



Thematic Report

of the French Air Transport Directorate

December 2008

Air traffic between France and the United Kingdom: air transport between the Regions, train between capitals

Preamble



"Paris-London" was the most important international air connection for a long time. Since 8 February 1919, when the first passenger air service in the world was launched by the Farman Company (Paris-London in 2:37), the traffic on this line has kept growing, reaching over four million passengers. With the construction of the Channel Tunnel and the TGV Nord in 1994 and the high-speed lines in England, rail traffic increased between Paris and London. From 2007, it was no longer the first airline departing from France. However, the dynamic offers from low cost companies led to strong growth in traffic between France and England, no longer driven by connections between capital cities. This review provides an original analysis of the impact that a new (low-cost) airline offer has on demand.

1. Cross -Channel traffic: a stagnating market since 2000...

After steady growth (9.3% on average per year) during the four years following the launch of the Eurostar (November 1994), cross channel traffic languished at 45 million passengers per year (figure 1). The ferry remains the preferred cross channel mode of transport (17.6 million passengers in 2006 i.e. 39% of the total). This is followed by train travel with 15.5 million passengers (34%) and air travel with 12.1 million passengers (27%).

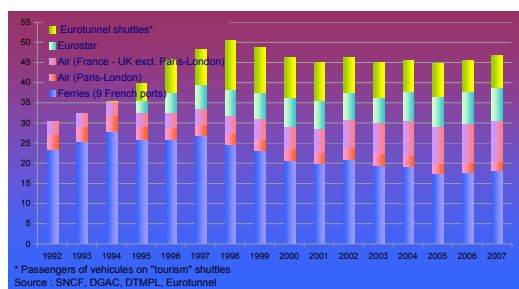


Figure 1. Overall cross channel traffic (millions of passengers)

...in which air transport is winning market share (see figure 2 & 3)...

- Although it is still the most popular mode of transport, passenger traffic on ferries decreased to 18.2 million in 2007 from 28.8 million passengers in 1994 and its market share was halved (39% in 2006).
- Railway traffic dropped by 13% between 1998 and 2007, from 18.6 million passengers in 1998 to 16.1 million in 2007. This decline is attributable to the decreasing number of Eurotunnel shuttle passengers. On the other hand, Eurostar saw its traffic increase by 3.3% per year between 1997-2007 and its share in cross-Channel traffic amounts to 17.7% in 2007 compared to 12.4% in 1997. In 2007, Eurostar passenger numbers rose by 5.1%, a rate slightly lower than 2006 (5.4%), but, the traffic has been increasing by 11% since the middle of November 2007, the date of the opening of high-speed tracks in the UK. From January to September 2008, Eurostar traffic grew by 13.9% compared to the same period of 2007.
- As for the airline traffic between France (mainland) and the UK, despite the launch of the Eurostar it has regularly and steadily increased since 1995 (5.5% per year). This transport mode keeps winning market share (27% in 2007 vs. 21% in 1994) thanks to low-cost activity development.

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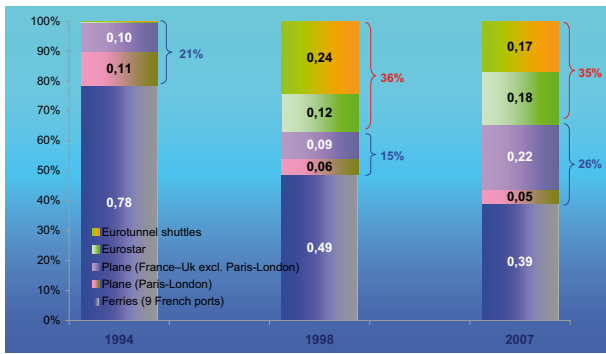


Figure 2. Distribution of cross-channel traffic by transport mode
 Note: from January to October 2008, air traffic between France and UK decreased by 1.6% compared to the same period of 2007.



Figure 3. Sea, air, and rail cross-Channel traffic
 (millions of passengers)

...mainly departing from regional airports, the Paris-London air connection suffers from Eurostar competition.

The air transport between both countries has been marked by two contrasting changes (cf. figure 4):

- Paris-London air traffic has dropped by half: 4 million passengers in 1994, only 2.2 million in 2007 ;
- Air traffic between French regions and the UK (excluding Paris-London flights) increased 2.6-fold between 1997 and 2007.

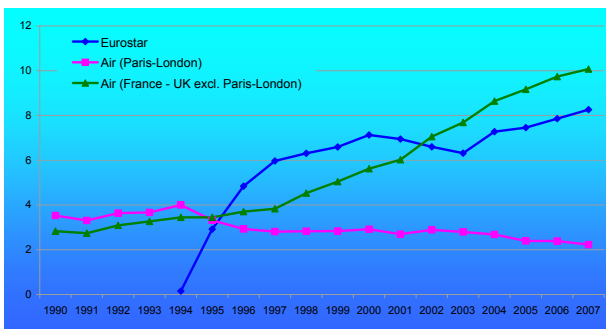


Figure 4. Air and rail cross-Channel traffic (Eurostar)
 (millions of passengers)
 Note: from January to October 2008: Eurostar traffic increased by 13.9%, air traffic between Paris and London decreased by 13.7% and air traffic between France and UK (excl. Paris-London) grew by 1.0% compared to the same period of 2007.

2. Strong growth of air traffic between the French regions and the United Kingdom: the role of low-cost companies

Since 1986, low-cost company traffic has posted over 10% growth per year. The development of air traffic between France

and the United Kingdom (excluding the Paris-London line) is marked by three major phases (see figures 5 and 6):

- From 1986 to 1990, passenger traffic increased at a very high rate of 17% per year on average mainly due to the strong increase of flight frequencies (+20% per year). During this same period, passenger traffic between France and other European countries rose by an average of 11.5% per annum;
- From 1990 to 1997, traffic increased by only 4.4% per year on average and the number of aircraft movements increased slightly (2.5% per year). At the same time, passenger traffic between France (outside Paris) and the rest of Europe¹ increased by 6.9% per year. The slowdown in traffic can be partly explained by the consequences of the Gulf War and lower economic growth;
- From 1997 to 2007, traffic increased dramatically (10% per year on average, compared to 7.2% for the rest of the European Union) with growth of the airway offer - (5.8% per year in number of movements) - and in particular the development of low-cost carriers whose market share rose to nearly 65% in 2007. However, the traffic of traditional scheduled airlines, facing strong competition, has been decreasing since the early 2000s. The growth of traffic between France and the United Kingdom remained steady even between 2000 and 2003, a period during which air transport was affected by several external events (September 2001, Iraq conflict, SARS).

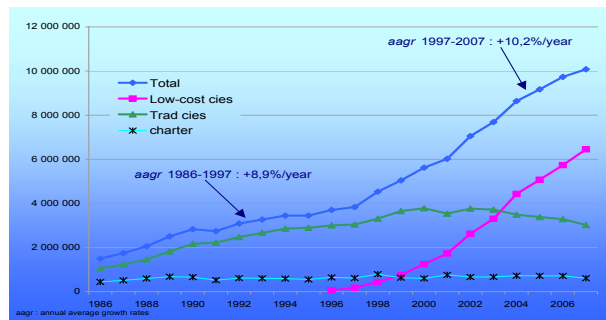


Figure 5. Air traffic between France and UK
 Note: from January to October 2008, air traffic between France and UK (excl. Paris-London) grew by 1.0% compared to the same period of 2007: +0.7% for low-cost companies, -0.01% for traditional scheduled airlines and +9.0% for charter companies.



Figure 6. Number of aircraft movements between France and UK
 (Excl. the Paris-London line, thousands of passengers)
 Note: from January to October 2008, air traffic between France and UK (excl. Paris-London) decreased by -0.04% compared to the same period of 2007: -2.2% for low-cost companies, -2.5% for traditional scheduled airlines and +19.5% for charter companies.

1. International connections between France and 26 member states of the European Union (excluding the United Kingdom) without the key competitive TGV lines.

This traffic growth has been accompanied by a sharp increase in the number of scheduled routes² - which have increased threefold between 1996 and 2007 (see figure 7) - in 2007 low-cost companies operated almost 80 routes compared to only thirty for traditional scheduled airlines.

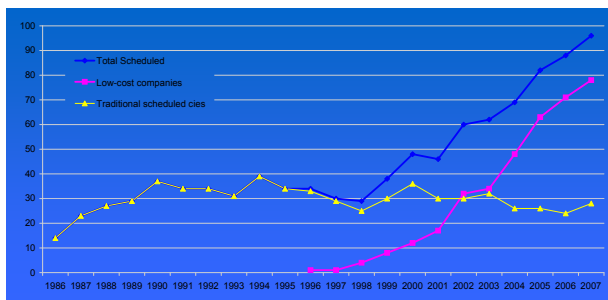


Figure 7. Number of scheduled routes² between France and UK (excl. the Paris-London line)
 Note: from January to October 2008, nearly 70 routes are operated by low-cost companies and about 30 by traditional scheduled airlines.

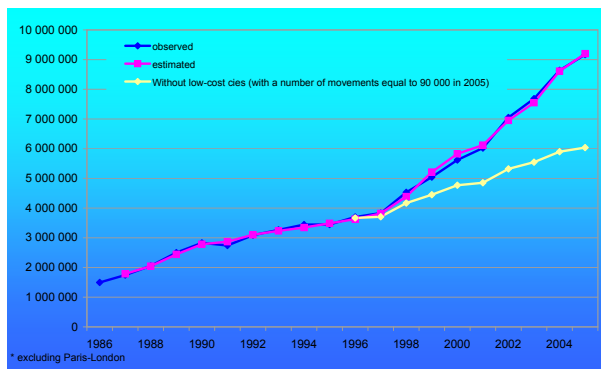


Figure 8. Estimation of air traffic between France and UK* with and without low-cost companies (passengers)

Low cost companies have created extra traffic, which accounts for one third of the total traffic.

If there hadn't been the low-cost companies, the number of aircraft movements between France and the United Kingdom (excl. the Paris-London line) would have been lower than in 2005 (116 000). The average carriage would also have been lower. If the number of movements was 90,000, the traffic in 2005 would have decreased by 34% compared to the traffic observed the same year, which would correspond to a loss of 3.1 million passengers (see figure 8). According to these assumptions, traffic would have grown from 1996 to 2005 at an average of 5.6% per year instead of 10.6%.

An econometric explanation

GDP and price variables alone cannot explain the strong growth in air traffic since 1997³

Several econometric models were developed to explain the air traffic between France and the United Kingdom. The best model takes into account the average GDP of both countries by volume (GDP) and the average price of air transport without inflation (Price TA), and also the number of aircraft movements (Mvt) and the share of movements of low-cost companies (Part BC). As for the models explaining the traffic using only GDP and price of air transport variables, they underestimate the increase in traffic between 1996 and 2005.

The price "effect" is taken into account through variables "price of air transport" and "share of low-cost". Why doesn't the variable "price of air transport" alone enable to take into account the full price effect caused by the development of low-cost companies? Two reasons can explain this:

- The calculation of average unit revenue for all companies, both low-cost and traditional, could minimize the effect linked to the drop in price offered by low cost companies only, which have an average unit revenue about 30% lower than the unit revenue of traditional companies. The passengers' response would not be in line with the price changes.
- The average unit revenue is calculated for the company's entire network. However, it is likely that traditional companies have offered, on lines in competition with low-cost companies, higher price reductions than on other lines. In this case, the tariff index selected would minimize the actual price drop between 1997 and 2005.

Apart from the price effect, the variable "share of low-cost companies" takes into account some of the effect in relation with the great range of offers of low-cost companies.

The model is as follows:

$$\ln \text{traffic}_t = -1.62 + 1.44 \ln \text{PIB}_t - 0.20 \ln \text{TA}_t \text{ price} + 0.53 \ln$$

(6.0) (-1.8*) (9.6)

$$\text{Mvt}_t + 0.64 \text{BC}_t \text{ share} + u_t$$

(5.3)

The numbers in brackets are Student 't'

Period: 1987-2005

Observations: 19

Adjusted R2: 0.997

Durbin-Watson: 1.82

*by applying a "bootstrap" test, the elastic nature of the average air price is significantly different from 0 at a 5% level.

3. What future for the Paris-London connection...

Before Eurostar, the growth of air traffic between Paris and London was steady: 7% per year between 1986 and 1994. Between 1990 and 1994, traffic grew by only 3.2% per year, due in particular to the gloomy economic situation. In 1997, three years after the launch of Eurostar, air traffic had already lost 1.2 million passengers on the Paris-London route (from 4 million in 1997) to 2.8 million in 1994, i.e. 30% of total traffic. The traffic then remained at about 3 million passengers per year until 2002. With the commercial launch of the British high-speed line in two stages (in September 2003 and November 2007), traffic dropped to 2.2 million passengers in 2007 even with low cost companies such as easyJet that operate four times with flights going there and back between Roissy and Luton. Meanwhile, Eurostar traffic grew from 6 million passengers in 1997 to over 8 million in 2007, this transport mode attracts nearly 80% of the Paris-London travellers. (see figure 9).

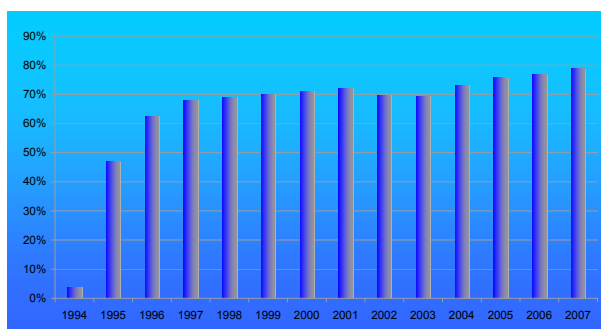


Figure 9. Paris and London Eurostar market share (% in the air traffic and Eurostar)

2. Airport-airport connections - only the routes with over 240 return flights per year.
3. Traffic France-UK excluding Paris-London.

...as the Eurostar has diverted nearly 5 million passengers from air in 2007

Without Eurostar, air traffic between Paris and London would have been higher than 7 million passengers in 2007: traffic loss due to the launch of the Eurostar is estimated at about 5 million passengers (see figure 10). With 2.2 million passengers a year, in 2007 the Paris-London line lost its position as the first international air connection departing from France, in terms of traffic volume. The Paris-Madrid line (2.3 million passengers in 2007) has now overtaken the Paris-London line.

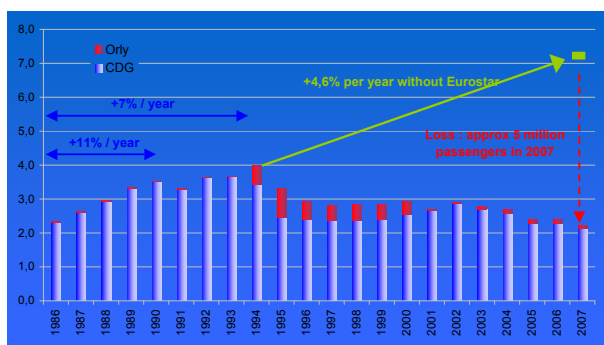


Figure 10. Air traffic between Paris and London (millions of passengers)

Nearly one third of the Paris-London line passengers have connecting flights departing from Paris or London.

These customers are less interested in the Eurostar offer, which does not serve Heathrow or Roissy directly

	Millions of passengers	Distribution
Traffic origin-destination	1,6	69%
Interconnecting passengers in Paris or London	0,7	31%
Paris-London Line	2,4	100%

The OD traffic and the interconnections on the Paris-London airline in 2006

Source: MIDT

With increasing competition from the Eurostar since November 2007, air traffic should fall by 15 % to 20 % in 2008

Since the 14 November last year, London is only 2h15 from Paris with Eurostar, instead of 2h35, Saint-Pancras being the new London Eurostar terminal instead of Waterloo. This twenty minute reduction in the journey time should cause an approximate diversion rate of air passengers to Eurostar of 15 %⁴. By taking into account the drop of traffic observed before November 2007 and the improvement of the Eurostar offer, the flow of air passengers between Paris and London should reach 1.76 to 1.90 million passengers in 2008 (figure 11).

	Eurostar Time	Paris-London	Traffic diverted from plane to Eurostar* Diversion rate*
2008	20 minutes time saving (2h15 instead of 2h35)	About 300 000 to 350 000 passengers	15 %

The impact of the improved Eurostar offer on Paris-London air traffic in 2008

*Traffic loss (relative and absolute value) compared with the base situation equals the lack of improvement of the Eurostar offer. This calculation is based on the assumption that easyjet continues using the Paris-Luton line.

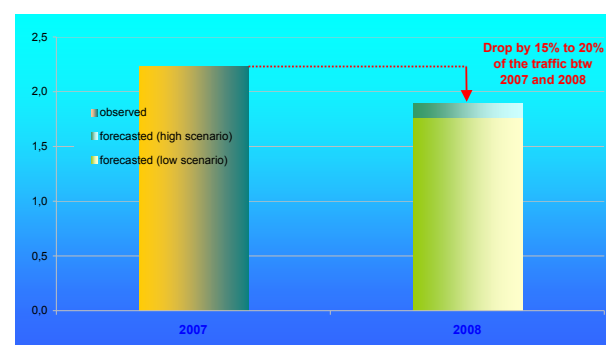


Figure 11. Air traffic between Paris and London (millions of passengers)

4. This diversion rate was calculated with a logit model explaining the plane/train market share from times, frequencies and fares of both modes and by differentiating the OD traffic and the interconnecting air passengers. The traffic caused by the improvement of the railway offer was also taken into account in the calculations. This diversion rate is the variation of the traffic between the base situation (without improvement of the railway offer) and the project situation (with improvement of the railway offer) in 2008.

For this last issue of the "notes thématiques de la Dast" which will soon be back in a new format, I would like to thank the whole team of "Prospective et veille stratégique" led by Elisabeth Bouffard-Savary, who was determined to combine, in these documents, a recent and "thorough" analysis of the major themes of civil aviation in the most communicating way possible, thanks especially to the valuable help of the DGAC's communication team.

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