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The Assessment of the EU-US Open Skies Agreement: The counterfactual and other difficulties¹

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Abstract

The advent of the EU-US Open Skies Agreement has been widely anticipated. A number of consequences have been predicted, for example, impacts on fares, on passenger volumes, choice and on consumer welfare. Airline costs are also predicted to fall as a result of increased competitiveness and increased cooperation among airlines.

In the short period since the implementation of the Agreement, it is relatively easy to assess the principal supply-side changes that have been made, but more difficult to make wider judgements. For example, can traffic growth be attributed to Open Skies and does airline and alliance market power result in less fare flexibility with consequently less influence on changes in passenger volumes? Have airline costs changed and what has been the source of the savings? This paper offers some insight into the data that will be required to make these and other wider judgements and discusses some methodological difficulties.

¹ This paper focuses on the air passenger market and not air cargo, employment or environmental effects.

1. Introduction

The EU-US Open Skies Agreement has been signed for over a year. The expectations of the likely results of such an agreement have been outlined in a variety of sources, some of them commissioned by government. It is too soon to reach any verdict. Consumer choice has broadened as indicated by the supply-side adjustments that have been made. However, the particular impact on fares, costs and passengers is of greater interest and there is a difficulty of data availability (fares and costs) as well as the appropriate choice of methodology to isolate changes due to Open Skies.

2. The EU-US Open Sky Agreement

On the 30th April 2007 EU and US leaders signed the Open Skies Agreement at a summit in Washington. This came into force on March 30th 2008 and superseded the individual EU country Open Sky Agreements that many EU countries had with the US, commencing with the Netherlands in 1992. Table 1 shows the Open Skies bilaterals that existed between European countries and the US before the Open Skies Agreement with the EU. In May 2008 second stage negotiations were launched with an aim of achieving an Open Aviation Area (OAA) by mid-2010 that will have considerable implications for factor mobility and airline ownership if it is achieved.

Table 1: The European Open Skies Bilaterals¹

Country	Date
Netherlands	14/10/92
Belgium ²	1/3/95
Finland	24/3/95
Denmark	26/4/95
Norway	26/4/95
Sweden	26/4/95
Luxembourg	6/6/95
Austria	14/6/95
Czech Republic	8/12/95
Germany ³	29/2/96
Italy ⁴	11/11/98
Portugal	22/12/99
Malta	12/10/00
Poland	31/5/01
France	19/10/01

1 The full list for the US is at US Department of State (2008c)

2,3 Provisional

4 Comity and Reciprocity

Source: Button (2008)

This replacement of the bilateral agreements between the US and EU member states, including those that had individual Open Skies Agreements, has two key features.

- Removal of restrictions on route rights – any EU airline is allowed to fly from any EU city to any US city. Conversely, any US airline can fly into any EU airport and from there onto third destinations. In addition, EU airlines can fly between the US and non-EU countries that are members of ECAA, the European Common Aviation Area, such as Norway and Croatia. The unequal treatment of cabotage is seen as an issue; although US airlines can fly onwards in Europe, EU airlines cannot fly domestically in the US^{2,3}.
- Foreign Ownership – the main change here is that US companies can now only own 49 percent of the voting rights in European Airlines, whereas European Airlines can still hold only 25 percent in US airlines, although they can own more in non-voting shares. It is the intransigence of the US position here, as well as on cabotage, that has led first to a delay in the implementation of the Agreement and then the EU's right to suspend the Agreement if insufficient progress towards a revised Agreement is made by mid-2010.

4. Reactions and Expectations of Impacts: Politics and Economics

a. British Airways

As 40 percent of all flights from Europe to the US are from London Heathrow (LHR), it is obvious that the liberalisation will mostly affect this airport and as this is where British Airways (BA) is based, it too will be affected. Figure 1 shows total EU-US traffic since 1995 for comparison.

It is claimed that BA secures 60 percent of its revenues from north Atlantic routes⁴ so it is little wonder that it was incensed by the Agreement. The BA chief executive, Willie Walsh is quoted as describing it as a “poor deal for Europe” and continued to point out that,

“ So far the US has made no meaningful concessions. American carriers can now fly into Heathrow, Europe and beyond while their own backyard remains a no-go area for EU carriers and foreign ownership of their airlines remains unchanged. . . . We will hold the government to its word to fight for Britain's interest if America doesn't play ball.”⁵

“With the EU having given away their most valuable negotiating asset – Heathrow – the UK government must stand by its pledge to

² Fifth Freedom Rights are still held to London Heathrow (LHR) and on to the US by, for example, Air India (AI), Air New Zealand (NZ) and Kuwait Airways (KU).

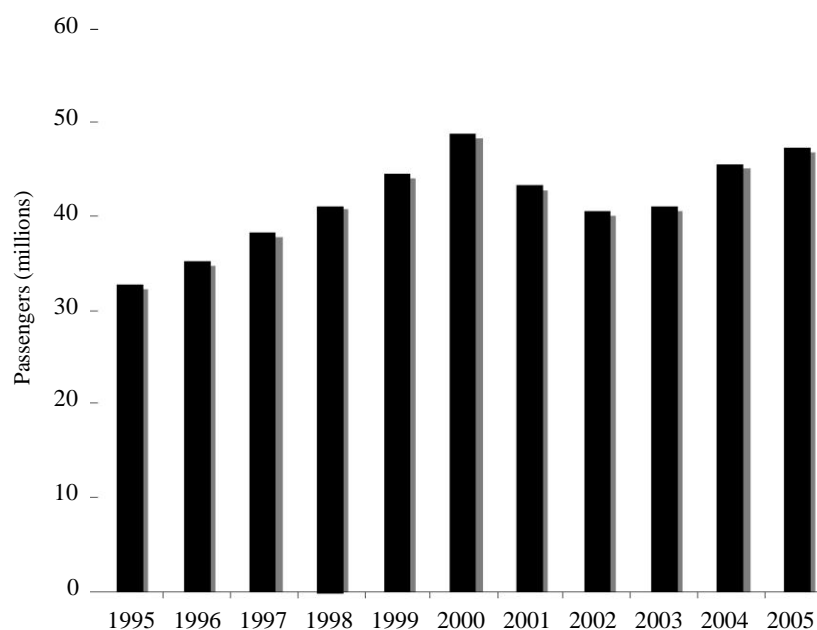
³ Booz Allen Hamilton (2007) think it unlikely that European carriers would operate cabotage services in the US after an analysis of London hub activity.

⁴ EU-European Information on Transport and Services (2007) at <http://www.euractiv.com/en/transport/eu-us-open-skies-agreement/article-167482>

⁵ Business Guardian (2007) at <http://www.guardian.co.uk/business/2007/mar/22/europeanunion.theairlineindustry/print>

withdraw traffic rights if the US does not deliver further liberalisation by 2010.”⁶

Figure 1: EU-US Passenger Traffic, 1995-2005.



Source: Booz Allen Hamilton (2007)

b. European Commission

The EU Transport Commissioner Jacques Barrot welcomed the deal and expressed optimism that EU ambitions for greater access to the US market would be fulfilled later thanks to the suspension clause. “The EU will have the right to suspend US access rights if they drag their feet . . . So we will arrive at our final goal.”⁷

“ We want not only to open flights to competition but also to open up foreign investment in aviation.”⁸

c. US Government

US Deputy Assistant Secretary of State, John Byerly played down the significance of the EU suspension clause but said that the US was committed to the on-going negotiations “in absolute good faith and in the spirit of cooperation.”⁹

⁶ BBC News (2007) at <http://news.bbc.co.uk/1/hi/business/6477969.stm>

⁷ EU-European Information on Transport and Services (2007) at <http://www.euractiv.com/en/transport/eu-us-open-skies-agreement/article-167482>

⁸ BBC News (2007) at <http://news.bbc.co.uk/1/hi/business/6477969.stm>

⁹ EU-European Information on Transport and Services (2007) at <http://www.euractiv.com/en/transport/eu-us-open-skies-agreement/article-167482>

The Transportation Secretary, Mary Peters, said the deal would boost “economic, political, and personal relationships between our two continents for years to come.”¹⁰

d. IACA, ACI Europe

Sylviane Lust, Director General of the International Air Carrier Association(IACA) said,

“This agreement is a way off the original plans for an Open Aviation Area trumpeted four years ago by the European Commission. The Commission’s shopping list for the second-phase negotiations remains substantial while the US side has obtained everything it wanted in the first phase . . . A deal between the EU and US can only be balanced if it results in equal traffic rights for EU and US airlines in each other’s internal markets, identical ownership limits and control possibilities, as well as equivalent access to governmental traffic.”¹¹

Olivier Jankovec, the Director General of the Airports Council International Europe (ACI Europe) said the deal would “open new opportunities and bring valuable economic benefits for airports around Europe,” but agreed that “we must not stop here.”¹²

e. Other airlines

Virgin Atlantic (VS), boss Sir Richard Branson, said, “It’s a good day for the traveller as consumers should eventually be able to fly from any city to any city between the EU and US, and within these countries,” but VS also thought it was unlikely that prices could be any lower.

British Midland International (BD) said the Agreement was a “landmark.” “Millions of travellers will benefit from additional competition, including lower fares and a greater choice of services.”¹³

f. Brattle Group

The Brattle Group (2002)¹⁴ reported to the European Commission on the expected impacts of an OAA that included the removal of foreign ownership and cabotage restrictions as

¹⁰ BBC News (2007) at <http://news.bbc.co.uk/1/hi/business/6477969.stm>

¹¹ EU-European Information on Transport and Services (2007) at <http://www.euractiv.com/en/transport/eu-us-open-skies-agreement/article-167482>

¹² EU-European Information on Transport and Services (2007) at <http://www.euractiv.com/en/transport/eu-us-open-skies-agreement/article-167482>

¹³ BBC News (2007) at <http://news.bbc.co.uk/1/hi/business/6477969.stm> and BBC News (2008) at <http://news.bbc.co.uk/1/hi/business/6478651.stm>

¹⁴ The Brattle Group report summary and some recent developments are given in Robyn, Reitzes and Moselle (2005) where they indicate that the original report was not published until 2003, after the European Court of Justice ruling.

well as the removal of restrictions on route rights. This was in the same year that the European Court of Justice had confirmed that the individual bilaterals of Denmark, Sweden, Finland, Belgium, Luxembourg, Austria, Germany and the UK infringed on the EU's external competence and breached single market rules. It ordered that a single pact be negotiated and this led to the EU-US negotiations which resulted in the Open Skies Agreement.

Button (2008) summarises the report and the assumptions made, for example, on fare elasticities. In short, consumers benefit by about €5.2 billion a year from lower fares, brought about by greater competition and increased travel. Additional transatlantic passengers would amount to between 4.1 million and 11.0 million with many more on intra-EU routes resulting from network effects adding passengers to arrive at totals of 17.7 million to 46.7 million per year. Employment impacts are also estimated.

As all cabotage restrictions are lifted in an OAA as well as it giving other benefits on investment and factor mobility, these estimates provide an upper bound on the likely impacts from Open Skies¹⁵.

g. Booz Allen Hamilton

The European Commission asked Booz Allen Hamilton (2007) to update the Brattle Group's work, so again this represents the impact of an OAA with full cabotage rights, although it is thought this would be more important for cargo operations. Consumers were calculated to benefit between €5.4 and €6.2 million per year and traffic was expected to grow to totals of 20.4 to 45.6 million per year from cost reductions, improved airline cooperation and the removal of output restrictions on the north Atlantic. Passengers resulting from the removal of output restrictions on the north Atlantic market alone total 26 million over five years with associated consumer surplus of €6.4 to €12 billion over the period. Again employment impacts were calculated and estimated at 72,000 with further jobs in the freight sector. These estimates are broadly similar to the Brattle Group even though the Booz Allen Hamilton report included the cost reductions due to increasing airline efficiency not only within the EU, as the Brattle Report did, but also within the US.

It is helpful for understanding to say more about the categories used to identify economic benefit and passenger numbers. The removal of output restrictions due to the existing bilateral air service agreements results in an increase in supply with a resulting downward pressure on prices and so stimulates

¹⁵ Although the income effects of the price falls are not accounted for.

demand and job creation. These effects are estimated for the UK, Ireland, Greece, Spain and Hungary, countries without Open Skies Agreements with the US, where in 2004 the UK accounted for 39.5 percent of total EU-US traffic with the remaining four countries at 4 percent. Economic growth is stimulated and consumer choice is broadened.

Increased competition reduces the relative market power of airlines and may facilitate closer alliances that allow coordination of prices and schedules to reduce costs and so fares. This improved airline cooperation is estimated to raise consumer surplus by €160 million to €340 million per year with price decreases varying between 18 and 28 percent and different price elasticity values of unity and 2.5 respectively. However, it is also possible that stronger alliances will weaken the beneficial price and choice impacts on consumers.

The final category is that of reductions in individual airlines' costs. The increased competition gives airlines the incentive to lower costs to remain competitive. This downward pressure on costs goes beyond the north Atlantic and impacts EU and US markets. Airlines are estimated to reduce operating costs by 1 to 3 percent and this could lead to lower fares and more demand again.

The main results of the Brattle Group and the Booz Allen Hamilton Report are summarised in Table 2.

Table 2: The Impact on Passengers and Consumer Benefit of an Open Aviation Area between the EU-US.

	Brattle Group		Booz Allen Hamilton	
	PASSENGERS		Per year ('000s)	
	lower	upper	lower	upper
Cost Savings	968	3,169	15,000	39,000
Airline	975	5,654	240	1,400
Cooperation				
Removal of Output Restrictions	2,188	2,188	5,200	5,200
Cost Savings intra EU	13,527	35,720	8,400 ¹	22,000 ¹
TOTAL	17,658	46,731	20,440	45,600
	CONSUMER SURPLUS		Per year ('000s)	
	lower	upper	lower	upper
Cost Savings	662	778	3,700	3,800
Airline	629	1,347	160	340
Cooperation				
Removal of Output Restrictions	1,469	605	2,400	1,280
Cost Savings intra EU	2,351	2,483	2,200 ¹	2,300 ¹
TOTAL	5,111	5,213	6,260	5,420

1. Included in Cost Savings row

Source: Compiled from Brattle Group (2002) and Booz Allen Hamilton (2007).

4. Actual Impacts

a. Supply Side

i. LHR

As so much of the total north Atlantic traffic is with the UK and is newly subject to the removal of route right restrictions it is clear that UK airports should be the major focus of attention. A preliminary examination of OAG data concentrating on services between London and New York and comparing August 2007 with August 2008 reveals the movement of New York flights from London Gatwick (LGW) to LHR. The overall picture also shows the demise of the business low-cost airlines, MaxJet, Zoom and Silverjet. It is

much clearer, however, if activity at LHR is focussed on as in August 2007, American Airlines (AA) was offering LHR service in addition to BA and Virgin (VS) and a year later was joined by Delta (DL) and Continental (CO).

Button (2008) summarises the number of return flights between LHR and all US destinations as do Morrell and Humphreys (2008) between June 2008 and June 2007. The changes indicate greater consumer choice. Morrell and Humphreys (2008) also point out that BA has moved services from LGW¹⁶ and that Air France (AF) has introduced a daily service to Los Angeles. Table 3 shows the changes in seats offered and scheduled flights between June 2007 and 2008.

Table 3: Changes in Seats and Flights offered, LHR –US, June 2007 - 2008.

Airline	Seats per month	Flights per month
British Airways	29,457	104
Continental Airlines	27,420	120
Northwest Airlines	24,927	89
Delta Airlines	19,260	90
American Airlines	13,172	56
US Airways	7,980	30
Air France	7,500	30
United Airlines	5,010	30
Air New Zealand	198	0
Kuwait Airways	-237	-1
Virgin Atlantic Airways	-5,003	0
Air India	-5,160	0
TOTAL	124,524	548

Source: Morrell and Humphreys (2008)

Given that LHR is slot-constrained, these changes may be more limited than if there was not such a constraint and the relative scarcity is indicated by the price at which slots are traded. Button (2008) notes that CO paid \$209 million for four LHR slots and Cole (2008) describes the source of the Open Skies slots at LHR and this is summarised in Table 4.

¹⁶ BA started a JFK service of 7 per week from LGW at the end of October 2008 perhaps taking advantage of the movement to LHR of US airlines.

Table 4: Sources of Open Skies slots

Airline	Slots
Air France	Reduced Paris from 12 to 7 per day: 3 to DL, 1 CO, 1 AF to Los Angeles (LAX)
KLM	Dropped 2 to Eindhoven (EIN) and reduced Rotterdam (RTM) by 1: Funded Northwest's (NW) Detroit (DET), Minneapolis (MSP), Seattle (SEA) Service as Skyteam partner
Alitalia	Dropped 3 at Milan Malpensa (MXP) as part of strategic retrenchment: 1 to CO, 1 to US Airways (US) and 1 BA
GB Airways	Sold LHR slots: 2 to CO, 1 to BA, 1 to Qatar Airways (QR)
Iberia	Dropped 1 to Bilbao (BIO): Funded 2 nd AA Dallas (DFW) move to LHR from LGW

Source: Cole (2008)

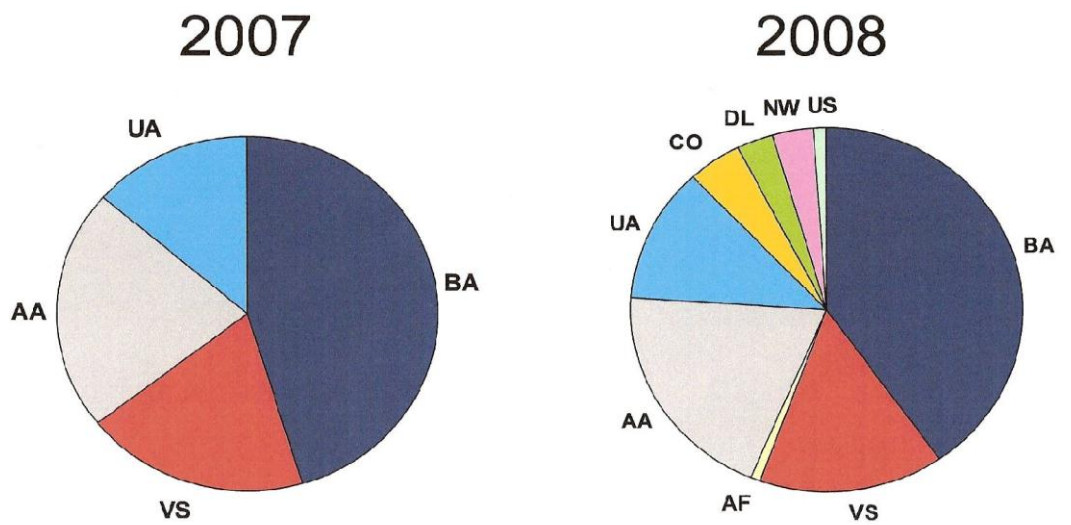
Some airlines' plans to inaugurate LHR service have materialised through this slot trading within alliances, for example, NW and US. But BD has postponed its entry to LHR until at least 2009, despite its constant enthusiasm for inaugurating north Atlantic routes and the number of slots it retains at LHR¹⁷. Cole (2008) also shows the difference in the slot provision at LHR between 2007 and 2008 where the greater variety of choice for consumers is plain. Figure 2 reproduces his pie chart and it is clear that US carriers previously denied access to LHR have moved there. Figure 3 details where these slots are serving in the US. More recently, CO announced plans to serve LHR from Cleveland from May 2009, replacing a similar service from LGW¹.

¹⁷ Travel Trade Gazette (2007)

http://www.ttglive.com/c/portal/layout?p_l_id=61139&CMPI_SHARED_articleId=247190&CMPI_SHARED_ImageArticleId=247190&CMPI_SHARED_articleIdRelated=247190&CMPI_SHARED_ToolsArticleId=247190&CMPI_SHARED_CommentArticleId=247190&articleTitle=BMI%20Postpones%20US%20Plans&fromSearch=yes

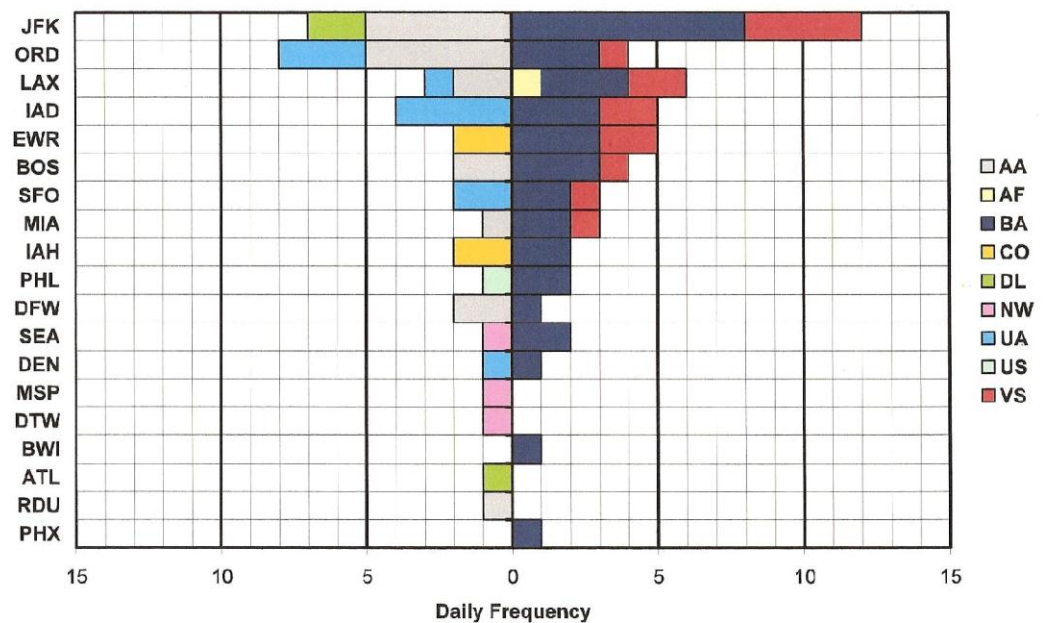
¹ Air Transport News(2008) at http://www.airtransportnews.aero/print_article.pl?id=15164

Figure 2: LHR - US: Airline Slot Shares, 2007 - 2008



Source: Cole (2008)

Figure 3: LHR - US: US Airports Served by Airline and Daily Frequency, 2008



Source: Cole (2008)

ii. Other Airports

As well as VS intending to start services from continental European cities in 2010¹⁸, Ryanair announced plans to fly the north Atlantic in the same year to serve a variety of US destinations including New York and Boston using secondary airports such as Long Island Islip (ISP) or Stewart (SWF) and Providence, Rhode Island (PVD) or Manchester, New Hampshire (MHT)¹⁹. But the most radical departure that has been implemented is BA's launch of a new airline, OpenSkies (EC) initially connecting Paris Orly (ORY) with New York John F. Kennedy Airport (JFK).^{20,21}

In August 2008, service was seven flights per week (OAG, 2008) and the contemplated service from Brussels (BRU) had not been implemented as it was reported that the Boeing 757-200 from the BA fleet had not been reconfigured in the 82 seat EC layout. There are plans to add other European cities and Amsterdam (AMS) started before the contemplated BRU service in October with six flights per week to JFK. It is also intended to add Frankfurt (FRA) and Milan (MXP) by the end of 2009²². Figure 4 shows the proposed livery. BA management expected 70 percent of passengers to come from the US at ORY.

¹⁸ Port of Seattle (2007) at http://www.portseattle.org/news/press/2007/12_10_2007_10.shtml and US Airways (2007) at <http://www.usairways.com/awa/content/aboutus/pressroom/pressreleases.aspx>, Travel Weekly (2008) at <http://www.travelweekly.co.uk/Articles/2008/03/04/26858/virgin-atlantic-rules-out-continental-europe-to-us-service-until.html>

¹⁹ Irish Independent (2007) at <http://www.independent.ie/national-news/oleary-plans-new-allfrills-airline-for-flights-to-us-43198.html>

²⁰ Times Online (2008) at <http://www.timesonline.co.uk/tol/travel/business/article3160337.ece>²¹ It managed to acquire slots at ORY by forging a code-share with the all business class carrier, L'Avion (AO).

²² Executive Travel (2008) at <http://www.executivetravelmagazine.com/page/BA's+OpenSkies+cleared+for+Paris+flights?t=anon>

Figure 4: The Livery of OpenSkies, the BA subsidiary

Source: Times Online (2008)

iii. Virgin America

The most notable change that has resulted from the, in fact effectively hardly changed, ownership features of the Agreement is the foundation of Virgin America (VX) which began operating in August 2007 providing long haul point to point services between major metropolitan cities on the eastern and western seaboard. At present the airports served are LAX, San Diego (SAN), San Francisco (SFO), Las Vegas (LAS), JFK, Washington DC, Dulles (IAD) and SEA²³. VS holds a 23 percent stake which is consistent with the ownership rules (Button, 2008) and the delay in its start up owes much to the doubts over whether VX was a US airline. Figure 5 shows Virgin America aircraft at JFK.

Figure 5: Virgin America Livery

²³ Virgin America (2008) at <http://www.virginamerica.com/va/home.do>

b. Demonstration Effects

The success of the initial Open Skies Agreements between the US and individual European countries as well as the subsequent EU-US Agreement has had a demonstration effect that has resulted in other agreements being considered or implemented in other parts of the world. This includes between the US and a variety of countries, for example, Australia in 2008 (US Department of State, 2008a, Button, 2008) and Brunei, Chile, New Zealand and Singapore in 2001 (US Department of State, 2008b) as well as between the EU and Canada in late 2008.²⁴ Other US Agreements are listed at US Department of State (2008c). Singapore has also signed an agreement with the Czech Republic².

The ASEAN Open Skies Agreement (Forsyth, King and Rodolfo, 2006) is between ten countries in south east Asia and there is pressure to expand the membership to include major Asian countries such as India, that already has a US Agreement, and China²⁵. It is not hard to imagine ASEAN collectively having Agreements with the EU and US. This in turn has prompted other Asian countries, such as Japan to consider similar initiatives. Indeed, Japan aims to have an agreement with ASEAN. It is also easy to contemplate initiatives that result in greater liberalisation and openness in South America and Africa. These could build on the existing US Agreements which include Uruguay, Paraguay and Peru in south America and Nigeria, Gambia, Kenya, Ghana, Tanzania, Uganda, Mali, Cameroon, Chad and Liberia in Africa.

5. Research Needs: Data and Methods

It is evident from the economic analyses of the Brattle Group (2002) and Booz Allen Hamilton (2007) that data on passengers, fares and airline costs is required to assess the impact of the Open Skies Agreement along with data or assumptions on price elasticities. Each of these factors are discussed below.

a. Passengers

There is very good data on passenger numbers on the north Atlantic. The UK CAA (2008) has data by UK city and airport to US cities and airports online from 1997. The lowest level of temporal aggregation is by month from 1998. The US Bureau of

²⁴ Air Transport News (2008) at <http://www.airtransportnews.aero/article.pl?mcatgeg=&id=14923>²⁵

AsiaOne News (2007) at <http://www.asiaone.com/News/AsiaOne+News/Singapore/Story/A1Story20071101-33686.html>

² Air Transport News (2009) at <http://www.airtransportnews.aero/article.pl?mcatgeg=&id=15433>

Transportation Statistics (hereafter, US BTS, 2008a) has similar data online from 1990 which includes information on frequency of service, airline and aircraft type for which, in the UK case, data from the OAG (2008) must be sought. If this monthly data can be tied to fare changes, estimates of arc elasticity could be derived. Point elasticity would require an econometric estimation of a demand function using continuous data.

b. Fares

Airline web sites can provide data on fares that are offered and this has been the bases of some work analysing fare variation and correlation for low cost carriers in Pitfield (2005a, 2005b). However, these same web sites, although they can show the variation in fares over time prior to departure, have the disadvantage that the link to passenger demand is only implicit. That is, the fares increase as the aircraft fills up. Consequently, estimates of price elasticity would be difficult to derive, not least, because there are a variety of fare types offered by legacy carriers and associating these fares with segments of demand would face added data difficulties. Airlines might only be aware of the yield per flight and, after all, this is what they are managing.

The US BTS (2008b) provides a quarterly 10 percent sample of tickets that shows what passengers actually paid but this is only available for the US domestic market. A government initiative would be required to extend this sample to the north Atlantic. Without such an initiative, recourse would be to airline data, given cooperation and the fact that the data is recorded and stored, or a survey of passengers, which might require industry support. Appropriate fare data is difficult to obtain although an indication may be gained by using passenger numbers and estimates of revenue from US BTS data, that is, a yield. This average for each airline can be derived for each year or quarter and is the basis of some elasticity estimates.

c. Airline Costs

Changes in costs are taken to arise from increased competition between airlines as well as from closer alliances and cooperation. Airline financial data is available in company accounts and this may give sufficient detailed insight into operating costs. Case studies and cross sectional studies might be able to yield further insights and econometric estimation might fill gaps in knowledge. As such disaggregate data is commercially sensitive so good information may be hard to achieve. The US Bureau of Transportation Statistics (US BTS, 2008c) provides annual and quarterly profit and loss statement

data, including operating costs with a reasonable degree of disaggregation, but only for large US carriers with operating revenues above \$20 million per annum. Categories identified are maintenance, flying operations, promotion and sales and passenger service. The UK CAA (2006) provides annual profit and loss account details for individual airlines where total operating costs can be disaggregated into some 27 items including maintenance, flight crew and cabin crew salaries, passenger services and station costs, where the latter might benefit from airline cooperation. There is a difference in the periodicity of these cost data as well as a potential difference with fare and passenger data.

d. Elasticities

Elasticities can be assumed as they were in the Brattle Group (2008) and Booz Allen and Hamilton (2007) studies or calculated. Simple arc elasticity calculations require percentage changes in fares and the associated changes in passengers whilst point elasticity calculations require continuous data and an appropriate econometric estimation of a demand function. The issue here, as indicated above, is not the methods, but the data.

e. Consumer Surplus

To replicate the consumer surplus results as reported in the Brattle Group(2002) and Booz Allen and Hamilton (2007) studies²⁶ requires estimates of changes in passengers attributable to the Agreement. To convert these to surpluses simply requires assumptions on elasticities and data on fares. These assumptions could be repeated as well as the calculation relating passengers to operating revenues to derive fare estimates, albeit only for quarters at best.

6. Dealing with the Counterfactual

The counterfactual was a key feature of work in econometric history in the 1960's. Fogel (1964) and Fishlow(1965) provide seminal treatments and (McAfee, 1983) provides a humorous but nevertheless pertinent illustration of the approach. Blunk et al (2006) provide a recent illustration applied to 9/11.

Applied to the Open Skies Agreement, in essence, the approach would say that if the effect of the Agreement is to be correctly identified, we need to know what passengers, fares and costs would have been had the Open Skies Agreement not been signed and implemented. This is the

²⁶ Appendix 3 contains the details of surplus calculation.

counterfactual. The observed changes in passengers, fares and costs, where they can be observed, are then corrected for this counterfactual position to yield the residual impact of the Agreement. The correct degree of causation of the Open Skies Agreement is identified.

This issue is clearly a major difficulty for this research agenda. It is not correct to attribute changes in variables after Open Skies to Open Skies. It is necessary to know what would have been the situation without the Agreement. What would passengers, fares and costs have been?

Pitfield (2007) has produced some work on airline alliances which is pertinent to this topic, in particular, because the growth of alliances might well temper the impact on fare reductions from competition and so traffic growth, although alliances may also result in fare reductions from airline cooperation as costs fall. The question that this paper specifically dealt with was, whether it is possible to identify the change in alliance market share and passengers on a route as a result of code sharing and the signing of the individual European Open Skies Agreements with the US. Iatrou and Alamdari (2005) had suggested from survey work that airline expectations were positive, yet Pitfield (2007) found no specific impact on passenger numbers or alliance shares, using time series analysis and intervention analysis, beyond the changes that resulted from changes in fares, aircraft types and frequencies that the airlines had made on these routes continually since 1990. That is, this estimate of the counterfactual suggested that the alliances had no further impact.

This time series analysis might be a way of dealing with recorded changes in passenger data to isolate that due to the Agreement as this data exists. The sparsity of other data might be as big a handicap in the case of fares and costs, although if this desideratum is met the issue of causality still remains.

7. Conclusion

This paper has detailed the main features of the EU-US Open Skies Agreement and has summarised both the political reactions to the Agreement as well as the reasoned economic analysis of the expected outcomes. The effects that can be identified to date consisted of changes in airline service offerings, particularly at LHR, and demonstration effects. The paper concluded with an analysis of the data and methodological requirements of an assessment of the impact of the Agreement.

It can be concluded that to assess the impact requires overcoming difficulties in data collection on fares and costs, whilst on passengers, it needs to be determined what proportion of change is attributable to the Agreement. This raises methodological issues.

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