

Aviation demand forecasting – response from Bristol Airport to the questions posed in Section 6 of the Airports Commission Discussion Paper 01 dated February 2013

Overview

Bristol Airport is pleased to respond to the Airports Commission call for evidence on aviation demand forecasting. Our detailed response to each of the questions posed in Discussion Paper 01 follows. At the outset we would like to make the following key points:

- A forecasting approach based on the DfT forecasting model is useful but at the regional airport level a wider evidence base needs to be considered.
- We are concerned that the DfT model does not adequately take into account the ability of regional airports to increase passenger numbers from their own catchment area.
- In particular the DfT model constrains the ability of regional airports to enter new markets, particularly scheduled long haul.
- We provide a number of detailed technical comments on how the model works in our responses to the questions.

Responses to Discussion Paper 01 questions

1. To what extent do you consider that the DfT forecasts support or challenge the argument that additional capacity is needed?
 - Whilst the DfT forecasts may be providing robust forecasts of demand at a national level we would question their reliability for forecasting demand at an individual airport level, particularly for regional airports outside the South East.
 - Any assessment of the need for additional capacity also relies on robust estimates of the capacity of individual airports and the prospects for making use of that capacity. The Airports Commission will now have the opportunity to validate estimates of capacity using submissions relating to short and medium term proposals.
 - The forecasting model is one of a number of tools that should be used to assess the state of the UK air transport industry but in developing policy the limitations, strengths and weaknesses of the model need to be recognised. Their results need to be interpreted along with other evidence and the outputs considered for rationality.
 - The need to boost connectivity, particularly in the English regions, in order to rebalance the economy needs to be given careful consideration in this context.
2. What impact do you consider capacity constraints will have on the frequency and number of destinations served by the UK?
 - Evidence from the World Economic Forum Global Competitiveness Report indicates that the UK's airline network has declined relative to our main competitors since 2008. However, regional airports are not generally constrained by runway capacity. Bristol has planning permission to handle 10 million passengers per annum but a positive policy framework is needed that

encourages airlines to make use of this capacity, improving connectivity in the regions and reducing leakage to the South East airports so that these airports can deliver their potential for the South East market.

- We expect airlines to concentrate on fewer, high value long haul routes as capacity constraints take effect.
3. How effectively do the DfT forecasts capture the effect on UK aviation demand of trends in international aviation?
- We have some broad concerns about the way the model captures trends in international aviation as follows:
 - i. The geographic zones in the model may not offer sufficient granularity to enable a real picture of changing spatial dynamics to emerge;
 - ii. There is uncertainty around the forecasts of future carbon allowance prices;
 - iii. The modelling of the effects of market maturity depend to a certain extent on judgement and a small error could have a significant effect. It would also be reasonable to assume that aviation markets in different parts of the UK may vary. UK regional airports may be some way behind London in terms of market maturity and higher elasticities in relation to economic growth and air fares may be experienced in regions away from London and the South East.
 - iv. The allocation model is calibrated on historic patterns of behaviour by passengers. The result is that in some markets if an airports has no track record of performance it is unlikely to attract any traffic. This appears to be particularly the case when the model allocates long haul traffic.
4. How could the DfT model be strengthened, for example to improve its handling of the international passenger transfer market?
- We make some suggestions for improvements elsewhere in this paper. Whilst we have no doubt that improvements could be made to the model's handling of international passenger transfer market, this is not an area where we have expertise.
5. What approach should the Commission take to forecasting the UK's share of the international aviation market and how this may change in different scenarios?
- Our particular concern relates to the disaggregation of the forecasts to individual airport level which compounds uncertainty at the national level. Whilst the DfT note that at the airport level, the DfT forecasts may differ from local airport forecasts for various reasons, the Commission might take the opportunity to carry out further validation of these forecasts, particularly where they appear unreliable, in conjunction with airport operators and industry experts.
 - At Bristol our short term forecasts are prepared on a detailed 'bottom-up' basis using assumptions about the number of movements of aircraft, seats per movement per aircraft and seat factors for the main airlines using the airport. Longer term forecasts are developed on a top down basis where assumptions are made on the future relationship between growth in passenger traffic and

growth in real GDP. The total South West/South Wales market is segmented into domestic and international demand and further segmented into UK and foreign residents. UK real GDP is used to drive domestic and UK resident international outbound traffic, and a mix of Western Europe real GDP (for inbound short haul demand) and World real GDP (for inbound long haul demand) has been used to drive foreign residents' international inbound traffic. Assumptions are then made on Bristol's share of the future South West/South Wales market.

- We are particularly concerned about how the DfT model allocates long haul traffic to Bristol and other regional airports. Although runway length has presented some barriers to the development of long haul from Bristol in the past, the development of new aircraft such as the Boeing 787 and Airbus A350 offer performance characteristics that remove this constraint. In any case long haul services have operated successfully from Bristol using older aircraft types. However the DfT forecasts indicate a long haul market penetration by Bristol which is limited to UK leisure, presumably by long haul charter services rather than long haul scheduled services. Other regional airports are treated similarly suggesting a track record in long haul charter services is recognised by the model, but this is not transferred to scheduled traffic. There is a lack of rationality in this pattern.
 - Our passenger forecasts are prepared on an unconstrained basis, which is a reasonable approach given the scale and timing of growth, and indicate higher growth at Bristol than predicted by the DfT forecasts.
6. How well do you consider that the DfT's aviation model replicates current patterns of demand? How could it be improved?
- The following factors should be considered for the improvement of the model:
 - i. The use and reliability of CAA Passenger Survey data, particularly journey times, fare data and passenger choice assumptions;
 - ii. The influence of frequent flyer schemes and preference for particular airlines;
 - iii. Substitutability of destinations (one sun destination for another);
 - iv. The stimulus effect of the existing route network. Bristol is a profitable base for easyJet and Ryanair, two of the most successful low cost carriers in Europe. Their success has the effect of stimulating demand for other (non-competing) airlines.
 - v. We are particularly concerned that our own market analysis and forecasting is at odds with the model results. A sense check by airport operators and industry experts is recommended.
7. Do you agree with the source of the input data and assumptions underpinning the DfT model?
- We have concerns about some of the input data and assumptions as follows:
 - i. Everywhere is assumed to experience the same rate of economic growth and, consequently, the same growth in air transport demand relating to economic growth. In practice, there is substantial variation in the rates of economic growth across the regions and the nations of the UK which could influence the speed at which individual airports grow. In particular

Bristol's primary catchment area, the West of England, has one of the highest GDPs of any English region but this does not appear to be adequately reflected in the DfT model.

- ii. The treatment of uncertainty in the model could be strengthened. The use of probability techniques, such as Monte Carlo analysis, to analyse uncertainty would have considerable merit and is something that could be built in to the DfT framework.
- iii. The exclusion of an air fare term and flight times from the model and the use of air fare elasticities for generalised costs rather than for an air fare could be weaknesses.
- iv. The specification of the frequency term and the way in which it operates. The model appears to indicate that airports that gain a slight advantage over others in one market or another rapidly develop frequency that sucks in more and more traffic resulting in a 'ballooning' effect in terms of the demand they attract.

8. Do you agree with the choice of outputs modelled?

- Generally, yes.

9. Do you consider that the DfT modelling approach presents an accurate picture of current and future demand for air travel? If not, how could it be improved?

- See comments above.

10. Is the DfT model suitable to underpin an assessment of the UK's aviation connectivity and capacity needs?

- While the DfT model has flaws, these are potentially universal flaws that will face any model.
- There needs to be a step change in the way the forecasts are used and considered. The model is just that. It is a piece of evidence that needs to be viewed in the round. It is not sufficiently robust or accurate to be a sole basis for policy decisions. Wider evidence on growth, patterns of growth and operational performance will always be vital. Even an enhanced version of the model should be viewed in this light.
- Peer review needs to include airports and industry forecasting expertise to sense check the results against how airlines are actually likely to respond to growth and constraint.
- Subject to the comments above we believe that the DfT model has a role to play in assessing the UK's aviation connectivity and capacity needs. The work of the Airports Commission provides an ideal opportunity to address the shortcomings in the model, consider the model results in conjunction with other evidence and provide a robust assessment for the development of policy.