates, inferring that gross employment effects are consistent between the reports. Where employment estimates do differ substantially however, is in the reporting of net impacts, but this can largely be explained by the 2015 commission including an allowance for displacement effects when adjusting from gross to net estimates. No allowance for displacement has been made in the May 2019 report, which focusses on estimating and reporting impacts in 'gross' terms. It is GENECON's view that when estimating current economic impact, displacement effects should not be considered, owing to the fact that any displacement of activities locally would already have occurred.

As such, we view the methodologies applied to estimating current economic impacts in the 2019 commission as being a stronger approach. As discussed latterly in this report, an allowance for displacement among future activities in the 2019 report would make for a stronger approach, accepting that the 2019 commission has largely focused on reporting gross impacts.

Note, there are also some graphing errors in the 2015 masterplan report, which results in incorrect presentation of data.

Non-Technical Summary and Peer Review Findings

The YA assessment of economic impacts considers the current (2018) and future employment and annual Gross Value Added (GVA) contribution of LBA.

The economic impact assessment provides quantified estimates of gross impacts across a range of impact streams, including 'direct' on airport jobs, indirect jobs supporting in the airports supply chain and wider induced jobs supported through wage-spending in the LCR economy. The assessment then considers the annual GVA contribution to LCRs economy, now and if/when the airport reaches 7.1m air passengers per year (from 4.1m at current levels).

Alongside these impacts, the assessment considers the current and future employment and GVA effects arising through inbound tourism spending and wider business productivity impacts, largely linked to cost savings around from reduced travel demands among LCR businesses for alternative airport travel.

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

There are however a few aspects where the impact assessment approach could be strengthened or refined, including (a) through the inclusion of displacement effects among future growth to provide estimates of 'net' impacts and (b) the exclusion of 'indirect and induced' effects from the assessment of visitor economy impacts, for which the gross LCR visitor economy jobs and GVA are arguably already 'induced'.

Whilst analysis of 'net additional' impacts to LCR would a provide stronger a assessment, in practice the adjustments are likely to be small and, on balance, these are likely to only have a minor / modest bearing on overall impact estimate results.

Although wider improved business performance arising from the presence of an operational airport is to be expected, with impacts including the potential for FDI, trade and competition effects, there is limited comparator evidence nationally for which meaningful judgements can be made regarding the overall scale of wider business impacts claimed. Whilst the YA approach appears reasonable and has applied a widely used industry ready reckoner, GENECON considers that estimates for wider business productivity impacts should be treated with a degree of caution, accepting that the results of the wider business impact modelling only claim a very small share of the overall LCR economy.

Similarly, GENECONs review of existing jobs located around the airport estate has concluded that it is likely that some wider activities will have been attracted to the area due to the presence of an operational airport and we view scope for also including an assessment of jobs / activities which have been 'catalysed' due to LBA's presence. Accepting that there are challenges in assessing the causal link between the presence of an airport and wider agglomeration, we nevertheless view this as an important possible impact strand that perhaps warrants further attention in YA's reporting.

The York Aviation EIA Estimates

YA's May 2019 report estimates that in 2018, LBA generated £475m of GVA and supported 8,890 jobs (7,210 FTEs) within LCR. The figures provided in the report are estimates of the current gross economic impact of the airport in the City Region, as set out below.

Leeds Bradford Airport Economic Impact in 2018 – Leeds City Region				
	Impact	**Gross Jobs**	**Gross FTE Jobs**	**Annual GVA**
Airport Economic Footprint	Direct	2,520	2,200	£170m
	Indirect & Induced	2,070	1,680	£95m
	Total Economic Footprint	***4,590***	***3,880***	***£265m***
Wider Economic Impacts	Tourism Impacts	3,200	2,410	£65m
	Other Business Impacts	1,100	920	£145m
	Total Wider Impacts	***4,300***	***3,330***	***£210m***
	Total	**8,890 jobs**	**7,210 FTEs**	**£475m GVA**

The YA report then estimates that growth of +77% in LBA PAX to 7.1 million will increase the total number of jobs supported by the airport by 60% to 14,210 (11,980 gross FTES) and that the airports annual GVA contribution will increase by around 73% to £820m.

Leeds Bradford Airport Economic Impact in 2030 – Leeds City Region				
	Impact	**Gross Jobs**	**Gross FTE Jobs**	**Annual GVA**
Economic Footprint	Direct	3,800	3,270	£290m
	Indirect & Induced	2,850	2,850	£165m
	Total Economic Footprint	***6,650***	***6,120***	***£455m***
Wider Economic Impacts	Tourism Impacts	5,630	4,240	£110m
	Other Business Impacts	1,930	1,620	£255m
	Total Wider Impacts	***7,560***	***5,860***	***£365m***
	Total	**14,210 Jobs**	**11,980 FTEs**	**£820m GVA**

Assessment of Current Economic Footprint

The following table sets out each of the assumptions used to inform YA's May 2019 assessment of airport's economic footprint, alongside GENECON's commentary on the validity of the approach used.

Aspect	EIA Approach	GENECON Commentary
Direct Employment Figures	Direct airport 'economic footprint' jobs have been derived through analysis of an airport-led survey undertaken in early 2019, which asked on estate businesses to report their employment levels. YA has then cross-referenced and sense checked the results of the businesses survey with analysis of the airport's security pass data. The survey appears to capture all activities on the airport estate, including employment estimates for airline flight crews, including the two largest operators Jet2 and Ryanair. YA has then deduced 9% of direct on estate jobs to reflect the number of employees that live outside the Leeds City Region. This 'leakage' deduction has been informed by resident address evidence linked to employee security passes. This approach reaches a direct employment estimate of 2,520 jobs or 2,200 FTEs when reflecting the mix of full and part-time employees.	The approach to utilising primary business survey data appears to be a robust method of estimating direct jobs and testing through the analysis of security pass data brings additional accuracy to the results. As such this approach appears reasonable. As a sense check, GENCON has reviewed sector-based jobs estimates for the Lower Super Output Area (LSOA) covering the airport estate, taken from ONS Business Register and Employment Survey (BRES). This analysis shows that there are around 5,500 jobs present in the two LSOA's spanning the airport estate, of which around 3,000 appear to be 'directly' linked to on estate airport activities, inferring that the YA estimates of direct jobs appear prudent. Furthermore, Census 2011 commuting data suggests that around 93% of people working in the two relevant LSOA's also live within LCR, so leakage at 9% again appears reasonable. One limitation of the YA approach is that its definition of the airports 'economic footprint' may exclude a range of 'off estate' and wider ancillary activities that have been attracted to the area due to the presence of the airport, and the BRES data suggests that there are around 2,980 further jobs present on the airport estate or its immediate surrounds (5,500 minus 2,520 jobs), with notably high numbers of jobs in hotels / accommodation, wholesale, manufacturing and professional services present. Whilst some of these jobs / activities may latterly be captured through YA's inclusion of indirect and induced multiplier effects, we consider it likely that a proportion of these jobs may have been attracted to the area due to the presence of the airport, accepting that there are challenges in assessing the causal link between the presence of an airport and wider agglomeration. Nevertheless, the approach taken by YA appears to be a robust, well-tested and possible conservative estimate of gross direct job impacts.

Direct GVA Impact	The YA report explains the GVA estimate has been calculated using company reports and accounts and the Annual Business Survey (ABS). This approach reaches a direct annual GVA estimate of £170m at current levels.	There is no commentary in the YA report to provide a detailed explanation of how it has assessed direct GVA impacts, however the sources mentioned are legitimate sources for data from which to calculate GVA impacts. When assesses against direct employment impacts, the GVA claimed is equivalent to £67,460 per job or £77,273 per FTE. This appears high when compared to an ONS benchmark of £58,300 per FTE job in the water and air transport sector in West Yorkshire (taken from ONS Regional Accounts, Balanced Approach, and ONS BRES, data for 2018). This may however be explained by YA's conservative definition of direct jobs, which is likely to exclude some lower value activities which could (in theory) be included within the ONS definitions. On this basis, the estimate of direct GVA appears reasonable.
Indirect and Induced Impacts	The composite multipliers set out in the ONS UK input-output tables have been adjusted by YA to produce a 'LCR only' multiplier. This has been done by applying a method developed by an UK academic (A.T. Flegg), which appears to takes national scale multipliers and then apportions outputs locally through the use of location quotient (LQ) analysis, comparing the concentration of relecent sectors in LCR against average concentrations nationally. This adjusted multiplier has been applied to the direct impacts to calculate combined indirect (supply chain) and induced (income effects) impacts of the airport's economic footprint, estimated at 2,070 indirect and induced jobs and £95m of indirect and induced GVA.	Use of the ONS input-output tables is an appropriate source for national level economic multipliers and through apportionment, the analysis results in an overall LCR employment multiplier of 1.8 and an LCR GVA multiplier of around 1.6. Nationally, in 2015 the air transport sector has an indirect and induced employment multiplier of 1.8 and a GVA multiplier of 1.6, and the transport support services sector had a national scale employment multiplier of 2.0 and a GVA multiplier of 2.1. Assuming that the majority of LBA supply chain effects and spending impacts occur within LCR, the YA approach appears reasonable. Whilst the YA report provides little explanation of the types of jobs supported through indirect and induced effects, its modelling results in an overall GVA per FTE job estimate of £56,550 per FTE job. Against an ONS estimate of £61,700 per FTE job for the whole of the West Yorkshire economy, the YA results again appear reasonable.

Assessment of Wider Impacts

The following table sets out the YA EIA approach to estimating the wider LBA economic effects, alongside GENECON commentary of the appropriateness of the approach applied.

Aspect	EIA Approach	GENECON Commentary
Business Productivity	YA have determined the number of outbound business PAX from LBA which solely rely the airport for air travel through a generalised cost model developed by YA and informed by CAA and OAG data. The modelling essentially estimates the number of LCR business users which would otherwise not travel from alternative airports, thus removing 'deadweight'. An Oxford Economics and Transport for London (TfL) benchmark is then applied to the estimate of LBA business users which would otherwise not travel to estimate the effects of LCR business productivity arising from LBA. This benchmark considers that a 10% increase in business air travel and airfreight will increase the productivity of an economy by 0.5%, resulting in an estimate of £145m of wider GVA supported in the LCR economy. The employment impact is then derived from the GVA estimate to reflect the number of jobs that £145m is likely to support locally, estimated at 1,100 jobs.	Based on the overall number of LCR residing business PAX (234,000 in 2017) this equates to £620 in GVA per PAX, which instinctively feels high. Given that the YA modelling appears to have deducted a proportion of business PAX which would fly from alternative airports, the estimate for GVA per PAX would be higher still. Although the productivity benchmark applied is from a recognised source that appears to have been widely used across the air industry to estimate business productivity impacts, the premise for using the benchmark relies on an understanding of PAX growth, but the report provides no explanation as to how the 10% uplift can be applied to a purely 'current' (2018) PAX estimates. £145m is itself around 0.2% of LCR's total GVA output in 2018 (£73.6bn), which may not be unreasonable, given that the benchmark is seeking to assess a range of business impacts, including a mix of FDI, trade and competition effects, which would be expected from the presence of an operational airport. The associated employment figure assumes the roles supported have a very high GVA per FTE (£158,000), although we understand that some deductions have been made to reflect that the fact that increased business productivity does not necessarily translate into job outcomes. Whilst an allowance for meaningful translation into job outcomes is reasonable GENECON consider that the approach to estimating wider business productivity and employment impacts should be treated with a degree of caution, accepting that wider business productivity impacts arising from the airport are likely.
Tourism Impacts	The effects of inbound tourism spending in LCR has been based on a YA review of CAA origins and destinations data alongside VisitBritain tourism spend data.	Although the report does not provide estimates for the number of visitors and levels of spending supported within the LCR economy, the use of CAA and VisitBritain data are appropriate sources to calculate total visitor spending locally and the use of granular CAA data means that estimates for PAX visitors staying in LCR is likely to be robust.

	This has provided an estimate for the overall spending power of inbound PAX visiting LCR, from which a turnover to GVA ratio (taken from Annual Business Survey data) has been applied to assess GVA impacts, estimated at £65m. The GVA impact is then converted into visitor economy jobs through the use of sector based GVA to FTE job ratios, including allowances made for indirect and induced impacts, calculated by ONS multipliers for the tourism sector. Through this modelling YA estimates that LBA supports 3,200 jobs in the LCR visitor economy or 2,410 FTE jobs.	The EIA report discusses that indirect and induced multiplier effects have been included within YA's estimates, although the report does not provide a specific breakdown of direct tourism and wider linked jobs. GENCON would typically consider the gross 'direct' spending related jobs as already being 'induced', so the use of multiplier effects within the YA modelling for tourism-related impacts is questionable. It is not clear whether the modelling includes any consideration of visitors which would otherwise visit LCR via alternative airports, although there are around 136k jobs in the LCR visitor economy, so at around 2%, the estimate of employment impacts appears broadly reasonable. Based on job and GVA estimates, the YA modelling results in a GVA per FTE job of £27,000 per FTE, which is low. This is however reasonable when considered against an ONS derived estimate for the accommodation and food services in 2018 (£28,000 per FTE job).

Assessment of Future Impacts and local level apportionments

The following table sets out the YA approach to estimating the potential future economic impact of LBA and current and future impact apportionments at the local level, alongside GENECON commentary of the appropriateness of the approach.

Aspect	EIA Approach	GENECON Commentary
Passenger Growth	In line with the 2017 Masterplan, the EIA uses DfT's UK Aviation Forecasts (2013 data) to estimate that 7.1m PAX could be achieved by 2030. This is the equivalent to a 77% increase from the 4.0m PAX in 2018.	The PAX forecast is taken from an independent official data. These forecasts are demand driven but do allow for some airport constraints. Since the publication of the Masterplan the forecasts have been updated with 2017 data, which slightly increases the forecast number PAX using LBA in 2030 to 7.2m. Although LBA PAX numbers have increased post-recession, a peaking at 4.1m PAX in 2017, in 2018 and 2019 PAX numbers were reasonably static at 4.0m.
Future Economic Footprint	YA considers that there will be a direct causal link between PAX growth and the size of the airport's future economic footprint. Against a 77% increase in PAX, gross direct employment is forecast to increase by	Given economies of scale, it is reasonable to assume that fewer employees per PAX will be required to handle PAX growth and that increased PAX / activities will not always translate into job outcomes. The forecast growth in 'direct' jobs at 50% against a 77% increase in PAX therefore appears reasonable. Indirect and induced employment effects is assessed as being broadly in line with PAX growth and we consider that additional supply chain spending in particular

	around 50%, reflecting the potential for efficiencies / productivity impacts, rather than purely employment outcomes. Indirect and induced employment and GVA impacts are however forecasts to increase by between 70% and 74%, which is broadly in line with PAX growth.	is likely to largely be proportionate to PAX growth, so again indirect and induced effects modelling appears broadly reasonable. Similarly, GVA growth line with PAX growth could also largely be expected. The YA approach therefore appears broadly reasonable, although the report does not consider the potential for any LCR level displacement among future activities. GENECON would typically expect displacement (factor and product) to be at the lower end (c.25%) given that LBA is the only airport in LCR, but we would expect some consideration of potential future displacement of activities.
Future Wider Benefits	The EIA assumes the relationship between the number of passengers and wider benefits will also be proportionate. With the estimated employment and GVA impacts increasing by approximately 75% to 14,870 jobs and £820m GVA in 2030.	The report makes little mention of any future changes in the air PAX market, for example whether there is expected shifts in the share of business and tourism PAX that are driving estimates of wider impacts claimed. In the absence of any evidence for this, it is however credible to assume that the current share of business and tourism PAX will continue, and so a 'scaling up' of current impacts claimed against each wider impact stream appears reasonable.
Current and Future Local Level Impact apportionment	The YA report then presents analysis of local level impact estimates, reporting on current and potential future LBA impacts in each of the 10 LCR local areas. There is little commentary in the YA report to describe how apportionments have been made.	For gross 'direct' jobs and GVA impacts, discussions with YA have identified that this has been based on survey evidence taken from airport workers residences. It is less clear how other impact apportionments have been made, particularly for tourism impacts and other wider business productivity impacts, although as presented, impacts at the local level are highly concentrated in Leeds and Bradford, the two largest city region centres which are also close to the airport. This therefore appears reasonable.

Summary

Economic Footprint

- The approach to estimating direct employment impacts is a robust, if not conservative estimate, of current jobs and the inclusion of indirect and induced jobs appears to be of a reasonably scale.
- Allowances for leakage effects appears reasonable and national levels multipliers have been adjusted to consider the nature and scale of the LCR economy and these appear reasonable based on national benchmark evidence.
- The direct GVA impact relative to the scale of employment is high given local benchmarks, although YAs definition of direct activities within the airport 'economic footprint' would typically be in higher value activities and the direct GVA estimate therefore appears reasonable.
- No assessment of any agglomeration impacts has been made, although there appears to be wider 'airport attracted' business presence on the airport estate and within its surrounds.

Wider Impacts

- The number of business PAX from LCR who would otherwise not travel via air without LBA has been calculated using a detailed 'WebTAG style' cost model although the use of nationally derived benchmark evidence seems to derive a high estimate of wider business productivity impacts.
- Although wider business productivity impacts arising from a mix of FDI, trade and competition impacts is likely, it is not possible to verify the validity of the impact modelling and so estimates should be treated with caution.
- The estimated jobs supported by increased business productivity is relatively low, although YA make allowances to reflect that fact that productivity improvements to do necessarily translate into job outcomes.
- LCR tourism spending impacts by inbound LBA is calculated using the best available data sources and appears to be reasonably robust. The tourism impacts claimed include consideration for indirect and induced effects, although the spending-related 'direct' tourism jobs and GVA claimed are arguable already 'induced'
- The GVA to employment ratio applied in the estimates of tourism impacts is relatively low, however that is somewhat explained by the typically low value sector activities that are likely to be supported by visitor spending.

Future Impacts and local level apportionment

- The assessment of future impacts is driven by best available national DfT PAX forecasts (2013). The UK aviation forecasts have since been updated, which has marginally increased / accelerated LBAs PAX forecasts.
- A sensible allowance has been made to estimates of future 'direct' employment impacts, to reflect economies of scale and future airport efficiencies. The 'scaling up' of GVA and indirect and induced employment impacts in line with PAX growth appears reasonable, as increased airport activity is likely to be proportionate to supply chain demands.
- No allowances have been made to reflect the potential for future displacement within the labour market arising from future growth prospects, although as the only airport in LCR, displacement at city region level is likely to be reasonably low.
- Future wider business productivity and tourism impacts are also based on 'scaled up' analysis of current performance. No assumptions have been made to consider any future shifts in visitor and business PAX shares, although the approach to estimating wider impacts appears reasonable.
- Local level apportionment of current and future impacts claimed across the 10 LCR districts has been provided and this appears to largely be driven by business survey analysis. The results of this modelling show high concentrations of impacts to the Leeds and Bradford economies, which is to be expected given the current dominance of the local areas and proximity to the airport estate.