OXFORD ECONOMICS

Gulf carrier traffic to the USA:

An analysis of the competitive landscape and economic impact

Briefing provided to the U.S. Travel Association

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CONTENTS

1. EXECUTIVE SUMMARY

In 2014 the three major Gulf carriers – Emirates, Qatar Airways and Etihad Airways – carried some 4.3 million passengers into and out of the USA from all over the world. Some have questioned the extent to which this is positive for the US economy. It has been claimed, for example, that the Gulf carriers make a smaller economic contribution per flight than do the US-based carriers – United Airlines, Delta Airlines and American Airlines.

This briefing note sets out to explore this issue by understanding the dynamics of the journeys made by passengers on Gulf carrier flights in order to assess the benefits the Gulf carriers bring to the USA. In particular we set out first to test the hypothesis that US and Gulf carriers compete for the same passengers. The report then looks at the degree of complementarity between the two groups of airlines by quantifying the extent of feeder traffic brought onto US airlines by Gulf carriers. Finally we explore the economic impact of the tourists brought into the US by the Gulf carriers on the 11 cities they serve.

THE EXTENT OF COMPETITION BETWEEN GULF CARRIERS AND THE BIG THREE

The traffic analysis presented here allows us to draw a number of firm conclusions about the nature of the global relationship between the Big Three US carriers and the Gulf carriers as it relates to traffic carried into the US.

- It is clear that the two networks do not overlap to a substantial degree. There appears to be far more potential competition within, rather than between, these two groups. Just 0.7 per cent of international passengers travelling on a Big Three flight had a Gulf carrier alternative on that route.
- On the two routes where there is direct competition between Gulf and US carriers, the latter exhibit broadly stable passenger numbers, while overall, aggregate passengers on the routes have been approximately doubled by the arrival of Gulf carrier services.
- The true origin markets served by the two groups are very different, with the Gulf airlines overwhelmingly serving visitors from South Asia and the Middle East, and the US carriers dominating the Americas and European markets.

THE EXTENT TO WHICH GULF CARRIERS FEED PASSENGERS ONTO US CARRIERS

A further important effect of the Gulf carriers' services to the USA are the passengers they feed onto US carriers once those people touch down in the country.

- As well as bringing visitors into the USA from previously under-served parts of the globe, Gulf carriers in fact fed around 620,000 of these inbound passengers onto US carrier onward flights in 2014, some 350,000 of them with the Big Three. Including return trips, this implies that Gulf carriers fed a total of 1.2 million passengers onto US carriers in 2014.
- These Gulf feeder passengers are estimated to have contributed around US $ 140 million to the revenues of US carriers in 2014.

THE ECONOMIC IMPACT OF TOURISTS ARRIVING ON GULF CARRIERS ACROSS 11 US CITIES

The impact of tourism facilitated by the Gulf carriers is also significant. Our analysis shows that of 2.2 million inbound passengers to the USA on Gulf carriers in 2014, 1.2 million were foreign travelers, of whom around 50,000 connected onto a subsequent international flight out of the USA.

- Of the 1.1 million inbound visitors to the USA who did not take a subsequent international flight out of the USA, we estimate that 900,000 ended their inbound journey in one of the 11 major cities served by the Gulf carriers.
- On average, each visitor made a further 0.78 visits to one of the other 10 cities during their stay, yielding a total of 1.6 million city visits made by Gulf carrier tourists in 2014.
- On average, given the origin of Gulf carrier tourists, each city visit entailed US $ 2,500. This resulted in a total Gulf carrier tourism spend across the 11 cities of US $ 4.0 billion in 2014. This implies that total Gulf carrier tourism spending in the USA as a whole in 2014 was around US $ 5 billion.
- Across the 11 US cities directly served by the Gulf carriers, tourist spending generated a more than US $ 4.1 billion contribution to GDP. This spending supported almost 50,000 jobs in these cities, provided more than US $ 2.6 billion in labour income, and generated more than US $ 1.1 billion in federal, state and local taxes. Further activity and employment was generated beyond the 11 cities.

2. INTRODUCTION

Oxford Economics estimates that in 2014 the three major Gulf carriers – Emirates, Qatar Airways and Etihad Airways – carried some 4.3 million passengers into and out of the USA from all over the world. Some have questioned the extent to which this is positive for the US economy. It has been claimed, for example, that the Gulf carriers make a smaller economic contribution per flight than do the US-based carriers – United Airlines, Delta Airlines and American Airlines.[1]

This briefing note sets out to explore this issue by understanding the dynamics of the journeys made by passengers on Gulf carriers flights in order to assess the benefits the Gulf Carriers bring to the US. In particular, in chapter 3 we first test the hypothesis that US and Gulf carriers compete for the same passengers. The report seeks to answer the question: to what extent do the three major Gulf carriers compete for passengers with the Big Three US carriers – United Airlines, American Airlines and Delta Air Lines?

In chapter 4 this report then examines the degree of complementarity between the two groups of airlines by quantifying the extent of feeder traffic brought onto US airlines by Gulf carriers. Specifically, it answers the question: how many passengers do the Gulf airlines feed onto the services of US carriers and what is the revenue that is associated with this feeder traffic?

Finally, in chapter 5, we model the economic impact of the tourists brought into the USA by the Gulf carriers in the 11 cities they serve. These cities are: Boston, Chicago, Dallas, Houston, Los Angeles, Miami, New York, Philadelphia, San Francisco, Seattle and Washington. Our modelling quantifies the GDP and employment contribution created by the visitors who arrive via Gulf carriers in each city.

[1] American Airlines, Delta Air Lines and United Airlines et al., *Restoring Open Skies: The Need To Address Subsidized Competition* (2015).

3. ARE GULF AND US CARRIERS IN COMPETITION?

Much of the rhetoric of the Open Skies debate is premised on the assumption that Gulf carriers compete with and displace passengers who would otherwise travel to the USA on a US carrier. But is this the case? This chapter sets out Oxford Economics' analysis of the degree to which the Gulf carriers and the Big Three US carriers compete with one another for the same passengers.

To understand the degree of competition between the Big Three US and Gulf carriers, we answer two key questions:

- To what extent are Gulf carriers in direct competition with the three main US carriers on different routes into the US?
- To what extent are Gulf carriers serving the same markets as the US carriers in terms of the true origin/destination of their passengers?

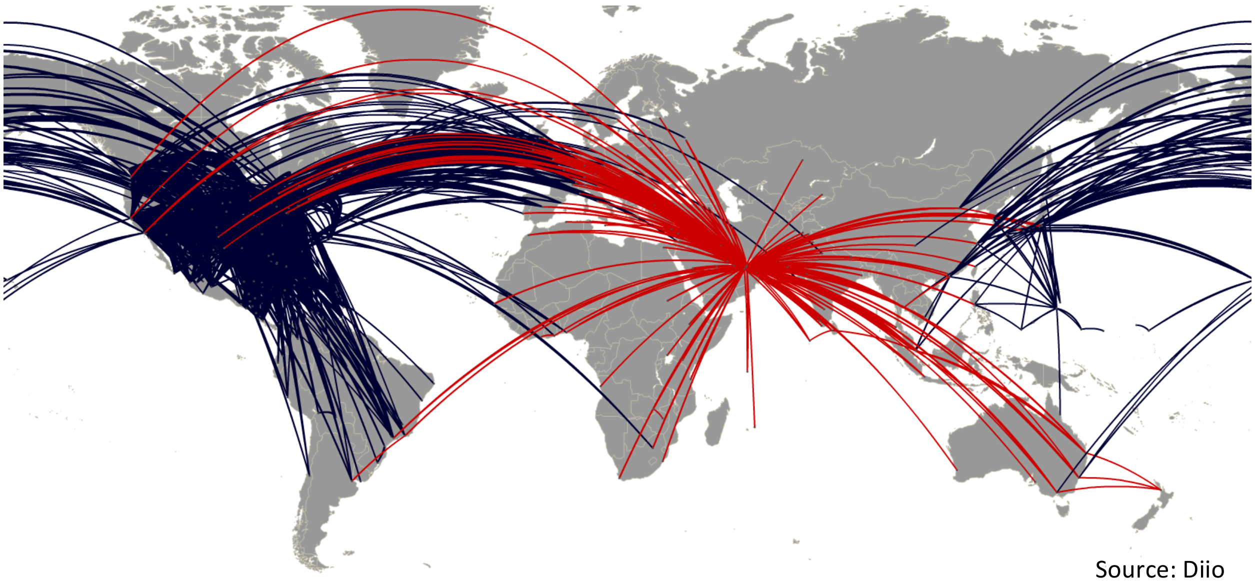
The analysis takes 2014 as its starting point and, where relevant, considers changes in recent years. The data sources used in the analysis include OAG, Diio, and the US Department of Transportation.

Details of the methodology used are included in the methodological annex in section 6 of this paper.

3.1 THE EXTENT OF DIRECT COMPETITION ON ROUTES INTO THE USA

The first step in the analysis is to consider the degree of overlap between the networks of the Big Three US carriers and those of the Gulf airlines. Figure 1 shows the scheduled route networks as at April 2015, where the red routes represent the combined Gulf carriers and blue routes those of the Big Three. Clearly the Big Three dominate services within and between the Americas, linking strongly to Europe. Meanwhile the Gulf carriers primarily connect Asia, Europe, Australasia and Africa. The footprints of these networks are therefore very different, with the routes of one group tending to connect to onward routes from the other. This suggests a large degree of complementarity, rather than competition, between the two groups.

Fig. 1: International route maps of US and Gulf carriers

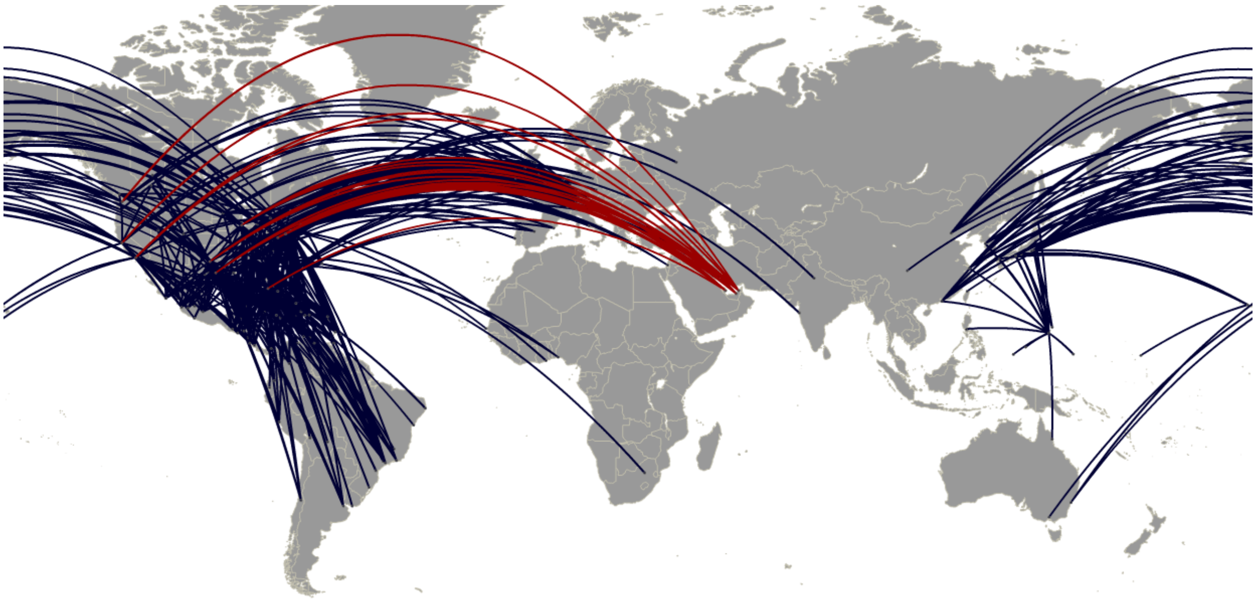


Source: Diio

Of more direct relevance to the Open Skies debate, however, is the degree to which US and Gulf carriers serve the USA itself. Figure 2 illustrates international routes into the USA flown by the Big Three (blue) and Gulf carriers (red) in April 2015. In total the Gulf carriers ran 22 routes to the US in April 2015, comprising some 259,000 seats. Of those, 21 linked the Middle East to the US directly. There is only one route – Milan to JFK, operated by Emirates – that serves the USA directly from an airport other than the Gulf carriers' hubs.

The Big Three US carriers operated five routes between the US and the Middle East as a whole, of which two served Tel Aviv. The total seat capacity of these routes in April 2015 was 44,000. On a regional basis, therefore, there is a limited degree of overlap between the routes of these two groups of airlines.

Fig. 2: International routes into the United States



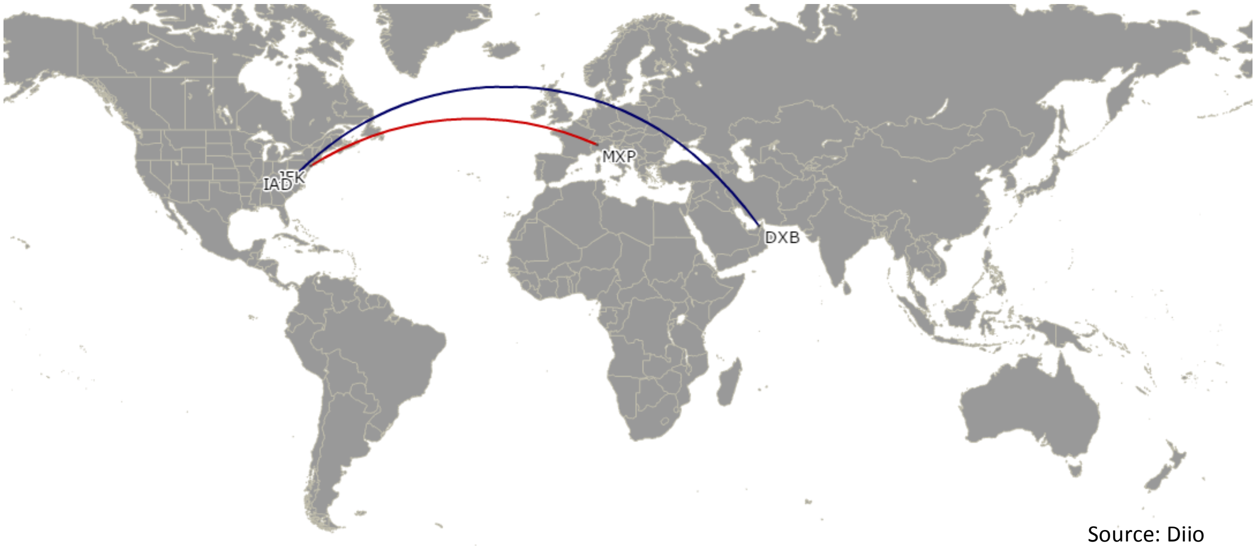
Source: Diio

Regional comparisons are also of only limited use, however, since (for example) passengers flying to the USA from Tel Aviv or Dubai are unlikely to see the two departure points as easy substitutes. Of critical importance then, is the degree to which the Big Three and Gulf carriers compete head-to-head on the same routes. How common is this?

In practice there are just two routes – Milan (MXP) to New York (JFK), and Dubai (DXB) to Washington (IAD) – where the Big Three compete directly with the Gulf carriers. To put this in context, in total these six carriers operated over 1,700 routes around the world in April 2015.[2]

[2] This is a count of airline routes. Therefore two airlines flying the same route count as two routes.

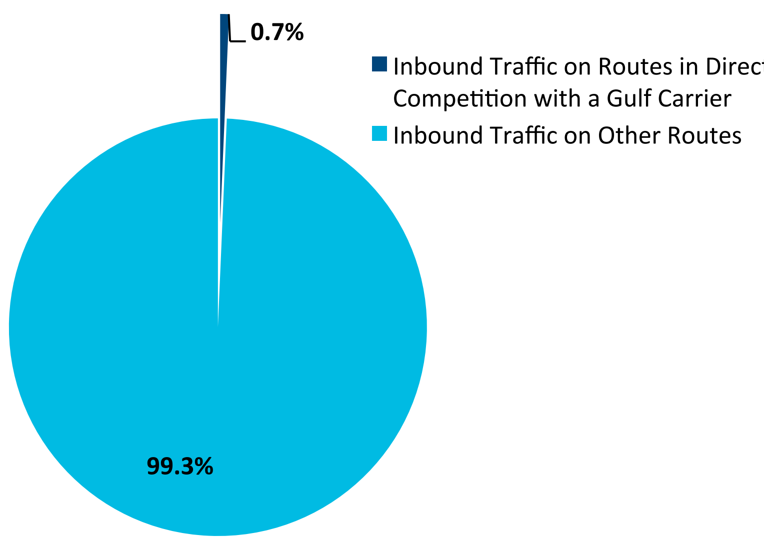
Fig. 3: Direct competition routes, Gulf and US carriers



Source: Diio

It is also possible to make an assessment of the number and proportion of passengers who faced a choice between a Big Three and a Gulf carrier last year. Our analysis suggests that just 0.7 per cent of inbound passengers on Big Three carriers had the option of a Gulf carrier to fly the same route in 2014 (Figure 4).

Fig. 4: US inbound passengers on the Big Three who had a Gulf carrier alternative, 2014

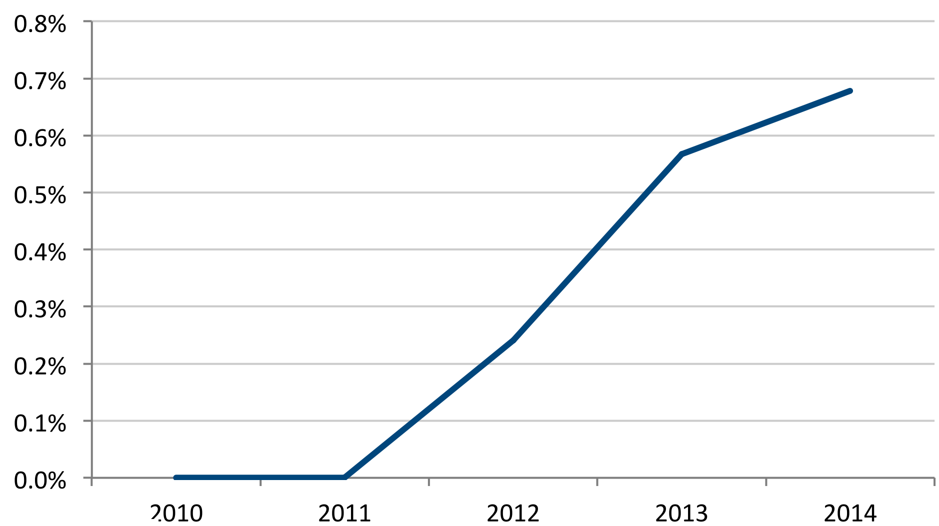


Source: OAG

Figure 5 shows how this proportion has evolved in recent years, with Emirates opening up its routes into the USA from Dubai (DXB) to Washington (IAD) in 2012 and then Milan (MXP) to New York (JFK) the following year; United Airlines began operating on the Doha (DOH) to Washington (IAD) route in 2012, a route that Qatar Airways already ran (although United Airlines has since ceased operating this route).

The degree of direct competition between the two groups of airlines is therefore small, suggesting that, in the main, US international arrivals on Gulf carrier flights have not been displaced from US carriers.

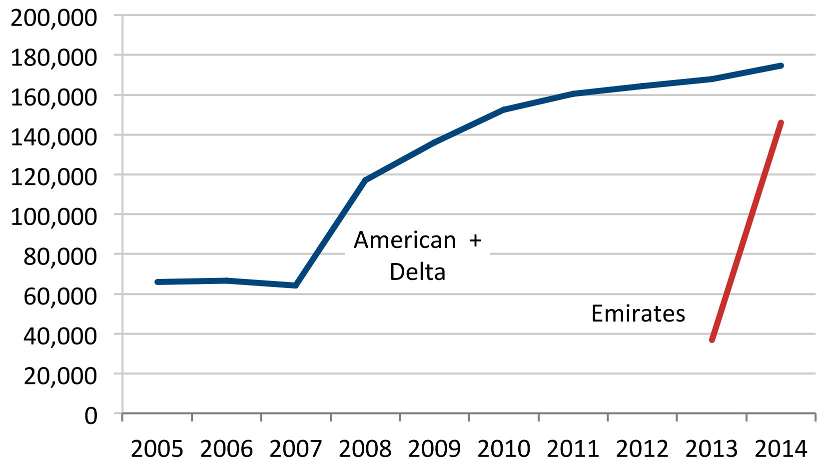
Fig. 5: Big Three US inbound passengers who had a Gulf carrier alternative, 2010-14



Source: OAG

Looking at the existing head-to-head routes more closely gives a sense of the impact of competition on them. Figure 6 illustrates how the seat capacity of US carriers on services from Milan to New York has grown since 2005. Initially, only Delta Air Lines (of the six airlines considered in this analysis) operated the route. American Airlines entered the route in 2008 almost doubling the US carriers' capacity. The number of seats provided has grown every year since, despite the entry of Emirates in 2013.

Fig. 6: Milan (MXP) to New York (JFK) capacity trends, one-way seats

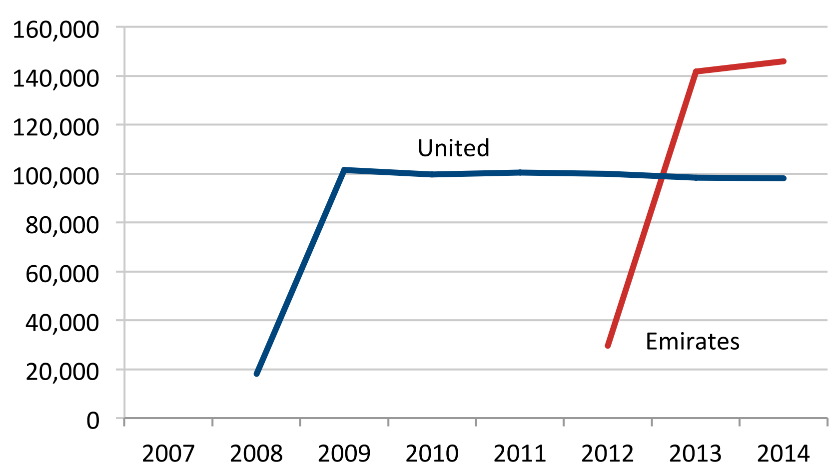


Source: Diio

But while the analysis shows that seat numbers provided by US carriers have been unaffected by Emirates' entry, it could be that their share of passengers has been adversely affected by the competition. However, further analysis of passenger numbers on the two routes operated by US carriers shows that these have actually remained steady, growing very slightly since 2012, the year before Emirates' entry.

Turning to the other head-to-head competition route, we can see that United Airlines was the first to operate the Dubai to Washington leg, starting in 2008, with Emirates beginning operation in 2012. Here again, passenger numbers on the route in 2014 were approximately twice their level in 2011, the year before Emirates' entry, again suggesting that large numbers of new passengers have been introduced to the route.

Fig. 7: Dubai (DXB) to Washington (IAD) capacity trends, one-way seats



Source: Diio

Overall, the analysis makes clear that the degree of direct route competition between the Big Three and the Gulf carriers is minimal, confined to just two routes. Looking at the dynamics of those routes in more detail shows how Emirates' arrival on them coincided with – and almost certainly drove – substantial increases in passenger numbers. The net effect therefore appears to be that the extra Gulf carrier capacity appears to be serving new passengers, with pre-existing passengers using the Big Three in similar numbers to the situation prior to the arrival of the Gulf carriers.

3.2 THE EXTENT OF SHARED ORIGIN/DESTINATION MARKETS IN THE USA

In the preceding analysis we established that the degree of direct route competition between the two groups of airlines is small. However, it may be the case that Gulf carriers are ultimately serving the same client base as their US counterparts – in terms of the ultimate origins or destinations of passengers. Could it be the case, for example, that some passengers from around the world now connect to their US inbound flight through a Middle East hub rather than, say, a European one with a US carrier? In this section we explore whether this is the case and what it suggest about the competition between the two groups.

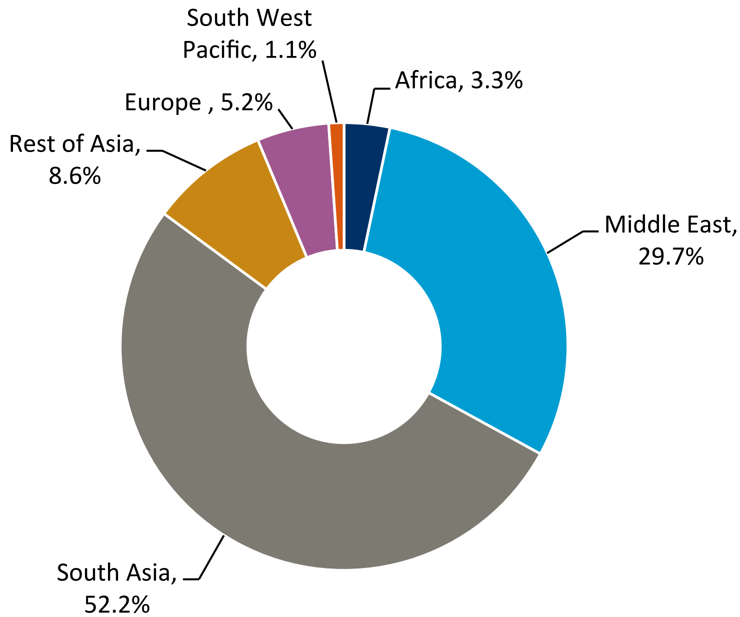
Using the OAG database it is possible to map the complete journey made by passengers who took a US inbound flight in 2014. These can then be aggregated by airline to understand which regions of the world people on US carrier or Gulf carrier flights into the USA are actually coming from or going to. As Figs 8 and 9 show, the regions of the world served by the two groups are very different.

In 2014 52.2 per cent of US inbound passengers on a Gulf flight originated in South Asia. The comparable proportion for the US carriers was just 0.8 per cent. Similarly, the Middle East was the true origin region for some 29.7 per cent of passengers on Gulf carriers flying into the USA, while for the US carriers the proportion was 3.7 per cent. Of this 3.7 per cent, a significant proportion (almost 20 per cent) of those on Big Three flights came from Israel alone, and from where the Gulf carriers do not operate.

By contrast the true origin of 82.0 per cent of Big Three passengers into the USA was the Americas or Europe, with Gulf flights into the USA carrying just 5.2 percent of their passenger from these regions (almost entirely from Europe).

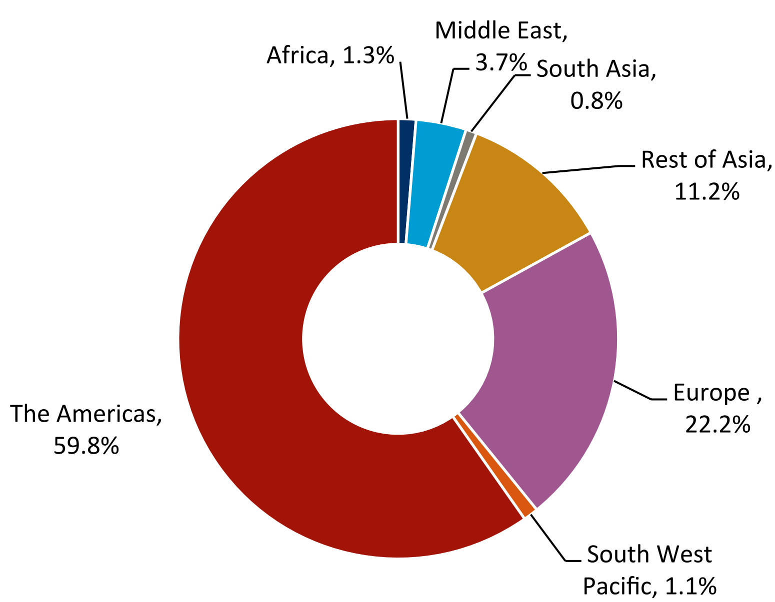
In other words, the ultimate global origins and destinations served by these two groups are strikingly different. Despite both having huge global reach, there is very little overlap in the regional origin or destination of those who fly into the United States on their respective planes.

Fig. 8: True origin/destination of US in-bound passengers on Gulf airlines, 2014



Source: Diio

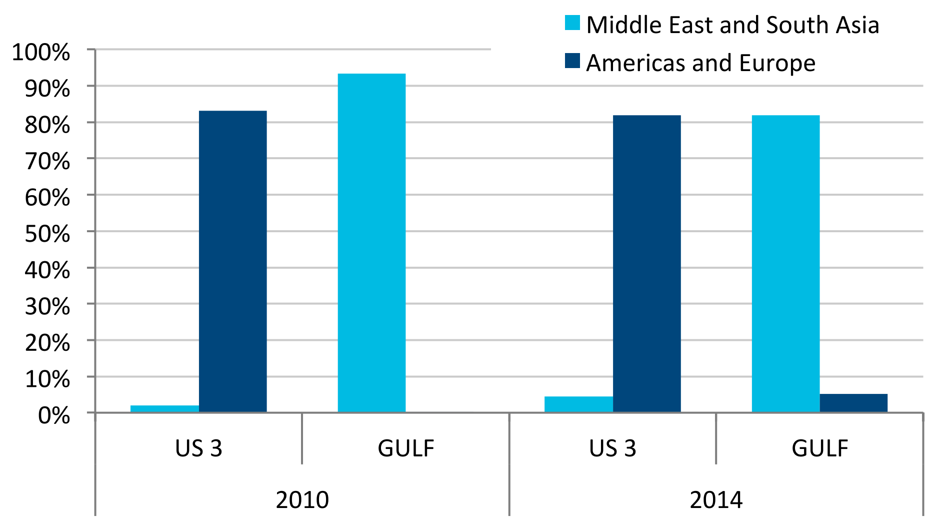
Fig.9: origin/destination of US in-bound passengers on US airlines, 2014



Source: Diio

Figure 10 demonstrates the degree of stability in this pattern. Since 2010 US carriers have moved into the Middle East somewhat while Gulf carriers have provided more services to those travelling from Europe. But the overwhelming dominance of the US carriers in serving Europe and the Americas, and the Gulf carriers serving the Middle East and South Asia is essentially unchanged.

Fig. 10: Passenger origin/destination patterns 2010-14



Source: OAG

In terms of the ultimate markets served, there is little evidence to suggest that the Big Three US and the Gulf carriers are competitors to any significant degree. Instead, the degree of potential competition within these two hemispheres, and therefore within, rather than between the US and Gulf groups, is much more significant.

4. FEEDING PASSENGERS INTO THE US NETWORK

The analysis so far has addressed the question of how much the US and Gulf carriers can be thought of as competitors given the nature of the services they provide into the USA. The evidence suggests that competition between them – and hence any displacement by Gulf carriers of US inbound passengers who would otherwise have been on US carrier planes - is minimal.

Rather what emerges from this route-mapping exercise is a picture of the substantial degree to which the global reach of Gulf carriers is opening up new markets of inbound passengers to the USA. These visitors, primarily coming from and going to the emerging markets of the Middle East and South Asia, raise the connectivity of the USA and tourism flows to the country, bringing with the various economic benefits that those effects entail.

4.1 NUMBER OF GULF CARRIER PASSENGERS FED ONTO US CARRIERS

Moreover, the Gulf carriers feed passengers from these new regions onto subsequent US carrier flights once they have arrived in the USA. Further interrogation of the OAG database allows us to identify the scale of this effect.

Our analysis suggests that around 350,000 passengers (both US and foreign arrivals) - around 16 per cent of the inbound visitors who travelled with a Gulf carrier to the US – transferred onto a US Big Three carrier plane in 2014. Assuming a typical return journey, this implies that a total of 700,000 passenger journeys are made on Big Three carriers by passengers brought into the US by Gulf carriers.

Widening the list of recipient airlines to include all US-based carriers reveals that, in total, over 620,000 passengers who arrived on a Gulf airline transferred onto a US airline to complete their journey. Again assuming return journeys are made, this implies a total of over 1.2 million Gulf feeder passenger journeys were made on US carriers in 2014. This represents 29 per cent of all passengers who arrived inbound on a Gulf carrier flight. In other words, the Gulf carriers feed more than twice as many passengers onto subsequent US carrier flights than they carry into the US on routes that compete with the Big Three.

4.2 US CARRIER REVENUE FROM GULF FEEDER PASENGERS

It is also possible to extend the analysis to calculate how much passenger revenue the 620,000 feeder passengers generate for US-based carriers. The calculation of this impact uses data drawn from the OAG database and the

Department of Transportation statistics website (see the methodological annex in section 6 for details of the specific methodology).

The results of the this analysis suggest that in 2014, the 620,000 inbound passengers who arrived at one of 11 US airports with a Gulf carrier transferred onto US carrier flights to over 250 destinations. These onward flights averaged 712 miles in length. A little over half of those passengers transferred to a flight destined for one of 20 US airports. These 20 airports include the likely final destination of a journey (e.g. Orlando International, Tampa, Phoenix), but also hub airports, such as Atlanta and Charlotte-Douglas in North Carolina, suggesting possible further onward flights with a US-carrier before some passengers reach their final destination.

Fig. 11: Feeder traffic from Gulf carriers to US destinations airports, 2014

Airport code	Airport	State	% of total feeder traffic
MCO	Orlando Intl	Florida	5.0%
CLT	Charlotte-Douglas Intl	North Carolina	3.7%
DTW	Wayne County	Michigan	3.6%
TPA	Tampa International	Florida	3.4%
RDU	Raleigh-Durham	North Carolina	3.1%
ATL	Hartsfield-Jackson ATL	Georgia	3.0%
BOS	Logan International	Massachusetts	2.8%
PHX	Sky Harbor Intl	Arizona	2.6%
SFO	San Francisco Intl	California	2.4%
DEN	Denver International	Colorado	2.4%
CMH	Port Columbus Intl	Ohio	2.2%
MIA	Miami International	Florida	2.2%
DFW	Dallas/Ft Worth Intl	Texas	2.1%
FLL	Ft Lauderdale Intl	Florida	2.0%
MSP	Minneapolis-St Paul	Minnesota	2.0%
CLE	Hopkins Intl	Ohio	1.9%
JAX	Jacksonville Intl	Florida	1.8%
AUS	Austin-Bergstrom Intl	Texas	1.8%
PIT	Pittsburgh International	Pennsylvania	1.8%
STL	Lambert International	Missouri	1.7%

Source: OAG

Based on route-level load factors for each US carrier, and assuming each trip is a return journey, the feeder passenger traffic was equivalent to over 1 billion seat miles on US carriers in 2014. In order to calculate the revenue that the feeder passengers generate for US carriers, we derived an average Passenger Revenue per Available Seat Mile (PRASM) for US-based Network and Low Cost Carriers

(LCC) for 2014 using Department of Transportation data. This stood at 12.61 cents per mile. Taking into account return journeys, this analysis suggests that Gulf carrier feeder passengers generated around US $ 140 million in passenger revenue for US carriers in 2014.

In fact, this revenue assessment is likely a conservative estimate. In particular, our analysis only considers the impact of one onward (return) journey taken with a US-based carrier within the USA. It does not capture any additional domestic flights, or the revenue associated with them, that those passengers may subsequently make during their stay in the country.

Analysis of international tourist flows within the USA is able to shed some light on the scale of these 'city-hoppers'. Data from Oxford Economics' Global City Travel service suggest that foreign visitors to the 11 cities served by the Gulf carriers make, on average, 1.8 city visits in total in the course of their stay. This strongly suggests that many of these visitors will take a further flight on a US carrier, generating further revenue not captured here.

5. QUANTIFYING THE TOURISM IMPACT

5.1 OVERVIEW OF TOURISM IMPACTS IN US CITIES

By opening up access to new and emerging markets the Gulf carriers drive what is known as catalytic impact for the top city destinations in the USA. Catalytic impacts capture the wide-ranging benefits that are created for the US economy through what users of Gulf carrier services are enabled to do by the services they provide to passengers. Flights into the USA facilitate business, encourage foreign investment, stimulate tourism and foster trade, consequently raising the productivity and prosperity of the country.

One important specific example of these kinds of catalytic impact is the tourism impact that Gulf carriers enable. The spending in US cities by both tourist and business travelers carried into the country on Gulf carrier flights generates a contribution to the GDP of the USA and sustains thousands of jobs across the country.

Our analysis shows that of 2.2 million inbound passengers to the USA on Gulf carriers in 2014, some 1.2 million were foreign travelers, around 50,000 of whom connected onto an immediate subsequent international flight out of the USA. Of the remaining 1.1 million inbound visitors to the USA, we estimate that 900,000 ended their inbound journey in one of the 11 major cities directly served by the Gulf carriers, the remainder going elsewhere in the USA.

However, some of these 900,000 visitors will have made subsequent US trips, following a stay in one of the cities. On average, each visitor is estimated to make a further 0.78 visits to one of the other 10 cities during their time in the USA. Factoring this in, we estimate that 1.6 million city visits were made to the 11 cities by tourists who arrived on a Gulf carrier into the USA (either as the final destination from their Gulf-carried inbound flight or on a subsequent trip following a stopover).

On average, given the origin of Gulf carrier tourists, each city visit entailed US $ 2,500 of tourist spending. The subsequent total spending on these trips therefore exceeded US $4.0 billion in 2014, implying that total Gulf tourist spending in the USA in 2014 was around US $ 5 billion. One of the most popular destinations for visitors coming into the USA through Gulf carriers is New York City, which accounted for about one third of the visitors and more than 43 per cent (US $ 1.8 billion) of visitor spending.[3] Other notable cities include

[3] The higher spending levels is generally attributed to the higher costs of accommodation compared to other city destinations

Washington D.C., San Francisco, Los Angeles and Houston, which collectively captured almost US $ 1.7 billion in visitor spending in 2014.

Figure 12 provides a breakdown of the estimated number of visitors by destination city who traveled to the USA on a Gulf carrier (either direct or before transferring to one or more US carrier flights). The figure also includes the estimated total spending of those visitors within each city.

Fig. 12: Visitor spending of passengers arriving with Gulf carriers, 2014.

	City trips (000s)	Spend (US $ 000s)
Boston	76	161,500
Chicago	95	182,800
Dallas	78	92,600
Houston	151	258,600
Los Angeles	149	388,200
Miami	24	74,100
New York	548	1,765,200
Philadelphia	12	16,300
San Francisco	129	367,200
Seattle	69	69,800
Washington	267	671,200
Total	1,598	4,047,500

The spending of these visitors in US cities generates economic impact in each of the cities' economies. These impacts can be quantified in terms of direct, indirect and induced effects (see methodological annex in section 7) and are articulated in terms of employment, labour income (wages), gross value added contribution to GDP and tax receipts. For example, the spending of visitors travelling to Los Angeles on Gulf carriers (either as all or part of their journey) supported 5,350 jobs in the LA economy, providing labour income to residents in excess of US $ 250 million and contributing almost US $ 400 million to the city's economy. As a result, federal, state and local government benefited through more than US $ 100 million in the form of tax receipts (including sales tax, income tax, taxes on corporate profits, and other taxes).

Taken together, in 2014, the tourist spending of visitors arriving at the top 11 cities having traveled on a Gulf carriers for all or part of their journey, supported almost 50,000 jobs, provided more than US $ 2.6 billion labour income, contributed to more than US $ 4.1 billion in GDP across all the cities and generated more than US $ 1.1 billion in federal, state and local taxes.

Figure 13 provides a city level summary of the tourism impact on employment, economic value and taxes supported through visitors traveling on Gulf carriers.

Fig. 13: Tourism impact of Gulf carrier visitors to the USA, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)	Taxes (US $ 000s)
Boston	2,060	106,300	162,000	41,500
Chicago	2,490	120,600	196,600	53,000
Dallas	1,330	60,600	94,500	22,700
Houston	3,560	153,100	243,000	59,900
Los Angeles	5,350	250,800	398,900	104,700
Miami	1,080	46,700	73,500	19,200
New York	21,020	1,201,000	1,892,200	535,100
Philadelphia	230	10,700	16,900	4,200
San Francisco	4,270	236,000	349,800	86,800
Seattle	860	40,000	67,100	20,100
Washington	7,640	396,900	629,200	158,200
Total	49,890	2,622,700	4,123,700	1,105,400

5.2 TOURISM IMPACT IN US CITIES SERVED BY GULF CARRIERS

5.2.1 TOURISM IMPACT IN BOSTON

The Boston, Massachusetts central MSA consists of Essex, Middlesex, Norfolk, Plymouth, Rockingham and Suffolk Counties in Massachusetts.

In 2014 an estimated 76,000 visitors traveled to Boston using Gulf carriers, on all of part of their journey, and spent approximately US $ 161 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

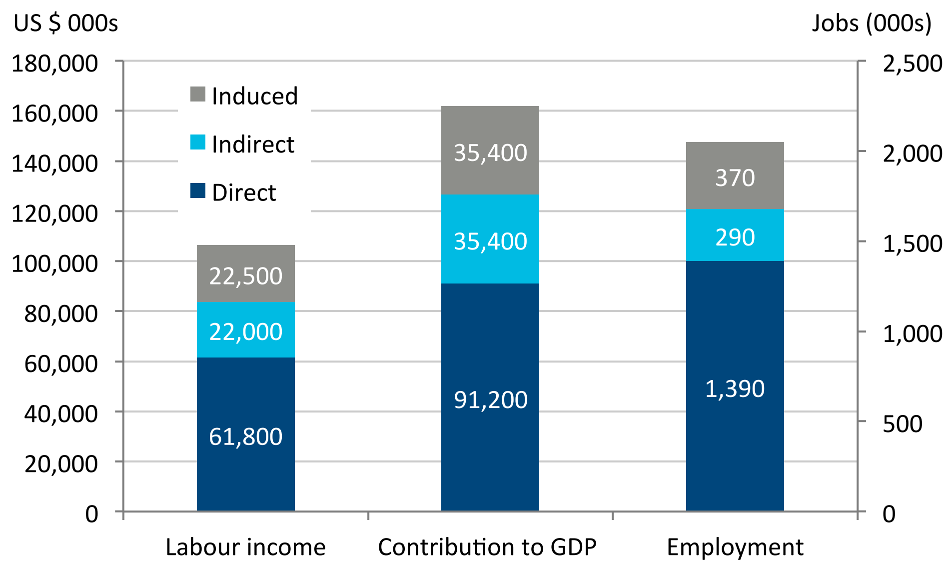
Fig. 14: Tourism impact facilitated by Gulf carriers in Boston, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	1,390	61,800	91,200
Indirect	290	22,000	35,400
Induced	370	22,500	35,400
Total	2,060	106,300	162,000

In total visitors to Boston through Gulf carriers supported just under 2,100 jobs, generating a US $ 162 million contribution to GDP, and US $ 106 million in labour income.

This economic value in turn generates US $ 24 million in combined federal, and US $ 18 million in state and local taxes.

Fig. 15: Tourism impact facilitated by Gulf carriers in Boston, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.2 TOURISM IMPACT IN CHICAGO

The Chicago, Illinois central MSA consists of Cook, DuPage, Kane, Kendall, Lake, McHenry and Will Counties in Illinois, and Lake and Porter Counties in Indiana.

In 2014 an estimated 95,000 visitors visited Chicago using Gulf carriers, on all of part of their journey, and spent approximately US $ 183 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

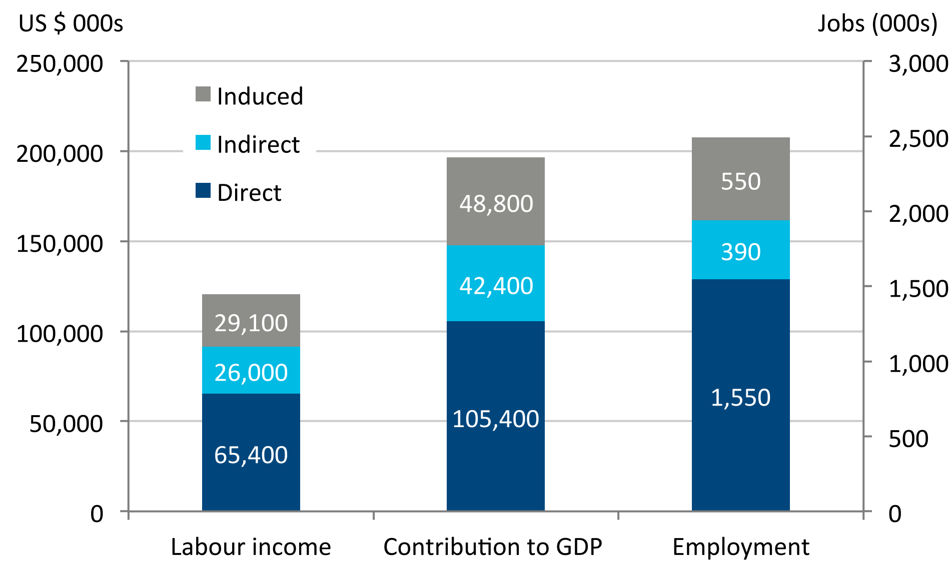
Fig. 16: Tourism impact facilitated by Gulf carriers in Chicago, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	1,550	65,400	105,400
Indirect	390	26,000	42,400
Induced	550	29,100	48,800
Total	2,490	120,600	196,600

In total, visitors to Chicago through Gulf carriers supported approximately 2,500 jobs, which generate a US $ 197 million contribution to GDP, and US $ 121 million in labour income.

This economic value in turn generated US $ 28 million in combined federal, and US $ 25 million in state and local taxes.

Fig. 17: Tourism impact facilitated by Gulf carriers in Chicago, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.3 TOURISM IMPACT IN DALLAS-FT. WORTH

The Dallas-Ft. Worth, Texas central MSA consists of Collin, Dallas, Ellis, Johnson, Rockwall and Tarrant Counties in Texas.

In 2014 an estimated 78,000 visitors travelled to Dallas-Ft. Worth using Gulf carriers, on all of part of their journey, and spent approximately US $ 93 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

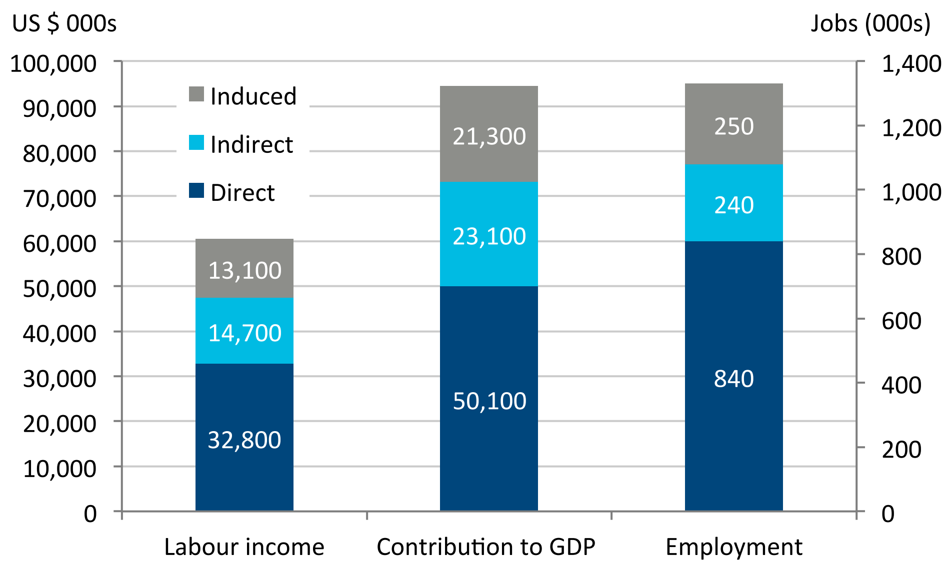
Fig. 18: Tourism impact facilitated by Gulf carriers in Dallas-Ft. Worth, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	840	32,800	50,100
Indirect	240	14,700	23,100
Induced	250	13,100	21,300
Total	1,330	60,600	94,500

In total visitors to Dallas-Ft. Worth through Gulf carriers supported approximately 1,300 jobs, which generate a US $ 94 million contribution to GDP, and US $ 61 million in labour income.

This economic value in turn generated US $ 14 million in combined federal, and US $ 9 million in state and local taxes.

Fig. 19: Tourism impact facilitated by Gulf carriers in Dallas-Ft. Worth, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.4 TOURISM IMPACT IN HOUSTON

The Houston, Texas central MSA consists of Brazonia, Chambers, Fort Bend, Galveston and Harris Counties in Texas.

In 2014 an estimated 259,000 visitors traveled to Houston using Gulf carriers, on all of part of their journey, and spent approximately US $ 151 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

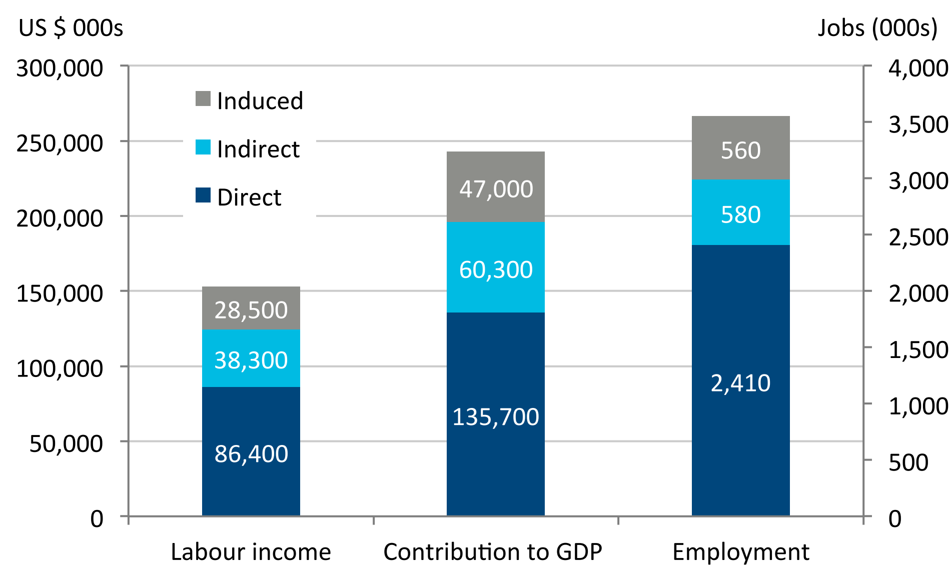
Fig. 20: Tourism impact facilitated by Gulf carriers in Houston, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	2,410	86,400	135,700
Indirect	580	38,300	60,300
Induced	560	28,500	47,000
Total	3,560	153,100	243,000

In total visitors to Houston through Gulf carriers supported approximately 3,600 jobs, which generate a US $ 243 million contribution to GDP, and US $ 153 million in labour income.

This economic value in turn generated US $ 35 million in combined federal, and US $ 25 million in state and local taxes.

Fig. 21: Tourism impact facilitated by Gulf carriers in Houston, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.5 TOURISM IMPACT IN LOS ANGELES

The Los Angeles, California central MSA consists of Los Angeles and Orange Counties in California.

In 2014 an estimated 388,000 visitors traveled to Los Angeles using Gulf carriers, on all of part of their journey, and spent approximately US $ 149 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

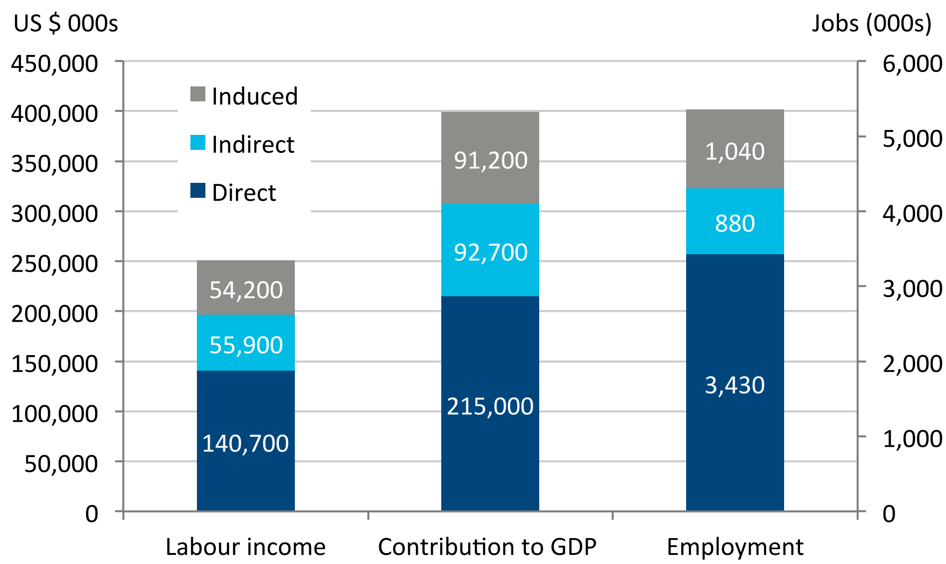
Fig. 22: Tourism impact facilitated by Gulf carriers in Los Angeles, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	3,430	140,700	215,000
Indirect	880	55,900	92,700
Induced	1,040	54,200	91,200
Total	5,350	250,800	398,900

In total visitors to Los Angeles through Gulf carriers support approximately 5,400 jobs, which generated US $ 399 million in contribution to GDP, and US $ 251 million in labour income.

This economic value in turn generated US $ 59 million in combined federal, and US $ 46 million in state and local taxes.

Fig. 23: Tourism impact facilitated by Gulf carriers in Los Angeles, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.6 TOURISM IMPACT IN MIAMI

The Miami, Florida central MSA consists of Broward, Miami-Dade and Palm Beach Counties in Florida.

In 2014, an estimated 24,000 visitors traveled to Miami using Gulf carriers, on all of part of their journey, and spent approximately US $ 74 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

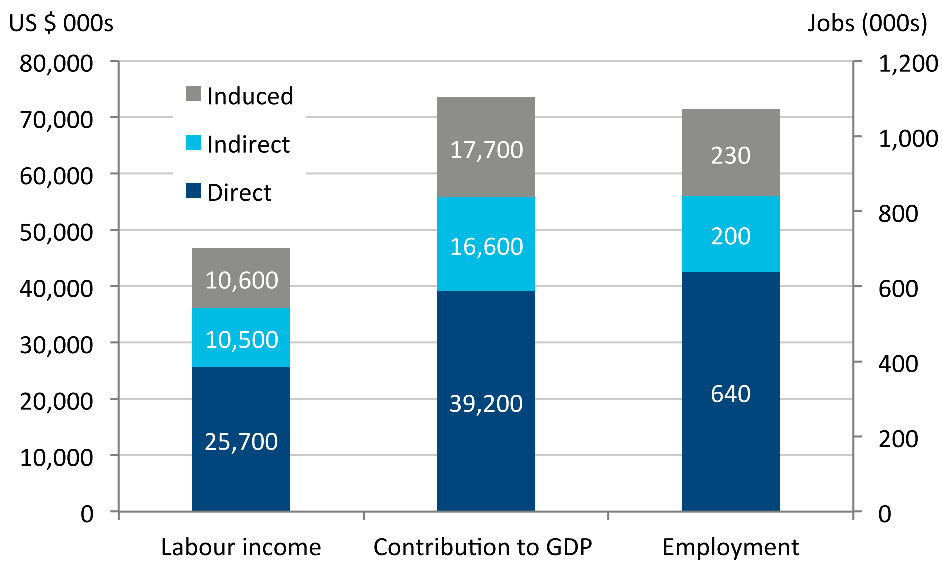
Fig. 24: Tourism impact facilitated by Gulf carriers in Miami, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	640	25,700	39,200
Indirect	200	10,500	16,600
Induced	230	10,600	17,700
Total	1,080	46,700	73,500

In total, visitors to Miami through the Gulf carriers supported approximately 1,100 jobs, which generated a US $ 74 million contribution to GDP, and US $ 47 million in labour income.

This economic value in turn generated US $ 11 million in combined federal, and US $ 8 million in state and local taxes.

Fig. 25: Tourism impact facilitated by Gulf carriers in Miami, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.7 TOURISM IMPACT IN NEW YORK

The New York, New York central MSA consists of Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex and Union Counties in New Jersey, and Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, and Westchester Counties in New York.

In 2014, an estimated 1,765,000 visitors traveled to New York using Gulf carriers, on all of part of their journey, and spent approximately US $ 548 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

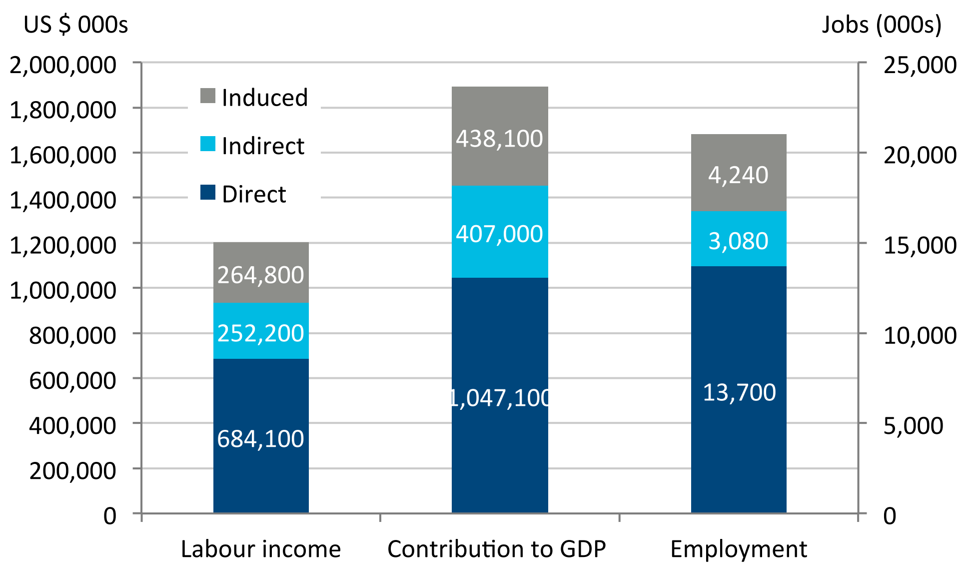
Fig. 26: Tourism impact facilitated by Gulf carriers in New York, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	13,700	684,100	1,047,100
Indirect	3,080	252,200	407,000
Induced	4,240	264,800	438,100
Total	21,020	1,201,000	1,892,200

In total, visitors going to New York through Gulf carriers support approximately 21,000 jobs, which generated a US $ 1.9 billion contribution to GDP, and about US $1.2 billion in labour income.

This economic value in turn generated US $ 281 million in combined federal, and US $ 254 million in state and local taxes.

Fig. 27: Tourism impact facilitated by Gulf carriers in New York, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.8 TOURISM IMPACT IN PHILADELPHIA

The Philadelphia, Pennsylvania central MSA consists of New Castle County in Delaware, Cecil County in Maryland, Burlington, Camden, Gloucester and Salem Counties in New Jersey, and Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties in Pennsylvania.

In 2014 an estimated 12,000 visitors traveled to Philadelphia using Gulf carriers, on all of part of their journey, and spent approximately US $ 16 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

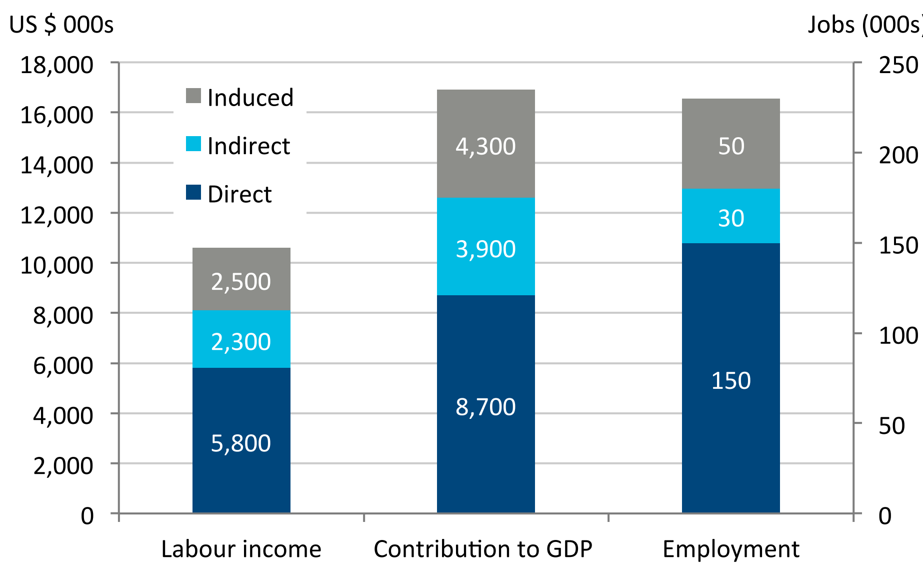
Fig. 28: Tourism impact facilitated by Gulf carriers in Philadelphia, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	150	5,800	8,700
Indirect	30	2,300	3,900
Induced	50	2,500	4,300
Total	230	10,700	16,900

In total, visitors to Philadelphia through Gulf carriers supported approximately 200 jobs, which generated a US $ 17 million contribution to GDP, and US $ 11 million in labour income.

This economic value in turn generated US $ 2 million in combined federal, and US $ 2 million in state and local taxes.

Fig. 29: Tourism impact facilitated by Gulf carriers in Philadelphia, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.9 TOURISM IMPACT IN SAN FRANCISCO

The San Francisco, California central MSA consists of Alameda, Marin, San Francisco and San Mateo Counties in California.

In 2014, an estimated 367,000 visitors traveled to San Francisco using Gulf carriers, on all of part of their journey, and spent approximately US $ 129 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

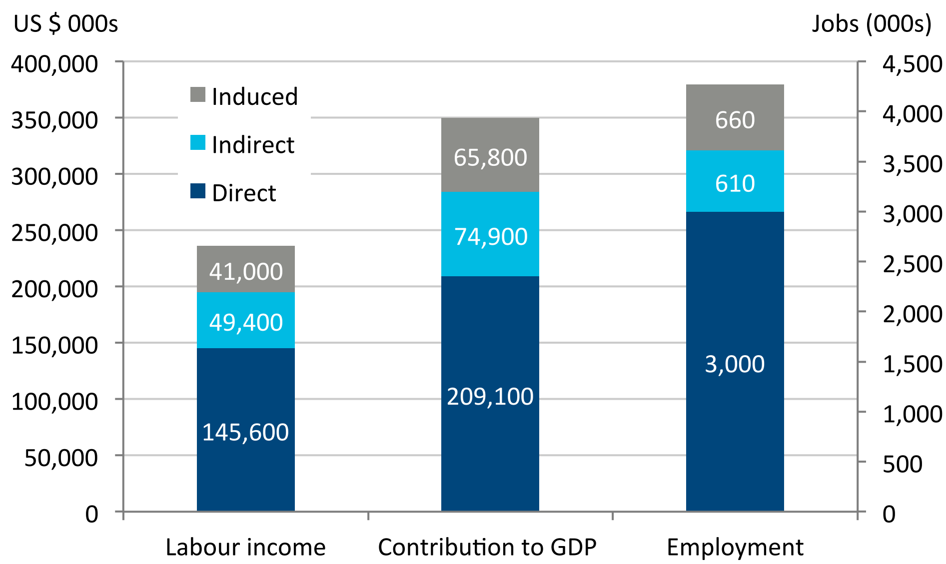
Fig. 30: Tourism impact facilitated by Gulf carriers in San Francisco, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	3,000	145,600	209,100
Indirect	610	49,400	74,900
Induced	660	41,000	65,800
Total	4,270	236,000	349,800

In total, visitors to San Francisco through Gulf carriers supported approximately 4,300 jobs, which generated a US $ 350 million contribution to GDP, and US $ 236 million in labour income.

This economic value in turn generated US $ 49 million in combined federal, and US $ 38 million in state and local taxes.

Fig. 31: Tourism impact facilitated by Gulf carriers in San Francisco, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.10 TOURISM IMPACT IN SEATTLE

The Seattle, Washington central MSA consists of Kings, Pierce and Snohomish Counties in Washington.

In 2014, an estimated 70,000 visitors traveled to Seattle using Gulf carriers, on all of part of their journey, and spent approximately US $ 69 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

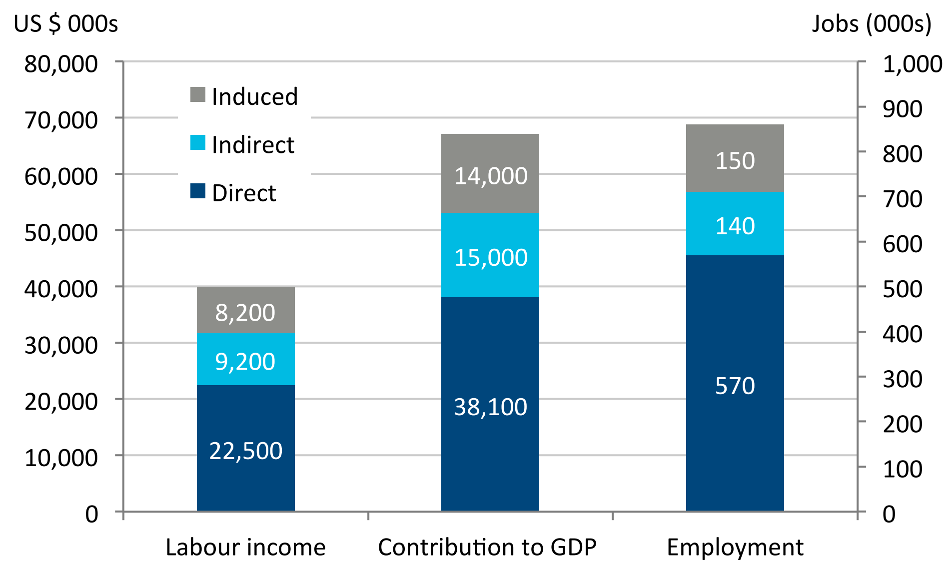
Fig. 32: Tourism impact facilitated by Gulf carriers in Seattle, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	570	22,500	38,100
Indirect	140	9,200	15,000
Induced	150	8,200	14,000
Total	860	40,000	67,100

In total, visitors to Seattle through Gulf carriers supported approximately 900 jobs, which generated a US $ 67 million contribution to GDP, and US $ 40 million in labour income.

This economic value in turn generated US $ 10 million in combined federal, and US $ 10 million in state and local taxes.

Fig. 33: Tourism impact facilitated by Gulf carriers in Seattle, 2014



Source: Oxford Economics/OAG/IMPLAN

5.2.11 TOURISM IMPACT IN WASHINGTON

The Washington, District of Columbia central MSA consists of the District of Columbia, Montgomery and Prince George's Counties in Maryland, and Arlington, Fairfax, Fauquier, Loudoun, Prince William and Stafford Counties and Alexandria, Fairfax, Falls Church, Manassas and Manassas Park cities in Virginia.

In 2014, an estimated 671,000 visitors traveled to Washington using Gulf carriers, on all of part of their journey, and spent approximately US $ 267 million during their stay. This expenditure supported activity in the tourism and recreation sectors, including hotel accommodation, restaurants, performing arts, retail and transportation.

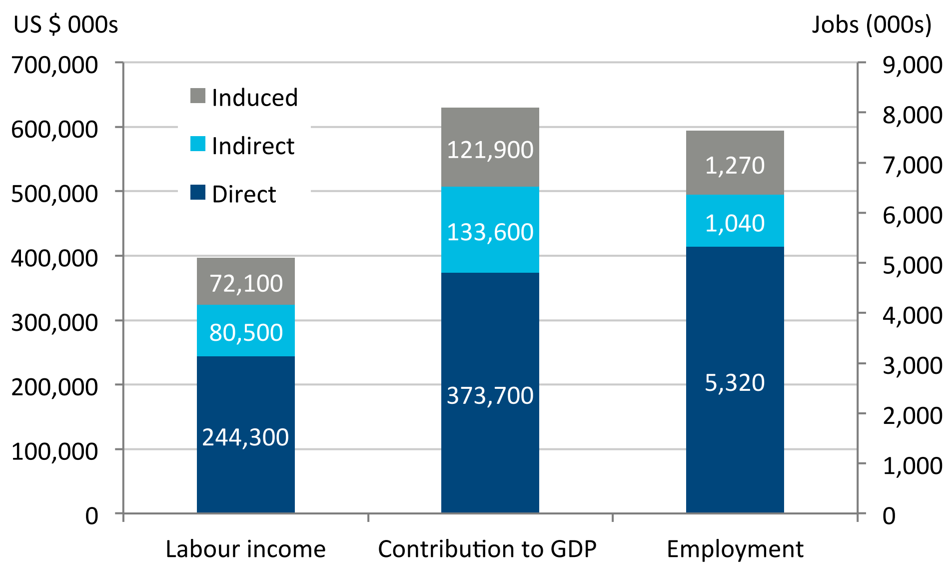
Fig. 34: Tourism impact facilitated by Gulf carriers in Washington, 2014

	Employment	Labour income (US $ 000s)	Contribution to GDP (US $ 000s)
Direct	5,320	244,300	373,700
Indirect	1,040	80,500	133,600
Induced	1,270	72,100	121,900
Total	7,640	396,900	629,200

In total, visitors to Washington through Gulf carriers supported approximately 7,600 jobs, which generated a US $ 629 million contribution to GDP, and US $ 397 million in labour income.

This economic value in turn generates US $88 million in combined federal, and US $70 million in state and local taxes.

Fig. 35: Tourism impact facilitated by Gulf carriers in Washington, 2014



Source: Oxford Economics/OAG/IMPLAN

6. METHODOLOGICAL ANNEX

6.1 OAG TRAFFIC ANALYSIS

Results reported in this paper are largely underpinned by the Traffic Analyser dataset produced by OAG. This dataset allows the user to investigate trends (going back to 2010) in passenger flow across different aviation routes, tracing passengers by their true origin and final destination in cases where they have undertaken a multi-leg route.[4]

Data provided by OAG details the routes taken by passengers by airport and airline. Its multi-leg feature enabled the analysis of some of the questions addressed in this paper. For example, for a given route on which Gulf carriers take passengers directly into the US, we were able to assess:

- To what extent those passengers began their journey on that route or originated their journey elsewhere, using the Gulf route as a connecting flight; and
- To what extent passengers that entered the US using a relevant Gulf route got on a subsequent flight, and if so what airline benefited from such feeder demand.

For the individual route analysis, in some instances, the OAG results were scaled to be consistent with data published by the US Department of Transport (DoT). At the time of modelling, DoT data was typically available up to November for passengers carried on the routes discussed in this report. Full-year estimates of DoT-based passenger flows for 2014 were then calculated using a pro-rata method. In cases, where this estimate was within 10 per cent (either side) of the total figure produced using analysis of the OAG dataset, the OAG numbers were used but, if not, the total passenger flow was assumed to equal the DoT-data produced figure. More granular estimates produced using the OAG data (for example passengers disaggregated by true origin market) for that route were then scaled to reflect the change in assumed overall passenger flow.

6.2 PASSENGER REVENUE

The estimate of passenger revenue for US-based carriers is based on the following key identity:

Passenger Revenue = Available Seat Miles (ASM) X Passenger Revenue per Available Seat Mile (PRASM).

[4] Further information regarding the dataset and underlying methodology can be found here: http://www.oag.com/sites/default/files/Traffic_Analyser_User_Guide_May_15.pdf

The PRASM for US-based carriers in 2014 was 12.61 US Cents. This is an Oxford Economics calculation of the weighted average of total airline passenger revenue and total available seat miles for US-based network carriers and Low Cost Carriers (LCC) sourced from Bureau of Transportation Statistics (BTS), Schedule T2 and P1.2 (a).

The main calculation involves estimating the necessary number of Available Seat Miles for the 580,000 inbound passengers given the destinations they travel to and the load factors on those routes. The BTS database was used to establish the average load factor of US-based carriers on each domestic route from each of the 11 feeder airports into which the Gulf carriers fly.

Next an estimate of available seats on each route was calculated by dividing the OAG onward route passenger number by that route's load factor. The ASM on each route is then derived by multiplying the available seats by the distance of each route.

Finally, the ASM on each route out of the 11 feeder airports is multiplied by PRASM using the above identity to estimate overall passenger revenue for that journey. This figure is then doubled to capture the impact of the return flight to the 11 feeder airports.

6.3 TOURISM IMPACT

6.3.1 ECONOMIC IMPACT ANALYSIS

The economic impact of a company or industry is measured using a standard means of analysis called an economic impact assessment. In this study we quantify the economic contributions made by tourist spending in each of the cities under analysis. This 'economic footprint' of Gulf carrier visitors, comprises three types of impact:

- ***Direct impact***, which relates to the economic activity immediately associated with the spending of visitors in each city;
- ***Indirect impact***, which encapsulates the activity and employment supported in the supply chains of the organisations with whom visitors spend their money, as a result of its procurement of goods and services; and
- ***Induced impact***, comprising the wider economic benefits that arise when employees of companies in the tourism industry and its supply chain spend their earnings, for example in local retail establishments.

Using these pathways, a picture of the economic footprint generated by the tourism that the Gulf carriers facilitate can be created using three key metrics:

- ***GDP***, or more specifically, Etihad's gross value added (GVA) contribution to GDP;
- ***Employment***, as the number of people employed, measured on a headcount basis; and
- ***Tax revenue***, as the state and federal taxes associated with tourism spending create government revenue.

Oxford Economics used an industry-standard input-output modeling software called IMPLAN5 to estimate the local economic impact of tourism spending in each of the cities. The IMPLAN software package allows the estimation of direct, indirect, and induced impacts across different industries in the economy for a variety of economic activities, including consumer spending patterns. Impacts were estimated for each of the central MSA areas and measure total economic contribution in income, employment, and value added. Additionally, estimates of federal, and state and local tax revenues are also calculated by the software. [6]

6.3.2 ESTIMATING THE NUMBER OF INBOUND VISITORS TO 11 US CITIES

In order to undertake the tourism impact analysis, we began by interrogating the OAG database to understand the true origin of inbound passengers on Gulf flights in 2014. This was determined by the passengers' origin of ticket purchase. Passengers' final destinations in the USA were identified by examining whether they took any onward flights from the initial US arrival airport. Where a subsequent domestic flight was taken, those passengers were allocated as visitors to the ultimate destination rather than the entry airport. All inbound OAG-based estimates were then scaled to be consistent with Department of Transportation data for 2014.

6.3.3 ESTIMATING FIRST AND SECOND DESTINATION VISITS TO US CITIES

Having established the number of foreign visitor arrivals on Gulf airlines to each of the 11 cities, the next step was to make an estimate of the degree to which those visitors – conditional on their country of origin - travel to another city beyond the initial destination within the overall trip to the US.

Estimates of first-destination visits are informed by published data from the Office of Travel & Tourism Industries (OTTI), OAG aviation data on air passenger arrivals and STR Global hotel demand.

[5] The IMPLAN Group, in www.implanonline.com [accessed 28 May 2015]. For this project, we used the 2013 county-level IO model.

[6] Tourist spending profiles were run as "commodity change" scenarios. Spending on goods incorporated relevant retail margins and regional purchasing coefficients from the IMPLAN social accounting model for each region. Spending on services were assumed to take place 100% within the target areas.

OTTI data provides information on the number of first-destination trips to US states by selected origin markets.[7] This is then allocated to the 11 cities according to each city's share of air passenger arrivals by origin relative to the wider state using OAG aviation data. Of course, a passenger arriving at a city airport does not guarantee a visitor for a particular city. Therefore, STR Global data on hotel room demand is used to augment the aviation shares, where city room demand relative to the wider state reflects the attractiveness of the city as a tourism destination.

Second-stop[8] visits are determined according to a number of factors. Firstly, total destination visits (including first-destination trips as well as subsequent trips) is published by OTTI for selected US cities and by selected origin markets from the Survey of International Air Travelers (SIAT)[9]. The balance between SIAT total destination visits and estimated first-destination visits therefore represents second-stop visits in these selected cities and by selected origin market.

The next step is to determine the second-stop visits that are not directly reported by SIAT. The information available from SIAT is used to estimate 'multi-trip' ratios which indicate the average number of city destinations visited within a trip to the USA by country and region of origin. For example, SIAT coverage includes destination visits from the UK to New York City, Orlando, Las Vegas, San Francisco and Los Angeles. By combining this information with estimated first destination trips to these cities from the UK, the multi-trip ratio for UK visitors to the US is estimated to be 1.52 destinations per trip. This analysis is replicated across all SIAT reported origin countries and regions, and used to determine total second-stop destination visits taken with the US across all city destinations.

The final step is to take total second-stop destination visits for the entire USA and subtract reported visits (based on SIAT data and Oxford Economics estimates of first-destination visits). The destination of the remaining second-stop visits is determined using the estimated first-destination visits. That is, the proportion of visitors travelling to each city which is the first-destination within the trip reflects the attractiveness of each city as a tourism destination. This is

[7] The origin countries are France, Germany, Italy, Netherlands, UK, Japan, South Korea, Taiwan, Australia, Argentina and Brazil. The rest of the World is also represented in this dataset as region categories (e.g. rest of Western Europe, rest of Asia, etc).
[8] Where 'second-stop' visits are referenced, this encompasses all multi-destination visits beyond the first destination of arrivals and therefore may include a visit which is third or fourth destination visit.
[9] SIAT data provides destination visits data for 9 of the 11 cities (Boston, Washington DC, Houston, New York, Los Angeles, Miami, Chicago, Philadelphia and San Francisco). It also covers 24 country origin markets, as well as World regions.

used to estimate the city share of total US visitor arrivals, to allocate the remaining second-stop visits.

6.3.4 SPENDING TOTALS

For both first and second destinations we the sought to assess the level of expenditure made in each city visited. Tourism spending by city visit and by country of origin was drawn from Oxford Economics' Global City Travel database.

These spending totals were distributed by type of good or service according to the 2012 nonresident purchase shares in the US Travel and Tourism satellite accounts.[10] Aggregate categories, such as were distributed proportionally to (domestic) household final consumption for these categories.[11]

6.3.5 GEOGRAPHY

The geographic definition for each of the eleven cities is based on the relevant metropolitan statistical area (MSA). The Office of Management and Budget delineates MSAs based on data published by the Census Bureau.[12] For this analysis, only "central" MSA counties (as determined by Census and OMB), were included in each MSA; "outlying" counties were excluded. The underlying assumption for this approach is that most non-domestic tourism activities that would take place within each destination would be predominately captured in the counties that are central to the metropolitan area.

[10] Bureau of Economic Analysis, "Satellite Industry Accounts Data", in http://www.bea.gov/industry/tourism_data.htm [accessed 28 May 2015]
[11] Using data from IMPLAN 2013 national model; see below for IMPLAN citation. Aggregate categories (i.e. those that do not correspond to a single IMPLAN category) include nondurable personal consumption expenditures other than gasoline, motion pictures and performing arts, spectator sports, food services and drinking places, and all other recreation and entertainment.
[12] Census Bureau, "Current Lists of Metropolitan and Micropolitan Statistical Areas and Delineations" in www.census.gov/population/metro/data/metrodef.html [accessed 28 May 2015]

7. FURTHER INFORMATION

All data shown in tables and charts are the result of modelling by Oxford Economics based on input data from a variety of sources, as stated in charts or otherwise cited in footnotes.

All modelling and calculation results presented here are based on data and information provided by third parties. Any subsequent revision or update of those data will affect the assessments and projections shown.

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