



Perspectives: Improvement in
Passenger Journey Efficiency in
the United States following
Exogenous Shocks

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Introduction

Flight itineraries are typically a key driver for a passenger making travel arrangements. Non-stop, point-to-point itineraries for air travelers are preferable to passengers because they are faster, more convenient and efficient, and have a lower impact on the environment. Over time the "Itinerary Efficiency", defined as the share of passengers able to use non-stop rather than connecting services, has increased.

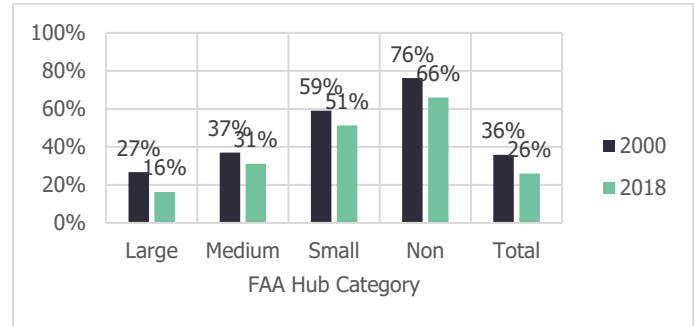
Since 2000, the United States ("US") airline industry has faced two major corrections due to exogenous shocks: (1) following the terrorist events of September 11, 2001, and (2) following the Global Financial Crisis of 2008, the industry is currently in the midst of a third with the impact of COVID-19 on the economy and air travel. Both of the earlier historical events were accompanied by significant increases in oil prices and economic recessions, and the impact of COVID-19 is likely to result in an economic recession, though oil prices are presently at the lowest point in many years.

These events had significant impacts on the US airline networks, primarily through consolidation of airlines and the elimination of under-performing hubs and routes. Improvements in airframe and engine technologies that provide competitive operating economics to a broader spectrum of non-stop market sizes and stage lengths came to market. Finally, the aggressive growth of low-cost ("LCC") and ultra-low-cost ("ULCC") carriers over the period has changed the US airline network profile.¹

In 2000, approximately 36% of origin & destination ("O&D") passengers on domestic US itineraries made connections. By 2018, the share of O&D passengers making connections was reduced to 26% as shown in Figure 1. O&D passengers at Large-hub and Non-hub markets reduced the proportion of connecting itineraries the most, as network airlines and LCCs focused service in the largest markets and ULCCs began serving the non-hub markets on leisure routes.² O&D passengers at Medium-hub and Small-hub markets also availed themselves of non-stop itineraries more frequently, but their itinerary efficiency was negatively impacted by

airline consolidation and rationalization that eliminated hubs and routes at several Medium-hub airports.

Figure 1 O&D Passengers with Connecting Itineraries

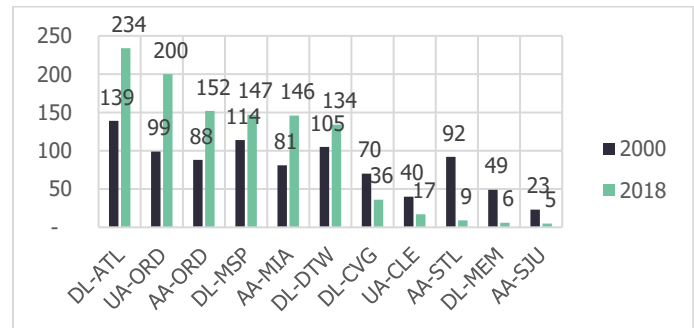


Source: US DOT Origin & Destination Passenger Survey.

Network Carriers

Network carriers Alaska Airlines, American Airlines, Delta Air Lines, Hawaiian Airlines, and United Airlines have focused their hub-and-spoke operations in their largest markets while eliminating hubs in smaller markets as shown in Figure 2. American eliminated its Saint Louis and San Juan hubs while expanding its Chicago O'Hare and Miami hubs. Delta eliminated its Cincinnati and Memphis hubs while expanding its Atlanta and Detroit hubs. United eliminated its Cleveland hub while expanding its Chicago O'Hare hub.

Figure 2 Change in Number of Nonstop Destinations by Carrier and Market



Note: Includes regional affiliates and merged airlines.
Source: US DOT T100 Data

¹ Low-cost carriers are defined as JetBlue Airways and Southwest Airlines, airlines that have lower costs than the network carriers and a route network that is primarily focused on point-to-point travel rather than a hub and spoke system. Ultra-low-cost carriers are defined as Allegiant Airlines, Frontier Airlines, and Spirit Airlines, airlines that are almost exclusively focused on point-to-point travel and an unbundled pricing model in which fares are very low, but the airlines charge ancillary fees for each amenity.

² The United States Federal Aviation Administration classifies airports with commercial service as Large hubs for those airports that handle 1% or more of total U.S. annual passenger boardings; Medium hubs for those airports that handle at least 0.25% but less than 1.00% of total U.S. annual passenger boardings; Small hubs for those airports that handle at least 0.05% but less than 0.25% of total U.S. annual passenger boardings; and non-hubs, at least 10,000 passenger boardings but less than 0.05% of total U.S. annual passenger boardings.

In each of these cases, a Medium- or Small-hub airport lost its airline hub in favor of a Large-hub airport. As a result, the Large-hubs experienced an increase in non-stop destinations served and seat capacity, while the Medium- or Small-hub airport experienced a significant decrease in non-stop destinations served and seat capacity. Passengers in Large-hub markets were able to avail themselves of non-stop flights more often, while a larger share of passengers in Medium- and Small-hub airports had to travel on connecting itineraries.

JetBlue Airways

JetBlue has focused its network at Large-hubs in the Northeast and Florida as shown in Table 1. For passengers on domestic itineraries, the majority travel on non-stop flights because the locations of JetBlue’s largest markets are in the corners of the US. For the most part, domestic connecting itineraries on JetBlue would not be competitive due to circuitry.

Table 1 Top Five JetBlue Cities by Non-Stop Destinations and Seat Capacity – July 2020

| Rank | Airport | No. of N/S Dest's | Avg. Daily Depts | Avg. Daily Seats |
|------|---------------------|-------------------|------------------|------------------|
| 1 | New York JFK | 73 | 182 | 28,051 |
| 2 | Boston BOS | 57 | 177 | 22,720 |
| 3 | Fort Lauderdale FLL | 51 | 101 | 14,527 |
| 4 | Orlando MCO | 27 | 64 | 9,665 |
| 5 | San Juan SJU | 11 | 43 | 6,365 |

Source: Innovata Schedule Data, July 2020

The JetBlue network has resulted in improved non-stop flight itineraries for passengers in the Northeast and Florida. Its success in gaining this market share has garnered the attention of both American and Delta, two airlines that have been experimenting with more point-to-point flights outside of their core hub-and-spoke networks.

Southwest Airlines

Southwest has focused its 102-city network around approximately its largest 20 airports. While the network carriers have historically dominated the Large-hub airports, Southwest’s network focused on a broader combination of Large- and Medium-hub airports. Throughout the 2000’s, Southwest’s network evolved from a point-to-point network with non-stop and multi-stop flights to a network focused on non-stop and single-connection itineraries.

Table 2 Largest Twenty Southwest Cities by Non-Stop Destinations and Seat Capacity – July 2020

| Rank | Airport | No. of N/S Dest's | Avg. Daily Depts | Avg. Daily Seats |
|------|---------------------|-------------------|------------------|------------------|
| 1 | Chicago MDW | 65 | 225 | 34,654 |
| 2 | Denver DEN | 68 | 219 | 33,388 |
| 3 | Baltimore BWI | 67 | 218 | 33,301 |
| 4 | Las Vegas LAS | 54 | 201 | 30,241 |
| 5 | Dallas DAL | 55 | 190 | 28,601 |
| 6 | Houston HOU | 64 | 173 | 26,242 |
| 7 | Phoenix PHX | 49 | 162 | 24,466 |
| 8 | St. Louis STL | 49 | 119 | 18,307 |
| 9 | Nashville BNA | 47 | 121 | 18,297 |
| 10 | San Diego SAN | 34 | 117 | 17,864 |
| 11 | Atlanta ATL | 40 | 117 | 17,860 |
| 12 | Oakland OAK | 35 | 115 | 17,326 |
| 13 | Orlando MCO | 44 | 111 | 17,126 |
| 14 | Los Angeles LAX | 27 | 108 | 16,208 |
| 15 | San Jose SJC | 29 | 104 | 15,831 |
| 16 | Sacramento SMF | 23 | 89 | 13,317 |
| 17 | Tampa TPA | 38 | 78 | 11,921 |
| 18 | Fort Lauderdale FLL | 41 | 74 | 11,186 |
| 19 | Kansas City MCI | 32 | 71 | 10,600 |
| 20 | Austin AUS | 32 | 69 | 10,287 |

Source: Innovata Schedule Data, July 2020

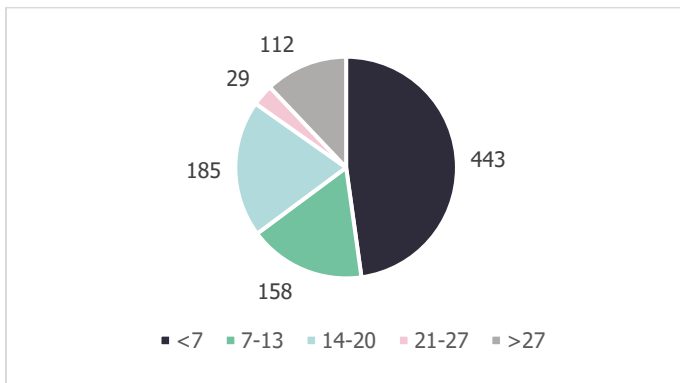
This refocusing of the network created very large operations in a few markets with over 150 flights per day including Baltimore, Chicago Midway, Dallas Love, Denver, Houston Hobby, Las Vegas, and Phoenix, as well as selected markets where connecting capacity was made available as shown in Table 2. For example, the Saint Louis and Kansas City local markets are relatively similar in size, but Southwest’s capacity and service pattern at Saint Louis is much broader to facilitate connections.

The impact of Southwest’s network evolution is that the Medium- and Small-hub airports the airline serves have experienced uneven benefits in terms of itinerary efficiency. In markets where Southwest’s service pattern is broad to facilitate connections, passengers find non-stop itineraries easily. In markets where Southwest’s service pattern is more focused on its primary markets, connecting itineraries are more common.

Ultra Low-cost Carriers

The ultra low-cost carriers Allegiant Airlines, Frontier Airlines, and Spirit Airlines provide service in a variety of different types of markets. Allegiant Airlines focuses on selling vacation packages including air transportation, hotel, and rental cars, among other products between large leisure destinations and Small- and non-hub airports. Frontier and Spirit Airlines focus on markets in which they can either (a) undercut incumbent airlines on price, or (b) markets in which no other non-stop service is available. Unlike other airlines, ULCCs do not focus on frequency of service in terms of time of day or days of week, and successfully offer less than daily service in many markets as shown in Figure 3.

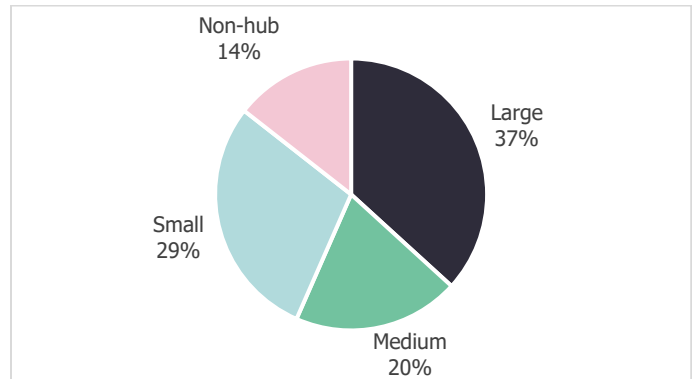
Figure 3 ULCC City Pairs by Weekly Frequency



Source: Innovata Schedule Data, July 2020

The ULCC business models, which focus on lower frequency services, have significantly changed the air service prospects for Small- and Non-hub markets. As shown in Figure 4, 42% of ULCC city pair markets involve Small- and non-hub markets. Prior to the ULCC business model, air service in these markets was almost exclusively spoke routes to network carrier hubs on turbo-prop and small regional jet aircraft at relatively high prices. Since the ULCCs have entered the market, Small- and non-hub markets have been able to successfully attract point-to-point services on narrow-body jet aircraft at very low fares. As a result, passengers in these markets are now able to travel on non-stop itineraries significantly more often.

Figure 4 Number of ULCC City Pairs by Hub Type



Source: Innovata Schedule Data, July 2020

Significance and Impacts

Consolidation and rationalization of the network airline business models, the networks of JetBlue Airways and Southwest Airlines, and the advent of new ULCC business models has improved the itinerary efficiency of passenger travel. In addition to the benefit to passengers of the convenience and speed of a non-stop itinerary, there are other significant impacts to aviation industry and the environment.

Airports

There are fewer airports that serve as airline hubs, but the ones that remain are becoming larger in terms of non-stop markets as well as gauge of aircraft.

Airports that have ULCC service will experience different types of peaking patterns as ULCCs offer less frequent service that may vary significantly by day of week and time of day.

Proposed new entrant airlines by Andrew Levy and David Neelemen’s Breeze have been reported to be planning point-to-point route structures in under-served markets like existing ULCC airlines.

Airlines

Network carriers will augment their networks with strategic non-stop flights to protect their market relevance. This will be the case particularly in large non-hub markets where there is limited carrier concentration such as Boston, Los Angeles, and Seattle from competitive incursion.

LCCs Southwest and JetBlue will continue to dominate Large- and Medium-hub markets that are underserved by the network carriers.

ULCCs will continue to exploit opportunities to serve smaller city pair markets that are unserved, underserved,

or subject to high fares providing competitive alternatives to larger airlines.

The Environment

The ability of more air passengers to fly non-stop translates to a lower environmental impact of a given trip because each one-way journey requires fewer flights flying non-stop routings in which passengers and their baggage are ground handled once rather than twice.

The new aircraft and engine technology used by airlines is more fuel efficient, quieter, and generates fewer emissions. These more efficient aircraft make smaller city pair markets that were once uneconomic to serve on a non-stop basis possible.

Conclusion

Previous exogenous shocks to the aviation system following September 11th, 2001 and the Global Financial Crisis have resulted in a rationalization of airline networks. The changes to airline networks and increased market share of LCCs and ULCCs has allowed more passengers to travel on non-stop services rather than connecting services, which is more efficient in terms of time, convenience, and environmental impact.

The current exogenous shock to the economy and demand for air transportation brought on by the COVID-19 pandemic will also force existing airlines to make their operations more efficient, and present industry entrepreneurs developing new airlines with opportunities to further challenge the establishment with new and innovative products in terms of route networks and customer amenities.

As the industry comes to terms with the new economic reality, passengers will likely have improved choices in terms of more non-stop flights offered by a variety of airlines trying to meet different price and service value propositions desired by customers.

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Ken heads Skylark's Americas operations. Having successfully managed projects throughout Asia, the Caribbean, Europe, the Middle East, and North and South America, Ken is an expert in activity forecasting and business plan development. He focuses on legal and economic analysis of airline and airport issues, with particular emphasis on operating economics, the regulatory system, and the international competitive framework of the industry. He also has a wealth of experience in the use of aviation statistics to forecast aviation activity, air service development, and airline and airport revenue and cost issues.

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About Skylark

Skylark is a management consultancy established by senior transportation and infrastructure experts in May 2018, forming a team with decades of experience in the industry as both practitioners and advisers. As a fully independent consulting business, the team represents one of the leading global transaction consultants in the aviation, marine and infrastructure sectors.

The team has established a strong track record working for private-sector clients, government-related clients, IFIs, and commercial banks for significant airport, ferries and other related transportation sale processes and developments. Skylark's approach to the execution of strategic and transaction projects is comprehensive, with a deep understanding of the critical drivers for both the passenger experience, client returns and risk evaluation. The team includes people with backgrounds in retail development, investment banking, financial advisory, transaction advisory, transportation and air traffic forecasting, airport operations, airline strategy, and government regulation.

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