



BRIEFING - OCTOBER 2025

Airlines blame taxes, fees and charges: The data says otherwise

An analysis of the impact of aviation taxes, fees and charges on demand

Summary

This study by Prof. Dr. Friedrich Thießen and Prof. Dr. Christoph Brützel commissioned by T&E examines taxes, charges and fees (also known as location costs) in the aviation sector. It provides an indicative assessment as to why these costs exist and how they affect the sector.

Airlines claim nationally-imposed aviation taxes, fees and charges are driving passengers away. The data proves otherwise: demand to a large extent depends on airline strategy, market trends and travel behaviour, not on costs alone. Cutting aviation taxes, fees and charges would mean throwing away billions in public revenues without a tangible effect on passenger numbers.

This new study shows:

- **Costs do indeed vary significantly across European airports** with the most expensive airports costing up to five times more to fly from than the least expensive.
- However, the data shows that **there is only a weak relationship between taxes, charges and fees at an airport and passenger numbers**. Higher costs don't always lead to lower passenger numbers.
- This is because a number of other factors need to be taken into consideration, especially airline strategy. Airline route planning is determined by geographic factors, economic attractiveness and international agreements meaning **airports with higher costs can still attract many passengers if they are strategically important**.
- **Furthermore, no clear relationship could be found between ticket price increases to-date and passenger number changes**. In aviation, supply determines demand: airlines plan their schedules months in advance and then fill their planes with flexible pricing. This keeps passenger numbers stable despite rising prices. With proper taxation, which would imply another order of magnitude of cost increases, aviation taxation could become a demand management tool. But current minor variations in national taxes, charges and fees do not show a strong correlation with demand.
- **A case study on Germany highlights how passenger numbers are not solely determined by costs**: post-Covid it is a steep decline in business travel and Lufthansa's quasi-monopoly in the domestic market that have kept passenger numbers low, not national taxes, fees and charges alone.

The conclusion is clear: airline attempts to attribute declines in passenger numbers solely to taxes, fees and charges **appear to be more of a lobbying position to support industry demands for lower costs than a reflection of actual causal relationships**.

1. What are location costs in aviation?

Location costs in aviation are:

- The direct, externally imposed charges involved in operating a commercially scheduled or charter flight.
- These costs crucially vary depending on the airport or country of departure or arrival.
- They are either directly set or regulated by public authorities.

Below is a summary of the categories that fall under location costs in aviation in this report:

Taxes • Value Added Tax • Kerosene tax • Ticket tax	Airport take-off and landing charges • Base charges per flight • Noise surcharges • Pollutant charges • Charges per passenger/per tonne of freight	Infrastructure fees • Parking fees • Stand fees • Common-use infrastructure fees (check-in gates, baggage systems, buses, fuel pipelines, de-icing facilities)
Security charges • Passenger and baggage screening • Airport operator security measures	Air traffic control • Airport control (tower) • En-route and approach control	Other environmental costs • EU Emissions Trading System certificates • SAF blending mandates (ReFuelEU) • CORSIA offsetting certificates

These various taxes, charges and fees are regulated at international, regional and national level. At international level they are regulated by the International Civil Aviation Organisation (ICAO). For example, the ICAO's policies on charges for airports and air navigation services stipulate that these must be calculated on a cost basis, not for profit.

At EU level, they are regulated by directives such the Airport Charges Directive, the Energy Taxation Directive and the VAT Directive.

At the national level, there are large discrepancies in how taxes, charges and fees are regulated. For example, security charges are fully publicly funded in some countries and only partially publicly funded in other countries, depending on whether it is classified as being in the public interest. EU member states have also introduced a wide range of ticket taxes. The discrepancies in how taxes, charges and fees are regulated at national level ultimately leads to the variety in location costs at European airports.

1.1 Why comparisons of national taxes, fees and charges can be misleading

Airlines often highlight 'unfair disparities' in aviation location costs. However, the extent to which these cost comparisons can be accurately done is questionable.

There are several methodological challenges with such a comparison:

- **Complexity:** Although the business models of airports and airlines may seem straightforward, they involve complex operational and strategic relationships. These affect costs, making them difficult to compare meaningfully.
- **Transparency:** Not all costs are disclosed. Using published fee schedules can be misleading, since it is rarely clear which airlines actually pay full rates. Complex discount schemes exist, and some fee systems or environmental surcharges may be designed in ways that favour certain carriers.
- **Global structural differences:** International comparisons are further complicated by historically evolved structures that result in different types of costs being grouped together, making published numbers difficult to compare.

This means that truly accurate cost comparisons are not feasible.

However, two reputable sources have attempted such a comparison: the German Aerospace Centre (DLR) and the French Civil Aviation Authority. Both studies found a high range of aviation taxes, fees and charges across countries. The [DLR](#) found that in some cases the most expensive airports cost up to five times as much as the least expensive ones. Even if outliers are removed by taking away the highest and lowest quintiles, the cost differences at the remaining upper and lower bound airports are still around €4000 per flight.

2. Only a weak link between taxes, charges and fees and passenger numbers

This wide range in aviation taxes, fees and levies depending on the location of the flight opens up the important question of to what extent these cost differences affect airline route decisions and passenger traffic development.

Figure 1 shows the relationship between location-based costs and passenger volumes for 101 European airports in 2024. The result is a scatter cloud of data points, with a faint upward trend. This means airports with higher costs tend to have slightly more passengers.

Smaller airports have an enormous range of costs, without a clear impact on passenger volumes. Some airports have four times the costs of the cheapest in their category but still attract as many passengers. The same pattern holds true for Europe's largest airports. Costs vary dramatically (in some cases by up to €11,000 per flight) yet passenger volumes remain similar. For both smaller and larger airports, both passenger numbers and costs vary widely with only a weak positive link.

Passenger numbers and location costs at European airports

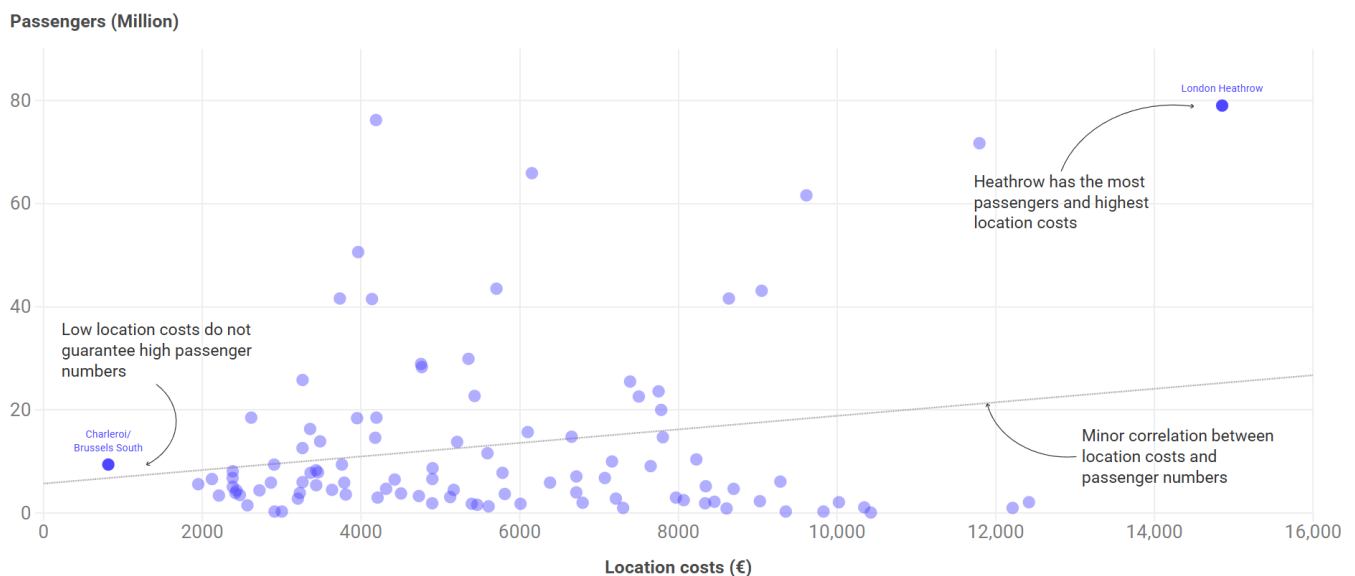


Figure 1: Relationship between location-based costs and passenger volumes (2024)

This finding is backed up by a study by the French Civil Aviation Authority. The below graph (Figure 2) shows the costs per passenger for intra-EU flights in economy class rather than per flight, but reveals the same picture: a scatter plot showing a wide variation in passenger numbers and costs.

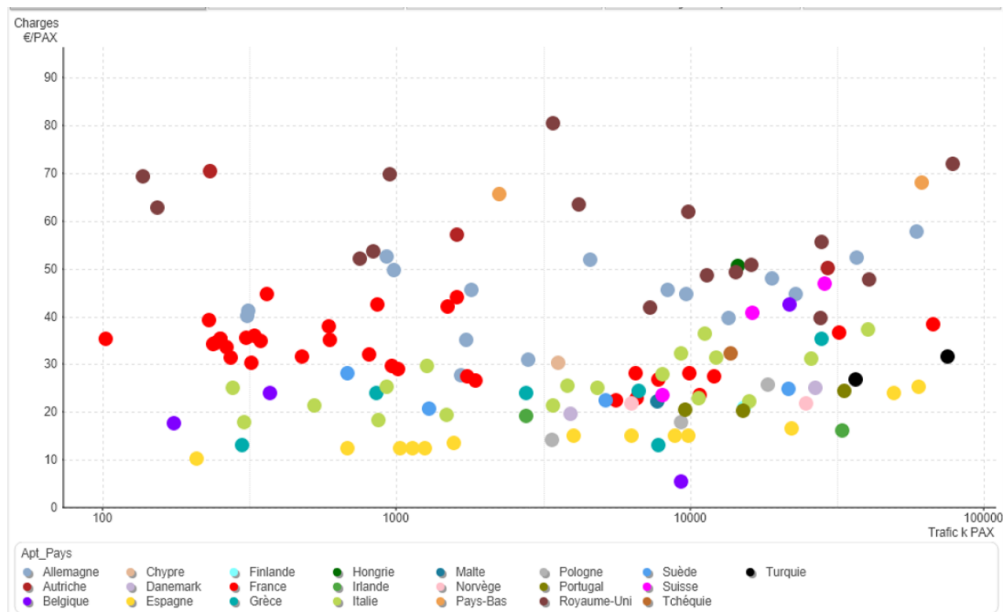


Figure 2: Relationship between location-based costs and passenger numbers for 2024 (Source: French Civil Aviation Authority)

Figure 3 takes a different approach to confirm the above results. It ranks 101 airports by their 2024 location costs, shown in blue. Heathrow, the most expensive airport, is used as the reference point, set at 1. All other airports are shown in relation to Heathrow's costs. Passenger volumes are shown in orange.

Airports and their location-costs

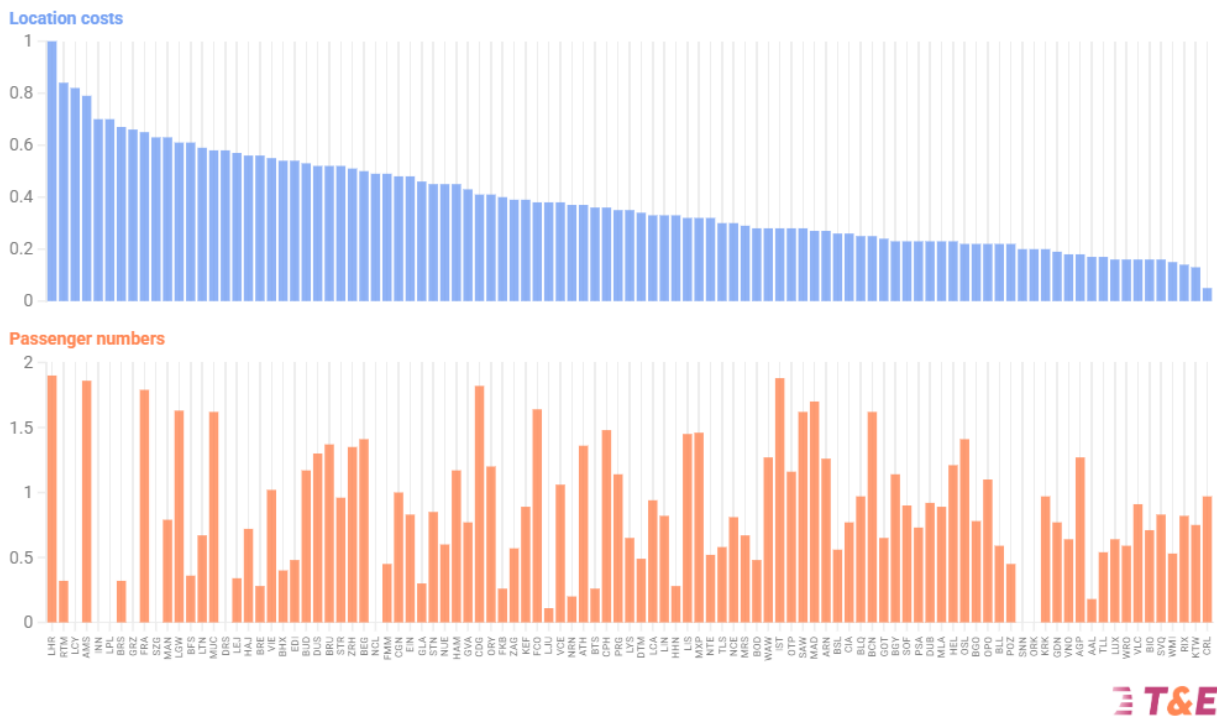


Figure 3: Airports and their location costs (2024)

Two patterns stand out. The highest location costs on the left of the graph also coincide with the highest passenger numbers. On the other hand, the graph shows that airports with lower costs also tend to be small.

In summary, at this order of magnitude the range of location costs across Europe only has a weak relationship with the passenger numbers at the airport. In the absence of a visible trend, further modelling will only yield a weak explanatory power.

2.1 Why is this the case?

Airline route planning is constrained by hubs, international agreements and market strategy.

This means that an airport with low fees doesn't automatically get more flights and that airports with higher costs can still attract many passengers if they are strategically important.

For legacy carriers, switching international hubs is not an option due to global traffic rights. For point-to-point carriers, the decision about where to base aircraft depends on the catchment area, available capacity, traffic rights, achievable market share and operational conditions.

This means that **location costs are only a tie-breaker for airport choice in rare cases**. The only time airport costs might noticeably determine airline choice of airport is for a low-cost carrier when two airports are close together and otherwise similar (e.g. Düsseldorf vs. Weeze), in which case location costs may tip the balance. But most airports do not have such a direct competitor nearby.

Finally, **there are further factors that determine passenger numbers**. The [2025 DLR](#) study also analyses the impact of factors such as the GDP in the country of departure and airline market concentration at an airport.

2.2 Do the results change when airports are grouped by airport type?

In order to understand whether Figures 1, 2 and 3 do not depict a correlation because a wide range of airports are mixed together, the authors of the study also conducted an analysis splitting European airports into three groups:

1. Large airports and hubs
2. Airports in southern Europe with a strong focus on tourism
3. Smaller airports with over one million passengers per year

The relationship between airport passenger numbers and location costs by airport group

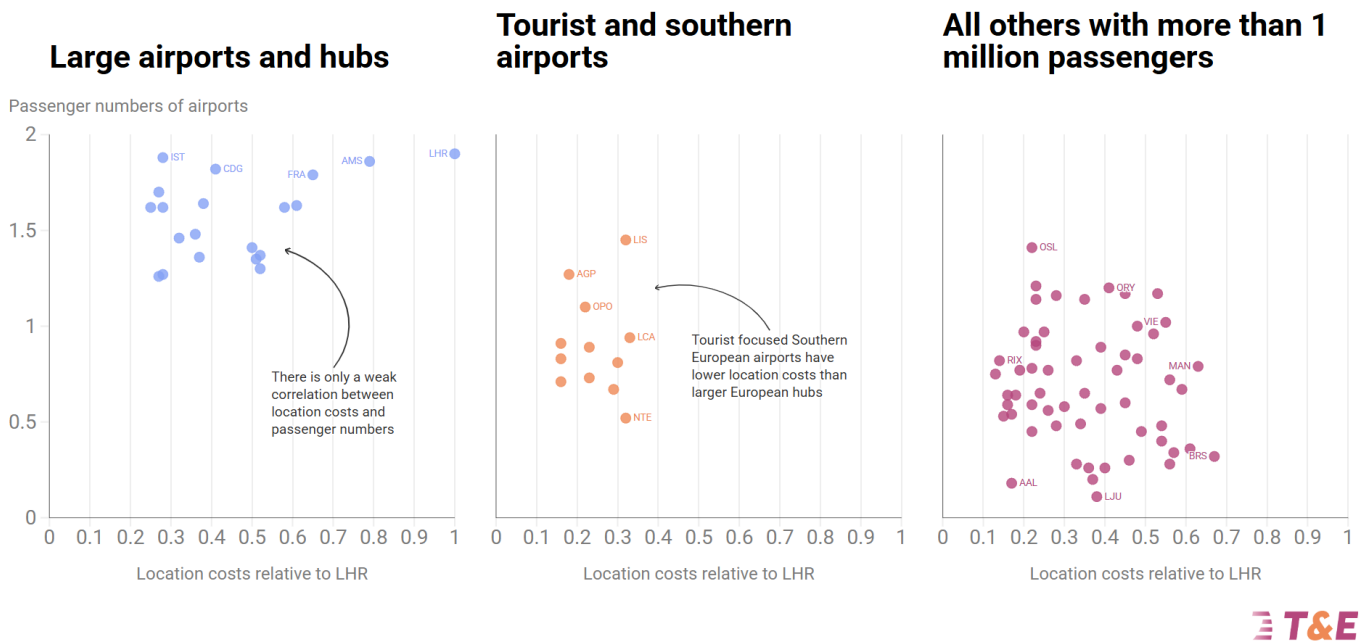


Figure 4: The relationship between location costs and passenger numbers by airport group

For the largest airports and hubs (Group 1) no clear pattern emerges between costs and passenger volumes. For example, the 5 major hubs (Istanbul, Paris, Frankfurt, Amsterdam and Heathrow) have a wide range in location costs with similar passenger numbers. The same is true within the group of tourist-focused airports in southern Europe (Group 2). What does emerge is that tourist-heavy airports have particularly low location-costs compared to the large hub airports, highlighting that tourist regions in southern Europe compete heavily for air traffic and often use low costs as a strategic advantage.

In Group 3 (smaller European airports) a slight trend can be identified: airports with lower location-based costs tend to have slightly more passengers. However, the relationship is very weak (the coefficient of determination is below 2%).

2.3 Conclusion

In summary, there is empirical evidence for only a weak relationship between low location costs and the level of airline supply or passenger volumes. This means that further factors must be at play than location costs alone. Since this study did not analyse the impacts of these further factors, the findings can be best understood as indicative patterns rather than definitive proof of cause and effect.

It becomes evident therefore that airport choice is also determined by business model factors, namely the available capacity, the catchment area, the market position that can be achieved and the operational conditions. These differ for legacy and low-cost carriers. Legacy carriers will seek at all costs to keep or obtain slots in large hubs for their cash cow: long haul flights. They operate from major airports where business travelers are ready to pay high prices for a quick

connection. Low-cost carriers primarily operate from smaller, secondary airports, mostly serving tourists attracted by low fares.

3. Price elasticity of demand: Why aviation breaks the rules

This section explores how location costs influence demand, in particular whether national differences in these costs have an impact on air traffic growth.

To understand changes in demand as a result of changes in costs, the price elasticity of demand is often calculated. An elasticity coefficient shows by how much percent demand changes when the price increases or decreases by one percent.

However, there are a number of problems with applying the price elasticity of demand to aviation:

1. In an elasticity analysis, it is claimed that the relationship between price and demand is being measured. But for aviation, this is not quite accurate since **demand is difficult to quantify and is rarely measured directly**. What we can measure is the number of passengers transported, which is also dependent on available seat capacity. Airlines typically finalise their flight schedules around six months before the start of each season. Once those flights are set, they mostly focus on filling seats by adjusting prices. This creates 'price-induced demand': people flying because tickets are cheap, not because of a strong need to travel. Elasticity models cannot entirely capture these kinds of dynamics.
2. **Demand for flights depends on more than just prices**. The price of a flight cannot be taken in isolation in a demand elasticity analysis. A number of other factors must also be taken into consideration, including the cost of hotels and the cost of other holiday activities such as eating at restaurants. An [article](#) published by *t-online.de* highlights this, with Mallorca's restaurants reporting a downturn in trade, despite a stable number of holidaymakers. Due to the increased cost of flying and hotels, holidaymakers were cutting back on dining out. In this case, people had not stopped flying to Mallorca because of increased flight ticket prices, rather they were choosing to save money on other parts of the trip. This cannot be entirely accounted for in a demand elasticity analysis of flights alone.
3. Societal, political and economic shocks like recessions, instability and pandemics also distort elasticity analyses. Essentially, **elasticity analyses become less relevant when significant structural market changes occur**, such as lasting shifts in business travel behaviour following the Covid pandemic. For example, according to the [German Business Travel Association](#), business trips in 2024 fell by 44% compared to 2019 and the share of business travellers among all air passengers dropped from 35% to 20%.
4. In aviation **it is mainly supply that determines demand**. Airlines set their flight schedules months in advance and then adjust prices flexibly in order to fill the planes. This means

that passenger numbers often remain stable, even when ticket prices rise. This is also difficult to reflect in an elasticity analysis.

5. Price elasticity figures are often based on aggregate averages for specific routes and offer limited insight into actual pricing behaviour. Since the deregulation of airfares, airlines now price tickets dynamically, varying by booking date, expected load factors and travel class. **This high degree of price dispersion makes it difficult to apply average elasticity values meaningfully to real world price changes.**
6. **Historically, increases in the price of flying have not curbed demand.** Between 2000 and 2007, the price of jet fuel tripled, yet over the same period the number of passengers at German airports grew by 30%. By 2019, 75% more passengers boarded at German airports than in 2000. The 2019 jet fuel price was more than double its 2000 level (~60% when adjusted for inflation).

The [2025 DLR study](#) shows that a classic elasticity analysis cannot meaningfully explain trends in air traffic. When presenting the relationship between changes in ticket prices and changes in passenger numbers between 2019 and 2024 in a graph, the graph simply shows a scattered cloud of data points with no clear pattern.

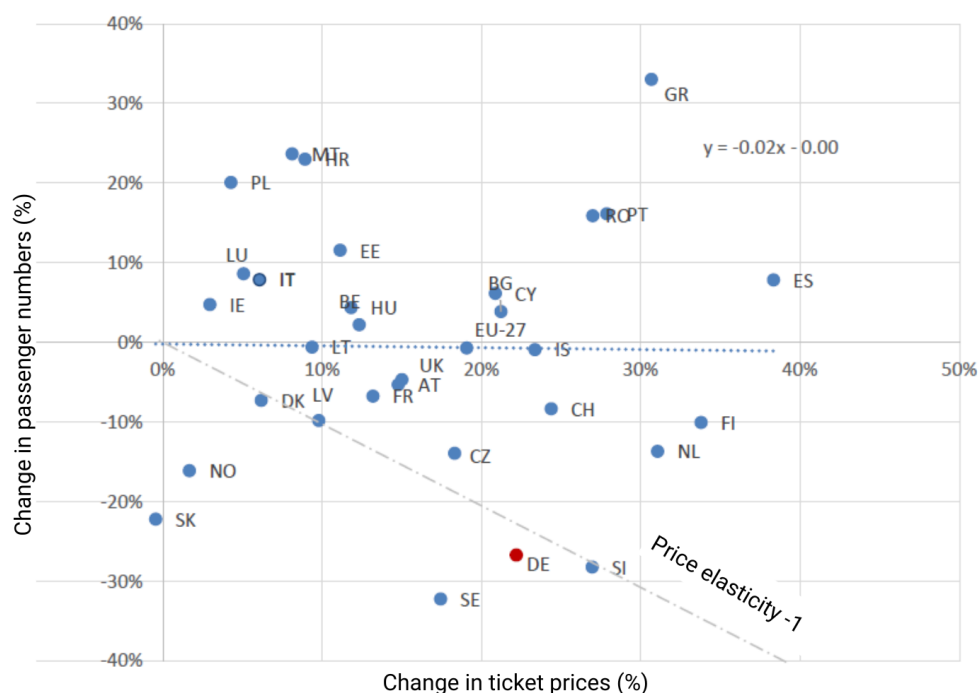


Figure 5: Changes in ticket prices and passenger numbers (Winter 23/24 vs. 18/19). Source: [DLR](#)

The price elasticity assumption of minus 1 is shown in the diagonal line. Only 4 countries analysed follow this price elasticity assumption (those on the diagonal line). The majority of countries (those above the diagonal line) instead saw an increase in passenger numbers over the measured time period despite often substantial increases in ticket prices.

As a result, a price elasticity analysis in this case has little explanatory power for understanding the relationship between changes in passenger numbers and changes in ticket prices.

Since a price elasticity analysis proved limited, the [DLR study](#) also used a regression analysis to analyse the relationship between ticket prices and passenger growth. In Figure 6, the scatter plot reveals once again that there is little correlation between ticket prices and passenger growth. For nearly every level of passenger growth, there are airports where ticket prices either fell or rose sharply. For example, Athens and Amsterdam airport saw similar increases in ticket prices. However, passengers increased at Athens airport by 60%, while they decreased at Amsterdam airport by 20%. For any increase in ticket prices, there is a wide range of airports with both rising and falling passenger numbers.

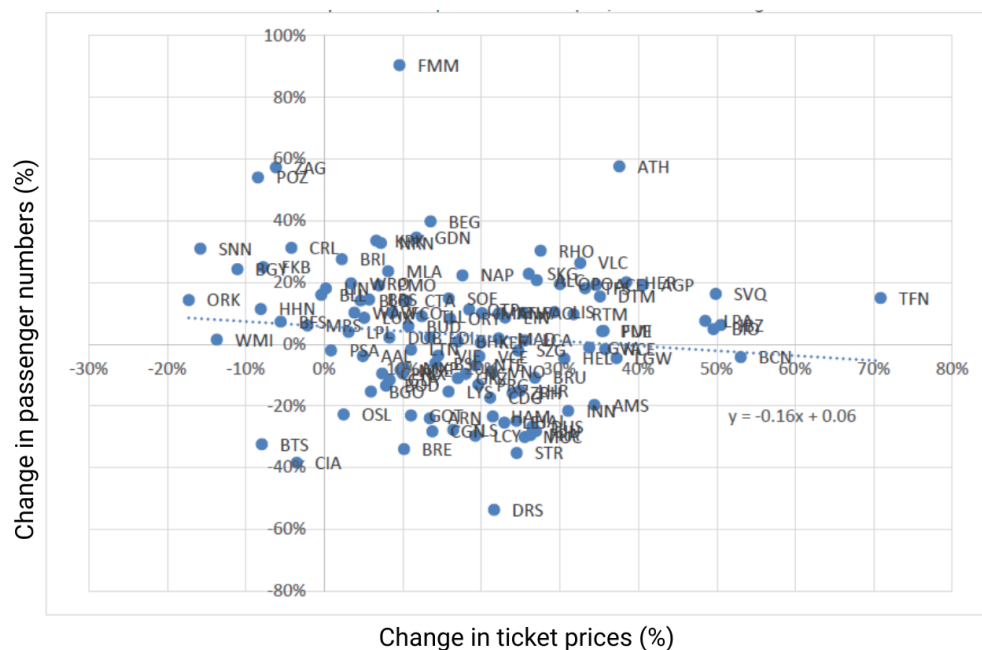


Figure 6: Changes in ticket prices and passenger numbers (Source: [DLR](#))

It is evident that the textbook assumptions on the relationship between prices and demand in aviation need to be reassessed. **The myth that ticket prices are the sole determining factor influencing passenger demand simply doesn't hold true for aviation.**

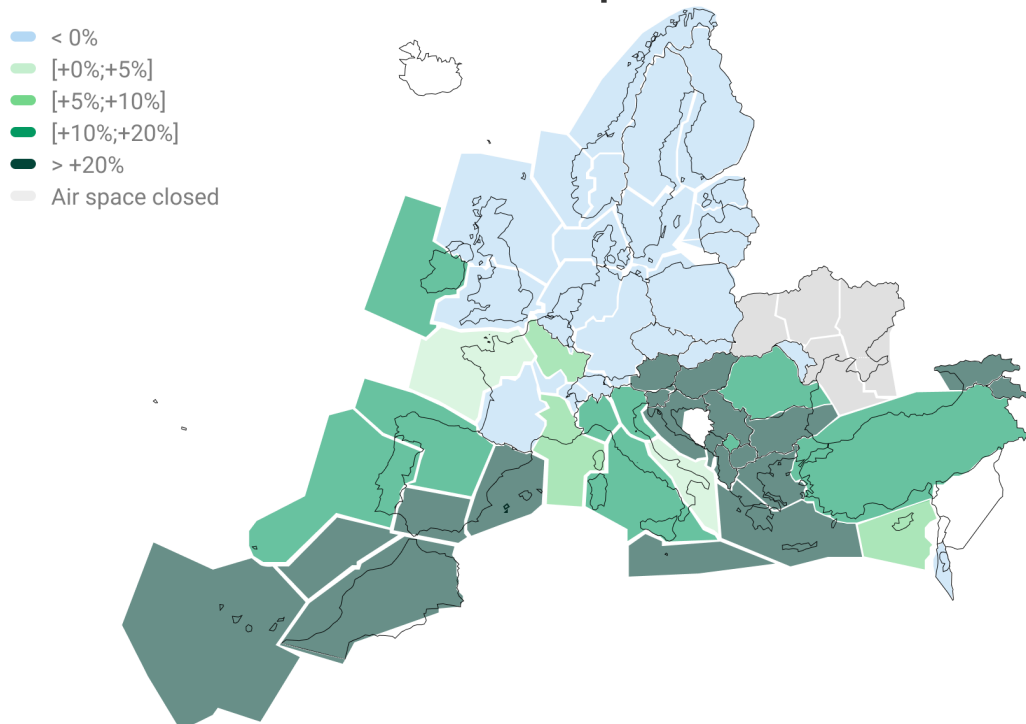
3.2 Case study: The real reason German passenger numbers haven't recovered post-pandemic

In order to demonstrate the above findings, the study analysed the passenger number developments in Germany post-pandemic and the causes behind it.

Despite these clear findings from the [DLR](#), published in March 2025, [the German airline and airport industry continues to falsely claim](#) that Germany's high location costs are responsible for lower passenger numbers post-Covid. Since Germany specific taxes, fees and charges have only a very weak empirical correlation with passenger numbers, there must be other contributing factors. In this section, we use Germany as an illustrative case study.

Germany has seen a **steep decline in business travel after the pandemic**. The [Deutsche Reiseverband](#) found a 44% decrease in 2024 compared to 2019. T&E analysis found an average overall emissions reduction in German companies of 40% compared to 2019. Some companies made big reductions in their business travel emissions, with SAP reducing emissions by 70% in 2024 compared to 2019 and Allianz by 60%. The growing dominance of leisure travel, compared to business travel, has had a structural impact on air transport. Business travellers usually fly to economic centres, whereas leisure travel is concentrated on holiday destinations. This is highlighted by Figure 7, which clearly shows that southern European countries with more leisure-focused travel have experienced growth, while flight activity in northern Europe has declined.

Traffic variation between the first quarter of 2025 and 2019



Source: Eurocontrol

T&E

Figure 7: The North-South divide in passenger traffic recovery (See: [Airlines.de](#))

T&E

However, in Germany the most important explanation for the lower passenger numbers post-Covid is the sluggish development of the domestic market. [The latest forecast](#) from the German Aviation Association (BDL) shows that for June to November 2025 international services have almost completely recovered. Domestic traffic, however, is at just 53% of pre-pandemic levels.

This can be attributed to the de-facto monopoly Lufthansa has over this market. Air Berlin was forced out after prolonged losses, in part due to Lufthansa's competitive strategies. Ryanair entered the German domestic market in 2016 but quit within a year after heavy losses. EasyJet briefly operated part of Air Berlin's network, but also lost money and withdrew from the domestic market after Covid. Today, Lufthansa and Eurowings control 96% of the domestic market. This means that Lufthansa optimises capacity to maximise yields, focusing on flights between its hubs. As a result, many smaller cities lost hub connections, since Lufthansa's strategy is focused on monopoly profitability, not maximum passenger access. Therefore, in line with [Cournot competition theory](#), **Lufthansa deliberately keeps capacity low** so that only demand willing to pay above full operating cost is served (which of course does not include low-cost passengers).

Therefore, the passenger number trend German airlines attribute to national taxes, fees and levies is rather to a large extent the result of Lufthansa deliberately keeping capacity low to maximise its profits.

To summarise, the German case study highlights in practice that claims that national taxes, fees and levies alone reduce passenger numbers lacks empirical evidence - instead trends in passenger numbers can more often be associated with airline pricing and business strategies. It fails to reflect the actual business decisions and strategies that shape the aviation industry.

Key recommendations

In light of the empirical findings that there is only a weak correlation between aviation taxes, fees and levies and passenger numbers/demand for aviation, T&E recommends the following:

1

Avoid revenue losses: National governments should not cap or reduce aviation taxes, fees and charges solely as a means to ensure the 'recovery' of the industry. This would be throwing away revenues that are a fundamental part of national budgets and can also be used to support the development of sustainable aviation technologies.

2

Users should pay: Charges on airlines and airports should cover the costs of their services. Subsidising these costs undermines overall welfare.

3

Tax fairly: National ticket taxes should be designed to reflect economic externalities, i.e. the most climate-damaging tickets should have the highest taxes. This means higher tax rates for first and business class tickets and higher tax rates for long haul flights.

Further information

Marte van der Graaf

Aviation Policy Officer

T&E

marte.vandergraaf@transportenvironment.org

Mobile: +49 1629092696