The Transport Economist

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THE TRANSPORT ECONOMIST

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Editor
Peter Gordon

Developing an economic appraisal framework for walking, cycling schemes

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7 October 2007

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1 INTRODUCTION

Andy began by introducing Sustrans, summarising its aims, funding and the work it does. He then explained why Sustrans is interested in economic appraisal, the reasons given including justification, credibility and funding, and pointed out that for a long time there was no appraisal framework for walking and cycling schemes, a situation that put initiatives that promote these modes at a disadvantage.

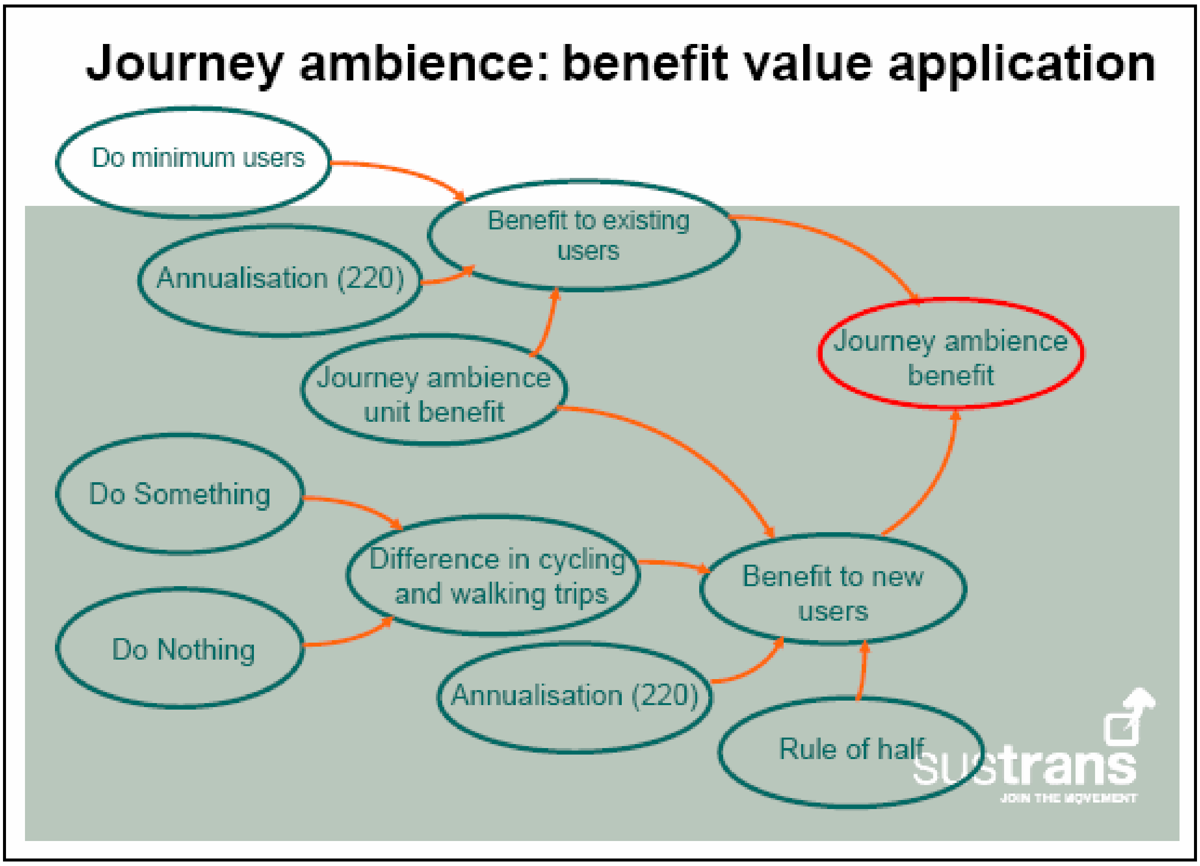
2 APPRAISING WALKING AND CYCLING

Andy spoke briefly about the development of a module in WebTAG (the web-based repository of guidance and tools for applying standard government methods) covering walking and cycling. After initial work by TRL, Leeds Institute of Transport Studies (ITS) had been commissioned and it involved Sustrans and the University of Bolton in its team.

The methods of estimating a number of benefits relevant to walking and cycling were then presented in diagram form. The benefits described were:

- Environment (carbon only)
- Decongestion
- Physical fitness
- Accident reduction
- Absenteeism reduction
- Journey ambience

An example of the diagrams is presented below in the form of a flowchart showing the derivation of estimated benefit for journey ambience.



Andy then showed how all the various types of benefit had been gathered, together with the costs, to produce a tabulation of total impacts for three case study schemes which differed in nature and magnitude. The benefit-cost ratios for these schemes varied from 11.7:1 for a road crossing to 22.1:1 for a long stretch of traffic-free walk and cycle route. It was noted that the proportional contributions of journey ambience and physical fitness differed significantly across the three schemes.

Andy then summarised some of his concerns with findings to date:

- Values for certain of the benefits had been derived and the numbers arrived at were dubious

- Forecasting the volume of travel as a result of interventions was very difficult

- Some interventions, such as individualised travel marketing, had impacts beyond walking and cycling, and these wider impacts were not yet being captured

- There seemed no way of dealing with “extremely innovative” schemes

On forecasting, Andy cited a conclusion, from work by ITS, that the lack of data on user response to walking and cycling interventions may mean that impacts are being underestimated. He also drew attention to TEMPRO’s implicit assumption that there would be significant reductions in walking and cycling over the coming years, which he suggested lacked credibility.

3 ASSIGNING A VALUE TO PHYSICAL ACTIVITY

Going into more detail, Andy explained that the estimation of physical fitness benefits derived from estimates of numbers dying nationwide from coronary heart disease, stroke and colon cancer, resulting in an estimate of £122.93 of benefit per annum for each new cyclist or pedestrian. This method was felt to lack sophistication, taking a threshold rather than a dose approach to the impact of exercise, taking only three causes of preventable death into account, and attributing benefit only to deaths prevented rather than accounting for the fuller impacts of illness. This was at odds with international work led by the WHO, due to be published later in the year. While this too has its weaknesses, including the fact that it relates only to cycling, it is more comprehensive than the work done to inform the WebTAG module. The early indications are that the WHO approach will lead to larger estimates of physical fitness benefits.[1]

4 APPRAISING TRAVELSMART

TravelSmart is Sustrans’ personal travel planning (PTP) method. Andy presented the list of benefit types that had been estimated in the walking/cycling examples discussed above, suggesting that TravelSmart could be claimed to have positive effects under all the headings except ambience, because PTP does not affect in a primary way the physical environment in which travel takes place. Andy noted, in passing, how large a part of the benefits had been accounted for by ambience in the previous examples.

[1] The tool for calculating physical activity benefits from cycling was due to be launched by WHO on 29th November at the 'Evaluation in a Nutshell' conference in Nottingham.

An appraisal had been attempted of the Peterborough TravelSmart project, building upon the survey data produced by Socialdata's monitoring of the intervention. Though it had a healthy benefit-cost ratio, the calculation included a very large cost, resulting from lost fuel tax revenue, many orders of magnitude larger than the cost of delivering the scheme. Were those costs not counting against the scheme, the BCR would be very large indeed. Andy remarked that the use of the same flawed approach to valuing physical activity benefits as in the walking/cycling examples discussed above would be likely to disadvantage the scheme. A generally conservative approach to assumptions had probably also led to understatement.

5 CONNECT2

Andy turned to Connect2, one of several initiatives vying for a major funding pot from the National Lottery (Living Landmarks: The People's Millions). He described it as a series of projects to link disconnected parts of our towns and cities and went on to present a series of examples where infrastructure was proposed to remove or reduce pedestrian and cycling severance (a pedestrian bridge in Glasgow that touches the ground on only one side is particularly striking). In certain cases, the introduction of a link would have a significant effect on network connectivity.

Andy said that the Connect2 concept presented some significant challenges in terms of calculating value for money, not least because tools do not exist for estimating demand in such circumstances. Andy then listed the following difficult areas: modal transfer, physical activity, accessibility, inclusivity, empowerment. Such concepts needed to be grappled with for future such projects to be prioritised and justified.

6 CONCLUSION

Andy picked out the following "issues requiring attention":

- Physical activity benefit value: pedestrians, children
- Other monetisation data – journey ambience, social cost of carbon
- Monitoring of schemes; modelling user response
- Frameworks to monitor the 'more innovative' scheme (such as Connect2)

Andy he concluded by explaining the next steps he and colleagues would be taking:

- Review WebTAG guidance in light of WHO study findings
- Re-appraisal of Links to Schools schemes
- Test appraisals of a range of environmental interventions
- Test application to Travel Smart project
- A plan to address Connect2 type schemes

7 DISCUSSION

Dick Dunmore (Steer Davies Gleave) asked whether empirical evidence on the use of, say, the Jubilee (Hungerford) Bridge could be used to estimate the effects of Connect2 initiatives. *Andy responded that he had not seen any data of this sort and that he believed Sustrans held the best data available. Much could be learnt from it but this required significant investment in its analysis.*

Jeremy Drew suggested that an increase in walking and cycling might lead to more accidents (despite the reduction in car use) as incidents of conflict increased, citing work by Professor Andrew Evans on the journey to stations. *Andy said that this argument had been considered but ruled out.*

Stephen Bennett (local authority member) remarked that many councils are interested in the Connect2-type interventions given their very good returns on investment, but asked if Sustrans did not already know how to prioritise schemes. Andy replied that a non-economic appraisal of Connect2 candidates had been carried out and that this had informed the set being put forward for Lottery funding, but an economic appraisal had not been attempted. Stephen Bennett retorted that, in the rail field, a certain level of footfall was required to justify a new station, so a similar benchmark was needed here. *Andy responded that his engineering colleagues had a reasonable idea of such things but this was a genuinely different entity – the unlocking of a network. This prompted Stephen Bennett to suggest that Sustrans was therefore beyond its competence. Andy said that Sustrans does try to innovate and that EPSRC would be spending £4 million on the evaluation of Connect2.*

Professor Roger Mackett (UCL) expressed concern that the typical scheme is small and wondered whether it would therefore deliver any modal shift. *Andy confirmed that the largest of the schemes was in the £5-10 million category, explaining that schemes were planned for both* *big cities and smaller places. He was not sure what level of modal shift would be seen but this could be evaluated retrospectively. He pointed out in passing that the introduction of short-cuts can reduce benefits (in appraisal terms) as people take less physical exercise to reach the same destination.*

Gregory Marchant, referring to a specific proposal to introduce a bridge over a road where there are currently two steep banks, pointed out that footbridges over railways are typically rated very poorly in terms of personal security and general aesthetics. Would it not make more sense in this situation to introduce a pedestrian crossing of the road at the point in question? *Andy drew attention to the inconvenience and danger of the two banks and pointed out that footbridges tended to be of a rather higher standard these days. That said, Sustrans was working with environmental psychologists on good design. He aspired to be able to compare a bridge with a signalised crossing but currently lacked the means. It was pointed out that the "stop-start" conditions that a pelican crossing might create could have negative carbon effects.*

Tim Yates spoke, as a pedestrian, of his antipathy towards cyclists. He asked Andy's views on segregation. *Andy's answer was "horses for courses". He pointed out that no National Cycle Network route was at capacity so no one group was forcing another out (yet). While not appraising it, Sustrans has been researching conflict and the environmental psychologists' view is that much of the conflict is perceived.*

Dick Dunmore asked about the different effects (in terms of health and absenteeism) of weekend activity as opposed to commuting. Would not a complete appraisal start with a full picture of baseline fitness? *Andy agreed, saying that the tension between threshold and dose approaches to assessment remained, with dose appearing the stronger contender.*

Helen Bowkett (Peter Brett Associates) asked whether the climate was taken into account in annualisation factors, citing stated preference work in Canterbury that had shown how significant weather was in travel decisions. *Andy stated that the DfT standard annualisation factor is 220 but that 117 had been used in the Copenhagen work. The value for TravelSmart is 341. Dick Dunmore conjectured that annualisation factors are geographically specific.*

Ko Sakamoto (TRL) suggested that a useful step might be to disaggregate costs and benefits by economic actor, for example showing that the loss to the treasury was a saving for consumers, and that employers benefit from absenteeism savings. Dwelling on this, he pointed out that employees had no desire to be sick – was there not a benefit to them as individuals from good health? This could be explored through discussion with the NHS or employee councils. Andy very much agreed, saying that Sustrans needed to do more of this and drawing attention in particular to the Obesity Foresight report which included costs for the potential harm.

Gillian Beardwood asked whether, rather than mode shift, the significant impact of Sustrans' interventions was redistribution in the form of longer walking and cycling trips or destination change.

Gregory Marchant drew a parallel between the tax problems referred to by Andy and the smoking debate, asking whether there had been any contact between Sustrans and ASH. *Andy replied that this was worth thinking about but had not yet happened.*

Any winners?

The possible and likely impacts of Open Skies

Chris Tarry
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28 November 2007

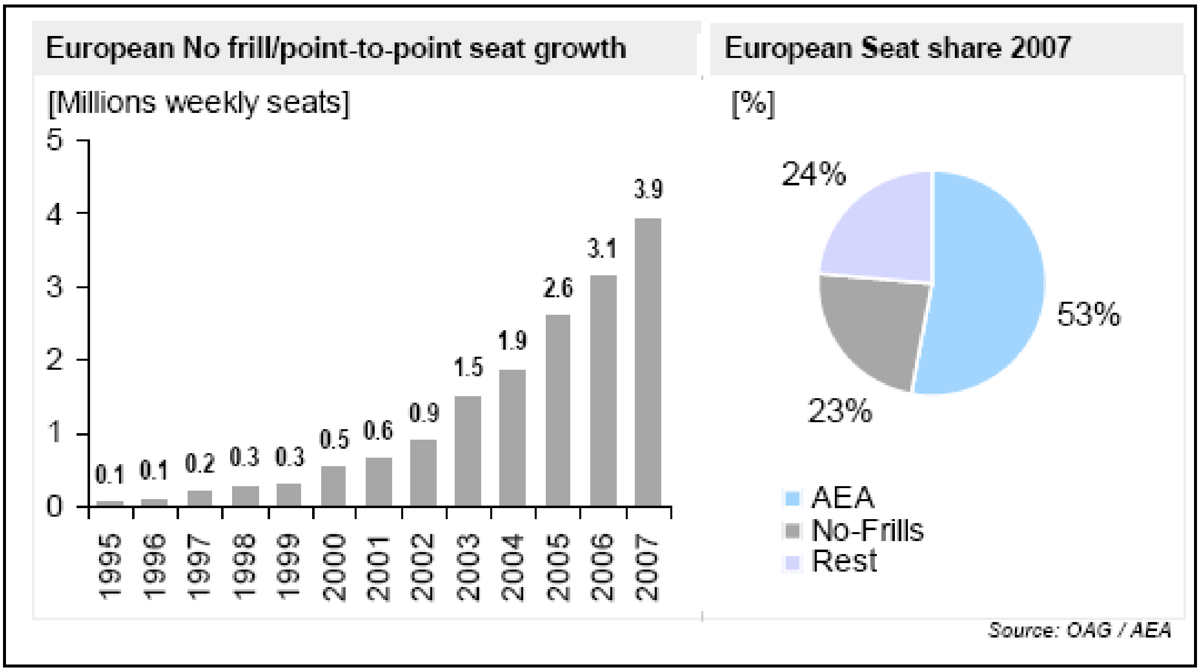
Overview

Chris summarised his career including 18 years as an analyst in aviation and European surface transport. He recently advised easyJet on its purchase of GB Airways and is currently a member of an advisory group to the CAA on airport charging. He stressed, however, that the views expressed were his own and should not be attributed to any other party.

The EU air transport market

The key feature of the European market is the continuing process of liberalisation. The third package has liberalised intra-EU travel, and there has been extra-EU liberalisation at a country level. Singapore has "open skies" deals with Germany and the Netherlands and has recently completed one with the UK, in principle enabling it to serve North America via London.

Figure 1: Europe's changing industry structure

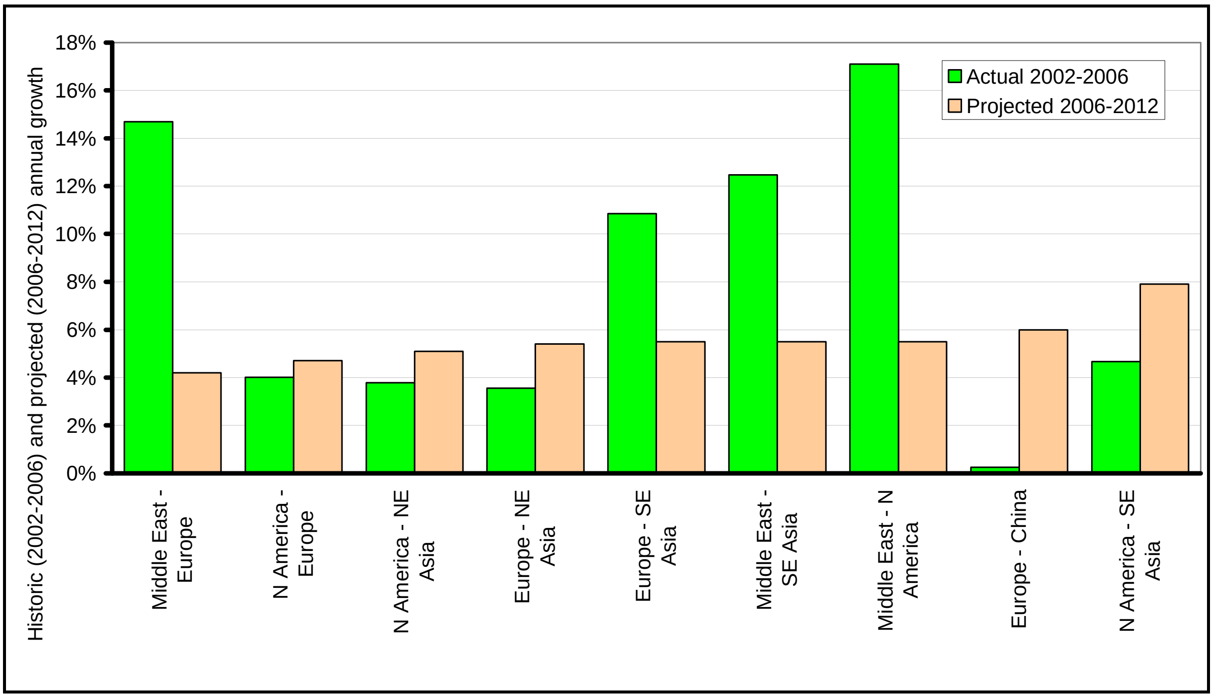


There has been a high birth rate of "New Model Airlines" (NMAs) since the beginning of the decade, and the major players within Europe are now Ryanair and easyJet. Increasingly, however, the new airlines are substituting for and replacing the legacy carriers rather than directly expanding the market. EasyJet's positioning was for yield enrichment, Vueling had "torn up its plans" and there were "new messages" from Air Berlin. Consolidation was likely, but this would be through exit as well as acquisition, and this would affect both the NMAs and the legacy carriers.

Chris felt that the EU/US Open Skies deal, due to come into effect in March 2008, the start of the summer season, had been "a bit of a surprise". Past attempts had foundered on issues at Heathrow, such as Karel van Miert's proposal that BA surrender 256 slots, which at the time was estimated would have cost BA £400 million per annum. Heathrow would remain the focus of change.

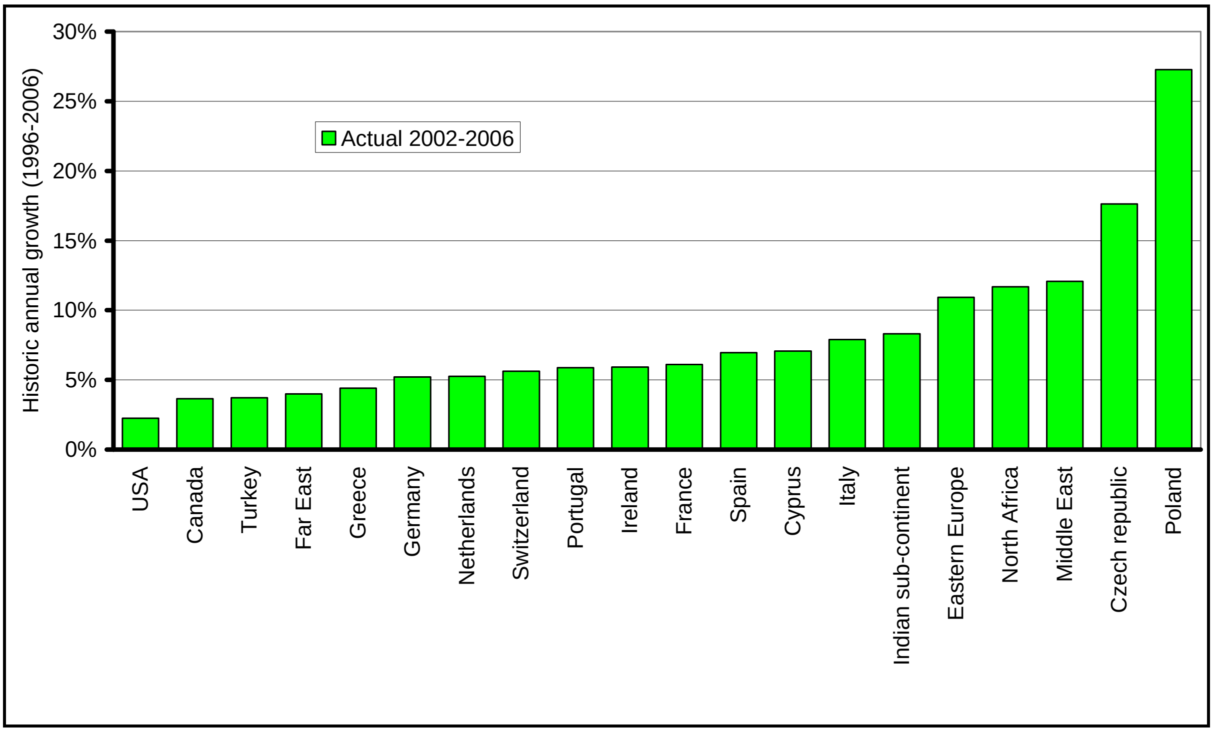
Boeing's commercial market outlook for the period to 2012, shown in Figure 2 below, shows the expected effects of liberalising between Europe and China (6% annual growth) but anticipates only relatively slow growth in the market between North America and Europe which Chris characterised, like the internal North American market, as mature.

Figure 2: Forecast growth rates (Boeing commercial market outlook)



A similar effect could be seen in the market for travel to and from the UK, as shown in Figure 3.

Figure 3: Growth rates from the UK 1996-2006



The market between the UK and the USA and Canada has seen the least growth over the last decade. Most extra travel to and from the UK has been to and from Spain (17.1 million extra passengers), Italy, Ireland, France and Germany, with the USA sixth (3.7 million extra passengers). Data for the shorter term showed the same effect, with only 7% growth, or less than 2% per annum, in UK-USA markets from 2002 to 2006 compared, for example, with a doubling of traffic between the UK and liberalising India.

Data for individual routes showed the same effect: both the North Atlantic and US domestic markets were mature.

There had also been few changes in the overall pattern of services across the North Atlantic between 2000 and 2007. BA had made no money serving San Diego, from which it had withdrawn, and its services to Detroit were also now ended. It is difficult to see where wholly new services could be opened, although one possibility would be Philadelphia to London.

One result is low yield, which have been flat at around 8c/RPK (Revenue Passenger Kilometre), with any recent rise coming from mix effects. The net return to the airline of a London to New York return is, Chris estimated, only around £120 for passengers in the back of the cabin.

Figure 4: 2007 fares London to New York (out 6 June, back 13 June)

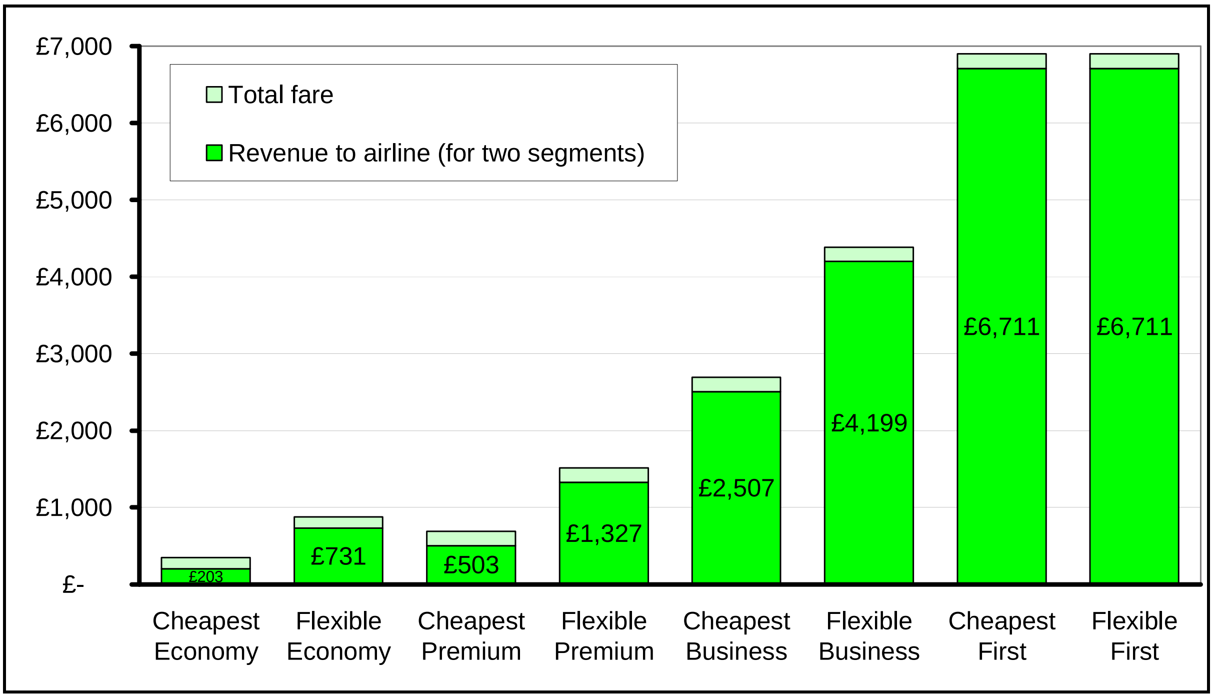


Figure 4, using data provided by BA on 26 April 2007, shows the range of fares currently available between London and New York, although it excludes BA's own cheapest Business fare of £1198 return which, Chris estimates, results in a net yield of £480-490 per sector.

In addition, while profit expectations have continued to improve in 2007, the near term outlook is mixed. Costs are under pressure, particularly with rising fuel prices. Long haul markets have benefited from cyclical improvements in mix, but these will eventually reverse. GDP remains the key driver of traffic for most airlines, and increasing competition has resulted in a structural shift in the price curve in some markets. The US financial markets are faltering and the question is when the next peak will come. This is likely to be in 2008, although weakening economies may mean that, with hindsight, it has already happened in 2007.

Open Skies

The focus of discussion of Open Skies has been increased international access for US and EU carriers. This is not wholly new, as country level Open Skies was often a prerequisite of antitrust approval for alliances by US airlines. When BA and AA first sought antitrust immunity, capacity to compete with them at Heathrow was also seen as a critical requirement: hence the proposal for a forced slot surrender.

Stage 1 of Open Skies addresses the issues of access, rather than those of ownership, but the market will not be fully open, and the USA will retain its nationalistic "Fly America" policy. The projected Stage 2, to follow in 2010, will deal with "further liberalisation" (which may mean cabotage in the USA), "additional foreign investment opportunities (higher non-domestic ownership), "further access to government financed air transportation" (less or no Fly America) and "provision of aircraft with crew".

In principle, if agreement on Stage 2 cannot be reached, then any EU Member State can suspect the rights under Stage 1, effectively ending the arrangement after only two years. In practice, Chris thought that this was unlikely to happen. David Starkie asked if Open Skies had the status of a formal treaty: Chris was not certain but noted that US lawyers were almost certain to seek work from challenging it.

A further change may emerge if Canada enters Open Skies enabling, for example, Toronto to act as a hub between the US West and Europe.

There is already evidence that more US carriers will be operating from Heathrow in 2008: Delta, Northwest and Continental have all acquired slots. The going rate is thought to be around £40-50 million for a pair serving the peak hours for UK-USA routes.

However, the effect of Open Skies remains unclear. New market access would only be worthwhile if it would be profitable, and there are markets where this is not the case: BA cannot make money serving Australia, and there is little scope for profit in the Indian domestic market, which is suffering from over-capacity. With the domestic US market similarly over-supplied, why would it be attractive to EU carriers through either entry or acquisition? Heathrow may effectively be a (necessary) loss-leader to attract connecting passengers onto US domestic sector.

Chris argued that, to get the most out of Open Skies, airlines would need a presence in the end markets, rather than just between them. In practice EU airlines will not have such access and are unlikely to find it attractive in current market conditions. Why would investors want to enter a mature market with one of the slowest growth rates and flat yields? With the low project growth rates on the North Atlantic, Open Skies was more likely to be closer to a zero sum game, with the main challenges arising from changes in the competitive dynamics. Chris thought that the overall effect would be increased competition, particularly in the business class cabin, rather than market expansion.

Airlines will need to compete more on elements of service offer, rather than route network. BA and Virgin offer a good Business Class and United has just added beds to its Frankfurt services. However, the value of these innovations may depend on whether the customer is the passenger or a more cost-conscious corporate travel buyer. European carriers such as BA may start to offer service from outside their home bases but, as with Go, will faces issues of what brand to adopt and what classes to offer. A BA service between Frankfurt and the USA would be at low frequency compared with Lufthansa and would have to target particular key travel times.

Premium-only services may become more important and can offer quality benefits. Lufthansa, Swiss, Air France and KLM all operate some form of premium services, and there are three “own brand” airlines operating from the UK and one from France. Silverjet has its own terminals at Luton and Newark and offers a 30-minute check-in time. All aim to replace Concorde as the optimum business service, for example with an early London departure allowing a near-full working day in New York. However, Silverjet is currently seeking more funds and the share prices of these businesses are low: their emergence may be better for passengers than for investors. It is not clear whether and how such standalone models will survive, develop and prosper.

A "back of the envelope" calculation illustrates the opportunity for business only services. Assuming around 3000 hours utilisation a year, a Boeing Business Jet costs around £5-6,000 per hour in airline service. With a total sector time to New York of 8 hours, this means a cost of £40-48,000, to be recovered from an achievable one-way revenue of around £1,700 per passenger. Thirty full seats bring in £51,000 and 48 full seats bring in £81,600. However, Chris argued that an existing airline would need to leverage its brand established brand and to operate in a way which does not cannibalise existing traffic. In essence this means targeting competitors' hubs.

The effect, role and endurance of the alliances is also unclear: their role will change, and value may fall, as airlines have less need to cooperate to serve transatlantic markets.

In summary:

- Open Skies is likely to be largely a zero sum game in terms of traffic, but possibly with a decline in yields
- The main battleground will be the premium cabins
- There are signs of product convergence
- The new US entrants at Heathrow will have a new offer to their corporate clients
- The weak dollar favours the US airlines pricing for services outside the USA
- There is an inevitable weakness in premium markets, given the outlook for the economies and financial markets: the air markets have tended to track the FTSE and Dow-Jones indices

Low cost long haul?

Some low cost long haul activity is already evident. European charter operators are moving further afield as the NMAs compete in their traditional short haul markets. First Choice will be an early operator of the Boeing 787. Outside Europe, Oasis is operating out of Hong Kong, Jetstar is expanding outside Australia, and AirAsia X may fly to Manchester. Operators will have the advantage of starting with a blank sheet of paper, although in practice it will probably be necessary to have a two-class product.

Conclusions

In summing up, Chris concluded that the rules of economics do apply to aviation. Looking forward:

- The economy is likely to weaken.
- There has been no expected “wall of orders” in the USA, but there is already a risk to load factors there.
- Capacity imbalances are evident, including the newly-liberalised markets. Too much capacity is likely to enter the short haul market, particularly in Europe.
- Adjustments are needed, but will be neither instant nor costless. There is some evidence that airlines are already re-evaluating their order books and option position. Over-ordering airlines may be squeezed for cash by pre-delivery payments, and will find no market for 7-9 year old aircraft.
- The inevitable effect on fares and revenue is now becoming more evident through airline profit warnings, with more to come.

Questions

Peter Gordon (DeltaRail) noted that BA had reported good margins, although Virgin has lower returns. How is the future looking? *Chris thought that all airlines would face pressures. Virgin relies a lot on leisure traffic, which is low yield, and does not have a feed network, although BMI might do this for it. He also wondered where airlines would go after the flat bed: the next issue may be a better passage through the airport, which Virgin is already addressing.*

David Starkie (Economics-Plus) noted that the first BA flight did not reach JFK until mid-morning (BA0117 leaves at 0820 and arrives at 1100) and agreed that an 0700 departure would be an attractive alternative. If the market is really zero sum, should BA be selling slots in the hope of them later becoming cheaper? *Chris thought that this was an interesting question. In the past, BA could not readily sell slots and hence had no mechanism to cash out of its loss-making short haul services. His own model suggests that slot prices at Heathrow have now peaked, as the US carriers have what they need, and future trading is more likely to be for flights to the Middle East which are at different times. Either runway 3 or mixed mode (which could be even more contentious) would depress prices. Willie Walsh has said that more slots at Heathrow would allow BA to expand its range of destinations, but any* *destinations not currently served would almost certainly be of lower value.*

Stephen Bennett (retired) noted that BA was keen on carbon trading. Chris had intended to include a slide on the environment (Brian Pearce, Chief Economist at IATA, was a good speaker on this). BA brings in £400 million of Air Passenger Duty (APD) but would, at current rates, pay only £90 million for carbon permits, so APD would not go away if carbon trading came in. He had asked Department for Transport what level of aviation activity meets both economic and environmental objectives, and had got no answer. *While the industry is fixated on asserting that it only contributes 3%, or 4%, or 5% of the problem, in practice current and proposed taxes are too small to affect demand materially. In particular, train will never be attractive to cover much of the EU, at best being restricted to shorter journeys in denser and/or wealthier areas.*

Dick Dunmore (Steer Davies Gleave) noted that with the 1993 single market little change had been predicted – all routes attractive to new entry served at least one congested airport – but the NMAs had emerged. What might we be overlooking in assessing Open Skies? *Chris thought that the issues were different: short haul VFR markets could be grown, but long haul leisure showed less potential, especially given the accommodation costs of a trip.*

Dick also asked about the airport model: different airlines now demand everything from a minimalist shed to a private terminal offering a shuffle from armchair to armchair. *Chris thought that the model would change, and was sceptical about the prices currently being paid for the airports. Everyone seems to be basing valuations on London City, which is hardly typical.*

David Starkie asked whether the regulators had been fair to BA and AA. Chris thought probably not, but looking forward under Open Skies the question would be whether they would remain committed to such alliances. *Bilateral deals to provide codeshares and feeds may prove more important: Aer Lingus and JetBlue are feeding each other.*

David Spurling wondered whether forecasts were affected by the US income distribution. *Chris thought that only a small proportion of the US population has passports and flies internationally, but the dollar will still fall further.*

Peter Gordon wondered whether Delta's expansion outside the USA was sensible. *Chris thought that Continental had done well, with Newark as a hub for Europe, but airlines would need the right planes to make expansion a success. Emirates is already stretching into secondary cities.*

Report by Dick Dunmore

Developments in airline pricing and yield management

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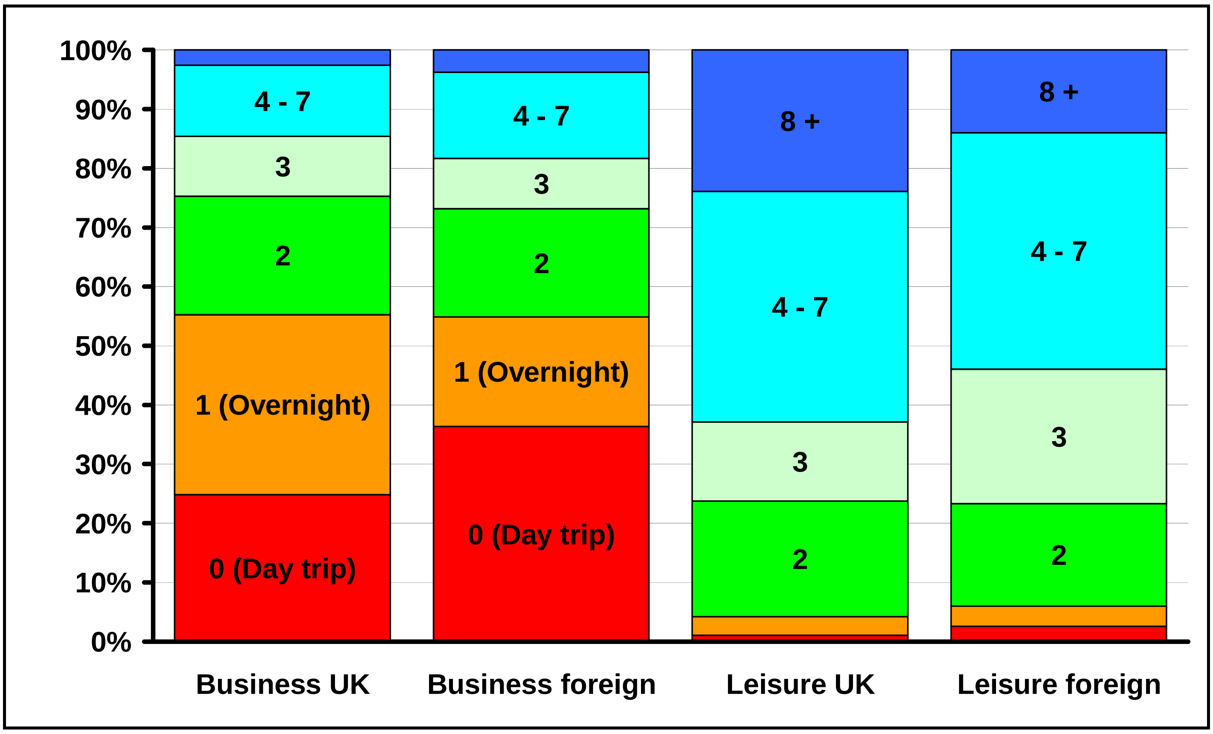
23 January 2008

Historically, the most expensive tickets sold by airlines were full IATA fares valid on any airline and flight, which allowed unlimited changes, refunds and free stopovers. Next were flexible point-to-point fares, which were only valid on one airline and did not allow stopovers but still allowed changes and refunds. Excursion fares were cheaper but required advance purchase and a minimum stay and were capacity-controlled. There were also fares limited to specific categories of traveller and Group/Inclusive Tour fares.

The figure below shows the average number of nights spent away by each type of international passenger at London City Airport.



Source: derived from CAA surveys

Around 55% of business travellers are away for a day trip or overnight (which is more common among UK-based passengers who need to travel the night before to make an early morning meeting). Only around 3% of business travellers stay more than a week. Among leisure passengers, in contrast, almost none make a day or overnight trip, more than half are aware for at least 4 nights and many are away for a week or more.

Historically, therefore, the only fare permitting a single trip or return without a Saturday night away was a full business fare, or in the case of some airlines such as BA, a "eurobudget" ticket giving 15% discount.

Low cost airlines developed a wholly new pricing structure based on one-way pricing, with the fare dependent only on time of day (with more charged at peak times) and the time of booking (with fares rising as the date of travel approached).

Ryanair advertised fares to Frankfurt (or Hahn to be more accurate) of £69 against BA's unrestricted fare of £374. BA claimed that this was misleading as they offered fares as low as £89, but the High Court largely rejected BA's complaint owing to the presence of the Saturday night stay.

Not all business travellers are the same, as shown below.

Insensitive to price	Sensitive to price
Around two-thirds of market	Around one-third of market
Work for major companies	Work in public sector
Self-important	Self-employed
High-to-medium salary	Medium-to-low salary
Must make trip at given time	Trip could be rescheduled
Family	No family
Time is too valuable	Time is traded off for price
Most convenient flight	Reasonably priced flight
Use major airlines	Use budget airlines

Budget airlines generally increase prices closer to the time of travel, with a simplistic example for a 150-seater shown in the table below.

Weeks before travel	Seats remaining	Price
12+	130-150	£0
8-12	110-130	£20
4-8	90-110	£40
2-4	70-90	£60
1-2	50-70	£80
0-1	0-50	£100

The price of each seat is the higher of that determined by the number of number of weeks before travel and the number of seats remaining and will therefore vary from flight to flight according to the rate at which bookings are made. Typically, at an 80% load factor, with 120 seats sold, the average yield will be £50 per passenger. Additionally, different tables may apply at different times of the week. For example, the cheapest fares may be unavailable after 1200 on Thursdays, Fridays or Sundays, or before 1200 on Mondays, Tuesdays or Wednesdays.

The response of the major airlines was to move from the Saturday night rule to a "Saturday night or two nights" rule on the cheapest fares.

In 2002 BA abolished minimum stays on cheap short-haul flights from the UK (although often not when booked in the foreign country) whilst bmi introduced low one-way fares.

The speaker undertook an exercise in 2002 looking at fares from London airports to Edinburgh for travel on Wed 1 May (the next day), Wed 8 May (a week ahead) and Wed 29 May (a month ahead). The fares include taxes and charges and assume debit card payment and an e-ticket.

Airline	**Airport**	**Time of booking ahead**		
		1 day	**7 days**	**1 month**
BA	Heathrow	£104-234	£64-234	£64-119
bmi	Heathrow	£63-74	£63-139	£63-104
Scot	City	£238-344	£238-344	£238-344
BA	Gatwick	£68-163	£88-173	£63-83
easyJet	Gatwick	£105	£75-80	£35-55
easyJet	Luton	£105-205	£75	£40-65
Go	Stansted	£98-118	£98	£98
Ryanair (Prestwick)	Stansted	£39-69	£23-41	£23-28

Major carriers still retain a more sophisticated system.

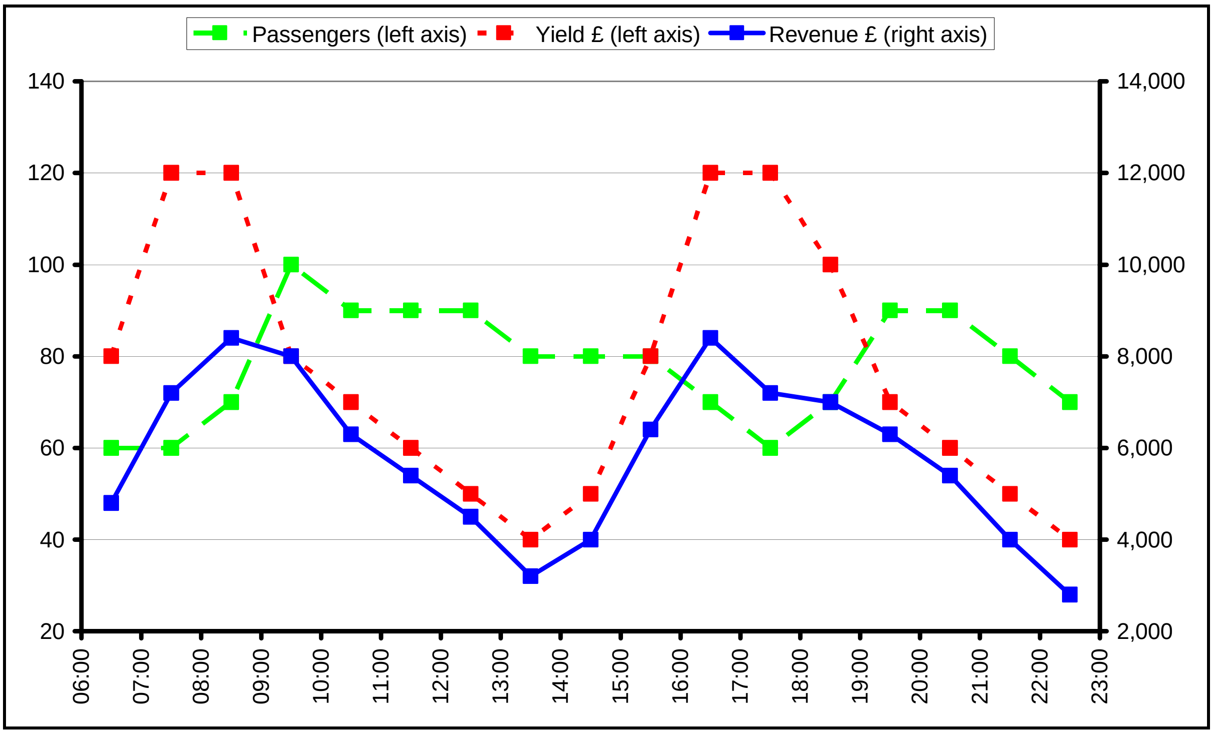
BA categorise each short-haul flight into nine groups depending on forecast local demand in relation to the seats available. Pricing is then used to redirect demand. This is as far as low cost carriers tend to go.

Connecting passengers are priced separately. Some airlines prioritise all connecting traffic, even if to a peak flight.

Different flights may have different profiles. Fares on an 07:00 departure may be very cheap if booked two months in advance and then go very high in the last few weeks. Those on the 09:30 flight may start higher but not go up by much.

BA sells its cheapest tickets as returns. To minimise dilution but continue to bring in passengers for flights that are not full, its booking system can look at the choice of outward flight before pricing the return.

Load factors may be lower at peak times, as the airline prefers to keep fares high to avoid dilution and ensure availability. At times of low demand it is happy to sell most of the flight at very cheap fares and achieve a very high load factor.



On the (hypothetical) 100-seater route shown above, only one flight, (09:30), is full, with an average yield of £80 per passenger and revenue of £8,000. Thereafter load factors decline, despite falling yields, but reach a minimum at 17:30, when yield rises to £120 and seats remain available for those willing to pay for them.

Recent pricing strategy on European routes

BA has no minimum stay on cheap fares for travel starting in the UK and some other European countries, but retains a two-day minimum stay rule from other origins. Single fares are the highest fare that applies when a flight is sold as half a return trip.

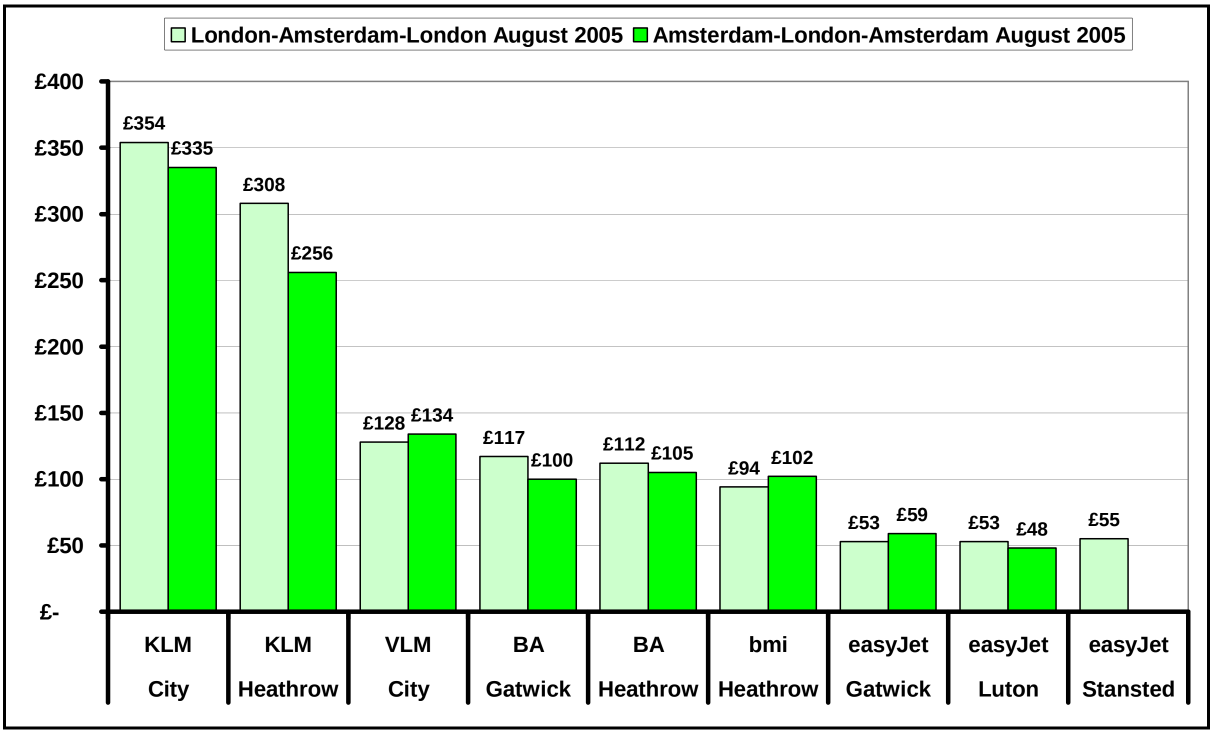
Air France matched BA for bookings on UK routes, but retains the traditional structure elsewhere.

KLM reduced many excursion fares but retains a two night minimum stay, even in the UK.

Lufthansa has some cheap fares with no minimum stay available from both ends of UK-Germany routes.

bmi and Aer Lingus matched the low-cost carriers tariff structure.

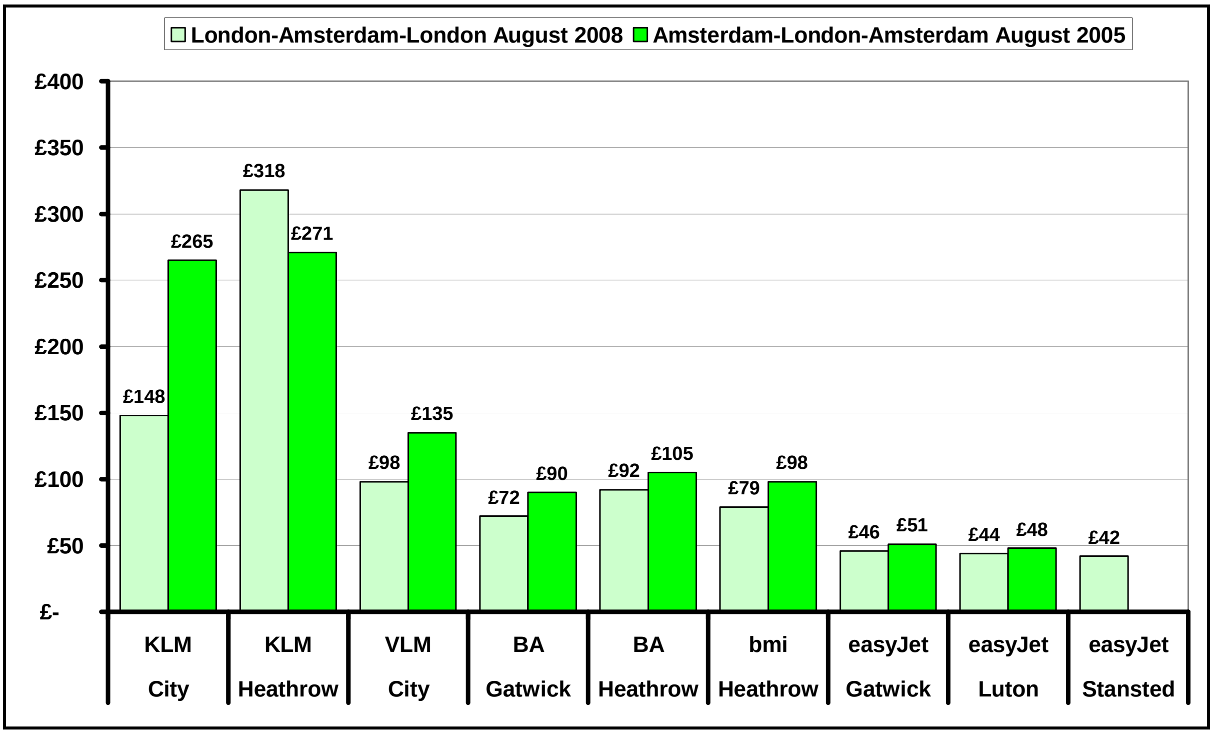
The speaker showed the cheapest fares available on the London – Amsterdam route for a day return trip on Wednesday 31 August 2005 booked three weeks in advance, leaving by 09:00, returning from 17:00.



Source: airline websites. Rates include taxes and charges

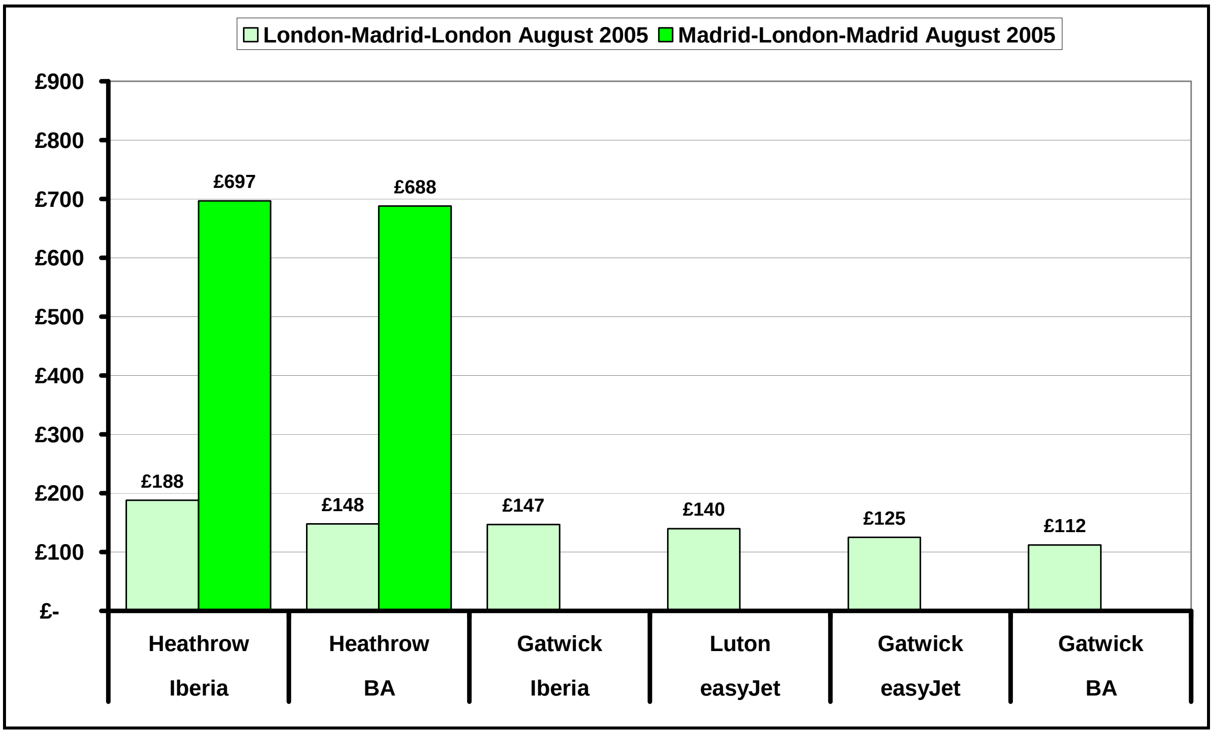
Fare levels vary significantly by direction, partly because of the convenience and timing of flights in each directions.

He had then repeated the exercise for Wednesday 30 January 2008.



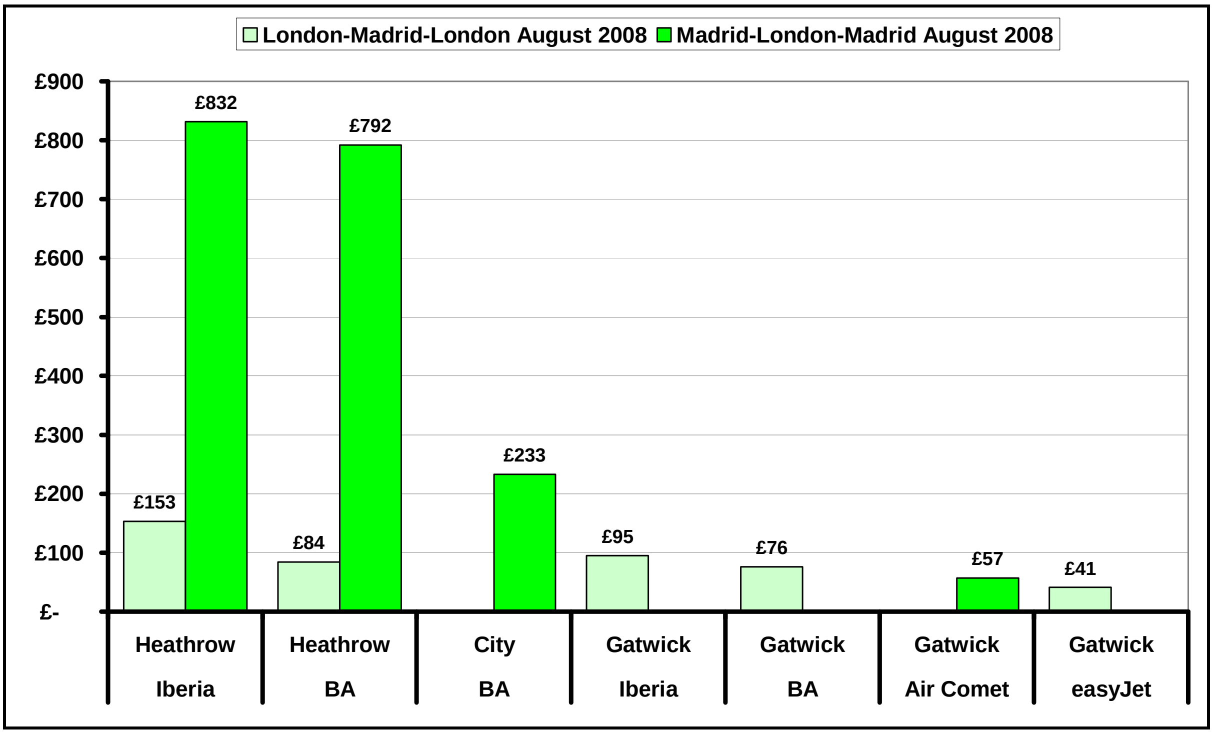
Note that nominal fares have declined relative to 2005 (which may be partly a seasonal difference).

Fares to Madrid, again for the 31st August 2005 and booked three weeks in advance, show a different story.



Return day trips out of Madrid on Iberia and BA are around 4 times more expensive, as the easyJet flights are not suitable for a day trip if starting in Madrid.

The comparable situation for 30 January 2008, again booked three weeks in advance, is shown below on the same scale.



While fares from London have generally fallen, those in the opposite direction are higher. Air Comet is a feeder for an Argentine airline, and the flight may be held if the inbound flight is delayed, so it is not seen as serious competition by the bigger airlines.

Ancillary revenues include cargo on bmi, which is the only airline of these three to carry it, together will sales of food, speedy boarding, baggage charges, etc. Ancillary revenues have increased in importance for the budget airlines, as shown below in data for financial year 2005/6.

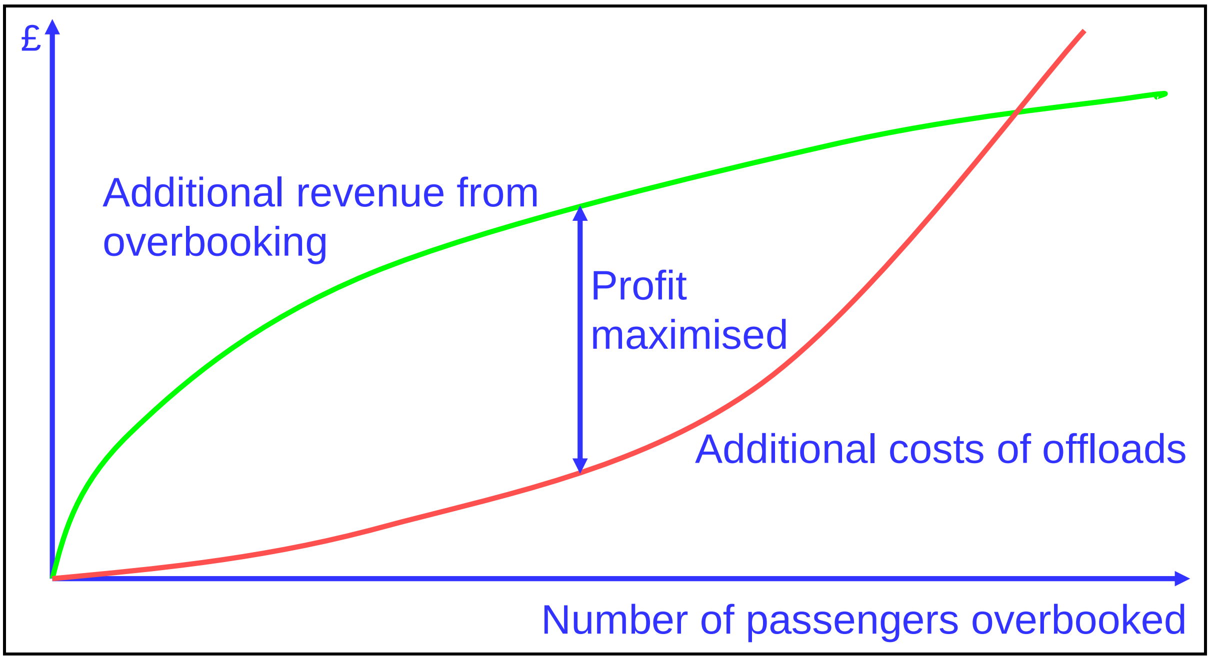
	bmi	**easyJet**	**Ryanair**
Fare revenue per passenger	£74	£49	£29
Incidental revenue per passenger	£9	£4	£7
Costs per passenger	£82	£50	£27
Profit per passenger	£1	£3	£9
Profit margin	1%	6%	25%

Source: CAA & Ryanair data

Legacy carriers are able to sell routes making use of "sixth freedom" rights to provide connections within their networks. Air France, for example, offers fares from nine UK airports to European destinations via Paris.

There was a time when airlines offered season tickets such as the Sabena Skypass, but these proved to dilute yields and have all been withdrawn. Carnet type arrangements, which give a discount to frequent customers while not allowing unlimited travel, are more popular today.

An issue of concern to airlines is by how much to overbook. This is generally commercially desirable for three reasons: passengers on flexible fares fail to turn up for their flights; passengers on cheap tickets do not always travel at all; and missed connections. The figure below shows the trade-off in selecting the optimum approach.



There will be a point at which the additional revenue from overbooking less the cost of compensation to offloads will be greatest.

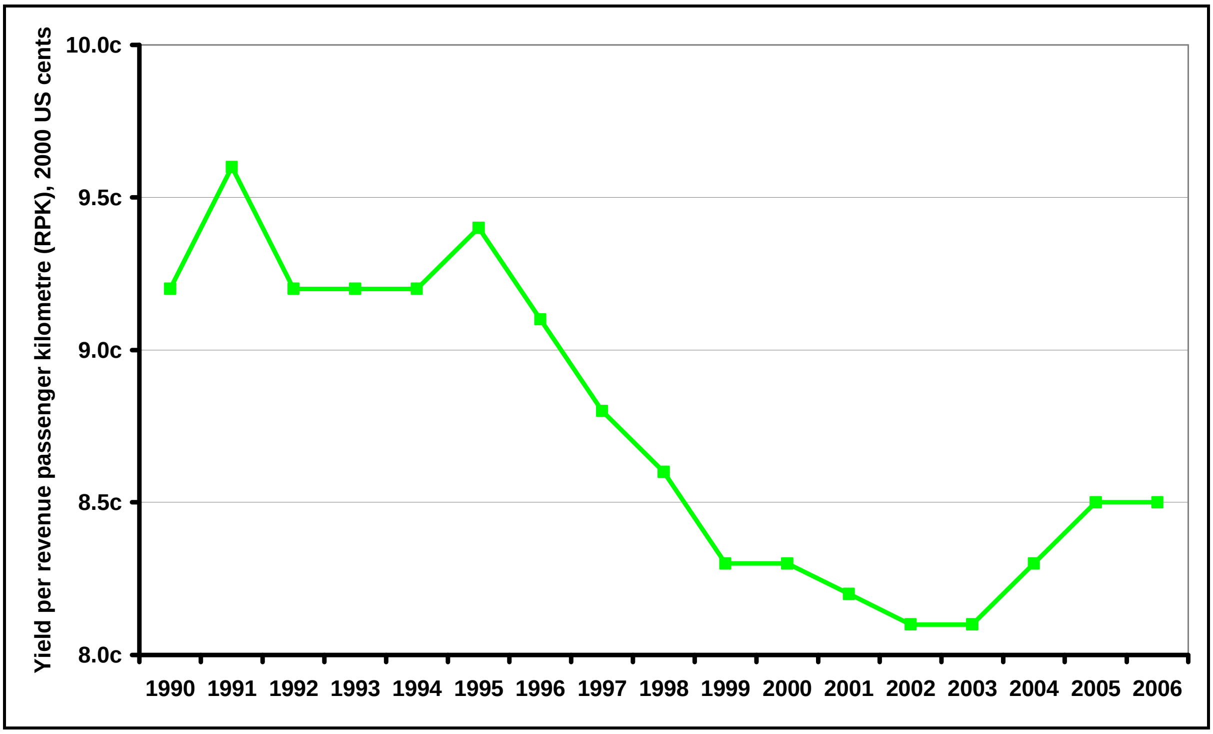
Airlines continue to sell unofficial discount fares such as the "Expedia Special Fare". There are several reasons for this:

- Some markets are still regulated and the official fares are too expensive.
- Sixth freedom carriers (carriers carrying passengers over a hub) often fill up seats by dumping spare capacity in someone else's market.

- Airlines may have lower costs than the ones setting tariffs.
- In a liberalised market, airlines can avoid a dilution of revenue or competitive response by not officially undercutting fares.
- To circumvent government restrictions on predatory pricing or non-cost related fares.

Airlines with an uncompetitive quality of service or journey times will sell seats at a lower price. On the kangaroo route, for example, the highest fares are with BA and Qantas, who offer a through service from London to Australia on one aircraft, followed closely by those of carriers such as Singapore Airlines and Cathay Pacific who offer high quality service and good connections. The lowest fares are from carriers with a poorer reputation, requiring overnight stays en route and unattractive stopover locations.

Passenger yields on intercontinental routes have been declining, as shown below.



A recent development is consumer bid pricing, which is offered by websites such as Priceline.com and Hotwire.com.

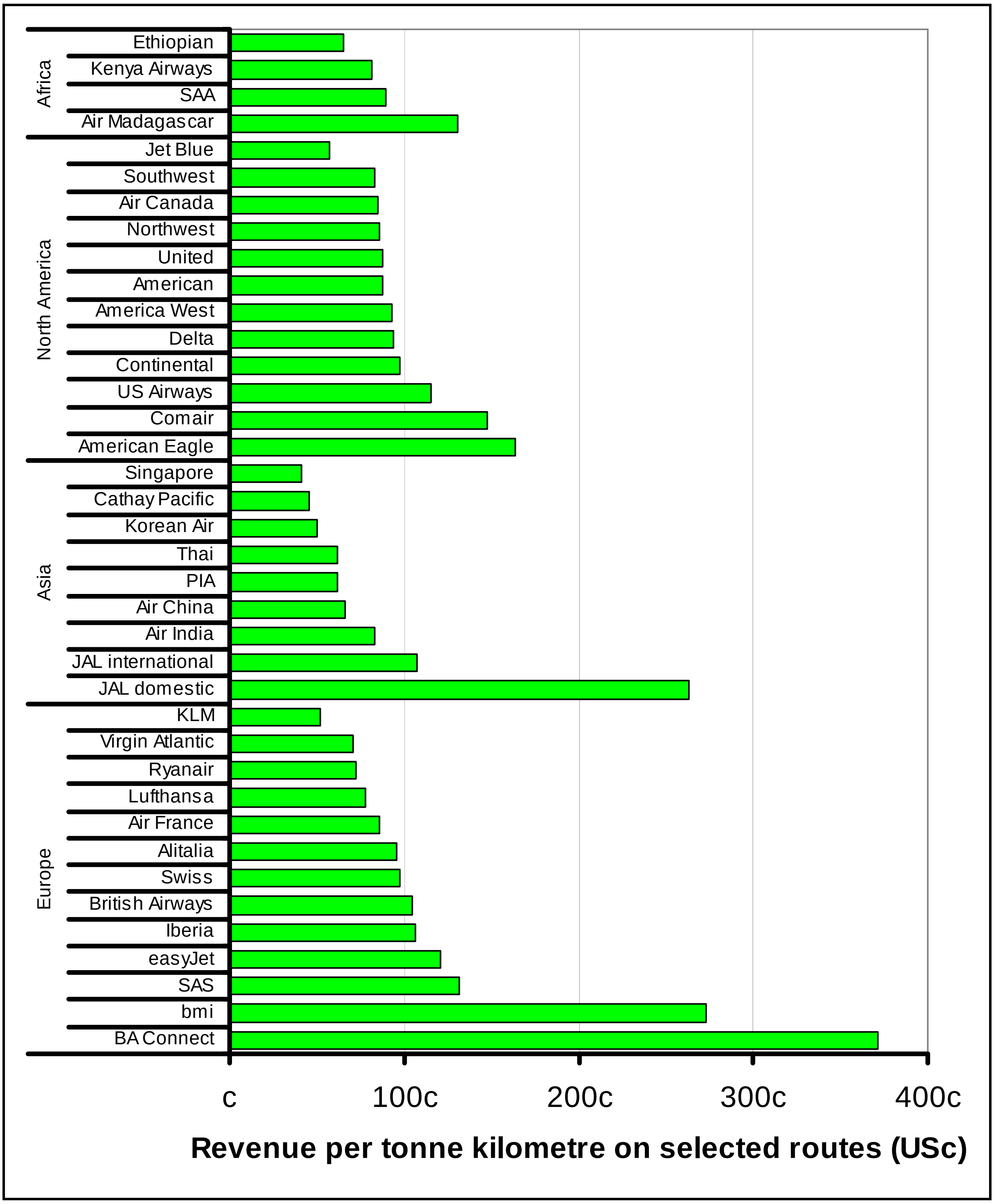
Customers can only chose the general time that they are travelling, such as the day for long haul flights, and cities, not airports. They name the price that they are willing to pay and supply credit card details up front so that they cannot back out.

The website investigates whether any airline is willing to take this offer and if so contracts with one and charges the customer's credit card. The passenger is then informed of the flight times and airline, or that their bid price has been refused.

This has advantages and disadvantages.

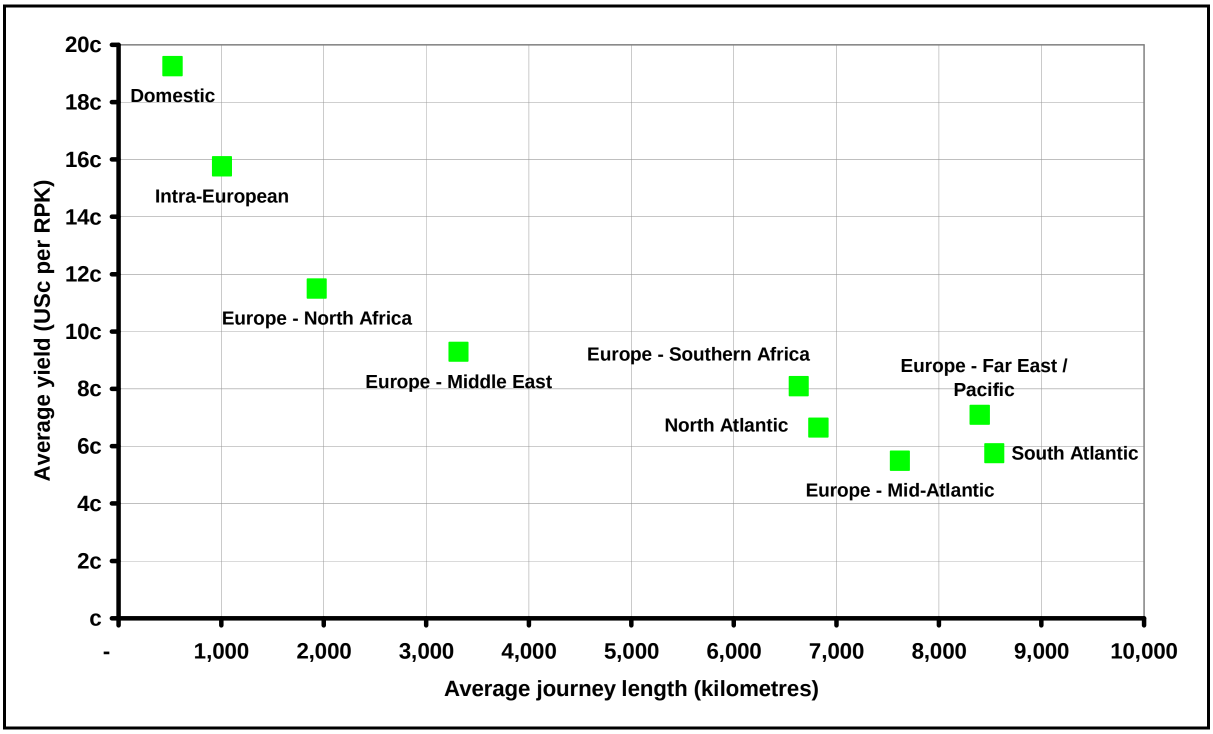
- For the airline, it utilises the concept of different passengers' willingness and ability to pay and as such should minimise consumer surplus. Moreover, airlines do not have to disclose to the public and competitors the quantity and pricing of distressed inventory.
- Passengers will have shopped around first and will typically make an offer 20% below the best available to drive down yields even further. However, they have to gamble that they may be buying an inconvenient flight or non-preferred airline.

Airline yields on scheduled routes vary considerably around the world.



The data are based on passengers and cargo carried. As would be expected, yields fall with stage length, so that Virgin has a low average yield. Airlines like KLM have low yields because of the large amount of cargo carried. Some airlines such as JetBlue have a lower yield than would be expected from their stage length.

Yields also vary by length of journey, as shown below.



Yields are below the trend line for the Mid-Atlantic route, which includes a lot of leisure traffic to the Caribbean, and higher for the Far East/Pacific routes, which conversely have a high proportion of high yielding business traffic and more regulation of fares and capacity.

Conclusions

The low cost carriers have redefined the pricing parameters for short haul flights. There is still a market willing to pay a premium for comfort on long haul services.

The growth of the internet has made fare availability much more transparent.

The business market is declining in importance and leisure passengers favour price over convenience.

Some major carriers such as British Airways have embraced simplified low-cost pricing whilst retaining a degree of sophistication and network optimisation.

Others such as Air France/KLM are clinging to their beloved ticket restrictions wherever possible and concentrating on maximising their connecting traffic.

Questions

Peter Gordon asked about the effect of alliances. Nigel replied that, to be effective, alliances required anti-trust immunity, as for example is the case with Northwest and KLM. *BA is not allowed to set prices jointly with American Airlines on Heathrow routes. It is often the case that prices are higher on routes where all competitors belong to the same alliance, for example London to South America where oneworld is dominant.*

Derek Done asked about the effects of competition rules. *They have been waived in some cases. For example the KLM/Northwest, Lufthansa/United and Air France/Delta alliances had received antitrust immunity. This was not true of the American/BA alliance because the UK did not have an Open Skies agreement with the US, although one has recently been signed, but also because they are potentially too large.*

Robert Cochrane asked two questions. Firstly, in his experience, there were problems with connections at major hubs such as Heathrow. Was this undermining networks? *Heathrow was notorious for delays. Airlines used a wave pattern at many hubs such as Amsterdam, although there was a gradual move away at some busy airports owing to congestion and the need to maximise the use of ground resources. At a planned hub a "hit squad" can be used to target late flights and to prioritise handling.* Secondly, the question of efficiency: airlines had probably made no money at all over their hundred-year history. Nigel replied that some had been profitable, but that a number of consistently loss-making carriers had offset this. T*he problem is that air travel is a highly perishable product and therefore airlines will sell a ticket for anything above the very low marginal cost. There was no discipline in much of the industry – look at the US domestic industry until two years ago.*

David Starkie noted that capital markets don't always work efficiently. Alitalia, for example, had not been allowed to fail. He noted that the small Belgium carrier VLM had recently been acquired by Air France KLM – had this been referred to the competition authorities? *Nigel said he did not believe that it had. It was a small operator and there were few overlapping routes. It could be argued, however, that it was dominant at London City Airport with a 45-50% market share. If London City is considered to be a separate market from London as a whole, it could be bad news for passengers.*

He also asked about Ryanair no-shows. There were a significant number of these and they were very profitable to the airline.

The airline reported the number of tickets sold, not passengers carried, and believed that around 10% of passengers were no-shows. Its reported 85% load factor was therefore more like 76.5%. While no shows were valuable to Ryanair, being notified in advance was even better as the seat could be resold. EasyJet were known to overbook slightly, although not on the last flight of the day.

Peter Jarvis (MVA) said that British Airways had moved to a low cost method of pricing. How has this affected profitability?

They would have kept their existing structure if they could as it was more lucrative. They showed no enthusiasm to change the structure on long haul where they did not face low cost competition. They were more exposed than many other carriers as only about a third of their traffic was transfer. KLM, by comparison, had about double this proportion.

Robert Barrass noted that airline tickets were not transferable and that this could be enforced owing to the need to show ID at check in. There was therefore no secondary market. What if there were? *There was a limited market in frequent flyer miles. If a wider market existed it would put further pressure on fares, but this would not happen as security was used as an excuse.*

Simon Lister asked what the next major technical advance would be after the internet? *The industry was moving more towards a steady state, but there was still a difference between regions. For example, BA tended to overbook on the Hong Kong route, as a large proportion of sales was through travel agents, which resulted in a large number of no-shows.*

Jeremy Drew referred to the table showing revenue management by budget airlines and asked if they could be more sophisticated in their pricing? *With advances in IT, it might be possible to look at each customer individually – though this might be considered discriminatory. EasyJet etc have "dumbed down the pricing process". If the low cost carriers were to fall on hard times and the fortunes of the legacy carriers improved this could change.*

Report by Peter Gordon

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TRANSPORT ECONOMISTS' GROUP

The Transport Economists' Group, formed in 1973, provides a forum for people involved in transport economics to meet regularly and discuss matters of mutual interest. Membership is open to economists working in transport and others whose work is connected with transport economics.

The aim of the Group is to improve the quality of transport management, planning and decision making by promoting lectures, discussions and publications related to the economics of transport and of the environment within which the industry functions.

Meetings are held every month from September to June (except December) at Arup's Central London HQ at 13 Fitzroy Street. The meetings consist of short papers presented by speakers, drawn from both within the Group's membership and elsewhere, followed by discussion.

The Group's Journal, `The Transport Economist', is published three times a year reporting on meetings and other activities of the Group. It reviews recent publications of interest and contains papers or short articles from members. The editor welcomes contributions for inclusion in the journal, and can be contacted at peter.gordon@deltarail.com

The current membership of over 150 covers a wide range of transport modes and types of organisation. Members are drawn from transport operators, consultants, universities, local and central government and manufacturing industry. All members are provided with a full membership list, updated annually, which serves as a useful source of contacts within the profession. Applications from people in all sectors are welcome.

Applications for membership should be made on a form obtainable from the Membership Secretary at gregorymarchant.teg@btinternet.com.

Alternatively, an application form can be downloaded from the Group's website: www.transecongroup.org.uk.

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TEG News

Details of meetings are on our website at

http://www.transecongroup.org.uk/meetings.htm

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