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An Analysis of Air Travel Trends in the Great Lakes Region

Adie Tomer, Robert Puentes, and John Austin

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Findings

An analysis of commercial air travel patterns for the major metropolitan areas of the Great Lakes between 1999 and 2009 reveals the following:

- **Similar to the national trends, air passenger travel in the Great Lakes region increased steadily since 1990, moving in step with economic growth, and, accordingly, it has also fallen during the recession.** Many metropolitan areas vastly exceeded the national growth rate between 1999 and 2009: Akron, Buffalo, Dayton, and Milwaukee. Conversely, some witnessed passenger declines; St. Louis, Pittsburgh, Toledo, and Cincinnati experienced the steepest declines.

- **Measured by the number of connections, the Great Lakes have three of the country's 10 most connected metropolitan areas and another three that rank in the top 25.** Metropolitan Chicago has 133 connections to other metropolitan and micropolitan areas, which ranks second in the country. Detroit and Minneapolis are not far behind with 122 and 114 connections, respectively.

- **One of the top 10 most travelled air corridors in the nation and 21 of the top 100 lie in the Great Lakes.** The corridor linking Chicago to New York attracted over 4.7 million passengers during the last twelve months to rank fourth in the country by volume. Overall, Chicago boasts twenty corridors in the nation's top 100.

- **The Great Lakes metropolitan areas experience a range of on-time performance, although three of the region's four major hubs exceed national on-time averages.** During the last year, 79.1 percent of arriving flights in the major Intermountain West metros were on time, similar to the national average of 78.9 percent. However, performance was mixed between the twenty metropolitan areas.

The recession and significant contraction in the Great Lakes region's auto and related manufacturing industry has recently exacerbated economic woes and an out-migraton dynamic. Hence, it should come as no surprise that air travel patterns have followed suit. A return to economic growth will challenge those growing regions and the most connected metropolitan areas.

A. Similar to the national trends, air passenger travel in the Great Lakes region increased steadily since 1990, moving in step with economic growth, and, accordingly, it has also fallen during the recession.

Nationally, the number of air passengers grew by an annual rate of 3.5 percent from 1990 to 2008, increasing from just under 500 million to 807 million. This is the same rate as real GDP growth over the same period and exceeds the rate of population growth by a multiple of about three. The implication is that, as the economy grows, people fly more. It also helps that a competitive market has driven down the real price of the average airplane ticket by 21 percent since 1990. [1]

The close link between flying and the economy means that the global recession has depressed passenger numbers. Between 2007 and 2008, the drop was 3.5 percent, and based on data through March of 2009, the predicted annual drop from 2008 to 2009 would be another 6.3 percent. Even worse, the data from domestic carriers are available through June of 2009 and show an annualized drop of 7.8 percent from June of 2008.[2] Such drops are typical during recessions and suggest that the market will bounce back as the economy recovers.[3]

These national trends play out unevenly in the Great Lakes region.

In the Great Lakes, there are a number metros that have been growing in population (Chicago, Minneapolis-St. Paul, Indianapolis, Columbus, and Madison), alongside a larger number of metros that have experienced significant domestic outmigration.[4] The recession and significant contraction in the region's auto and related manufacturing industry has recently acerbated the economic and out-migraton dynamic. Hence, it should come as no surprise that air travel patterns have followed suit.

Among the Great Lakes metropolitan area hubs, only Minneapolis-St. Paul (18.9 percent) met or exceeded the ten year national average of passenger increase (16.5 percent). The region's other major hubs (Detroit, St. Louis and Chicago) all were below national travel increases, and most Great Lakes regional metros lagged the nation, some showing dramatic declines in passengers.

The fall-off in air travel in the last ten years has been precipitous in many Great Lakes regional Metros. St. Louis, Pittsburgh, Toledo, and Cincinnati saw the steepest declines. Beyond Minneapolis with its modest increase over the national average, the region saw large ten-year growth rates in Akron, Buffalo, Dayton, and Milwaukee. (See Table 1).

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[1] In 2008 dollars, the real price of the average domestic fair has fallen dropped from $420 in 1995 to $347 in 2008, according to our analysis of data from The Bureau of Transportation Statistics "National-Level Average Fare Series," available at http://www.bts.gov/xml/atpi/src/avgfareseries.xml (September 2009).

[2] Annualized travel refers to the use of any consecutive twelve month period to construct travel measures. These moving, twelve month measures control for seasonal variation and permit comparisons from any time of year to previous annual measures.

[3] Based on U.S. Air Carriers only, the other years with air travel decreases since 1956 were 1970, 1975, 1980, and 1981.

[4] See e.g., John Austin, Brittany Affolter-Caine, "The Vital Center, A Federal-State Compact to Renew the Great Lakes Region" (Washington, Brookings Institution, 2006)

Table 1. Great Lakes Metropolitan Areas, Annualized, March 2009

Metro	2007 Population Rank	Qualifying Commercial Airports	Domestic Hub	International Hub	Metropolitan and Micropolitan Connections	Destination Passengers		
						March, 2009 (Annualized)	1-Year Change	10-Year Change
Akron, OH	71	1	☐	☐	12	715,430	5.2%	195.3%
Buffalo-Niagara Falls, NY	46	1	☐	☐	20	2,690,596	0.8%	82.9%
Chicago-Naperville-Joliet, IL-IN-WI	3	2	☑	☑	133	40,583,004	-10.0%	3.1%
Cincinnati-Middletown, OH-KY-IN	24	1	☐	☐	93	6,223,710	-16.6%	-21.4%
Cleveland-Elyria-Mentor, OH	25	1	☐	☐	77	5,157,843	-6.0%	-7.8%
Columbus, OH	32	1	☐	☐	27	3,181,383	-16.2%	3.5%
Dayton, OH	59	1	☐	☐	18	1,417,149	1.4%	51.4%
Des Moines, IA	91	1	☐	☐	18	877,289	-7.8%	25.9%
Detroit-Warren-Livonia, MI	11	1	☑	☑	114	16,458,308	-6.2%	9.8%
Grand Rapids-Wyoming, MI	66	1	☐	☐	14	865,551	-11.1%	9.1%
Indianapolis, IN	33	1	☐	☐	36	3,944,858	-2.7%	16.3%
Louisville, KY-IN	42	1	☐	☐	24	1,756,488	-7.6%	0.5%
Madison, WI	89	1	☐	☐	14	711,654	-6.0%	18.1%
Milwaukee-Waukesha-West Allis, WI	38	1	☐	☐	48	3,663,180	-2.6%	47.7%
Minneapolis-St. Paul-Bloomington, MN-WI	16	1	☑	☑	122	15,941,220	-6.0%	18.9%
Pittsburgh, PA	22	1	☐	☐	35	4,131,062	-12.8%	-53.0%
Rochester, NY	50	1	☐	☐	17	1,309,143	-7.8%	25.7%
St. Louis, MO-IL	18	1	☑	☐	59	6,495,139	-6.8%	-54.1%
Syracuse, NY	80	1	☐	☐	14	1,063,826	-8.3%	22.4%
Toledo, OH	79	1	☐	☐	5	107,368	-30.5%	-49.0%
Youngstown-Warren-Boardman, OH-PA	88	0	-	-	-	-	-	-

Source: T-100 Market and Segment Data; US Census

B. Measured by the number of connections, the Great Lakes have three of the country's 10 most connected metropolitan areas and another three that rank in the top 25.

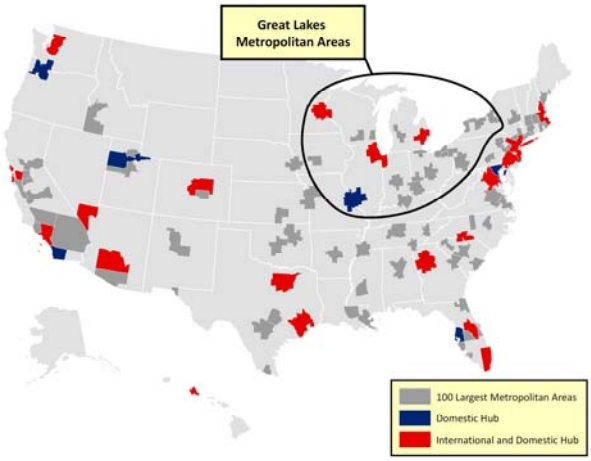
The airport network operates within a hub-and-spoke system, with smaller airports feeding into larger hubs.[5] As a result, a relatively small number of metropolitan hubs absorb the vast majority of traffic.[6] Based on the most up-to-date data, 69.0 percent of all air travelers in the United States traveled exclusively between the 100 largest metropolitan areas; 83.9 percent of air travelers land in one of them, and 98.8 percent of passengers travelled through at least one of the largest 100 metropolitan areas, though they only comprise 63.6 percent of the nation's population.

Based on the rule that a metropolitan air hub is one in which the metropolitan area is the destination of at least one percent of all domestic or international passengers over a year, the Great Lakes region contains three metropolitan areas that serve as both international and domestic hubs: Chicago, Minneapolis and Detroit. These airports have 133, 122 and 114 connections to other metropolitan and micropolitan areas respectively, which ranks in the top ten of metropolitan connectivity measures. The region also contains a fourth domestic hub, St Louis; it has 59 connections to other metropolitan and micropolitan communities.

[5] For more hub-and-spoke information, see: Reconnecting America "Missed Connections: Finding Solutions to the Crisis in Air Travel," 2002. Two follow-up reports also discuss the hub-and-spoke system.

[6] For a detailed discussion of the methodology used in this report, see the national analysis: Adie Tomer and Robert Puentes, "Expect Delays: An Analysis of Air Travel Trends in the United States" (Washington: Brookings Institution, 2009).

Figure 1. Great Lakes Metropolitan Hubs, Annualized Passenger Levels, March 2009



Source: T-100 Market Data

C. One of the top 10 most travelled air corridors in the nation and 21 of the top 100 lie in the Great Lakes.

Nationally, there are two salient facts about the most trafficked air corridors. First, the 100 busiest corridors were concentrated in large metropolitan areas. Only 40 distinct metropolitan areas appeared in the top 100 corridors and 32 of those were one of the 100 largest metropolitan areas.[7] Second, the densest corridors tend to travel less than 1,000 miles. This is due, in part, to the fact that the most common flights—almost 50 percent—are less than 500 miles long. On balance, the Great Lakes region, while home to many metros with major airports, only counts the Chicago-New York corridor among the top ten most traveled national or international corridors.

That said, ranked 4th in the nation, the corridor connecting Chicago and New York is heavily trafficked, attracting 4.7 million passengers from April of 2008 to March of 2009. Before the recession, in 2008, the figure was 5.7 million. This means the corridor experienced the steepest decline in air travel among the top ten corridors in the country over the past year – losing 17.1 percent of its passengers.

As the nation's third-largest metropolitan hub, Chicago is also well represented among the 100 most popular air travel corridors. In fact, of the 22 corridors of the top 100 that involve a Great Lakes metropolitan area only two—Detroit-New York, and Minneapolis-New York—do not include Chicago (Table 2).

[7] The nine exceptions included four major international metropolitan areas (London, Paris, Tokyo, and Toronto), three popular Hawaiian Island airports (Kona, Lihue, and Maui), metropolitan San Juan (PR), and aviation-reliant Anchorage (AK).

Table 2. Top Great Lakes Corridors in National Top 100, Annualized, March 2009

National Rank	Metropolitan Area 1	Metropolitan Area 2	Total Passengers	Average Distance (miles)	10-Year Change
4	Chicago-Naperville-Joliet, IL-IN-WI	New York-Northern New Jersey-Long Island, NY-NJ-PA	4,705,007	733	-3.7%
11	Chicago-Naperville-Joliet, IL-IN-WI	Los Angeles-Long Beach-Santa Ana, CA	3,322,769	1,739	-4.2%
21	Chicago-Naperville-Joliet, IL-IN-WI	Denver-Aurora, CO	2,535,863	892	-3.8%
24	Chicago-Naperville-Joliet, IL-IN-WI	Washington-Arlington-Alexandria, DC-VA-MD-WV	2,413,979	593	15.3%
30	Atlanta-Sandy Springs-Marietta, GA	Chicago-Naperville-Joliet, IL-IN-WI	2,255,127	598	-15.6%
31	Chicago-Naperville-Joliet, IL-IN-WI	San Francisco-Oakland-Fremont, CA	2,244,030	1,848	-8.8%
33	Chicago-Naperville-Joliet, IL-IN-WI	Miami-Fort Lauderdale-Miami Beach, FL	2,126,271	1,174	3.5%
35	Chicago-Naperville-Joliet, IL-IN-WI	Las Vegas-Paradise, NV	2,099,833	1,518	48.6%
36	Boston-Cambridge-Quincy, MA-NH	Chicago-Naperville-Joliet, IL-IN-WI	2,093,674	852	5.1%
39	Chicago-Naperville-Joliet, IL-IN-WI	Minneapolis-St. Paul-Bloomington, MN-WI	2,030,439	342	-10.2%
49	Chicago-Naperville-Joliet, IL-IN-WI	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	1,881,088	673	54.9%
52	Chicago-Naperville-Joliet, IL-IN-WI	Phoenix-Mesa-Scottsdale, AZ	1,866,299	1,442	18.7%
53	Chicago-Naperville-Joliet, IL-IN-WI	Detroit-Warren-Livonia, MI	1,820,948	232	-24.0%
54	Chicago-Naperville-Joliet, IL-IN-WI	Dallas-Fort Worth-Arlington, TX	1,819,581	800	-16.7%
59	Detroit-Warren-Livonia, MI	New York-Northern New Jersey-Long Island, NY-NJ-PA	1,750,306	500	-2.1%
65	Chicago-Naperville-Joliet, IL-IN-WI	Orlando-Kissimmee, FL	1,660,535	997	30.3%
68	Chicago-Naperville-Joliet, IL-IN-WI	St. Louis, MO-IL	1,645,483	255	-21.6%
78	Chicago-Naperville-Joliet, IL-IN-WI	Kansas City, MO-KS	1,520,651	404	-26.4%
80	Chicago-Naperville-Joliet, IL-IN-WI	Seattle-Tacoma-Bellevue, WA	1,503,211	1,727	29.8%
90	Chicago-Naperville-Joliet, IL-IN-WI	Houston-Sugar Land-Baytown, TX	1,416,053	931	29.5%
94	Chicago-Naperville-Joliet, IL-IN-WI	London, United Kingdom	1,386,258	3,953	20.0%
99	Minneapolis-St. Paul-Bloomington, MN-WI	New York-Northern New Jersey-Long Island, NY-NJ-PA	1,337,709	1,019	46.1%

Source: T-100 Segment Data

D. The Great Lakes metropolitan areas experience a range of on-time performance, although three of the region's four major hubs exceed national on-time averages.

Air traffic delays have been and will soon again be a long-term problem for U.S. flights. Over the last 10 years the percentage of domestic flights that managed to land on time has declined. Since 1999, the share of flights arriving on time peaked at 82.9 percent in mid-2003 before falling sharply to 72.8 percent in 2007 prior to the recession. The downturn has caused a drop in traffic, and, as a result, improved on-time performance, bringing it back up to 78.9 percent in mid-2009. But as the economy recovers, one can expect fewer on-time flights unless there are major changes in capacity. The story is similar for on-time departures, which were down to 78.5 percent in late 2007 but back up to 83.1 percent in mid-2009.

The data on the length of delays is even worse. The trend is clearly towards longer delays. Over the last 10 years delay times of later arriving flights have gone up 11.8 percent nationally, from 50.7 minutes to 56.5 minutes, and the recession has barely improved this.

In comparison to the national average and the average of the top 100 metropolitan areas, the Great Lakes metros saw mixed performance. For example, over the last year, the Great Lakes Metros averaged a 79.1 percent on-time arrival rate compared to an average of just 78.8 percent in the largest metros and 78.9 nationally.

Detroit, the 16th largest domestic metropolitan hub, enjoyed an 83.5 percent on-time arrival performance over the latest twelve month period. This means the metro area ranks 4th nationally and is the only Great Lakes metro in the top 10. The other three domestic metropolitan hubs in the Great Lakes—Minneapolis, St. Louis, and Chicago—ranked 16th, 21st, and 50th, respectively.

Other Great Lakes metropolitan areas—specifically Buffalo, Cleveland, Dayton, Pittsburgh, and Syracuse—were among the worst-performing nationally. Rochester ranked last among Great lakes metros for on-time arrival performance.

Table 3. Great Lakes Metros On-Time Performance, Annualized, June 2009

Metropolitan Area	Percent Arriving On-Time	Percent Departing On-Time	Avg Arrival Delay Length (minutes)
Akron, OH	75.7%	16.4%	58.3
Buffalo-Niagara Falls, NY	77.5%	16.5%	55.6
Chicago-Naperville-Joliet, IL-IN-WI	77.9%	21.1%	65.7
Cincinnati-Middletown, OH-KY-IN	81.6%	16.8%	57.5
Cleveland-Elyria-Mentor, OH	81.4%	14.0%	57.0
Columbus, OH	79.5%	14.3%	54.1
Dayton, OH	77.7%	14.0%	53.9
Des Moines, IA	77.7%	14.4%	51.7
Detroit-Warren-Livonia, MI	83.5%	14.6%	56.3
Grand Rapids-Wyoming, MI	79.5%	13.0%	52.3
Indianapolis, IN	81.6%	14.0%	53.0
Louisville, KY-IN	79.1%	16.3%	53.9
Madison, WI	79.8%	13.5%	51.9
Milwaukee-Waukesha-West Allis, WI	80.3%	16.1%	54.4
Minneapolis-St. Paul-Bloomington, MN-WI	82.2%	13.8%	54.2
Pittsburgh, PA	77.8%	16.7%	52.9
Rochester, NY	73.9%	18.1%	58.5
St. Louis, MO-IL	81.6%	16.0%	53.7
Syracuse, NY	74.6%	18.1%	56.6
Toledo, OH	78.9%	11.3%	50.8
Youngstown-Warren-Boardman, OH-PA	-	-	-

Source: On-Time Performance Database

Methodology

This brief is a smaller companion piece to a concurrently-released national Brookings report on aviation traffic.[8] The data is drawn from the United States Department of Transportation's Bureau of Transportation Statistics (BTS) and two distinct commercial aviation databases, covering the years between 1999 and 2009.

The first dataset comes from the monthly Air Carrier Statistics, known as T-100 data bank, which covers domestic and international carriers.[9] The T-100 has both a Market and Segment subset, with the former providing passenger information by flight number (giving the final destination) and the latter providing departure information by plane. The second primary source of information is the Airline On-Time Performance database, which reports time-related statistics for all domestic carriers with at least one percent of the market.

The data for each airport is compiled into a metropolitan aggregation, allowing for a more comprehensive analysis of the aviation patterns in the 100 largest population centers (based on 2007 Census data). For a full discussion of the data sources, definitions, and methods, see the full report.[10]

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[8] Adie Tomer and Robert Puentes, "Expect Delays: An Analysis of Air Travel Trends in the United States" (Washington: Brookings Institution, 2009).

[9] The Air Carrier Statistics database is also available in other combinations limited to domestic carriers and domestic flights.

[10] Tomer and Puentes, 2009.

For More Information

Adie Tomer
Research Analyst
Metropolitan Policy Program
Brookings Institution
202.797.6060
atomer@brookings.edu

Robert Puentes
Senior Fellow and Director, Metropolitan Infrastructure Initiative
Metropolitan Policy Program
Brookings Institution
202.797.6071
rpuentes@brookings.edu

John Austin
Non-Resident Senior Fellow and Co-Director, Great Lakes Economic Initiative
jcaustin@umich.edu

For General Information

Metropolitan Policy Program at Brookings
202.797.6139
www.brookings.edu/metro

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Launched in 2005, the Great Lakes Economic Initiative (GLEI) is part of the Metropolitan Policy Program's Blueprint for American Prosperity (Blueprint), which focuses on how federal policy can advance the economic vitality of the nation's metros. As part of the Blueprint, the GLEI pays particular attention to the unique challenges and opportunities faced by communities within the Great Lakes/Industrial Midwest region. Over the next several years, GLEI research and policy activities will closely align with the shifting economic and fiscal trends, environmental imperatives, and political opportunities affecting the region, focusing particularly on the older industrial metros most impacted by the transition of the auto industry. By doing so, we hope to help create a new era of productive, inclusive, and sustainable growth for Great Lakes communities and their residents. To learn more visit http://www.brookings.edu/projects/great-lakes.aspx.