Air Travel Survey Report

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Introduction

Purpose of the report

This report has been written for One Planet Abingdon Climate Emergency Centre (OPACEC) and is focussed on educating those within Abingdon, and in the wider UK, about the issues and challenges surrounding air travel. It aims to offer a comprehensive description of aviation's environmental and social impacts, and evaluate strategies to reduce use of air travel. Findings from a survey designed to gauge public perceptions of air travel are integrated into its content. Overall, we hope to raise public awareness about the environmental impacts of air travel and advocate the need for more sustainable aviation practices and reduced demand by those who are able. The report finds that individual behaviour change is crucial if the aviation industry is to reach net zero in the next few decades, which could be incentivised through government regulation, taxes and education.

Issues with decarbonising air travel

Aviation has contributed about 4% of anthropogenic-induced global warming to date (Klöwer et al., 2021). Without significant changes, this share is likely to grow as demand for air travel continues to increase (Gössling and Humpe, 2020). These impacts are particularly concerning due to the high inequality in access to air travel: only 11% of the world's population flew in 2018 (Gössling and Humpe, 2020). Even within high income countries, this inequality persists- in the UK, for example, only 15% of the population take 70% of the flights (Harrabin, 2021). Globally, it is estimated that the most frequent fliers (1% of global population) are responsible for 50% of aviation's emissions (Gössling and Humpe, 2020). Although the potentially devastating climatic impacts of aviation are attributable to the actions of a small minority, they have a widespread global impact and often disproportionality affect the lowest income countries.

Currently, it is difficult to reduce this environmental impact for both technological and regulatory reasons. Some aviation in the UK is exempt from VAT and fuel duties (Environmental Audit Committee, 2023), which drives cheap prices and high demand. Additionally, current climate agreements don't cover much of global aviation emissions (Gössling and Humpe, 2020) and it is hard to determine which governments should be held responsible for these. Technologically, the energy requirements of aircraft mean it is difficult to find viable alternative fuels. Although alternatives, like SAF, have been developed and fuels are becoming more efficient, these improvements are slower than the rising demand for aviation, meaning environmental impacts are still worsening (Zheng, Graver and Rutherford, 2019). Thus, the tax breaks and regulatory exemptions received by the aviation industry, issues with allocating responsibility for emissions, and technological constraints, are allowing the growth in air travel to outpace measures intended to reduce its environmental impact.

Data sources

To write this report, a variety of sources have been used. Facts and statistics have been gathered through consultation of academic literature and reports from governments and intergovernmental organisations. Additionally, responses from a recent OPACEC survey have been integrated within the report to garner public understanding of issues related to air travel and opinions on how these should be handled. The survey gained 48 responses, all of which were from residents within Oxfordshire, with most (91.7%) living in Abingdon. The split of responses by age group can be seen in Figure 1. Although the sample size of the survey was relatively small, and issues may have arisen over how questions were interpreted, the data is still useful as a supplementary tool for understanding public sentiment in Oxfordshire. It is recognised that the survey would likely have attracted responses from the most environmentally minded residents, who are more likely to hear about this survey and dedicate time to filling it out. Therefore, future research should consider opinions from a larger, and more varied sample, perhaps using random stratified sampling rather than volunteer sampling.

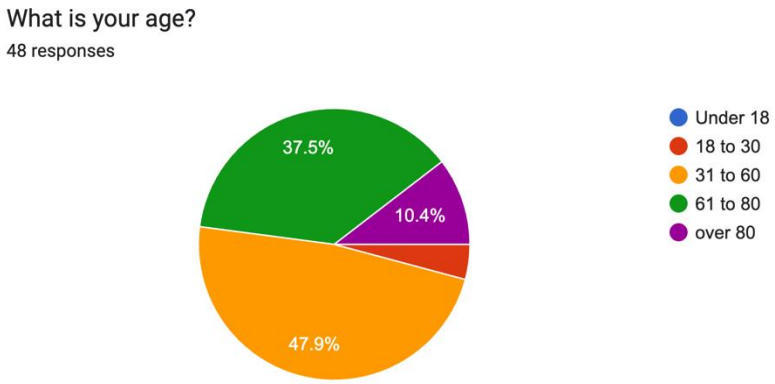


Figure 1: Percentage of survey respondents within each age group

Environmental impacts of air travel

Air travel contributes to climate change through more than just CO2 emissions, as other pollutants such as nitrogen oxides and water vapour also cause significant effects. It is also important that we do not just consider the climate impact of the aircraft itself, but also the airport infrastructure and operations needed to facilitate flying. Lee et al (2021) offer a good schematic showing the effects of aviation on the climate system, which can be seen in Figure 2.

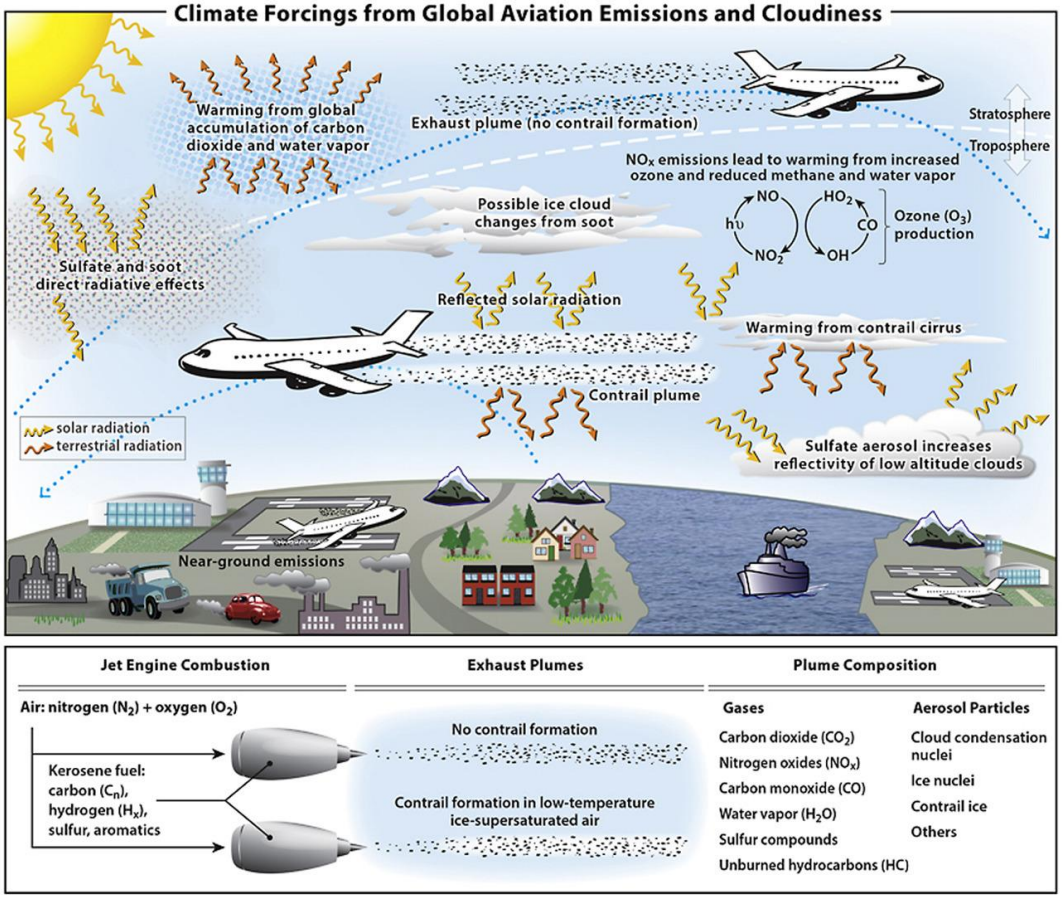


Figure 2: Schematic showing how emissions from aviation and increased cirrus cloudiness affect the climate (Lee et al, 2021).

The environmental impacts of air travel which this report focusses on are those which were asked about in OPACEC survey. These can be seen, alongside their associated levels of concern, in Figure 3. Results regarding general 'Pollution' will not be discussed due to uncertainty over how individuals interpreted this.

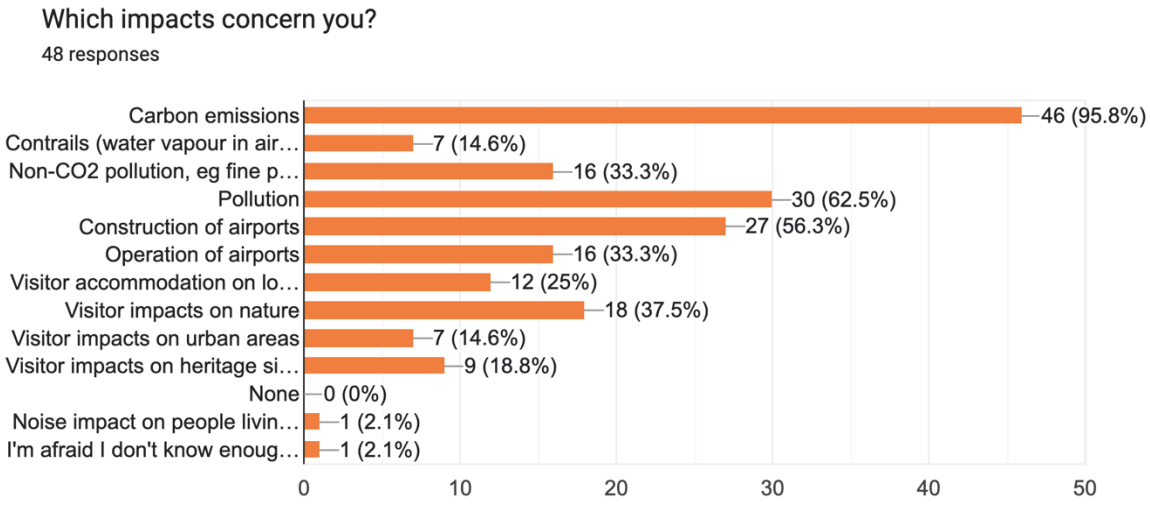


Figure 3: Responses to survey question on which impacts of air travel are of concern

Carbon emissions

The carbon emissions associated with air travel are usually the most well-known environmental impact, and indeed 95.8% of survey respondents were concerned about these (Figure 3). The CO2 emissions from aviation alone make up 2% of total anthropogenic carbon dioxide emissions (Blumenthal, 2010).

Contrails

Contrails are cloud-like streaks of condensed water vapour formed from aircraft exhaust (Sun and Olive, 2025). Compared to CO2, contrails were a much lower concern for survey respondents (14.6%) (Figure 3), likely due to limited public understanding about their formation and effects. Despite this general lack of knowledge about them, research indicates that contrails can have a significant impact, with some estimates saying they are responsible for 35% of aviation's impact on global warming (Sun and Olive, 2025). Blumenthal (2010) further suggests that limited scientific understanding of contrails may be leading to underestimations of aviation's total climatic impact. Additionally, contrails are hard to reduce as there is little economic incentive to do so, and rerouting flights to avoid the atmospheric conditions which lead to their formation may result in increased fuel consumption and emissions (Sun and Olive, 2025). Thus, it is crucial that future research and climate education addresses contrails to ensure complete and accurate understandings of aviation's' climatic impact.

Non-CO2 pollution

When we consider pollutants other than CO2, such as nitrogen oxides, sulphate aerosols and water vapour, aviation's total contribution rises to around 3% of anthropogenic emissions (Blumenthal, 2010). Blumenthal (2010) provides a clear overview of many of these pollutants. For example, soot particles are produced through fuel combustion and have a warming effect on the climate. Additionally, NOx is produced in high pressure and temperature conditions in jet engines, and these emissions may increase as newer aircrafts operate at higher temperatures (Blumenthal, 2010). NOx not only contributes to global warming through the formation of ozone (Grewe et al., 2012), but also leads to smog, which decreases air quality (Blumenthal, 2010). Furthermore, sulphate aerosols emitted from aviation can cause climatic cooling and acid rain when combined with moisture in the atmosphere (Blumenthal, 2010). Moreover, fine particulate matter from aviation can cause major health issues, like respiratory and cardiovascular problems, and lead to losses in agricultural yields (Blumenthal, 2010). Rupcic et al., (2023) found that PM2.5 and ozone exposure from aviation cause around 16,000 early deaths each year. Although less respondents were concerned about these (33.3%) (Figure 3), non-CO2 pollution from aviation also has profound environmental effects and can be directly damaging to human health .

Construction and operation of airports

Although they make a lesser contribution to the overall environmental impact of aviation than flying itself, the construction of airports requires materials like steel and concrete, which produce significant CO2 emissions (Xiong et al., 2023). When we consider airport operations alongside construction, they can account for up to 3% of the greenhouse gases emitted per passenger-kilometre (Rupcic et al., 2023). Emissions in the operation stages mainly result from energy consumption for activities such as temperature control in terminals, land use, water use and waste management (Rupcic et al., 2023; Greer, Horvath and Rakas, 2022). Additionally, the presence of airports can have indirect effects on carbon emissions by facilitating greater global interconnectedness and presenting economic opportunities in surrounding areas (Xiong et al., 2023). In high-income cities, carbon emissions can increase by 13.9% following the construction of an airport (Xiong et al., 2023). Consequently, it is evident that the environmental impacts of aviation arise not only from the flights themselves, but also from the infrastructure required to facilitate them. According to the survey, 56.3% and 33.3% of respondents were concerned by the environmental impacts of airport construction and operation, respectively (Figure 3).

Sub-conclusion

As outlined above, aviation contributes significantly to global warming, not only through CO2 emissions from flights, but also through contrails, non-CO2 pollutants, and the emissions which are the result of airport construction and operation. Reducing these impacts is crucial if we are to achieve global targets of limiting warming to 1.5°C or 2°C.

Negative impacts of air travel on tourist destinations

Although increased air travel is often seen as beneficial for the economies of destinations that receive large numbers of tourists (Liasidou et al., 2021), it can also bring negative impacts for local populations, natural environments, urban areas, and cultural heritage sites. Our survey responses suggested that respondents were most concerned about impacts on nature (37.5%), followed by impacts on local populations (25%), then threats to cultural heritage (18.8%), and urban issues (14.6%) (Figure 3). It is important to highlight these other issues as it is not just environmental problems which can be used to justify a reduction in air travel.

The impact of visitor accommodation on local populations

Firstly, the demand for visitor accommodation can lead to the displacement of local people (Pati and Husain, 2023), as residential areas are transformed into tourist zones by the rise of platforms like Airbnb (García-Hernández, de la Calle-Vaquero and Yubero, 2017), pricing out

locals. Additionally, the cost of living can rise as shops and services also become increasingly tailored towards tourists, who are willing to pay more (Stevic et al., 2024; García-Hernández, de la Calle-Vaquero and Yubero, 2017). These issues can fracture local communities, who may come to see tourists as enemies (Liasidou et al., 2021). This issue was a concern for 25% of respondents (Figure 3).

Visitor impacts on nature

Unrestricted growth in tourism can damage natural areas when tourists fail to respect local environments. For example, tourists often produce excessive amounts of waste, which can be polluting if not properly disposed of and managed (Stevic et al., 2024). Moreover, construction of buildings and infrastructure to support tourism can lead to biodiversity loss and the decline of ecosystem services (Drápela et al., 2025). In the instance of national parks, high numbers of visitors can lead to increased erosion, and even loss of minerals and fossils when they are taken as souvenirs (Drápela et al., 2025). The fact that survey respondents were most concerned about these impacts (37.5%) (Figure 3), highlights their environmentally conscious perspective.

Visitor impacts on urban areas

As urban areas receive more tourists, they often become increasingly commercialised and homogenised (Pati and Husain, 2023), with global brands replacing local businesses and eroding traditional urban identities (García-Hernández, de la Calle-Vaquero and Yubero, 2017). Furthermore, urban areas frequently face issues with congestion and parking, affecting the mobility of both locals and visitors (Stevic et al., 2024). Residents also often experience increased noise and rubbish due to rises in tourism, which can reduce their quality of life (García-Hernández, de la Calle-Vaquero and Yubero, 2017). These challenges , which can make living in urban tourism hotspots more difficult, were of concern to 14.6% of respondents (Figure 3).

Visitor impacts on heritage sites

Although heritage sites often benefit from tourism, which can help fund their preservation and promote the conservation of local culture, negative effects are also common, and these were recognised as concerning by 18.8% of respondents (Figure 3). In some cases, important cultural sites, such as temples, are demolished to make way for tourist accommodation (Pati and Husain, 2023) - demonstrating a prioritisation of economic benefits over long term cultural preservation. Additionally, some indigenous people feel pressured to present their culture in a performative way for tourists, and this loss of authenticity in practices can contribute to cultural erosion (Drápela et al., 2025). Thus, as tourism increases and heritage sites become increasingly commercialised (Liasidou et al., 2021), they may lose some of their cultural value for the communities to whom they matter the most.

Sub-conclusion

While these challenges were perceived as less critical than some of the environmental reasons for reducing air travel (like carbon emissions and pollution), they are still important concerns. However, despite these negative impacts associated with high visitor numbers, the economies of many areas are heavily dependent on tourism. Therefore, if regulations are to be put in place to reduce demand for aviation, mechanisms to compensate and support these communities should also be considered.

Technological developments in aviation

The aviation industry itself recognises the necessity of reaching net-zero emissions and is actively developing new technologies in attempt to achieve this goal. The most viable of these is currently Sustainable Aviation Fuels (SAFs), although electric and hydrogen powered aircraft are also being developed. However, electric batteries are not yet light or energy-dense enough for larger aircraft or long-haul flights (Hospodka, Bínová and Pleninger, 2020), and hydrogen is difficult to store (Rao, Yin and Werij, 2020).

SAFs can be produced from various feedstocks, including sugar and starch crops and cooking oil (Pasa, Scaldadaferri and dos Santos Oliveira, 2022), and are regarded as having the largest potential for achieving net zero goals (ICAO Committee on Aviation Environmental Protection (CAEP), 2022). However, the switch to total dependence on SAFs appears to be out of reach, as there are many obstacles to this. The first issue is how expensive they are, costing 2-5 times the amount of fossil fuels (Zheng, 2023), meaning substantial investment is necessary before widespread adoption could be achieved (ICAO Committee on Aviation Environmental Protection (CAEP), 2022). Additionally, there are concerns over the sustainability of SAF production, as this demands lots of land (Climate Action Tracker, 2024), which could drive deforestation or lead to reductions in food production. Crucially, even if the fossil fuels used in aircraft were replaced completely by SAF, emissions would fail to reach net zero (ICAO Committee on Aviation Environmental Protection (CAEP), 2022), showing that despite their promise, SAFs alone are not enough to fully decarbonise the industry.

Those in the aerospace industry are also working hard to increase the efficiency of fuel consumption. However, the environmental benefits of this are being counteracted by rising use of air travel (Zheng, Graver and Rutherford, 2019). For example, since 2005, fuel consumption per passenger has decreased by 24%, but the number of passengers has increased by over 60% in Europe (Pang and Chen, 2023). This demonstrates that improvements in efficiency are not occurring at the rate necessary to counterbalance the environmental damage caused by rising demand.

Consequently, the current limits of technological developments in aviation mean that they are not enough to reach net-zero by 2050. Even if the most ambitious measures were taken within the sector, emissions would only reduce by 87% (ICAO Committee on Aviation Environmental Protection (CAEP), 2022). The insufficiencies of technology alone (Gössling and Dolnicar, 2022), demonstrates that action needs to occur from outside the sector to prompt behavioural change and reduce demand. Evidence demonstrates that only reduced use of air travel can mitigate its environmental impact, at least in the short term.

Methods to reduce air travel

Many approaches to reducing air travel have been proposed, though few have been widely implemented to date. Our survey asked respondents which strategies they would prefer for significantly reducing air travel. The results (Figure 4) indicate that respondents most favoured educational measures, followed by regulation, and then alterations to prices (with taxes being the most popular pricing strategy). The question also gave respondents the opportunity to make their own suggestions, and those who did so tended to suggest that investing in alternative transport modes was a good solution. The following section will evaluate the usefulness of the main methods identified, in order of their popularity.

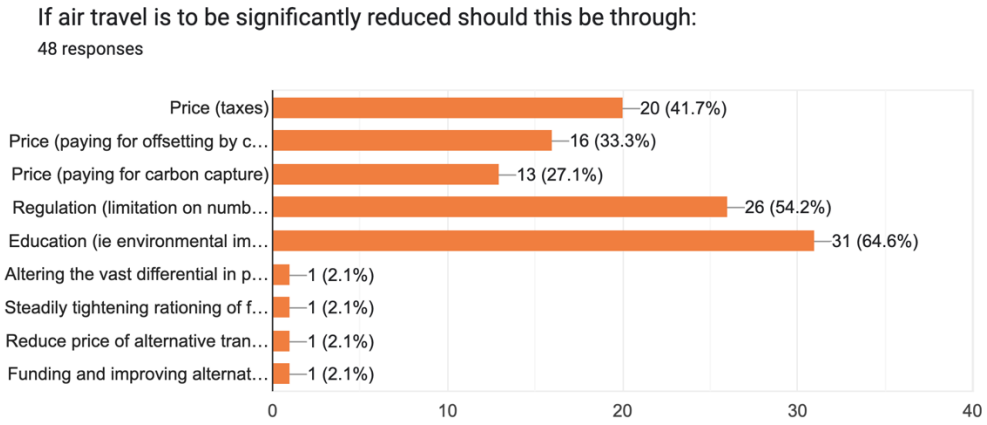


Figure 4: Preferred Methods for Significant Air Travel Reduction

Education (i.e. environmental impacts being part of the booking system)

According to the results of our survey (Figure 4), education about the environmental impact of flying was the preferred approach for significantly reducing air travel. This finding may suggest that the public believes decisions about whether to fly should remain a matter of individual choice and personal circumstances, rather than being subject to governmental restrictions, which could negatively impact those who see flying as a necessity.

One way through which an educational strategy could be implemented is through eco-labelling systems which inform passengers of the environmental impact of their flights and also provide a description of the purpose of the eco-label (Baumeister, Zeng and Hoffendahl, 2022). This method was found to be effective in prompting behavioural change, as passengers were more likely to avoid the most polluting flights and were more willing to pay for those which were less environmentally damaging (Baumeister, Zeng and Hoffendahl, 2022). However, this study found that individuals who were already highly environmentally conscious were most influenced by eco-labels, indicating that this strategy alone may have a limited impact on the flying habits of the majority.

Although Baumeister et al. found eco-labelling to be most effective among the most environmentally conscious individuals, other studies have found that even self-identified 'green consumers' continue to fly despite being well-aware of aviation's environmental impact (McDonald et al., 2015). Whilst these individuals may reduce how frequently they fly or adopt more sustainable practices in other areas of their lives in attempt to compensate, very few choose to give up flying altogether, often providing personal justifications for continuing to do so (McDonald et al., 2015).

Therefore, if awareness of environmental impact does not lead to meaningful behavioural change among even the most informed, education alone is unlikely to deliver the significant reduction in air travel which is required. This is because many travellers disregard environmental messages if they believe their personal justifications for flying are more important. For example, many believe alternative ways of long-distance travel (like rail) are too inconvenient, so even if they are concerned about their environmental impact, they feel they have no alternative to get to where they want to go (Berneiser, Becker and Loy, 2022). In our survey specifically, we found that although 100% of respondents were aware of the environmental impacts of flying, only 27.1% decided to never fly again as a result (Figure 5). Most believed that flying rarely or never again would have a moderate to high impact on their life (Figure 6), likely due to missing out on seeing family who live abroad. Although the survey also asked respondents which reasons they felt most justified air travel, issues related to interpretation of the scoring mean these results have not been included here.

Overall, education cannot be the only strategy to reduce demand for air travel, as knowledge of environmental impact fails to stop even the most environmentally-aware people from flying due to cognitive dissonance. Despite this, education is still crucial if we want people to understand why a reduction in use of air travel is necessary to protect the planet, and so better strategies should be developed which ensure environmental education translates into meaningful behavioural change.

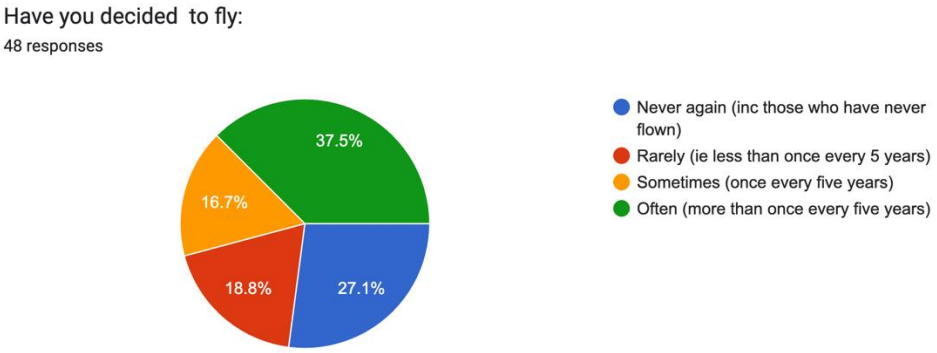


Figure 5: Respondents Intentions Regarding Future Use of Air Travel

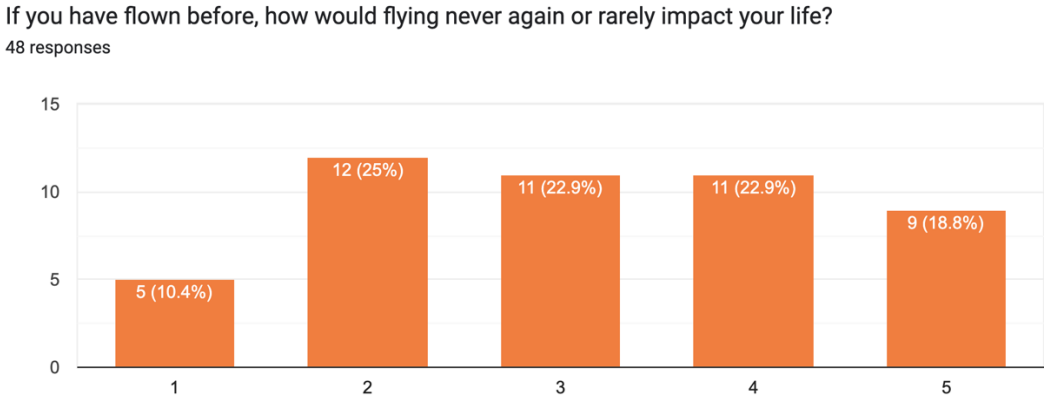


Figure 6: Perceived Impact of Never or Rarely Flying Again

Regulation (limitation on number and distance of flights by law)

Although this was found to be the second most popular method for reducing air travel (Figure 4), it does not currently appear to be a priority for the UK government. The Environmental Audit Committee (2023) found that the government has ruled out regulatory measures to reduce demand, instead believing in the promise of technological advancements and alternative fuels for achieving net-zero targets.

If implemented, regulation could prevent unrestricted growth of aviation and limit it to more sustainable levels. By shifting responsibility away from individual consumers, regulation would reduce the range of options available for air travel, potentially making flying a less attractive transport option overall. However, a regulatory approach raises questions about equity: if flight availability is reduced, who will have access to the limited number of seats? The answer could potentially be the most wealthy frequent fliers. Thus, if regulatory measures are implemented, care must be taken that they do not enhance existing inequalities in mobility.

Price

There are a variety of price-based mechanisms that could be used to economically disincentivise air travel, and taxes were viewed as an effective method by 41.7% of respondents (Figure 4). Revenue generated from such taxes could be directed towards climate and development initiatives (Harvey, 2025), such as investing in sustainable transport alternatives, carbon capture and storage (CCS) and compensation to affected tourist destinations.

One of these approaches to altering the price of air travel is the introduction of a flat-rate carbon tax charged per unit of CO2 emitted (Fouquet and O'Garra, 2022). This would tax passengers in proportion to how polluting their flight is. However, as a regressive tax, it would disproportionately affect lower-income individuals (Zheng, 2023). Consequently, those with lower incomes would be more likely to reduce their use of air transport, while wealthier travellers are more likely to be able to absorb additional costs, thereby exacerbating existing inequalities in access to aviation.

In attempt to create a fairer tax which places less of a burden on lower income fliers, a Frequent Flier Levy has been proposed. Typically, this involves the first flight of each year being exempt, and then the levy would increase with each flight taken per year (Zheng, 2023). Many see this as a more equitable approach, as an estimated 98% of its revenue would come from the richest 20%, ensuring that those who contribute most to aviation's environmental impact bear a greater share of the cost (Zheng and Rutherford, 2022). Additionally, some studies suggest an FFL would generate more money than a carbon tax (Fouquet and O'Garra, 2022). This measure is strongly supported by organisations like Greenpeace (Harrabin, 2021), and much of the UK public (Zheng and Rutherford, 2022), however the UK government have expressed concerns regarding how an FFL could be administered whilst maintaining the privacy of passengers (Harrabin, 2021).

Currently, in the UK there is an Air Passenger Duty (APD) which, although began as a measure focused mainly on raising revenue, has been subject to increases justified by environmental concerns (Seely, 2019). The APD is a flat-rate tax charged per passenger, which varies depending on flight distance and travel class. However, critics argue the APD has been too low to effectively restrict growth in demand for air travel (Seely, 2019). Research suggests that taxes and duties are only likely to affect demand if they represent a significant proportion of the total flight cost (Gössling and Dolnicar, 2022). Overall, although the APD contributes to environmental taxation, it was not originally designed for this purpose and its effectiveness is limited due to its relatively low rates. Furthermore, while premium-class fliers pay more APD, the tax can still be viewed as inequitable because it presents a larger relative cost for lower-income travellers. Therefore, an FFL seems to be a more equitable option.

Additionally, many airlines now offer voluntary carbon offsetting, whereby passengers pay extra to 'offset' the environmental impact of their flight. Funds from these programmes are typically directed towards projects like forest conservation, tree planting, and investment in renewable energy. However, this system is controversial due to disagreements over what counts as a carbon credit, as well as concerns about double counting (where the same offset is counted multiple times) (Lopez-Vallejo, 2022). Additionally, voluntary carbon offsetting can be perceived as a mechanism which allows polluters to justify their environmentally damaging behaviour, with the belief that paying for offsets reverses their impact. Even if voluntary carbon offsetting really did reverse the environmental damage of aviation, it is only used by 1-3% of those who take flights (Waypoint 2050, 2020). Brouwer, Brander and Van Beukering (2008) found that although many individuals express willingness to pay a carbon tax in principle, far fewer do so voluntarily when given the option. This demonstrates the need for mandatory taxes if we want to economically disincentivise air travel effectively.

Sub-conclusion

After considering a range of educational strategies, potential regulations and price mechanisms, it is evident that some approaches are more effective than others at reducing demand for air travel. Education emerged as the most favoured approach according to our survey, however studies reveal that extensive knowledge of environmental damage does not consistently translate into behavioural change, as personal justifications are used to outweigh environmental concerns. Therefore, while education remains crucial for raising awareness and building societal norms that discourage unnecessary flying, its limitations mean that regulatory and economic measures are essential to drive behavioural change.

Despite being unpopular with the UK government (Environmental Audit Committee, 2023), legal regulation of flight numbers and distances was another method favoured by survey respondents. Although this approach may raise valid concerns regarding increased inequality in access to flights, which would require careful management, top-down regulation could be more effective as it would frame the reduction of aviation's environmental damage as a collective responsibility rather than an individual choice, which evidence suggests many people are reluctant to make. If this regulation is to gain public support and be implemented, environmentally educated individuals need to advocate for its necessity through emphasising the limitations of relying only on voluntary behaviour change to mitigate the environmental damage caused by aviation.

Alongside regulation, economic disincentives were also popular, with 41.7% of respondents endorsing their use (Figure 4). A Frequent Flier Levy seems to be the most equitable of these, as it disproportionality targets the wealthiest in society who fly most frequently.

Finally, several survey participants suggested that there should be increased investment in alternative modes of transport, such as trains and coaches. This reflects the recognition that successful reduction in air travel demand requires affordable and efficient alternatives for longer-distance travel, enabling individuals to reduce their carbon footprint without fully restricting their mobility.

Compensation to tourist destinations

Although the main aim of this report is to discuss the need to reduce air travel and the mechanisms for doing so, it is also necessary to recognise the potential effects that this may have on tourist destinations. As previously discussed, large numbers of visitors facilitated by air travel can have negative social and environmental impacts on tourist destinations, but is often economically beneficial. Therefore, strategies to restrict or disincentivise air travel must consider how the economies of tourism-dependent destinations might be affected by a decline in foreign visitors.

One approach to mitigating this economic damage would be to provide financial compensation to affected tourist destinations. When we asked participants how compensation should occur, some suggested this could take the form of 'better trade deals', adjustments to 'aid budgets', or offering 'adaptations via a globally administered scheme'. Additionally, some revenue generated from air travel taxes could be used to support these nations.

However, only 12.5% of our respondents felt compensation was necessary (Figure 7). Many argued it would be impractical or unnecessary, suggesting that reduced foreign tourism may be offset by increased domestic tourism. Yet this view overlooks the fact that individuals in the Global North typically have greater disposable incomes than local populations in the Global South, who may be less able to afford even domestic travel. As a result, domestic tourism may be better able to replace lost international revenue in some places more than others. For example, during the COVID-19 pandemic, where international travel was restricted but domestic travel was more likely to continue, countries in the Global South experienced a much greater decline in tourists than many countries in the Global North (UNWTO, 2022). A similar disparity could arise if air travel is reduced for environmental reasons. Another view suggested by survey respondents was that investment in alternative modes of transport could allow travellers to visit by other means, maintaining overall visitor numbers. However, it was recognised that this may not be feasible for remote destinations which are largely inaccessible without air travel.

While compensating economies heavily reliant on tourism should be considered as part of a transition to reduced air travel, our survey results suggest that financial compensation alone may not be publicly popular in the UK. Therefore, other methods, such as encouraging

economic diversification in tourist destinations, may gain greater public support whilst still ensuring that environmental sustainability does not come at the cost of socio-economic wellbeing. However, we should not rule out financial compensation, as this may be crucial for preventing sudden declines in income and employment if tourism is to reduce.

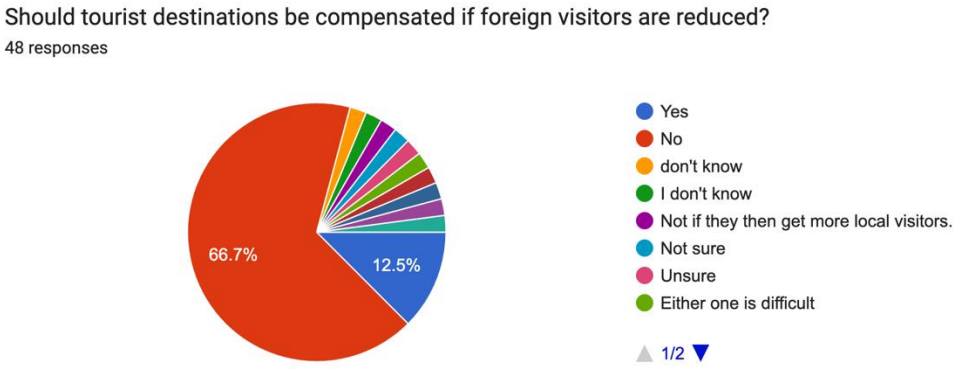


Figure 7: Opinions on whether tourist destinations should be compensated if foreign visitors are reduced

Conclusion

This report argues that there is an urgent need to reduce use of air travel due to its significant social and environmental impacts, particularly its contribution to climate change. Innovations like Sustainable Aviation Fuels, electric, and hydrogen-powered aircraft offer promise as part of the industry's efforts to decarbonise. However, widespread use of these technologies faces significant obstacles. Therefore, we cannot rely on them alone to reduce the emissions of aviation to net-zero by 2050. Demand reduction is necessary, at least in the short term, to reach these goals, both in the UK and internationally.

Those who are most able to reduce their flying- particularly those who travel frequently for leisure- are encouraged to reconsider their travel habits given the environmental impacts outlined above. For those in the UK, there are many opportunities to travel abroad by lower-carbon options, such as coach and train, and so international travel does not have to be cut out completely. It is acknowledged that for some individuals, especially those with family abroad, flying feels necessary. However, it should still be recognised that only a small amount of the UK population flies frequently, yet the behaviour of this minority contributes disproportionately to aviation emissions (Harrabin, 2021).

Survey results found that the favoured methods for reducing air travel were education, regulation, and pricing measures. While education was the most popular, research indicates that awareness of environmental impacts alone does not consistently lead to reduced flying. Therefore, it is imperative that regulatory or economic measures are implemented alongside educational efforts if meaningful behavioural change is to be achieved. It may be useful for

future studies to look at the effects of the combination of these three strategies, and whether this is more effective than isolated measures for reducing demand for flights. Researchers could also continue to consider how environmental education can be improved to reduce cognitive dissonance and provide information which leads to behavioural change.

We recognise that there were limitations with how our survey was worded and consequently interpreted, and that there was a relatively low number of responses collected. Future research into attitudes towards air travel reduction and methods to achieve this should use larger, more diverse samples. This would allow for policies to be developed that better address the needs of different demographic groups across the UK.

In conclusion, a reduction in demand for air travel, particularly from those who fly most frequently, is crucial for mitigating the environmental impacts of the aviation sector to achieve global climate goals. Achieving this reduction in demand will require a coordinated approach between individuals, governments, and the aviation industry itself. This report suggests that improved environmental education, alongside regulation over the number and distance of flights, and economic disincentives like a Frequent Flier Levy, are good methods to translate awareness of issues into behavioural change. It is also preferable that investment in affordable, efficient, low-carbon transport alternatives takes place, so that individuals are still able to travel long distances whilst reducing their environmental impact. Policymakers should recognise that tourism-dependent economies may suffer from a global reduction in use of aviation, and therefore consider measures to maintain or enhance socio-economic development in these places. Ultimately, everyone who uses air travel must recognise the negative environmental consequences of their choices and embrace the view that preserving the Earth and ensuring the wellbeing of its people is a shared commitment which crucially requires individuals to reduce their own carbon footprints.

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Statement on use of Artificial Intelligence

Following recommendations from those who assigned this report, AI was utilised to help find some of the academic articles and websites referenced above. AI was also used to summarise some of the longer reports and papers which could not be read in full due to time constraints.