

Proof of evidence of Dr Alex Chapman for LADACAN

Socioeconomic impacts

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APPLICATION BY LONDON LUTON AIRPORT OPERATIONS LTD

(REF APP/B0230/V/22/3296455)

VARIATION OF CONDITIONS RELATING TO EXTENSIONS AND ALTERATIONS TO
THE AIRPORT

LONDON LUTON AIRPORT, AIRPORT WAY, LUTON

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1. Introduction

- 1.1. I am a specialist in the economic analysis and evaluation of infrastructure interventions and policies. I have a BSc in Environmental Economics from the University of York and a PhD from the University of Southampton focused on the socioeconomic evaluation of infrastructure proposals and their climate impacts.
- 1.2. I have worked for the New Economics Foundation (NEF) for the past five years where I am currently a Senior Researcher in the Environment and Green Transition team. In this role I lead a portfolio of aviation sector work, this includes airport expansion appraisal, aviation tax policy, and jobs and just transition in aviation.
- 1.3. For the past six years I have also been an international consultant for the Asian Development Bank and World Bank working in the area of climate risk assessment, and appraising the alignment of infrastructure pipelines with the Paris Climate Agreement.
- 1.4. My recent aviation projects include: acting as independent reviewer (through NEF Consulting) of the climate change aspects of the proposal to expand Southampton Airport for Eastleigh Borough Council; evaluating the business case for the proposed extension to the M4 motorway for the Future Generations Commissioner for Wales; evaluating the application to expand Leeds Bradford Airport for the Group for Action on Leeds Bradford Airport; and assessing the regional impacts of expanding Heathrow Airport for the No Third Runway Coalition.
- 1.5. NEF is an independent charitable think tank (registered charity number 1055254). NEF Consulting is a wholly-owned subsidiary of NEF through which some of our aviation work is contracted.
- 1.6. This proof of evidence was commissioned by the Luton and District Association for the Control of Aircraft Noise (LADACAN). The evidence presented represents my independent view on the socioeconomic impacts of the proposed changes.

2. Scope of evidence

2.1. This proof primarily addresses the following consideration identified by the Inspectors:

- The socio-economic implications of the proposed development.

2.2. It also touches on evidence in the domain of economics, relevant to the following considerations:

- The implications of the proposal for meeting the challenge of climate change.
- The effect of other considerations on the overall planning balance.

2.3. In the following sections I deal with the issue of socioeconomic impact. As modern benefit-cost analysis involves the monetisation and integration of most material scheme impacts, there is inevitably some overlap with the assessment of overall planning balance. I defer to other expert witnesses on the assessment of overall planning balance, but do pass comment on the likely net socioeconomic impact of the application.

2.4. I set out below the evidence supporting my views in the following domains:

- **Strategy, policy, and guidance:** The implications of current local and national government strategy, policy and appraisal guidance for the socioeconomic impact assessment of the proposed development.
- **The applicant's approach:** The methodological issues with the applicant's approach, and the consistency of the positions taken in relevant applications.
- **The Council's position:** My view on the position set out by Luton Borough Council on economic matters in its decision notice on the initial planning application.
- **Tourism impacts:** The evidence supporting my view that the proposed development will drive outbound international tourism detrimental to the UK's economic welfare.
- **Economic implications of climate impacts:** Setting out the evidence supporting my view that the economic implications of the climate impacts of the proposed development weigh heavily against the application.
- **Jobs impact:** Setting out the evidence underpinning my view that there will be no net job creation resulting from the proposed development.

- **Wider economic and business impacts:** Setting out the evidence substantiating my view that the wider business benefits of the proposed development will be near to zero.

3. Strategy, policy, and guidance for economic appraisal

Policy relevant to the economic appraisal

- 3.1. The government points to its *Making Best Use of Existing Runways* policy (CD8.09) as the most up-to-date policy and strategy document pertaining to aviation and airport growth, for example on page 74 of its recent *Jet Zero Strategy* (CD11.19).
- 3.2. The *Aviation Policy Framework* 2013 (CD8.05) is also relevant but is dated.
- 3.3. Luton is a leisure-travel focused airport, with 87% of passengers (15 million in 2019) travelling through Luton for leisure purposes. Luton airport is therefore a critical component of the UK's tourism infrastructure. Government tourism policy is also relevant when considering the merits of the scheme's socioeconomic impact.
- 3.4. Within the tourism domain the 2011 *Government Tourism Policy* (CD16.05) from the Department for Digital, Culture, Media & Sport (DCMS) remains the pre-eminent policy document. The 2021 *Tourism Recovery Plan* (CD16.12) also has relevance.
- 3.5. Planning policy is obviously relevant to the process by which a decision is made, but in my view provides only a very broad decision making framework. For the appraisal of a complex airport expansion application, more detailed guidance is needed.

Appraisal guidance relevant to the application

- 3.6. Guidance on the appraisal of transport infrastructure interventions is provided by the Department for Transport in the form of its Transport Analysis Guidance (TAG). The Department for Transport state, in their aviation unit of TAG (CD16.11):

"The DfT regards this unit as best practice for the appraisal of aviation interventions and would assess the merits of any aviation intervention against this benchmark" (p.3) (TAG, Unit A5.2, Aviation Appraisal).

It is important to note that the DfT would assess "any" scheme against TAG, not just "major" schemes.

- 3.7. **When it comes to the public appraisal of an airport expansion it is therefore TAG which represents the government's view of 'best practice'. TAG principles were**

applied, for example, to the government's assessment of airport capacity in the South East in the *"Updated Appraisal Report: Airport Capacity in the South East"* (2017).

- 3.8. In my view, to-date, planning authorities have made insufficient reference to TAG when assessing the appropriateness of appraisals conducted on aviation sector applications. I surmise that this is due to the establishment of a poor precedent. However, I do not consider the failure of previous applications to make adequate reference to the government's best practice standard to be a good enough reason to allow poor practice to prevail moving forwards.
- 3.9. TAG additionally references the HM Treasury Green Book and BEIS guidance *"valuation of energy use and greenhouse gas emissions for appraisal"* (CD16.13). Both of these documents also represent best practice in appraisal within their respective domains.

4. The Applicant's approach

- 4.1. The case presented by the applicant, London Luton Airport Operations Limited (LLAOL) in favour of the approval of its application rests almost entirely on economic arguments. There are clear negative environmental and human health impacts of the proposals, as such to receive approval in accordance with the relevant government policy and guidance the applicant must demonstrate that the claimed economic benefits outweigh these damages. In my view this has not been evidenced, and a careful and unbiased review of the available data and research would conclude that it cannot be evidenced.
- 4.2. Economic arguments are central to the applicant's Statement of Case. The claims made include specific forecasts of job creation and additional GDP/GVA, broad-brush reference to trade and investment benefits, and consumer benefits linked to reduced ticket prices. No documents evidencing these claimed impacts, or setting out the methodology for how they were calculated, are referenced in the Statement of Case.
- 4.3. The Applicant's Planning Statement makes the simple claim that *"The Proposed Amendments would deliver more economic benefits than the 'do-nothing' scenario"*. No evidence or analysis supporting this claim is presented.

- 4.4. The applicant has taken the unusual approach of including no substantive socioeconomic impact assessment in its Environmental Statement (CD1.09). In the 2021 Environmental Impact Assessment (CD1.09) socioeconomic topics are “scoped out” on the following justification:

“as there are no additional significant socio-economic effects that would require further consideration as a result of the Proposed Scheme the conclusions made within the 2014 Planning Permission 2012 ES remain valid, and the socio-economics topic has been scoped out from further assessment” (p.45)

Why the 2012 Environmental Statement cannot be relied upon

- 4.5. It is difficult to interpret what the applicant means when they say that the “2012 ES remain[s] valid” (as above). The 2012 socioeconomic assessment was undertaken on the basis of an airport capacity of 17.8 million passengers per annum (mppa), not 19 mppa. There are two potential things that readers could infer from this:

- A. That the proposed addition of 1 million passengers per year will have zero additional economic impact over and above those impacts described in the 2012 assessment.
- B. That the impacts will scale up in proportion with an indicator such as the change in passenger numbers.

- 4.6. In either case, I have two major concerns with reliance on the 2012 ES economic analysis. Principally (i) the quality and scope of the methodology applied, and (ii) the out-of-date nature of the analysis.

Issues with the quality of the 2012 assessment

- 4.7. The 2012 ES economic analysis (CD1.09) is missing a range of analyses considered best practice in 2022, particularly for an intervention of the size and scope of the proposed expansion it addressed. Best practice is set out in TAG. In particular, in relation to the ES, the most obvious deficits are:

- A. There is no assessment whatsoever of tourism impacts. TAG Unit A1.1 **Error! Reference source not found.** (page 43) states:

“The benefits or disbenefits to transport users will usually be derived from a transport model. They should include all significant user costs and benefits, taking account of all significant traveller responses.”

- B. There is no socioeconomic assessment of environmental impacts (noise, air quality or greenhouse gases). TAG Unit A5.2 (CD16.11) sets out methodologies for quantifying and monetising all three impacts and Unit A1.1 requires that they be included in the final assessment table.
- C. There is no assessment of the additionality or displacement of impacts, particularly job creation. TAG Unit A2.1 (CD16.10) sets out in detail the requirement and approach to modelling displacement.

4.8. In addition, as I will set out later in my section on jobs, the applicant’s own consultants, Oxford Economics, in another report (CD16.02), have shown that the jobs projections at the heart of the 2012 ES were flawed and grossly overstated.

The out-of-date nature of the 2012 assessment.

4.9. The socioeconomic assessment presented in the 2012 ES (CD1.09) was originally conducted by Halcrow (CD16.06) and relies on data assembled in 2011, more than ten years out-of-date. The world has changed dramatically in the intervening period. Methods of economic appraisal have also developed significantly. It is not appropriate to assume that the conclusions of a new economic appraisal would be the same. Notable changes include:

- Business passenger levels have stagnated, their market share has declined significantly and looks to be approaching saturation, with no further growth likely.¹

This is discussed further in my section on wider business impacts.

- Our understanding of the economic implications of climate change and the decarbonisation of our economy has changed radically and new guidance on the

¹ CD16.09 McKinsey & Company (2021) Back to the future? Airline sector poised for change post Covid-19.

inclusion of climate change in economic appraisal has emerged.² **This is discussed further in my section on climate change.**

- The UK's domestic tourism market has stagnated, and its share of the UK economy has shrunk, in large part as a result of the expansion of aviation.³ **This is discussed further in my section on tourism impacts.**
- The UK's travel spending deficit has grown significantly, and the UK's current account deficit has hit its largest level on record.⁴ **This is discussed further in my section on tourism impacts.**
- The capacity of the aviation sector for job creation or its 'job intensity' has declined significantly, particularly following a mass redundancy and efficiency drive during the Covid-19 pandemic.⁵ **This discussed further in my section on jobs impacts.**

4.10. If these factors were appropriately analysed it is unlikely that any economic benefit of the proposed expansion could be claimed, and indeed it is possible that the proposed expansion could be negative for the health of the regional economy.

Why a new assessment should have been conducted

4.11. While the proposed capacity expansion is smaller than some other recent airport expansion proposals, 1 million passengers per year, equivalent to around 5,800 short-haul aircraft movements per year or 16 per day, remains a very significant change to the local environment. This is similar to, or larger than, the entire annual passenger throughput of airports such as Exeter, Bournemouth, Norwich and Newquay.

4.12. I have estimated that the total carbon emissions over the period 2023-2050 would equal 1.7 million tonnes of CO₂. The latest science on non-CO₂ impacts would suggest the total climate impact is closer to 5.1 million tonnes of CO₂ equivalent impact. Put in another way, the climate impact is the same on an annual basis as the impact of 35,200

² CD16.13 BEIS (2021) Valuation of energy use and greenhouse gas.

³ My analysis of VisitBritain data from the GB Tourism Survey

⁴ CD16.04 FT (2022) UK trade performance falls to worst level on record in first quarter

⁵ See Chapman, A and Wheatley, H. (2020) Crisis support to aviation and the right to retrain. New Economics Foundation

UK residents. The economic value of these impacts, using BEIS the methodology for valuing greenhouse gases (CD16.13), is £1.6bn (or £566m after discounting is applied). Further details of this calculation are set out in my later section on climate impacts.

- 4.13. Given this evidence, the scheme is clearly not trivial and deserves full and proper evaluation. Given that the scheme's merit relies entirely on its economic case I therefore regard it to be highly inappropriate that no bespoke economic appraisal has been conducted.

5. The Council's position

5.1. The Council Officers' Report (CD5.08) contains more economic impact analysis than the Applicant's own submissions. This seems strange to me, and suggests to me that the council has a pre-determined position which assumes that airport expansion delivers large net positive economic benefits. I do not think this position is supported by the evidence.

5.2. The Council's economic argument, set out in the Council Officers' Report (CD5.08), has four strands:

- A. That the application will *"safeguard and sustain the continued commercial viability of the airport"* (para 169).
- B. Reliance on the 2012 economic impact assessment submitted by the applicant in 2012
- C. Reliance on general statements from national government and its aviation sector policy documents suggesting aviation growth generates economic benefits and therefore benefits must result from expansion of LLA.
- D. A series of unsubstantiated claims about the economic impacts of the expansion, such as:
 - *"the important role that the airport plays as an enabler of economic growth needs to be stressed, and the importance of that role will only increase post-Brexit and post the Covid-19 pandemic"* (paragraph 88)
 - *"the proposed expansion provides an opportunity to strengthen the contribution the airport makes to the local economy and the sub-region"* (paragraph 173)
 - *"[it will] deliver economic growth and prosperity to serve Luton and the wider sub-region and the generation of jobs through business and industry"* (paragraph 177)

5.3. As far as I have been able to identify, at no point does the council supply technical modelling or references (preferably academic) to support its claims regarding the economic benefits which would result from the application.

5.4. I will address each of the above points in turn.

The commercial viability of the airport is not threatened

5.5. To my knowledge, the Applicant does not claim that the refusal of this application will endanger the commercial viability of the airport. This point is made strongly however by the CEO of London Luton Airport Ltd in a letter to the Development Control Committee. The point is then echoed by council officers in their report.

5.6. Mr Olver makes the claim that refusing the application will have *“potentially extremely serious ramifications for jobs, for the regional economy, and for our communities”* he also states that *“15% of the Council’s frontline services”* are funded by the airport. If true, this illustrates the compromised position occupied by the council in relation to this matter. If the council’s officers believed this claim from Mr Olver, they would therefore believe there is a credible threat to the council’s ability to deliver frontline services. Given the important role played by the council is protecting the community of Luton, this would understandably give the council officers a pre-disposition towards approving the application.

5.7. In my opinion the risks to the Airport’s viability are being overstated and weaponised in order to put pressure on decision makers. Department for Transport modelling suggests there will be plenty of demand for air travel from leisure passengers (Luton’s primary market) moving forwards and I do not believe this is a matter of contention. Luton Airport is already one of the UK’s largest airports and considerably larger than other UK airports which operate successfully. Many other airports operate successfully close to, or at, their capacity limit. **I see no reason why the airport could not continue successfully at its current capacity.**

Out-of-date evidence is not sufficient

5.8. The council reference the same out-dated ES economic assessment (CD1.09) published in 2012 and utilising data from 2011 as the applicant.

5.9. As previously discussed, the assessment referred to is now more than ten years out-of-date. Over the intervening period new data has come to light and **our understanding**

regarding the economic impact of aviation, and how to model it, has changed considerably. Reassessment is required.

- 5.10. I cover these changes in greater detail below, but the key issues were summarised above in my analysis of the applicant's position.

General statements made by government are not sufficient

- 5.11. While the government recognises the general benefits to society and the economy of the aviation sector, it is careful, throughout its communications, to emphasise that each airport expansion application should be assessed on its merits. The direction from government is for decision makers to examine the evidence on a case-by-case basis.
- 5.12. A number of caveats apply to statements made by government ministers and in government policy.
- 5.13. First, key government policy documents are becoming dated, particularly the Aviation Policy Framework (APF). Evidence was gathered for the APF in 2012, ten years ago. As mentioned above, a number of critical economic trends have emerged since that date. Ignoring this evidence would be foolish, risk harm to the local economy, and is surely not a position endorsed by broader government appraisal guidance.
- 5.14. Second, more recent aviation policy statements have been more circumspect in their treatment of economic impacts. *Making Best Use* broadly avoids commenting on specific economic impacts of aviation expansion citing the need to weigh up local contextual factors.
- 5.15. Third, Luton airport's passenger profile is not representative of the UK at large. Luton's serves fewer foreign residents, fewer business passengers, and more low cost airlines than the UK average. **As such, statements made by government about the overall impact of aviation at the UK level do not necessarily apply to Luton.**

Unsubstantiated statements are not sufficient

- 5.16. The Council Officers' Report (CD5.08) makes a number of unevidenced/unreferenced statements about the economic impact of the airport. The majority of these benefits refer to the general existence of the airport, not the specific impact of this intervention.

5.17. The Council officers' report appears to contain a presumption that expansion of Luton airport is always or indisputably good for the local and national economy. For example:

- *“the important role that the airport plays as an enabler of economic growth needs to be stressed, and the importance of that role will only increase post-Brexit and post the Covid-19 pandemic”* (paragraph 88)
- *“the proposed expansion provides an opportunity to strengthen the contribution the airport makes to the local economy and the sub-region”* (paragraph 173)
- *“[it will] deliver economic growth and prosperity to serve Luton and the wider sub-region and the generation of jobs through business and industry”* (paragraph 177)

5.18. This position is undoubtedly endorsed by a number of respondents to the Council's consultation on the application, but it is critical to note that the vast majority of these responses are both (i) lacking reliable evidence to support their claims and (ii) submitted by individuals or organisations with a vested interest in the expansion of the airport.

5.19. No such consensus regarding the economic 'good' of aviation in an advanced economy such as the UK can be found in the academic research literature. I will set out this evidence in my later section on 'wider economic and business impacts'.

5.20. While a presumption in favour of the economic impact of airport expansion is propagated by a number of economics consultancies, it is also critical to note that these consultancies also have a vested interest in aviation expansion, particularly due to their reliance on aviation sector businesses for their revenue stream.

5.21. Given the severity of the multiple crises we now face, including of climate stability and living standards, decision makers must apply a critical lens to the economic assumptions which have driven the decisions which have led us to our current precarious position. **The simple unevidenced presumption that claimed economic benefits outweigh environmental costs is inadequate.**

6. Best practice socioeconomic appraisal of an airport

6.1. The government's view of socioeconomic impact appraisal, as set out in TAG and the Green Book endorses, wherever possible, the monetisation of all material social and environmental impacts, positive or negative, resulting from a proposed policy, project, or development. Monetisation is designed to allow comparison of the relative magnitudes of different impacts. TAG Unit A1.1, (**Error! Reference source not found.**, page 43), states:

"Therefore CBA entails presenting as many of the impacts of a scheme or option as possible in monetary terms, so that they can be compared in a common unit of measurement." (Para 1.1.2)

6.2. As stated in TAG, a critical step in the measurement of impact is the estimation of 'additionality' i.e. the extent to which an impact is additional at the system level, or is simply just 'displaced' from one location within a system to another. TAG Unit A2.1 states (CD16.10):

"Key to any assessment of wider economic impacts is displacement. As mentioned in section 2, transport investment may induce a relocation (displacement) of economic activity such that an economic impact in one local area is at the expense of another" (Para 3.6.1)

6.3. Measuring displacement is particularly important in transport interventions and essential to accurately identifying a socioeconomic benefit-cost profile for a scheme.

6.4. As far as I have been able to identify, no assessment of displacement has been conducted. The original Halcrow economic assessment (CD16.06), submitted alongside the 2012 Environment Statement (CD6.02), states:

"Displacement and leakage have not been calculated as part of this assessment" (p.56)

6.5. TAG Unit A2.1 (CD16.10) provides guidance on how to treat this situation:

"With respect to supply-side effects of non-transport factors of production, the default assumption is 100% displacement; this applies for all types of economic modelling. The onus is on the scheme promoter to present credible evidence that the particular transport investment will affect a non-transport factor of production." (Para 3.6.4)

- 6.6. Best practice in this context is to assume 100% displacement. **In other words, there will be no net additional economic benefits attributable to the wider economy of this intervention.**

There are six main domains of economic impact assessment

- 6.7. In my experience, the overall benefit-cost profile of an aviation sector intervention will be a product of the net change in the following impact domains, all of which have accepted, and straightforward, monetisation methodologies for inclusion in the economic benefit-cost assessment:

- A. Climate (greenhouse gas) impacts
- B. Noise impacts
- C. Air quality impacts
- D. Tourism impacts
- E. Business impacts
- F. Jobs impacts

- 6.8. These impacts can be considered at different scales. TAG appraisal guidance advises assessing interventions at a large enough scale so as to capture all material changes resulting from the intervention proposed. Unit A2.1 (CD16.10) states:

“In order to estimate the complete extent of additionality, scheme promoters should consider a large enough geographical area to capture fully the behavioural responses of households and firms at the national level” (Para 3.6.5)

- 6.9. Where possible, assessments should also consider macro-economic impacts, such as on prices, GDP or GVA, trade balances, and currencies. The DfT, in its TAG guidance on aviation (CD16.11), encourages the calculation of ‘consumer surplus’, a measure of the public benefit resulting from changes in prices.

- 6.10. However, some consideration should be given to the scale of the proposed intervention, and what might be considered a ‘reasonable’ level of assessment rigour.

- 6.11. Given that the proposed intervention is of relatively modest size when viewed in comparison with other recent airport expansion applications, a full TAG-compliant

assessment may be disproportionate. **However, I would expect to see commentary and basic economic analysis under all of the aforementioned impact domains within the socioeconomic assessment. Such analysis is entirely absent.** A number of the relevant assessment techniques would be relatively straightforward to apply, requiring only a day or two of an appropriately qualified consultant's time.

7. Tourism impacts

- 7.1. Since 2011 the UK's Tourism Strategy (CD16.05) has had a clear position in favour of incentivising uptake of domestic tourism over international destinations by UK residents.

"There will be big variations from year to year but, over time, our goal should be to persuade more of us to holiday at home." (p.16)

- 7.2. In addition, the DCMS 2011 Tourism Strategy (CD16.05) explicitly states a desire to balance the proportion of inbound and outbound international tourists.⁶

"we must create an underlying trend of rebalancing this area of the visitor economy. [...] In measurable terms we should increase the proportion of UK residents who holiday in the UK to match those who holiday abroad each year" (p.16)

- 7.3. This sentiment is matched in more recent government policy documents. The UK Government's 2021 Tourism Recovery Plan⁷ (CD16.12) has a key focus on improving the competitiveness of domestic tourism against outbound international tourism, stating its objective:

"[...]various restrictions on overseas travel remain in place even now. The UK government wants to embrace this opportunity by boosting domestic demand, making domestic stays attractive and marketing the UK's assets [...]"

Whilst the outbound travel market will thankfully return as people start to book their holidays overseas, the government also wants to embed domestic travel as a sustained customer behaviour – ensuring not only that people enjoy the Great British Summer in 2021 but that people who take domestic trips across the UK this year do so again and again in years to come" (p.33)

- 7.4. The proposed development will run counter to these aims. The opening up of more airport capacity can be expected to reduce ticket prices, thereby increasing the incentive

⁶ DCMS (2011) Government Tourism Policy. Department for Culture, Media, and Sport

⁷ DCMS (2021) The Tourism Recovery Plan. Department for Digital, Culture, Media & Sport.

for leisure travellers to fly, and take their holidays, internationally rather than domestically.

- 7.5. There is a broad body of academic research evidencing that domestic and international tourism are substitutes.

Table 1: Academic evidence on the substitution of domestic and international tourism.

Reference	Key quote
Davison, L. & Ryley, T. (2016). An examination of the role of domestic destinations in satisfying holiday demands. <i>Journal of Transport Geography</i> , 51, 77–84. https://doi.org/https://doi.org/10.1016/j.jtrangeo.2015.11.007	<i>“This research reinforces the findings of Scott and Becken (2010), that international destinations can be substituted with domestic choices based on holiday activities”</i>
Lu, H. and Rohr, C. (2021) Factors influencing domestic tourism in the UK and abroad and the role of publicly funded domestic tourism marketing. Phase 2 scoping report. RAND Europe for DCMS. https://www.gov.uk/government/publications/domestic-tourism-rapid-evidence-assessment	<i>“we found that international tourism can influence demand for domestic tourism (for example, as a potential substitute)”</i>
Eugenio-Martin, J. L., & Campos-Soria, J. A. (2011). Income and the substitution pattern between domestic and international tourism demand. <i>Applied Economics</i> , 43(20), 2519–2531. https://doi.org/10.1080/00036840903299698	<i>“Overall, it seems that domestic tourism and international tourism are substitutes”</i>
Mohammed, I. (2019). Estimating Tourism Import Demand Elasticities for Four Countries Using the General-to-specific Approach. <i>Journal of Applied Business and Economics</i> , 21(3). https://doi.org/10.33423/jabe.v21i3.2081	<i>“outbound tourism may be regarded as a close substitute for the domestic tourism industry”</i>
Athanasopoulos, G., Deng, M., Li, G., & Song, H. (2014). Modelling substitution between domestic and outbound tourism in Australia: A system-of-equations approach. <i>Tourism Management</i> , 45, 159–170. https://doi.org/https://doi.org/10.1016/j.tourman.2014.03.018	<i>“The empirical results reveal significant substitution relationships between Australian domestic tourism and outbound travel to Asia, the UK and the US.”</i>
Massidda, C., & Etzo, I. (2012). The determinants of Italian domestic tourism: A panel data analysis. <i>Tourism Management</i> ,	<i>“Additionally it appears that, for Italian tourists, domestic and</i>

33(3), 603–610. https://doi.org/https://doi.org/10.1016/j.tourman.2011.06.017	<i>international destinations behave as substitutable goods</i>
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7.6. In response to this criticism, the aviation industry and in this case the Council officers, cite a sentence in the Aviation Policy Framework 2013 (CD8.05):

“the evidence available to us does not show that a decrease in the number of UK residents flying abroad for their holidays would have an overall benefit for the UK economy” (p.19)

7.7. The first and most obvious point here is that nobody is proposing a “decrease in the number of UK residents flying abroad”. This application is about expansion of capacity, in a context where restricted capacity is the standard and accepted policy baseline.

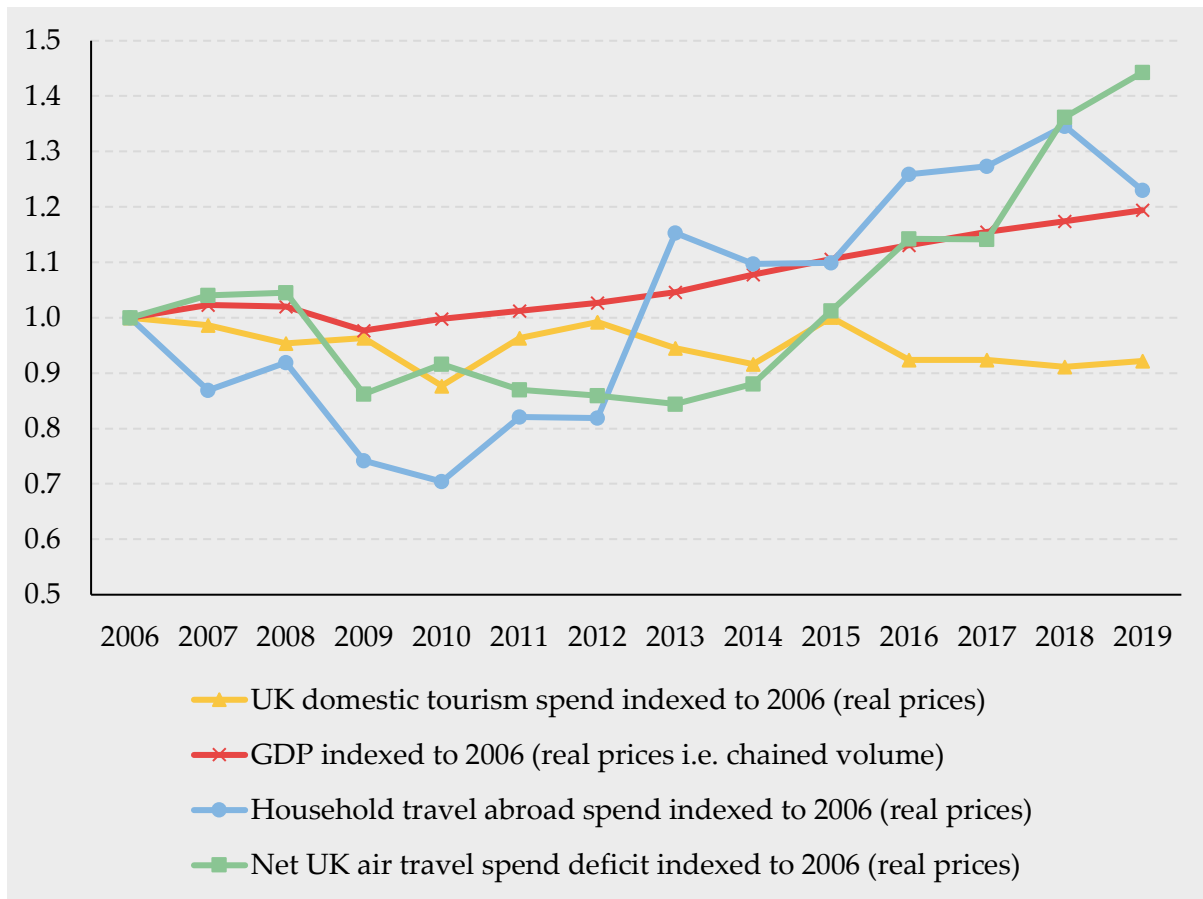
7.8. The second is that this statement refers to the UK economy in its entirety not to the specific impact of a change at a single airport, in a particular locality (i.e. Luton Airport and the surrounding areas). At Luton airport, capacity expansion will be notably and disproportionately damaging when it comes to its impact on domestic tourism.

7.9. The third, is that the 2013 APF statement refers to a limited evidence pool reviewed in 2012. The context has changed dramatically in the intervening period. As shown in the figure below (Figure 1), in 2012 domestic tourism growth was broadly tracking GDP growth, and both spending on travel abroad and the travel spending deficit were tracking well below GDP growth.

7.10. Between 2012 and 2015 the situation changed dramatically. Domestic tourism stagnated, and began shrinking in size relative to the wider economy. Spending on international travel surged ahead of GDP growth, and so did the travel spending deficit.

7.11. Note that in Figure 1 the trend in the health of the domestic tourism is opposite to the trend in net international travel spend, i.e. the when we increase the amount of money we send abroad via international travel (net inclusive of inbound international spending), we weaken the domestic tourism sector.

Figure 1: Four economic indicators shown in real prices indexed to 2006



Source: VisitBritain Great Britain Tourism Survey, ONS (Travel Trends, UK Economic Accounts Time Series), ONS (Family Spending Workbook, inclusive of international air fares, international package holidays, and money spent abroad)

7.12. In 2019, the travel spending deficit amounted to £34bn, of which £30bn was associated with air travel.⁸ As it stands, outside of crisis times, the UK's travel spending deficit is equivalent in size to around 15% of the UK's current account deficit (i.e. the net deficit in incoming and outgoing expenditure from the UK economy).⁹

7.13. Years of past experience have shown that increases in UK airport capacity lead to proportionately greater levels of travel from UK residents compared to international

⁸ This data is available in the ONS data series titled "Travel trends estimates: overseas residents in the UK and UK residents abroad" available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/leisureandtourism/datasets/travelandtoursism>

⁹ This data is available in the ONS data series titled "Balance of payments time series" available at:

<https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/balanceofpayments>

visitors. This results in increases in the UK's travel spending and hence current account deficits. As shown in the figure above, these have been surging since 2014.

7.14. In the first quarter of 2022 the UK's current account hit a new low. The Financial Times (CD16.04) referred to this as its *"worst level since records began"* also saying *"The gaping current account deficit largely reflects a record imbalance of imports and exports. However, there were also deficits in investment income and transfers of money between countries"*. Travel spending is variably framed as the 'import of tourism' or 'transfers of money between countries', in either case, worsening the UK's position, weakening its currency, and leaving the country more vulnerable to shocks and economic crises.

8. Economic implications of climate impacts

- 8.1. Greenhouse gas emissions always have economic implications. Irrespective of whether emissions made are in keeping with, or out of line with, the UK's legislated climate targets, all un-mitigated emissions will result in economic damages.
- 8.2. Emissions made without mitigating measures imply future economic damage resulting from deeper and faster climate changes, such as flooding and heatwaves. Mitigating measures themselves also have a cost, borne by someone in society. Examples include the costs of capturing carbon via natural or engineered processes.
- 8.3. Current government policy, as set out in the *Jet Zero Strategy* (CD11.19), proposes very heavy reliance on forms of carbon capture in order to align aviation sector emissions with national targets. The Strategy states:

"The Government has committed £1 billion in investment to develop four Carbon Capture, Usage and Storage clusters by 2030 capturing 20-30MtCO₂ per year across the economy by 2030 to help meet the UK's 2050 net zero target" (p.72)

- 8.4. It is important to note that the £1bn cost cited does not relate to the operation of these plants, which will come at significant additional cost (likely multiple billions per year).
- 8.5. In order to be able to achieve a net zero carbon aviation sector, the *Jet Zero Strategy* (CD11.19) implies (p.60) a need to capture 19.3MTCO₂ per year in 2050. The future costs of carbon capture are uncertain, but current estimates suggest this would lead to a cost of multiple billions of pounds.
- 8.6. The reliance on carbon capture exposes the government to economic costs. These costs are material to the government's finances, and are clearly recognised by the Office for Budget Responsibility in its 2021 Fiscal Risks Report. The report estimates the whole economy costs of carbon removals at £101bn over the period to 2050, in 2019 prices, of which 64% will be borne by the public sector. See Appendix 2 – extract from OBR 2021 Fiscal Risks Report
- 8.7. (page 44). This indicative scenario implies the government spending £2.5bn per year on removals. A large proportion of this, potentially the majority, relates to the need to offset aviation emissions.
- 8.8. In reality, these figures will vary according to how government regulates carbon removal costs. At present, no official mechanism for passing these costs onto businesses

exists. It is conceivable that some of these costs will be met through the UK Emissions Trading Scheme Revenues (UK ETS), but at present the main function of the UK ETS is to incentivise emissions reductions, not to fund carbon capture. Besides this, non-CO2 emissions are not covered by the UK ETS, nor are non-European Economic Area aviation-related carbon emissions.

Treatment of non-CO2 emissions

- 8.9. The government does not presently have a strategy to reduce non-CO2 greenhouse gas emission from aviation (please refer to the evidence of Cait Hewitt for more information on this issue).
- 8.10. While there are some uncertainties around the precise magnitude and dynamics of non-CO2 impacts, there is very strong scientific evidence that these impacts are not zero and the balance of probability suggests they are in fact significantly larger than the impacts on the climate of CO2 alone.
- 8.11. Entirely ignoring non-CO2 on the basis of a degree of uncertainty, as the applicant has, is both a dangerous position to take, and one which is misaligned with government policy on environmental impacts.
- 8.12. The Environment Act 2021 (CD11.46) establishes in law the government's commitment to the precautionary principle.
- 8.13. According to the government the precautionary principle can be described as follows (CD11.47):

"The precautionary principle states that where there are threats of serious or irreversible environmental damage, a lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation"

- 8.14. According to the government's recent Draft Environmental Principles Policy Statement (CD11.45), which is soon expected to pass into law, the following protocol should be applied where uncertainty is faced:

"In applying the principle, the policymaker needs to make a reasonable assessment, using the best available scientific evidence, of the risk. Risk in this case should be understood as a combination of the likelihood of the environmental damage occurring and its severity."

- 8.15. I consider the likelihood of damage from non-CO2 impacts to be very high and the severity to be very high. Furthermore, I consider that neither government, nor the applicant, has any tangible policies in place to mitigate this impact. As such, in my following analysis of the economic implications of climate impacts I apply a multiplier of three to the economic costs arising from CO2 impacts to account for non-CO2 impacts.
- 8.16. The use of such multipliers is endorsed by BEIS in its latest guidance document *2021 Government Greenhouse Gas Conversion Factors for Company Reporting* (Appendix 3 – extract from BEIS 2021 conversion factors
- 8.17. , page 45). BEIS recommend a multiplier of 1.9, this multiplier was based on academic evidence in relation to the size of the net impact of non-CO2 emissions on the climate which is now out-dated. The multiplier I use derives from the latest scientific research in the area of non-CO2 impacts. For further details please refer to the proof of evidence of Cait Hewitt.

The cost of greenhouse gas emissions

- 8.18. Government has a standard approach to putting an economic value on greenhouse gas emissions. This is set out in the BEIS publication *Valuation of Energy Use and Greenhouse Gas*, published in 2021 (CD16.13). This guidance is cited in TAG Unit A5.2 (CD16.11), paragraph 3.3.3 as the best practice approach for aviation appraisal. This methodology helps decision makers arrive at the ‘emissions cost’ of the proposed expansion.
- 8.19. Calculation of the ‘emissions cost’ of the proposed expansion is entirely distinct from the process of including carbon prices in aviation forecasts.
- 8.20. In relation to this, in my opinion, the inspectors made a key error in the Bristol Airport judgement (CD15.05). The Inspectors stated:
- “Having considered these submissions the Panel considers that the inclusion of carbon values in the CBA would result in an element of double counting.” (Para 463)*
- 8.21. A correctly performed emissions costing calculation does not ‘double count’ emissions impacts. There are two distinct processes at play:

- A. The process of including carbon prices in forecasts. This is done in order to check that even if a *theoretical* higher carbon price emerges at a future date, there will still be sufficient demand to justify the expansion.
- B. The process of calculating emissions costs captures three data points: (i) the total value of resulting emissions; (ii) the cost of emissions which are effectively ‘paid for’ by the industry through actual emissions taxation policies already in place; (iii) the cost of emissions which are not presently paid for because no policy vehicle exists.

8.22. If the analysis is conducted correctly and transparently by a competent analyst, there is no danger of double counting emissions in both the forecasts and the scheme economic costs. BEIS guidance (see Appendix 4 – extract from BEIS policy paper

8.23. , page 46) clearly addresses the need to present traded and non-traded carbon values.

8.24. I have estimated the emissions costs of this project. Emissions forecasts are set out by the applicant on page 35 of the 2022 Environmental Statement Addendum (CD1.16).

Using linear interpolation between the data points provided, I have calculated the total emissions of the scheme, as shown in the table below (Table 2). To add context to these numbers, I have shown the equivalent number of UK residents these emissions equate to, using the World Bank’s estimate that the average UK resident emits 5.2 tonnes of CO2 per year in 2020.¹⁰

Table 2: Greenhouse gas emissions associated with the proposed scheme

	CO2 tonnes	CO2 and Non-CO2 tonnes	Equivalent number of UK residents’ annual emissions in 2020
Annual average 2023-2050	61,000	183,000	35,211
Total 2023-2050	1,709,000	5,127,000	985,000

Source: My analysis of Applicant’s 2021 Environmental Impact Assessment

¹⁰ World Bank Data available at:

<https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=GB>

8.25. The applicant's emissions forecasts do not include non-CO2 impacts. Given that these impacts may be sufficient to triple the climate impact of aviation, this is dangerous.

8.26. I have calculated the emissions resulting from the scheme over the period 2023-2050 and their monetary value according to the BEIS methodology.

8.27. A reasonable estimate of the non-CO2 impact should be included. I have utilised a three times multiplier, as indicated by the most recent research into non-CO2 impacts.

8.28. Under current policy, I estimate that only around 26.1% of this emissions cost will actually be 'paid for' by industry through current emissions taxation policy. The full methodology for this calculation is set out in the NEF blog *The £62bn carbon giveaway*.¹¹ The majority of the unpaid costs relate to:

A. Flights to international destinations not covered by the UK Emissions Trading Scheme and therefore not subject to any emissions tax or 'polluter pays' policies (CORSIA, as currently designed, will apply no cost to UK departing flights – see proof of evidence of Cait Hewitt).

B. Non-CO2 impacts, none of which are captured by any form of emissions tax or 'polluter pays' policies. I have assumed that non-CO2 have an equivalent magnitude double that of CO2 (i.e. total climate impact is calculated using a three times multiplier).

8.29. I estimate that over the period in question (2023-2050) the scheme will result in CO2 and non-CO2 emissions with a value (using BEIS central carbon values) of £1.6bn, which falls to £566m when discounting is applied according to the Green Book methodology. Of this figure, under current policy, £418m would not be paid for by the industry and therefore would fall on wider society.

8.30. It is important to note that these calculations are based on current government emissions taxation and emissions valuation policy. There is a high likelihood that such policy will change in future years. For example, the recent 2022 BEIS consultation on the UK Emissions Trading Scheme requested initial views on whether, and how, the UK government might include aviation's non-CO2 impacts in its emissions taxation

¹¹ The £62bn carbon giveaway. New Economics Foundation. Available at : <https://neweconomics.org/2022/01/the-62bn-carbon-giveaway>

mechanism (the ETS). See page 80 of *Developing the UK Emissions Trading Scheme (UK ETS) 2022*.

Table 3: Economic costs and values associated with CO2 and non-CO2 emissions resulting from the proposed scheme

	CO2 value	Total CO2 and non-CO2 value	CO2 discounted value	Total CO2 and Non-CO2 discounted value	Total discounted value paid by industry	Total discounted value not paid by industry
Annual average 2023-2050	£18.6m	£55.7m	£6.5m	£19.5m	£5.1m	£14.4m
Total 2023-2050	£538.6m	£1615.8m	£188.6m	£565.7m	£147.7m	£418.1m

Source: My analysis of the applicant's emissions figures following BEIS carbon valuation guidance.

8.31. The emissions cost implications of the scheme are very large. Government policy does not mandate that these costs be ignored. At no point does the Government's *Making Best Use of Existing Runways Policy* (CD8.09) mandate local authorities or other decision makers to ignore climate costs when calculating the planning balance of an airport expansion application. Decision makers are specifically required to take account of "*all relevant considerations, particularly economic and environmental impacts*" (para 1.29).

8.32. Under current government taxation policy, a very significant portion of the environmental damages resulting from this scheme, with clear, significant, and easily monetisable value will be levied on wider society. To justify this cost there must be substantial, well evidenced, economic benefits accruing from the proposed scheme, which are sufficient in magnitude to comfortably outweigh all economic and environmental costs. In my opinion no such benefit has been presented, nor will it be possible to evidence.

9. Jobs impact

- 9.1. The Council Officers' Report (CD5.08) states: *"the extra 1mppa passengers would be able to be absorbed into the existing system without any significant material impacts in terms of employment"* (Para 169). This is now at odds with the applicant's Statement of Case which claims the application will create 900 jobs. No reference or methodology is provided for this claim.
- 9.2. The Council Officers' Report does however state: *"However, the benefits from the additional passengers would be important since it would support airport staff as well as the wider area. It would also safeguard and sustain the continued commercial viability of the airport and, therefore by extension, safeguard and sustain existing jobs"* (para 1.69) The implication of this appears to be that without this expansion there will be a credible threat to the overall commercial viability of the airport.
- 9.3. In other words, what is proposed by the Council's officers is that, in order to sustain the current level of (claimed) employment benefit derived from the airport, an increased level of negative environmental impact must be accepted. The obvious extrapolation is that, over time, endless expansion be required simply to sustain current job levels at the airport. This is clearly unsustainable.
- 9.4. The 2012 economic assessment (CD6.02) does not still stand. In fact, the situation has deteriorated, such that more environmental damage (noise, air quality and greenhouse gas emissions) are now required to deliver the same level of jobs benefit.

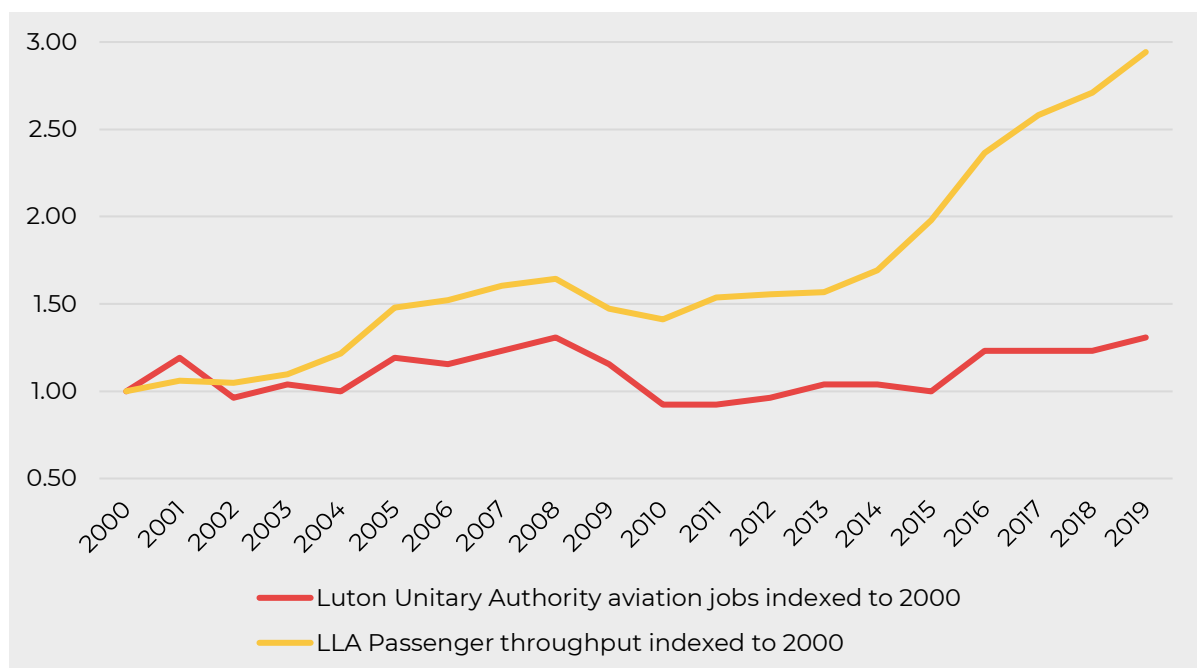
Accuracy of employment growth claims

- 9.5. The applicant's 2012 ES economic assessment (CD6.02) was underpinned by an economic impact report by Halcrow (CD16.06). This report projected the employment contribution of the airport with and without its expansion to 17.8mppa. At the time the passenger capacity was expected to be hit in 2028, in reality it was reached and exceeded much sooner. Passenger throughput in 2019, according to the Civil Aviation Authority, was around 18.2mppa. We can therefore compare data from 2019 with Halcrow's forecasts to assess the performance of the previous scheme in terms of job creation, and the accuracy of the 2012 ES forecasts.

- 9.6. Halcrow stated that in the ‘with development’ scenario, their “medium” (central) forecast for direct employment associated with Luton airport was 13,350, with a range from 10,100 to 17,450 (p.53).
- 9.7. Associated with the planned application by Luton Rising for development consent for further expansion of the airport is an assessment of the employment footprint of the airport in 2019 (CD16.02). This assessment, conducted by Oxford Economics concludes that the airport was supporting 10,900 direct jobs in 2019, this represents 2,450 fewer jobs than projected by Halcrow in 2012. This forecast is closest to Halcrow’s lower end estimate of employment creation (especially when we consider that the passenger throughput was actually higher in 2019 than Halcrow expected in 2028).
- 9.8. Halcrow also forecast the number of direct jobs associated with the airport in 2028 if it did not expand, and therefore had capacity limited to 12.4mppa. Their central estimate was 11,050 jobs (p.52), more jobs than the airport produced in 2019 with 18.2mppa. Halcrow’s central forecast was clearly a considerable overestimate of the airport’s direct jobs footprint.
- 9.9. Oxford Economics (CD16.02) propose a reason for this gap stating:
- “All else equal we would expect the 2019 approach to result in lower estimates of employment than the approach followed by Halcrow for two reasons. Firstly, the IDBR datasets enable us to focus on a smaller geographical area than the LSOAs in the BRES data available to Halcrow. And secondly, the IDBR data enabled us to consider whether individual businesses should be regarded as integral to the operation of the airport, whereas the Halcrow estimates could only determine this based on the amount of employment within certain industry (SIC) groupings”* (p.14)
- 9.10. Irrespective of the precise explanation for this gap, the 2012 economic assessment significantly overestimated the job creation potential of the airport. This underscores two factors:
- A. The economic analysis undertaken for the 2012 Environmental Statement is not fit for purposes.
 - B. The claims made around job creation related to airport expansion should be treated with extreme caution.

9.11. Furthermore, I have conducted my own analysis specifically on the production of jobs linked to aviation within the Unitary Authority of Luton. As shown in the figure below, at least within the Luton Borough, there was a significant decline in aviation-linked jobs between 2008-2010. In addition, aviation-linked jobs have plateaued in recent years, and job numbers have shown little response to recent growth in passenger numbers at the airport.

Figure 2: Total employment in the Luton Unitary Authority under the BRES survey codes: “Air Transport”, “Supporting and auxiliary transport activities”, “Warehousing and support activities for transportation”, and “Travel agency, tour operator and other reservation service and related activities” indexed to the year 2000.



Source: BRES Survey (Nomisweb) and CAA. Note changes in the SIC code system for industry classification made in 2007 are controlled for.

9.12. These results do not take account of redundancies and efficiencies implemented during the Covid-19 pandemic. While this is an emerging situation, we know that aviation sector businesses have used previous crises to shed workers and accelerate efficiencies. We also know that significant redundancies and/or workforce shrinkage took place during the period 2020-2022.

9.13. EasyJet’s annual accounts suggest the company as a whole shed 2,000 workers over the between 2019 and 2021 (CD16.09). Papers from the London Luton Consultative

Committee show that direct employment by the airport was down by 206 (around 24%), when comparing May 2019 with May 2022 (CD16.08). If historic trends are replicated, job numbers will not return to pre-pandemic levels, irrespective of the level of passenger growth seen.

9.14. Academic research also provides evidence that questions whether air transport growth drives employment. As shown below, the research broadly suggests that air transport is an important driver of employment in remote/peripheral regions of Europe, and in tourism hotspots such as the south of France and Spain.

9.15. There is minimal evidence of air travel as a driver of employment growth in the UK's core regions. The figure below from Vijver et al. (CD16.14) shows the authors find no causality between aviation growth and employment growth in the regions surrounding Luton Airport.¹²

9.16. An explanation for this is offered by Allroggen and Malina (CD16.01)¹³ as follows:

“Although leisure flights create private benefits, they do not foster connectivity through air services, which cater to business travelers. On the contrary, additional leisure-related air services might actually weaken a regional economy by diverting expenditures away.”

¹² Vijver, E. Van de, Derudder, B., & Witlox, F. (2016). Air Passenger Transport and Regional Development: Cause and Effect in Europe. *Promet – Traffic & Transportation*, 28.

¹³ Allroggen, F., & Malina, R. (2014). Do the regional growth effects of air transport differ among airports? *Journal of Air Transport Management*, 37, 1–4.



Figure 1 – The different causality relationships between passenger volume and total employment among the 112 NUTS2 European regions

9.17. What this shows is that growth in air travel, and indeed growth in jobs specifically in the aviation sector, does not necessarily deliver aggregate jobs growth at the regional level. Displacement must be considered. Expansion of a leisure-travel airport might simply redistribute jobs from other leisure industries to the airport, and to overseas destinations.

9.18. This reality is implicitly accepted by Oxford Economics in their 2021 report (CD16.02) which states:

“The economic impact results in this report are presented on a gross basis. That is, we estimate and forecast the economic contribution of London Luton Airport, but we do not make any assessment of the extent to which the contribution identified will be additional to what would have occurred in the absence of its future development.” (p.7)

- 9.19. In other words, even the Airport's recent economic impact report does not claim that the airport's expansion will have net positive impacts on jobs and economic growth in the region.

10. Wider economic and business impacts

- 10.1. Civil Aviation Authority Passenger Surveys suggest that between 2006 and 2019 the proportion of passengers flying for business purposes at Luton airport fell from 20.5% to 12.6%. Today, the airport's primary function is as a leisure travel airport.
- 10.2. In absolute terms, business passenger numbers at Luton rose by around 360,000 over the period 2006 to 2019. But this did not represent a net rise in UK business passengers. At the London airport system level, business passenger numbers fell by around 1 million, suggesting that the trends reported in fact represent a redistribution of business passengers, rather than the creation of new or additional demand.
- 10.3. The lack of aggregate business passenger growth is notable given that over the same period in the UK, productivity per worker rose by 6.5% and GDP rose by 19.4% (chained volume measure). Overall passenger numbers in the London system rose by 34%, explained by fulfilment of leisure passenger demand. Other datasets also suggest the UK's overall air connectivity rose significantly over the period. The IATA report a 51% increase in UK air connectivity between 2009 and 2019.¹⁴ Yet business passenger numbers did not grow at all.
- 10.4. Economic growth and business passenger growth have disconnected.

Table 4: Business passenger numbers in the London Airport system in 2006 and 2019

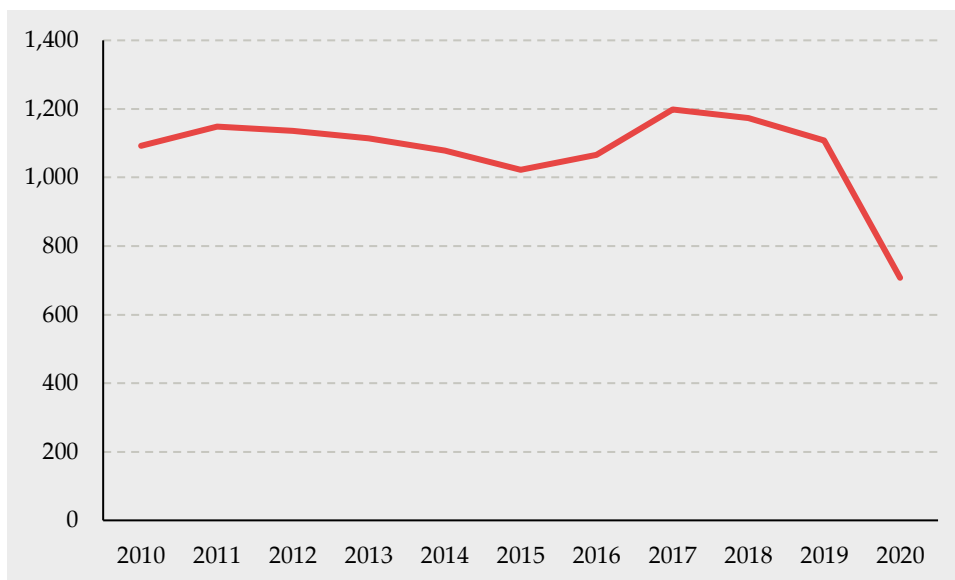
	2006			2019			Bus. change ('000s)	Total change ('000s)
	Bus. Pass. ('000s)	Bus. %	Total pass. ('000s)	Bus. Pass. ('000s)	Bus. %	Total pass. ('000s)		
Gatwick	4,676	15.8	29,566	6,277	15.4	40,836	1,601	11,270
Heathrow	17,521	39.6	44,231	13,958	26.1	53,421	-3,563	9,190
London City	1,474	63.6	2,316	2,294	46.0	4,983	820	2,667

¹⁴ IATA (2020) Air Connectivity: Measuring the connections that drive economic growth. International Air Transport Association.

Luton	1,834	20.5	8,941	2,193	12.6	17,363	359	8,422
Stansted	3,900	18.3	21,272	3,610	13.8	26,256	-290	4,984
London system	29,405	27.7	106,326	28,332	19.8	142,858	-1,073	36,532

10.5. Despite considerable growth in air traffic and passenger volumes, it is also notable that there has been zero growth in total air freight volumes since 2007.

Figure 3: Air cargo uplifted (freight and mail) in thousand tonnes



Source: Department for Transport Aviation Statistical dataset

10.6. The aviation sector propagates a message that expansion of air travel is overwhelmingly, and unquestionably, good for the UK economy. My view is that this may have been true two decades ago, when the UK was less connected, less developed, and more reliant on physical interaction, but it is highly unlikely to be true now.

10.7. My view is supported by a wide body of recent academic research. Below I highlight some recent papers which raise questions about the economic merit of expansion of aviation in already highly developed and connected economies. This is by no means an exhaustive review, but merely highlights that the position I put forward is supported, and a blind presumption in favour of aviation's economic impact is not.

Table 5: Recent evidence on the economic merits of aviation growth in highly developed and well-connected economies

Reference	Key quote
Sobieralski, J. B. (2020). Transportation infrastructure and employment: Are all investments created equal? Research in Transportation Economics, July, 100927.	<i>“these results suggest that airport infrastructure improvements as a whole do not significantly impact employment”</i>
Arvin, M. B., Pradhan, R. P., & Norman, N. R. (2015). Transportation intensity, urbanization, economic growth, and CO2 emissions in the G-20 countries. Utilities Policy, 35, 50–66.	<i>“in the developed group [of countries] transportation intensity bears no causal relationship to economic growth in the short run (presumably because transportation intensity has reached a point of near saturation)”</i>
Allroggen, F., & Malina, R. (2014). Do the regional growth effects of air transport differ among airports? Journal of Air Transport Management, 37, 1–4.	<i>“additional leisure-related air services might actually weaken a regional economy by diverting expenditures away”</i>
Breidenbach, P. (2020). Ready for take-off? The economic effects of regional airport expansions in Germany. Regional Studies, 54(8), 1084–1097	<i>“there is no empirical evidence that the expansion of regional airports translates into regional growth”</i>
Sobieralski, J. B. (2020). Transportation infrastructure and employment: Are all investments created equal? Research in Transportation Economics, July, 100927.	<i>“these results suggest that airport infrastructure improvements as a whole do not significantly impact employment.”</i>
Lenaerts, B., Allroggen, F., & Malina, R. (2021). The economic impact of aviation: A review on the role of market access. Journal of Air Transport Management, 91, 102000	<i>“Overly localised impact assessments—specifically with a focus on major airports and cities—fail to incorporate the complete spatial distribution of economic outcomes; [...] As a result, existing studies are likely to overestimate the wider economic impact of aviation”</i>
Sheard, N. (2021). The network of US airports and its effects on employment. Journal of Regional Science, 61(3), 623–648.	<i>“expanding an airport will generally lead to an increase in local employment, which motivates local governments to invest in their own infrastructure. However, this will cause traffic and therefore employment elsewhere to decline or increase, which is relevant to the interests of the federal government but the local government is not motivated to consider.”</i>

Mukkala, K., & Tervo, H. (2013). Air Transportation and Regional Growth: Which Way Does the Causality Run? <i>Environment and Planning A: Economy and Space</i>, 45(6), 1508–1520	<i>“In core regions, the reverse is only true: airport activity does not cause growth, but regional growth causes airport activity.”</i>
Gherghina, Ș. C., Onofrei, M., Vintilă, G., & Armeanu, D. Ș. (2018). Empirical evidence from EU-28 countries on resilient transport infrastructure systems and sustainable economic growth. <i>Sustainability</i>, 10(8)	<i>“Likewise, investments in transport infrastructure positively influenced economic growth, apart from investments in airport infrastructure that negatively influenced GDPC [GDP per capita]”</i>

11. Conclusion

11.1. While signalling that the government is “*supportive of airports beyond Heathrow making best use of their existing runways*” the *Making Best Use of Existing Runways* policy (CD8.09) does not give an unconditional green light to airport expansion and development applications. Rather the policy states:

“proposals should be judged by the relevant planning authority, taking careful account of all relevant considerations, particularly economic and environmental impacts and proposed mitigations”

11.2. The conclusion I draw from this is that all relevant impacts, positive and negative, of the proposed development, socioeconomic and environmental, must be weighed together to establish a balance which endorses a decision.

11.3. This is supported by the general approach endorsed by other key government documents, including Environment Impact Assessment Regulation (2017). Regulation 18 (4b) of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (CD09.04) states that applicants must:

“include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment”

11.4. According with Regulation 4 (2a) this must include to:

“describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on [...] population and human health”

11.5. I do not consider the Applicant to have provided the necessary evidence with which to reach a balanced conclusion on the direct and indirect significant effects on the population. In addition the evidence presented by both the council and the applicant falls well short of best practice in aviation sector appraisal and therefore cannot be relied upon by decision makers.

11.6. For the avoidance of doubt, at no point in any policy, does the government sanction the ignoring, or otherwise erasing, of the negative climate change impacts of the scheme

from the assessment of planning balance. To the contrary, all policy and guidance points to the holistic assessment and weighing up of all material impacts.

- 11.7. Climate impacts weigh heavily against the scheme both on their own merit and separately within the remit of the economic assessment, due to the significant negative economic implications of this airport expansion's emissions. The fact that the government believes that there is a high risk (please see the proof of evidence of Cait Hewitt) decarbonisation pathway for the sector which includes airport expansion, does not change the fact that increases in emissions levels resulting from such expansions make the achieving of our carbon targets harder, and more costly.
- 11.8. From the evidence I have set out, drawn from an array of government sources and academic research publications, I conclude that the proposed scheme will lead to a material increase in the costs of mitigating climate change impacts. More modest negative monetised economic impacts will also arise from noise and air quality changes.
- 11.9. The economic impacts of the scheme on tourism will be negative as a result of the incentivisation of increased net outflows of tourists and associated spending from the UK.
- 11.10. Impacts in the domains of business and trade will be neutral as there is clear evidence of market maturity/saturation in both domains.
- 11.11. As regards to job creation, I am in agreement with the council that there will likely be no material impact on job numbers in the borough of Luton, nor in the wider region. While consultant analysis may lay claim to a modest growth in job numbers at the airport, consideration of displacement/additionality can be expected to neutralise any such rises. In other words, these jobs will simply be transferred from one location/industry to another - a point which I believe is backed by academic research covering the region in question and government appraisal guidance. Indeed, given the significant outbound tourism bias of the airport, and lack of any business benefit, I would be inclined towards suggesting the proposed application may have a negative overall jobs impact within the wider region.

11.12. Given the lack of any substantive economic benefit arising from the proposed scheme, the presence of material negative environmental impacts appears to point towards an overall negative socioeconomic balance, i.e. a benefit-cost ratio less than one.

11.13. In the unlikely event that material economic benefits do arise, it is improbable that they will be of sufficient magnitude to offset the significant negative economic implications of the scheme's environmental impacts, particularly when considering the considerable risk presented by the non-CO₂ impacts of aviation. Notwithstanding these considerations, I will defer to other expert witnesses on the overall planning balance of the proposed scheme.

Appendix 1 – extract from TAG unit A1.1

Screenshot of TAG Unit A1.1 page 1

1 Introduction

1.1 What is Cost-Benefit Analysis?

- 1.1.1 The Green Book [HMT, 2003] sets out best practice guidance on assessing and evaluating policies, programmes and projects and recommends that options should be appraised using cost-benefit analysis (CBA). The Green Book defines CBA as ‘analysis which quantifies in monetary terms as many of the costs and benefits of a proposal as feasible, including items for which the market does not provide a satisfactory measure of economic value.’
- 1.1.2 Therefore CBA entails presenting as many of the impacts of a scheme or option as possible in monetary terms, so that they can be compared in a common unit of measurement. Some valuations can be made using prices paid in markets and predictions of future prices, e.g. fuel prices. The valuation of some other impacts, for which markets do not provide prices, is derived from research, e.g. stated preference studies to derive values of time that are used to convert time saved into a monetary value.
- 1.1.3 It is currently infeasible or impractical to derive monetary values for some impacts. While these impacts will not form part of a monetised CBA, the Green Book recognises their importance and recommends that supplementary techniques should be used to weigh up non-monetised impacts – it does NOT recommend that consideration should be restricted to those impacts that can be valued in monetary terms. The Green Book notes that the most common technique used where there are unvalued costs and benefits is weighting and scoring, or multi-criteria analysis. In particular, multi-criteria analysis can handle circumstances where there are several different kinds of impacts that cannot readily be valued.
- 1.1.4 TAG Unit Families A2, A3 and A4 on Economic, Environmental and Social Impact Appraisal, provide guidance on qualitative and quantitative analysis of a range of impacts that can not be monetised but should be included in the Appraisal Summary Table (AST). Therefore, while CBA forms an important part of the transport appraisal, it is only one element of what is effectively a multi-criteria analysis. TAG Unit Family A5 on Uni-Modal Appraisal provides additional guidance on how the principles described here should be applied in specific contexts.
- 1.1.5 The benefits or disbenefits to transport users will usually be derived from a transport model. They should include all significant user costs and benefits, taking account of all significant traveller responses. Further guidance on modelling is given in the TAG Units in Unit Families M1-M5, while the derivation of monetised benefits/disbenefits is discussed in [TAG Unit A1.3 – User and Provider Impacts](#).

Appendix 2 – extract from OBR 2021 Fiscal Risks Report

Screen shot of Table 3.2, page 126 of the OBR 2021 Fiscal Risks Report

Table 3.2: The share of costs borne by public spending

	Whole economy cost/saving £ billion (2019 prices)	Public share of costs (per cent)									
		2020s			2030s			2040s			Total
		Low	Central	High	Low	Central	High	Low	Central	High	Central
Costs											
Vehicles											
Cars	213	11	11	20	3	3	13	3	3	3	6
Car infrastructure	35	20	29	70	20	20	60	20	20	50	21
Other vehicles	69	71	85	94	25	62	85	0	39	76	52
Other infrastructure	15	25	50	75	25	50	75	25	50	75	50
Total	332	16	18	28	11	21	38	6	18	33	19
Buildings											
Residential	254	7	44	65	7	44	82	7	44	89	44
Non-residential	142	28	43	47	27	42	53	25	43	59	42
Total	396	15	43	58	14	43	72	13	44	79	45
Power	481	4	7	10	0	5	10	0	5	10	6
Industry	46	24	54	89	21	42	77	19	31	66	38
Removals	101	85	89	93	69	75	81	50	59	67	64
Other	52	59	72	84	41	58	75	30	50	65	60
Total costs	1408	15	26	36	12	27	44	12	26	43	27
Savings											
Vehicles	-684	3	3	3	3	3	3	3	3	3	3
Buildings	-131	5	5	5	5	5	5	5	5	5	5
Other	-272	1	1	1	1	1	1	1	1	1	1
Total savings	-1086	2	2	2	3	3	3	3	3	3	3
Memo: Net cost (£ billion)	321	46	84	115	58	138	228	45	113	195	344

Appendix 3 – extract from BEIS 2021 conversion factors

Screenshot of page 89 of BEIS 2021 Government Greenhouse Gas Conversion Factors for Company Reporting

Indirect effects of non-CO₂ emissions

- 8.37. The conversion factors provided in the 2021 GHG Conversion factors “Business travel – air” and “Freighting goods” worksheets refer to aviation's direct CO₂, CH₄ and N₂O emissions only. There is currently uncertainty over the other non-CO₂ climate change effects of aviation (including water vapour, contrails, NO_x, etc.) which have been indicatively accounted for by applying a multiplier in some cases.
- 8.38. Currently there is no suitable climate metric to express the relationship between emissions and climate warming effects from aviation, but this is an active area of research. Nonetheless, aviation imposes other effects on the climate which are greater than that implied from simply considering its CO₂ emissions alone.
- 8.39. The application of a ‘multiplier’ to take account of non-CO₂ effects is a possible way of illustratively taking account of the full climate impact of aviation. A multiplier is not a straightforward instrument, in particular it implies that other emissions and effects are directly linked to production of CO₂, which is not the case. Nor does it reflect accurately the different relative contribution of emissions to climate change over time or reflect the potential trade-offs between the warming and cooling effects of different emissions.
- 8.40. On the other hand, consideration of the non-CO₂ climate change effects of aviation can be important in some cases, and there is currently no better way of taking these effects into account. A multiplier of 1.9 is recommended as a central estimate, based on the best available scientific evidence, as summarised in Table 46 and the GWP₁₀₀ figure (consistent with UNFCCC reporting convention)

Appendix 4 – extract from BEIS policy paper

Screenshot of the BEIS Policy paper [online] Valuation of greenhouse gas emissions: for policy appraisal and evaluation. Available at: <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

Traded and non-traded carbon

Traded emissions capture those that come from installations covered by the [UK Emissions Trading Scheme](#) (ETS), whereas non-traded emissions are those which do not fall within scope of the UK ETS.

Currently, the UK ETS covers power generation, energy-intensive industries, and domestic aviation. To achieve the economy-wide decarbonisation required to meet our net zero goals in a cost-effective way, it is important that our decarbonisation strategy gives equal weight to emissions from the traded and non-traded sectors.

The UK ETS caps the total level of greenhouse gas emissions within the sectors in scope and allows firms with low emissions to sell their emissions allowances to higher emitters.

Previously this trade could occur between the UK and other countries in the EU ETS and this was reflected in accounting towards the UK's emissions targets.

The UK ETS is an important mechanism to achieve the UK's climate goals. However, it is likely that additional measures in the sectors covered by the UK ETS will need to be taken to reach net zero. Therefore, any emissions increases or savings resulting from policies (either traded or non-traded) should be considered and valued during appraisal. For emissions in the traded sector, appropriate adjustments should be made to account for any existing carbon pricing in the market prices of goods or services. For example, if a policy increases the production of a good where the price of that good already reflects a carbon price then this needs to be taken into account in order to avoid double counting some of the carbon costs.

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