THE ECONOMIC IMPACT OF U.S. CIVIL AVIATION

State Supplement 2022

Issued September 2025

Federal Aviation Administration

This report incorporates data for 2022 economic activity published by the U.S. Department of Commerce, Department of Transportation, Department of Labor, and the National Science Foundation. The state-level estimates that appear in this report are based on the same methodology as the estimates that appear in The National Report and represent direct and catalytic expenditures on aviation-related economic activities.

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What's New

This report incorporates data for 2022 economic activity published by the U.S. Department of Commerce, Department of Transportation, Department of Labor, and the National Science Foundation. The Department of Commerce data includes the Annual Survey of Manufacturers (ASM), Service Annual Survey (SAS), the National Income and Product Accounts (NIPA) from Bureau of Economic Analysis (BEA), and summary of Form I-94 from the International Trade Agency (ITA). Department of Transportation data includes data from the Terminal Area Forecast (TAF) from the Federal Aviation Administration (FAA), Form T-100 data from Bureau of Transportation Statistics (BTS), and the Freight Analysis Framework (FAF). Department of Labor data includes wage data and the Consumer Expenditure Survey (CEX) from Bureau of Labor Statistics (BLS). National Science Foundation data includes the Higher Education Research and Development (HERD) Survey and Survey of Federal Funds for Research and Development.

Regional Input-Output Modeling System (RIMS) from the U.S. Bureau of Economic Analysis (BEA) has incorporated the new 2022 regional economic accounts into the calculation of the economic multipliers, capturing changes to the U.S. and regional economies that occurred during the year. In addition, new input-output tables incorporating the 2017 Economic Census have been used to create the most recent RIMS multipliers. As such, the new multipliers reflect structural changes in the U.S. economy for the previous decade. As a result, final-demand output multipliers remained relatively unchanged across the states, with the median percent change across the states close to zero for most categories. Final-demand output multipliers for aircraft engines and travel arrangements are notable exceptions with a 9.3 and 7.0 percent increase from the last report, respectively. Final-demand employment multipliers have had the largest changes, both increasing and decreasing from last year across states. The median for this multiplier for air couriers, aircraft manufacturing, and airport operations have increased by 45.7, 18.2, and 16.9 percent, respectively, while the median multiplier for visitor expenditures, airline operations, and research and development decreased by 18.9, 13.0, and 12.7 percent from the last report, respectively. The median final-demand value-added multiplier also was relatively unchanged for most industries except for airline operations and air couriers, which increased 11.7 and 7.9 percent compared to the last report. As such, a portion of the differences between the previous report and this report is related to changes in the RIMS multipliers, which are reflecting changes in the U.S. economy observed through more recently collected data.

The FAA changed the methodology for estimating FAA spending by state to reflect the state in which the FAA funds were spent rather than the state of the FAA facility spending the funds. For example, a new radar system may be procured by an office located in Washington, DC, but the organization receiving the funds and building the radar system is located in Massachusetts. As such, the spending on the new radar system is allocated to Massachusetts rather than the District of Columbia. This change improves the estimates of FAA spending by allocating spending to the state where real economic activity is occurring.

Civil aviation is important to a state's economic performance because it provides connectivity and increased accessibility that supports economic output, attracts business and tourism, supports local economic development, and retains jobs that might otherwise be relocated elsewhere.

The state-level estimates that appear in this report are based on the same methodology as the estimates that appear in The National Report and represent direct and catalytic expenditures on aviation-related economic activities.[3] Civil aviation-related economic activities cover eight different expenditure categories. Direct expenditures account for the following six activities: airline operations, airport operations, general aviation, aircraft-related manufacturing, research and development, and air couriers. Catalytic expenditures cover two activities: visitor expenditures and travel arrangements. The product of these eight direct and catalytic expenditures and the RIMS multipliers for each state produces estimates of the total economic impact, including the additional secondary impacts of aviation expenditures.[4]

The estimates, which include both the primary and secondary economic impacts, are the total impact of civil aviation on a state's economy. When summed, the primary impacts for state-level estimates equal the national-level estimates. However, because of differences in multipliers, the summed state-level impacts will not equal the national-level estimates for total economic impacts. Examples of those differences include multipliers that are state and industry specific and multipliers that do not incorporate the interaction between states.

Utilizing additional RIMS multipliers, an estimate of value-added activities within the civil aviation sector is used to identify the contribution of civil aviation-related economic activity. This measure is reported as a percentage of state gross domestic product (GDP), representing aviation's contribution to the state's economy.[5]

> The state-level estimates that appear in this report represent direct and catalytic expenditures on aviation-related economic activities.

Total economic impact on output by state (including the District of Columbia) appears in Table 1 (column 2). Estimates of earnings, value added, and jobs generated by the aviation industry also appear in the table (columns 3, 4, and 5; respectively). Other information in Table 1 includes contributions of aviation to state GDP and aviation-related jobs as a percentage of total jobs (columns 6 and 7, respectively). Information on output (economic activity), earnings, jobs, and contribution to state GDP can also be found in the state fact sheets (www.faa.gov/economic-impact).

Nationally, the direct impact is 1.80 percent of GDP and, including catalytic impacts, the contribution of civil aviation is 3.96 percent of GDP in 2022.[6] Table 1 shows that the direct and catalytic contribution to a state's GDP ranges from 12.4 percent in Hawaii to 0.2 percent in Delaware. Several states show a large increase in the economic output from civil aviation compared to the data from 2020. Hawaii, Nevada, and Florida have had the largest gain with respect to the size of their economies, which increased 3.82, 2.78, and 2.30 percentage points, respectively.

At the state level, civil aviation economic output is associated with population and overall economic activity. The three largest states in terms of population are California, Texas, and Florida, which are also the top three states in terms of overall civil-aviation economic activity.

Table 1 - Economic Impact of Civil Aviation by State, Calendar Year 2022

State	Output ($Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
Alabama	8,965	2,307	4,905	48,786	1.7%	1.7%
Alaska	7,897	2,218	4,481	50,507	6.8%	11.1%
Arizona	42,847	11,615	24,399	219,282	5.0%	5.2%
Arkansas	5,748	1,431	3,149	29,919	1.9%	1.7%
California	188,779	52,338	108,062	875,540	3.0%	3.5%
Colorado	39,597	11,118	22,987	195,543	4.6%	4.8%
Connecticut	19,680	4,726	10,531	75,481	3.3%	3.2%
Delaware	323	71	180	1,386	0.2%	0.2%
District of Columbia	9,343	758	5,570	12,804	3.4%	1.4%
Florida	145,150	40,758	85,305	817,999	5.8%	5.8%
Georgia	48,320	13,026	27,617	260,350	3.5%	3.8%
Hawaii	21,992	6,045	12,742	114,830	12.4%	12.8%
Idaho	5,221	1,409	3,020	33,689	2.7%	2.9%
Illinois	57,186	15,425	32,732	276,366	3.1%	3.5%
Indiana	16,088	4,337	9,000	108,200	1.9%	2.6%
Iowa	4,567	1,185	2,617	27,714	1.1%	1.3%
Kansas	9,351	2,085	4,848	38,156	2.3%	2.0%
Kentucky	20,855	5,400	11,708	142,611	4.5%	5.4%
Louisiana	11,337	3,033	6,461	66,632	2.2%	2.4%
Maine	3,422	908	1,925	18,377	2.2%	2.1%
Maryland	15,192	3,840	8,900	74,014	1.8%	1.9%
Massachusetts	28,793	7,605	16,925	131,712	2.4%	2.7%
Michigan	26,692	7,383	15,428	160,140	2.5%	2.8%
Minnesota	22,682	6,105	12,954	125,685	2.8%	3.3%
Mississippi	3,800	919	2,033	17,897	1.4%	1.1%
Missouri	24,554	6,114	13,883	127,643	3.5%	3.3%
Montana	4,780	1,309	2,726	29,180	4.0%	4.0%
Nebraska	5,379	1,445	3,125	35,786	1.9%	2.6%
Nevada	26,824	7,298	15,825	137,508	7.0%	6.7%

Table 1 - Economic Impact of Civil Aviation by State, Calendar Year 2022 *continued*

State	Output $Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
New Hampshire	2,053	527	1,190	10,353	1.1%	1.1%
New Jersey	37,040	9,570	21,542	173,595	2.8%	3.0%
New Mexico	4,494	1,207	2,568	31,676	2.0%	2.8%
New York	90,755	23,235	53,940	412,581	2.6%	3.2%
North Carolina	31,897	8,632	18,536	190,651	2.5%	2.9%
North Dakota	3,079	764	1,748	17,401	2.4%	3.0%
Ohio	24,586	6,467	13,682	135,798	1.6%	1.9%
Oklahoma	7,760	2,107	4,405	47,326	1.8%	2.0%
Oregon	17,383	4,524	10,108	99,873	3.4%	3.8%
Pennsylvania	34,594	9,221	19,877	193,642	2.2%	2.5%
Rhode Island	3,038	686	1,621	14,825	2.2%	2.2%
South Carolina	11,740	3,037	6,589	67,797	2.2%	2.2%
South Dakota	2,245	607	1,294	14,148	1.9%	2.2%
Tennessee	36,593	9,902	20,946	221,837	4.3%	5.0%
Texas	130,930	36,056	74,576	720,823	3.1%	3.7%
Utah	19,723	5,378	11,167	116,028	4.3%	5.0%
Vermont	1,565	411	857	7,081	2.1%	1.6%
Virginia	21,600	5,631	12,485	117,123	1.9%	2.1%
Washington	57,240	15,125	31,403	259,616	4.2%	5.4%
West Virginia	1,350	325	711	7,496	0.7%	0.8%
Wisconsin	10,689	2,888	6,141	66,203	1.5%	1.8%
Wyoming	1,510	404	844	9,920	1.7%	2.3%

At the state level, civil aviation economic output is associated with population and overall economic activity.

Table 2 – Contribution to State Gross Domestic Product, Top Ten States

2022 Total Economic Impact of Civil Aviation (Top 10 States, Percent)	
State	**Contribution to State GDP**
Hawaii	12.4%
Nevada	7.0%
Alaska	6.8%
Florida	5.8%
Arizona	5.0%
Colorado	4.6%
Kentucky	4.5%
Tennessee	4.3%
Utah	4.3%
Washington	4.2%

Table 3 – Civil Aviation's Direct Contribution to State Gross Domestic Product, Top Ten States

2022 Total Economic Impact of Civil Aviation (Top 10 States, Percent)	
State	**Contribution to State GDP**
Hawaii	5.5%
Alaska	4.6%
Kentucky	2.9%
Tennessee	2.7%
Arizona	2.5%
Nevada	2.5%
Washington	2.4%
Montana	2.4%
Connecticut	2.2%
Florida	2.1%

Table 2 shows the ranking of the top ten states with the highest percentage contribution to state GDP. The states in the top ten did not change between 2020 and 2022, but the order has slightly changed. However, when the top ten states by the direct impacts category (Table 3) are considered, Missouri and Utah fall out of the top ten and are replaced by Florida and Nevada, compared to the 2020 data. This change is driven primarily by the recovery in airline operations and, to a lesser extent, a recovery in manufacturing. A full list of the direct impacts by state is available in table 4. Similarly, when the top ten states by the catalytic impacts category (Table 5) are considered, Texas and Georgia fall out of the top ten and are replaced by New York and the District of Columbia. The recovery of airline operations spurred increased visitor expenditures, which drove the change. A full list of catalytic impacts by state is available in table 6.

Table 4 – Direct Economic Impacts of Civil Aviation by State, Calendar Year 2022

State	Output ($Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
Alabama	5,999	1,470	3,124	26,571	1.1%	0.9%
Alaska	5,496	1,522	3,017	34,328	4.6%	7.6%
Arizona	22,713	5,751	12,274	98,123	2.5%	2.3%
Arkansas	3,674	848	1,905	14,669	1.1%	0.8%
California	88,476	23,180	47,568	352,087	1.3%	1.4%
Colorado	18,023	4,785	9,903	76,359	2.0%	1.9%
Connecticut	14,047	3,183	7,149	45,950	2.2%	2.0%
Delaware	174	35	91	568	0.1%	0.1%
District of Columbia	3,158	187	1,729	1,995	1.0%	0.2%
Florida	55,745	14,595	30,887	270,132	2.1%	1.9%
Georgia	24,010	6,050	12,953	104,262	1.7%	1.5%
Hawaii	10,346	2,680	5,626	49,538	5.5%	5.5%
Idaho	2,685	695	1,488	15,285	1.3%	1.3%
Illinois	23,840	6,039	12,827	99,857	1.2%	1.2%
Indiana	10,061	2,664	5,413	69,881	1.1%	1.7%
Iowa	2,211	537	1,204	10,815	0.5%	0.5%
Kansas	7,953	1,714	4,009	28,767	1.9%	1.5%
Kentucky	13,757	3,519	7,497	93,958	2.9%	3.6%
Louisiana	5,766	1,457	3,103	26,313	1.0%	1.0%
Maine	2,140	538	1,144	10,708	1.3%	1.2%
Maryland	6,052	1,459	3,320	26,974	0.7%	0.7%
Massachusetts	10,772	2,579	5,934	41,719	0.9%	0.8%
Michigan	10,918	2,824	5,962	56,311	1.0%	1.0%
Minnesota	9,497	2,350	5,072	40,087	1.1%	1.1%
Mississippi	2,815	646	1,442	10,734	1.0%	0.6%
Missouri	11,984	2,754	6,364	49,392	1.6%	1.3%
Montana	2,957	787	1,615	16,284	2.4%	2.2%
Nebraska	2,578	653	1,432	15,565	0.9%	1.1%
Nevada	10,217	2,576	5,670	45,158	2.5%	2.2%

Table 4 – Direct Economic Impacts of Civil Aviation by State, Calendar Year 2022 *continued*

State	Output $Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
New Hampshire	1,067	262	588	5,515	0.6%	0.6%
New Jersey	16,041	3,908	8,821	60,707	1.2%	1.0%
New Mexico	2,475	635	1,343	16,150	1.0%	1.4%
New York	26,087	6,125	14,416	94,716	0.7%	0.7%
North Carolina	14,249	3,609	7,872	68,060	1.1%	1.0%
North Dakota	1,944	466	1,059	10,874	1.4%	1.9%
Ohio	12,954	3,181	6,756	53,787	0.8%	0.7%
Oklahoma	4,097	1,049	2,202	19,861	0.9%	0.8%
Oregon	8,323	1,993	4,611	39,797	1.5%	1.5%
Pennsylvania	15,835	4,017	8,613	75,914	0.9%	1.0%
Rhode Island	1,280	235	557	5,948	0.8%	0.9%
South Carolina	6,850	1,680	3,649	34,179	1.2%	1.1%
South Dakota	1,249	327	692	7,943	1.0%	1.2%
Tennessee	23,236	6,182	12,961	151,757	2.7%	3.4%
Texas	63,722	16,602	34,330	304,307	1.4%	1.6%
Utah	10,100	2,621	5,389	48,278	2.1%	2.1%
Vermont	999	257	514	3,879	1.3%	0.9%
Virginia	10,825	2,669	5,953	47,272	0.9%	0.9%
Washington	34,145	8,409	17,720	127,914	2.4%	2.7%
West Virginia	927	215	455	4,599	0.5%	0.5%
Wisconsin	4,824	1,218	2,638	24,708	0.7%	0.7%
Wyoming	1,076	287	580	7,071	1.2%	1.6%

Table 5 – Civil Aviation's Catalytic Contribution to State Gross Domestic Product, Top Ten States

2022 Total Economic Impact of Civil Aviation (Top 10 States, Percent)	
State	**Contribution to State GDP**
Hawaii	6.9%
Nevada	4.5%
Florida	3.7%
Colorado	2.6%
Arizona	2.5%
District of Columbia	2.3%
Utah	2.2%
Alaska	2.2%
New York	1.9%
Illinois	1.9%

Table 6 – Catalytic Economic Impacts of Civil Aviation by State, Calendar Year 2022

State	Output ($Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
Alabama	2,966	837	1,781	22,214	0.6%	0.8%
Alaska	2,401	696	1,464	16,179	2.2%	3.6%
Arizona	20,134	5,863	12,125	121,159	2.5%	2.9%
Arkansas	2,074	583	1,244	15,250	0.7%	0.9%
California	100,303	29,158	60,494	523,453	1.7%	2.1%
Colorado	21,574	6,333	13,084	119,184	2.6%	2.9%
Connecticut	5,633	1,543	3,382	29,531	1.1%	1.3%
Delaware	149	36	89	818	0.1%	0.1%
District of Columbia	6,185	571	3,840	10,808	2.3%	1.2%
Florida	89,404	26,163	54,418	547,867	3.7%	3.9%
Georgia	24,311	6,976	14,665	156,089	1.9%	2.3%
Hawaii	11,646	3,365	7,116	65,292	6.9%	7.3%
Idaho	2,536	714	1,531	18,404	1.4%	1.6%
Illinois	33,347	9,386	19,904	176,509	1.9%	2.2%
Indiana	6,026	1,673	3,587	38,319	0.8%	0.9%
Iowa	2,356	647	1,412	16,898	0.6%	0.8%
Kansas	1,397	371	839	9,388	0.4%	0.5%
Kentucky	7,098	1,881	4,211	48,653	1.6%	1.8%
Louisiana	5,571	1,576	3,358	40,320	1.1%	1.5%
Maine	1,282	371	781	7,670	0.9%	0.9%
Maryland	9,140	2,381	5,580	47,040	1.2%	1.2%
Massachusetts	18,022	5,026	10,991	89,993	1.6%	1.8%
Michigan	15,774	4,558	9,466	103,829	1.5%	1.8%
Minnesota	13,185	3,755	7,882	85,598	1.7%	2.3%
Mississippi	984	272	591	7,163	0.4%	0.4%
Missouri	12,570	3,360	7,519	78,251	1.9%	2.0%

Table 6 – Catalytic Economic Impacts of Civil Aviation by State, Calendar Year 2022 *continued*

State	Output ($Millions)	Earnings ($Millions)	Value Added ($Millions)	Jobs	Value Added Share of State GDP	Jobs Share of State Total 6
Montana	1,823	522	1,111	12,896	1.6%	1.8%
Nebraska	2,801	791	1,693	20,221	1.0%	1.5%
Nevada	16,607	4,722	10,155	92,350	4.5%	4.5%
New Hampshire	986	265	602	4,837	0.6%	0.5%
New Jersey	20,999	5,662	12,720	122,888	1.7%	1.9%
New Mexico	2,020	572	1,225	15,525	1.0%	1.4%
New York	64,668	17,110	39,524	317,865	1.9%	2.5%
North Carolina	17,647	5,024	10,664	122,590	1.5%	1.9%
North Dakota	1,135	297	689	6,527	0.9%	1.1%
Ohio	11,631	3,287	6,926	82,011	0.8%	1.1%
Oklahoma	3,663	1,058	2,203	27,465	0.9%	1.2%
Oregon	9,061	2,530	5,497	60,076	1.8%	2.3%
Pennsylvania	18,760	5,204	11,264	117,727	1.2%	1.5%
Rhode Island	1,757	451	1,064	8,877	1.5%	1.3%
South Carolina	4,890	1,358	2,940	33,617	1.0%	1.1%
South Dakota	996	280	601	6,206	0.9%	1.0%
Tennessee	13,357	3,720	7,985	70,080	1.6%	1.6%
Texas	67,208	19,453	40,246	416,516	1.7%	2.1%
Utah	9,622	2,757	5,778	67,751	2.2%	2.9%
Vermont	566	155	343	3,202	0.8%	0.7%
Virginia	10,775	2,962	6,532	69,851	1.0%	1.3%
Washington	23,094	6,716	13,683	131,702	1.8%	2.8%
West Virginia	422	110	256	2,896	0.3%	0.3%
Wisconsin	5,865	1,670	3,502	41,495	0.9%	1.1%
Wyoming	434	118	265	2,848	0.5%	0.7%

Economic Impact by Expenditure Category - Direct

Below are the six direct expenditure categories and the top five states in output level for each category. The national total direct output values cited below come from the National Report.[7] As previously described, these national values do not equal the summed state-level values.

Airline Operations

Table 7 – Total Economic Output for Airlines, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Airlines**
California	43.1
Florida	32.9
Texas	31.3
New York	16.6
Illinois	12.9

Of all the expenditure categories for both direct and catalytic, airline operations accounted for the second-largest share of the economic impact, after visitor expenditures. Airline operations expenditures include spending on air transportation of passengers and freight on commercial passenger airlines. In 2022, the national total output by airlines was $302.2 billion. Table 7 presents the top five states by total airline output. Together, these top five states contributed almost half of the national total output by airlines in 2022.

Airport Operations

Table 8 – Total Economic Output for Airports, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Airport Operations**
California	9.1
Florida	6.3
Texas	6.2
Illinois	4.6
New York	4.4

Airports contributed $68.2 billion in total output to the U.S. economy in 2022. California, Florida, Texas, Illinois, and New York were the top five states in the total economic impact of airport operations (Table 8). These top five states have eight of the top twenty airports based on total itinerant operations.

General Aviation

Table 9 – Total Economic Output for General Aviation, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**General Aviation Operations**
California	7.7
Florida	5.8
Texas	5.4
Arizona	2.3
Ohio	2.1

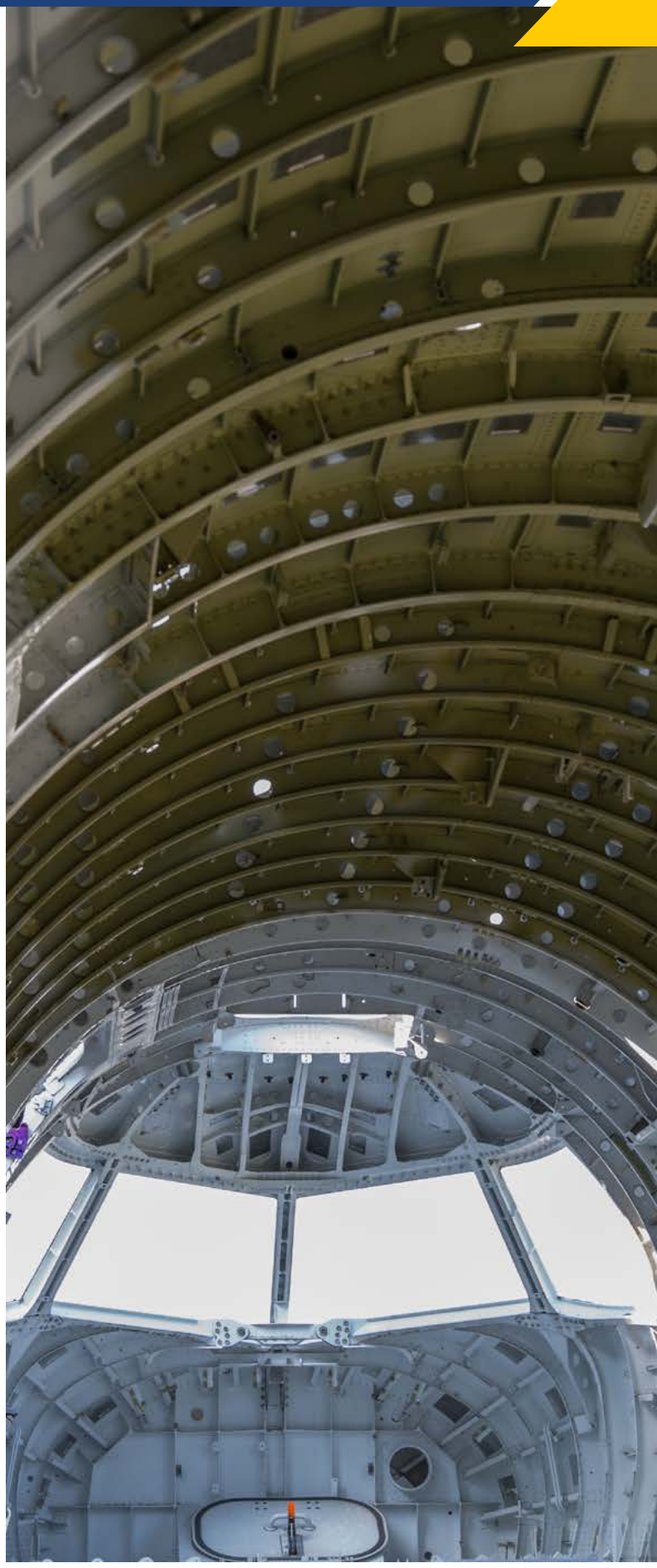
General aviation operations contributed $61.6 billion to total national civil aviation-related economic output in 2022. California ranked first in total economic output for general aviation at $7.7 billion in 2022 (Table 9). The warm weather states of Florida, Texas, and Arizona followed behind with $5.8 billion, $5.4 billion, and $2.3 billion respectively.

Aircraft Manufacturing

Table 10 – Total Economic Output for Aircraft, Aircraft Engine, and Parts Manufacturing, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Aircraft Manufacturing**
Washington	16.9
California	14.6
Texas	12.5
Connecticut	11.0
Arizona	8.0

Civil aircraft manufacturing contributed a total of $115.8 billion to the civil aviation related output in 2022. Washington more than doubled its output from civil aircraft manufacturing between 2020 and 2022 to reclaim the top rank for civil aircraft manufacturing. These five states together accounted for over half the national civil-aviation related manufacturing in the United States.



Research and Development (R&D)

Table 11 – Total Economic Output for R&D, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**R&D**
California	5.0
Washington	2.7
Texas	2.0
Arizona	1.3
Ohio	1.2

In 2022, the total economic output of aviation R&D amounted to $22.3 billion. California grew its expenditures on civil aviation related research and development by two-thirds between 2020 and 2022 to reclaim the top rank. Although maintaining their rank, research and development expenditures in Washington and Texas fell in the same period. Arizona grew its civil aviation research and development expenditures more than tenfold over the same two years, moving it into the top five. In all, the top five states accounted for the majority (55%) of the national total.

Air Couriers

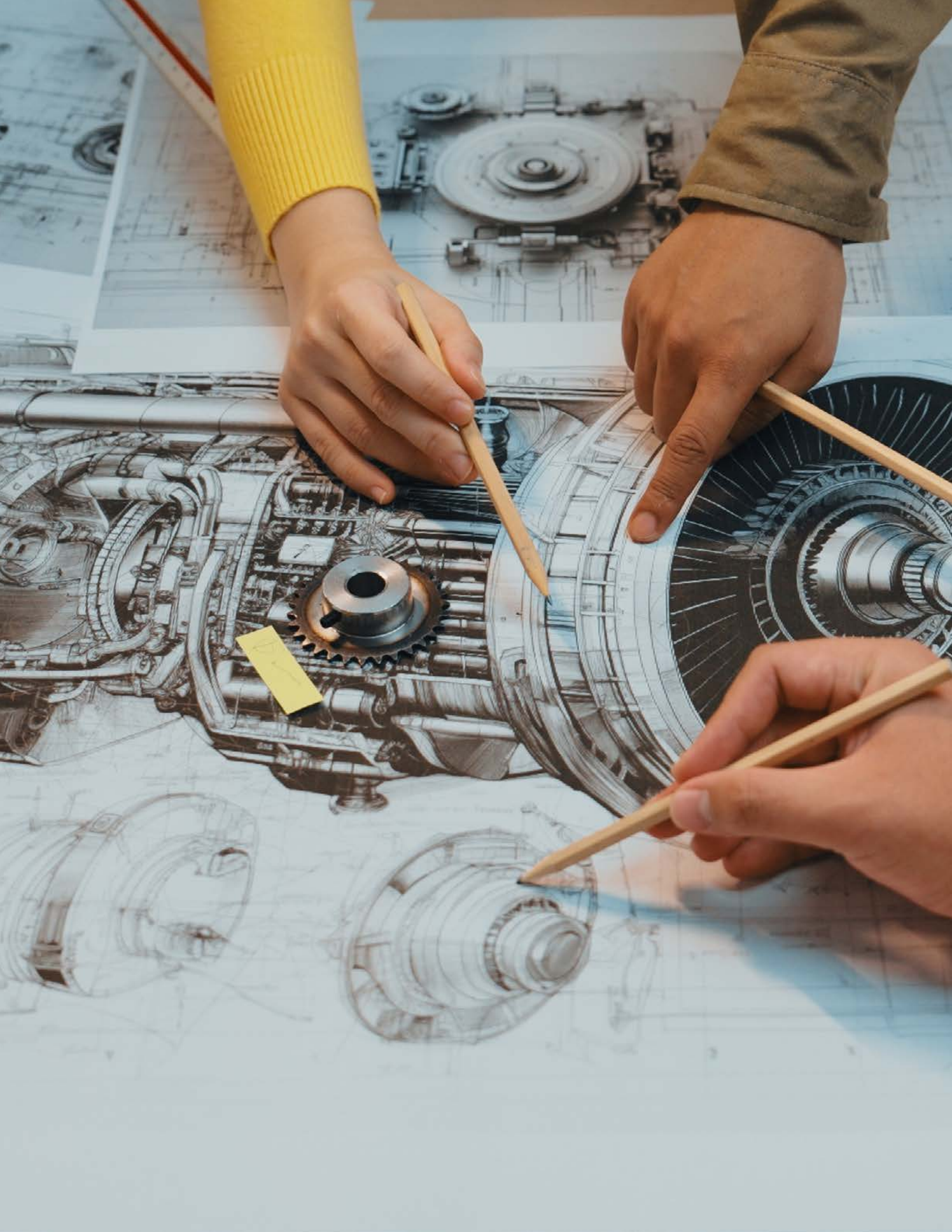
Table 12 – Total Economic Output for Air Couriers, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**All Couriers**
Tennessee	13.5
Kentucky	8.9
California	8.8
Texas	6.4
Indiana	4.3

Express air cargo has become an integral part of everyday life for businesses and consumers across the globe. Air couriers are engaged in air delivery of individually addressed letters, parcels, and packages (generally under 100 lbs). Retail outlets of the largest air couriers--Amazon, FedEx, and UPS--are ubiquitous throughout the United States. Air transportation's infrastructure, aircraft, and technological advances have enabled air couriers to provide their customers with quick and reliable services.

The total economic output of air couriers was $80.2 billion in 2022. Unlike other segments of civil aviation, air couriers grew despite the pandemic and continued to grow into 2022. The top four states remained in the top four between 2020 and 2022, but Indiana grew their air courier operations by more than 50% over the same period to claim the fifth rank. Tennessee and Kentucky are home to Amazon, FedEx, and UPS international air hubs, providing considerable economic development and growth potential for local residents (Table 12).

The total economic output of air couriers was $80.2 billion in 2022. Unlike other segments of civil aviation, air couriers grew despite the pandemic and continued to grow into 2022.



Economic Impact by Expenditure Category - Catalytic

The prior section focused on the direct expenditure categories. This section covers the two remaining expenditure categories. To find the total impact that these catalytic expenditure categories have on the U.S. economy, see Table 6. The tables below cover the individual impact these categories have on the U.S. economy. The national total catalytic output values cited below come from the National Report. As previously described, these national values do not equal the summed state-level values. Additionally, visitor expenditures are split into two subgroupings: airlines and general aviation.

Visitor Expenditures

Table 13 – Total Economic Output for Visitor Expenditures: Airlines, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Visitor Expenditures - Airlines**
California	96.6
Florida	84.6
Texas	64.1
New York	62.8
Illinois	31.9

Visitor expenditures by travelers using air transportation contributed the largest single portion of the total economic impact of civil aviation in 2022. At the national level, commercial airline visitor expenditures contributed $691.5 billion to the U.S. economy and supported over 4.0 million jobs. In 2022, Florida, California, Texas, New York, and Illinois were the top five states for commercial airline visitor expenditures (Table 13). These five states are popular tourist and business destinations, and are home to some of the busiest airports in the nation. In terms of enplanements, nine out of the 20 busiest airports in the nation are located within these states.

Visitor Expenditures

Table 14 – Total Economic Output for Visitor Expenditures: General Aviation, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Visitor Expenditures - GA**
California	1.4
Florida	1.1
Texas	0.9
Alabama	0.4
Georgia	0.4

The rank of the top four states for general aviation visitor expenditures remained the same between 2020 and 2022 (Table 14). However, Georgia replaced Arizona for the fifth rank. All five states experience mild weather conditions that are conducive to general aviation operations. General aviation visitor expenditures amounted to $11.3 billion in total output and supported 7.1 thousand jobs, both of which decreased compared to 2020. The falling output is due to passengers substituting commercial aviation services for general aviation services as the commercial segment of civil aviation improved.

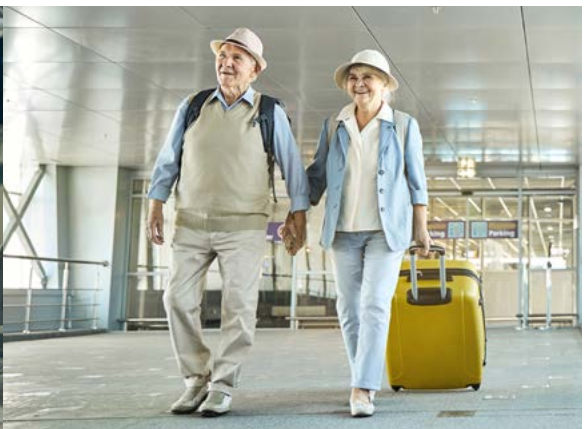
Travel Arrangements

Table 15 – Total Economic Output for Travel Arrangements, Top Five States

2022 Economic Impact of Civil Aviation (Top 5 States, $Billions)	
State	**Travel Arrangements**
Washington	4.4
Florida	3.7
Arizona	2.4
California	2.4
Texas	2.2

The travel arrangement segment of civil aviation has improved substantially between 2020 and 2022, more than doubling during this time. Washington grew its travel arrangement expenditures fivefold to claim the top rank while Arizona and Texas grew their travel arrangement expenditures fourfold and threefold, respectively, to claim a spot in the top five (Table 15). In all, these five states accounted for almost three-fourths of the national total.

More information about the economic impact of civil aviation for each state is presented at www.faa.gov/economic-impact, which contains civil-aviation related data on all 50 states and the District of Columbia. The fact sheets report data on civil-aviation related economic activity, including jobs, earnings, and other economic statistics.



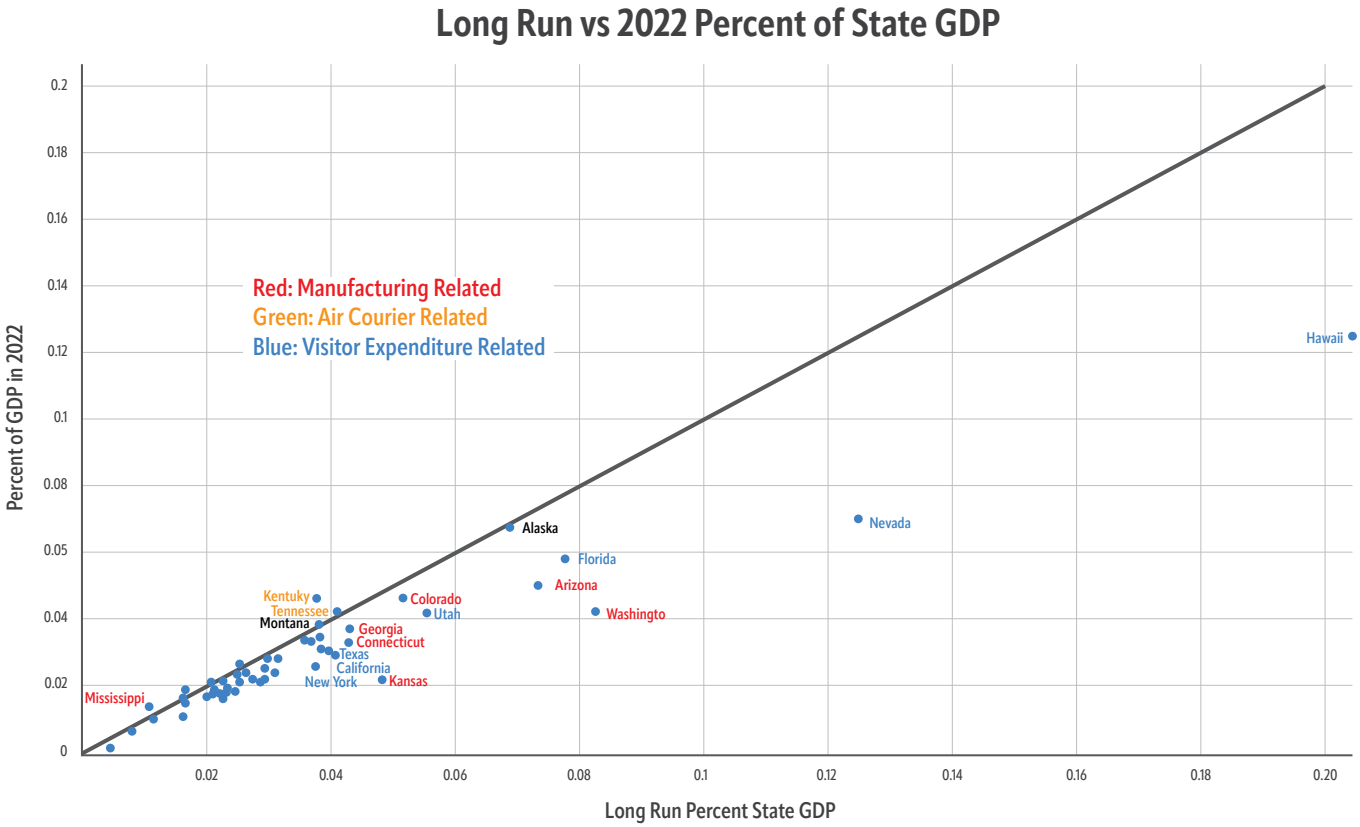
The Economic Recovery of the Aviation Sector

All states have grown their civil aviation sector from 2020 to 2022 as the U.S. economy recovered from the pandemic recession, but the civil aviation sector tended to make up five percent of the U.S. economy since the turn of the twenty-first century, even through past recessions. However, due to the implementation of public health measures, civil aviation was particularly hard hit, reducing its contribution to U.S. GDP from 4.9% in 2019 to 2.3% in 2020. In 2022, civil aviation's contribution to U.S. GDP rose to 4.0% but remained below the long run average of 5%.

The recovery in the civil aviation sector was not even across the states. The majority of states have returned to trend and a handful of states are performing better than their long run trend. However, the most prominent civil aviation states were still struggling to return to trend in 2022, driven primarily by foreign visitor expenditures and troubles in aircraft manufacturing.

In Figure 1, below, the contribution of civil aviation to a state's GDP in 2022 is compared to their long run trend, using data from 2016 and 2018. States above the diagonal are performing better than trend while states below the diagonal are performing below trend. The majority of states are clustered on the diagonal or just below, suggesting that many states have returned to their long run trend. Kentucky, Tennessee, Mississippi, and Montana are performing better than their long run trend. Kentucky and Tennessee benefited from the concentration of air couriers in their states, which grew despite the pandemic recession. Mississippi has benefited from additional aircraft engine manufacturing and Montana has benefited from an increase in airline and GA operations.

Figure 1 – Comparison of Civil Aviation's Long Run Contribution of GDP and the Contribution in 2022



Conversely, many of the states with large tourist economies are lagging in their recovery. Smaller states with economies dependent on tourism, such as Hawaii, Nevada, and Utah, lagged behind other states in 2022 due to fewer visitor expenditures. Hawaii is particularly behind with a contribution to GDP eight percentage points below the long run trend. Other larger tourist economies, such as Arizona, California, Florida, New York, and Texas; also remained below trend but to a lesser extent than the smaller states. In 2022, many of the international travel restrictions were still in place, hindering the movement of passengers internationally. As such, the civil aviation sector in these states tended to perform below trend and could still be recovering today.

Several states' aircraft manufacturing industries have been impacted by production and supply chain issues. During the pandemic, manufacturing supply chains were slowed due to changes in demand and additional scrutiny of imports and exports. Moreover, Boeing reduced the production of commercial aircraft, which reduced demand for aircraft parts and engines. As such, states integrated into the supply lines for both commercial and GA aircraft experienced a reduction in economic activity. Washington and Kansas were particularly affected by these issues. Washington, where the majority of Boeing civil aircraft are produced, was four percentage points below trend, almost entirely due to aircraft manufacturing. Kansas, where many GA aircraft are manufactured, is two percentage points below trend. Arizona, Colorado, Connecticut, and Georgia were also below trend with most of the difference due to aircraft manufacturers.

The vast majority of states returned to their long run trends in 2022, but the civil aviation sectors of states with economies dependent on foreign tourism or aircraft manufacturing still struggle to recover. However, these lagging economies have still seen improvements since 2020, suggesting that they too will recover by the next state report. For a breakdown of the civil aviation segments that still need to recover in each state, Table 16 shows the deviation from the long run trend by each segment for each state.

Table 16 – State's Civil Aviation Portion of GDP Deviation from Long Run Portion of GDP in 2022

State	Airlines	Airport Operations	General Aviation	Aircraft, Aircraft Engine, and Parts Manufacturing	Research & Development	Air Courier	Visitor Expenditures Airlines	Visitor Expenditures GA	Travel Arrangements	Total
Alabama	0.0%	0.0%	0.1%	-0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.3%
Alaska	0.2%	-0.1%	0.1%	0.0%	0.0%	0.5%	-0.9%	0.0%	0.0%	-0.1%
Arizona	0.1%	-0.1%	0.0%	-0.8%	0.1%	0.0%	-1.1%	0.0%	0.1%	-1.7%
Arkansas	0.0%	0.0%	0.1%	-0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.4%
California	0.0%	-0.1%	0.0%	-0.2%	0.0%	0.0%	-0.7%	0.0%	0.0%	-1.1%
Colorado	0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.4%	0.0%	0.0%	-0.5%
Connecticut	0.0%	0.0%	0.0%	-0.9%	-0.2%	0.0%	0.0%	0.0%	0.0%	-1.0%
Delaware	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.2%
District of Columbia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.3%
Florida	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	-1.9%	0.0%	0.0%	-1.9%
Georgia	0.0%	0.0%	0.0%	-0.4%	0.0%	0.0%	-0.4%	0.0%	0.0%	-0.7%
Hawaii	0.3%	-0.2%	0.1%	0.0%	0.0%	0.2%	-8.4%	0.0%	0.0%	-8.1%
Idaho	0.1%	0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Illinois	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	0.0%	-0.6%
Indiana	0.0%	0.0%	0.0%	-0.2%	0.0%	0.1%	-0.1%	0.0%	0.0%	-0.2%
Iowa	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Kansas	0.0%	0.0%	0.0%	-1.9%	-0.1%	0.0%	0.0%	0.0%	0.0%	-2.0%
Kentucky	0.0%	0.0%	0.0%	-0.1%	0.0%	0.5%	0.2%	0.0%	0.0%	0.7%
Louisiana	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	-0.5%	0.0%	0.0%	-0.7%
Maine	0.0%	0.0%	0.0%	-0.4%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.7%
Maryland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.3%
Massachusetts	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.7%	0.0%	0.0%	-0.7%
Michigan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Minnesota	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Mississippi	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Missouri	0.0%	0.1%	0.0%	-0.1%	-0.2%	0.0%	-0.1%	0.0%	0.0%	-0.3%

Table 16 – State's Civil Aviation Portion of GDP Deviation from Long Run Portion of GDP in 2022 *continued*

State	Airlines	Airport Operations	General Aviation	Aircraft, Aircraft Engine, and Parts Manufacturing	Research & Development	Air Courier	Visitor Expenditures Airlines	Visitor Expenditures GA	Travel Arrangements	Total
Montana	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.2%
Nebraska	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	0.0%	-0.6%
Nevada	0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	-5.5%	0.0%	0.0%	-5.5%
New Hampshire	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.4%
New Jersey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
New Mexico	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.3%
New York	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.0%	0.0%	0.0%	-1.1%
North Carolina	0.1%	0.0%	0.0%	-0.4%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.3%
North Dakota	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%
Ohio	0.0%	0.0%	0.0%	-0.3%	-0.1%	0.0%	-0.1%	0.0%	0.0%	-0.6%
Oklahoma	0.0%	0.0%	0.1%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%
Oregon	0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.1%
Pennsylvania	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.3%
Rhode Island	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	0.0%	-0.5%
South Carolina	0.1%	0.0%	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Dakota	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%
Tennessee	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Texas	0.0%	-0.1%	0.0%	-0.4%	0.0%	0.0%	-0.3%	0.0%	0.0%	-0.8%
Utah	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.1%	0.0%	0.0%	-1.1%
Vermont	0.0%	0.0%	0.0%	-0.1%	0.4%	0.0%	-0.4%	0.0%	0.0%	0.0%
Virginia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.2%
Washington	0.0%	0.0%	0.0%	-3.4%	-0.4%	0.0%	-0.4%	0.0%	0.2%	-4.0%
West Virginia	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%
Wisconsin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Wyoming	0.0%	0.1%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.1%

Civil aviation has a key role in moving people and property within, between, and beyond (international) the United States. These transport activities tend to facilitate economic activity by bringing customers to businesses, thus providing demand for these businesses' services, and by transporting time-sensitive commodities to customers and manufacturers. In the previous sections, the catalytic category accounted for this first type of enabling activity: passengers services. In this section, the enabling effects from cargo services are reviewed. However, unlike the catalytic category, the enabling effects from cargo services are not added to the state economic impact due to the challenges of estimating the marginal effect of the air cargo services compared to other modes of transportation, such as freight truck. Instead, the flow of commodities within and between the States and internationally is presented. These estimates are derived from the Freight Analysis Framework published by the U.S. Department of Transportation and originally introduced in the National Report in 2011.[8,9]

Value of Air Freight Flows by Commodity

Table 17 – Top Ten Value of Commodities Transported by Air, 2022

State	Domestic and Export Flows ($Billions)
Electronics	176.5
Machinery	111.4
Precision instruments	99.1
Misc. manufactured products	84.5
Transport equipment	81.6
Pharmaceuticals	61.7
Chemical products	23.2
Motorized vehicles	14.6
Mixed freight	14.4
Articles-base metal	13.1
All other commodities	48.7
All Commodities	**728.8**

Source: U.S. Department of Transportation, Federal Highway Administration and Bureau of Transportation Statistics, Freight Analysis Framework, Version 5.4.1

Across all commodity categories, $728.8 billion in goods were transported by air in 2022 (Table 17).[10] In general, high value to weight ratio goods were among the most transported goods, such as electronics, precision instruments, pharmaceuticals, and chemicals. However, time-sensitive equipment and intermediate and consumer goods were also among the top commodities shipped by air. Electronics had the greatest shipments by air in terms of value at $176.5 billion, which is over fifty percent more than the next commodity. The top five commodities account for three-fourths of the value of commodities shipped by air and the top ten commodities make up nearly 95% of all value shipped by air.

Domestically, across all categories, the majority of the value of goods transported is carried by truck and less than one percent is transported by air. Even so, it may seem impractical to move items under most of these headings by air, but the categories are quite broad and encompass a range of individual products. For example, Transport Equipment includes locomotives and other railway equipment, but it also includes high-value items such as spacecraft and spacecraft parts.

Value of Air Freight Flows by State

Table 18 – Top Five States, Value of Goods Transported by Air, 2022

State	Domestic and Export Flows ($Billions)
California	113.7
Texas	85.9
New York	55.4
Florida	40.0
Washington	36.3
All other states	397.4
All Commodities	**728.8**

Source: U.S. Department of Transportation, Federal Highway Administration and Bureau of Transportation Statistics, Freight Analysis Framework, Version 5.4.1

Among the individual states, the value of freight transported by air includes goods transported within the state, to other states, and to other countries (exports). In 2022, California was ranked highest with $113.7 billion worth of goods transported by air, which is driven by electronics (Table 18). In general, for each dollar of a state's GDP, $0.03 of commodities are shipped by air. A notable exception is Washington, which shipped $0.05 of commodities by air for each dollar of GDP, but this is due to final delivery of commercial aircraft.

Enabled flow estimates for each state and the District of Columbia can be found at www.faa.gov/economic-impact.

FAA SPENDING

The FAA's spending in states represents the agency's contribution to the U.S. economy. This section estimates the expenditures of FAA funds in each of the 50 states and the District of Columbia for fiscal year 2022. Total spending by the FAA at the state level was $21.5 billion in FY 2022 (Table 19), a fifteen percent increase to that spent in FY 2020.[11] Virginia has the greatest expenditures by the FAA with $1.66 billion. Virginia is followed by four of the top five largest U.S. economies: California, Texas, Florida, and Illinois (Table 20). Total expenditures in these five states comprised a third of all FAA spending in FY 2022.

FAA spending includes payroll, non-payroll expenses (including facilities and equipment, operations, research, etc.), and grants issued through the Airport Improvement Program (AIP). Non-payroll expenses are allocated to the state where the funds are spent and not the location of the office that is spending the FAA funds. FAA expenditures assist local economies in important ways by keeping the civil aviation industry operating safely and efficiently, providing federal, state, and local job opportunities; facilitating opportunities for private businesses, distributing aid for infrastructure building by local airports, and modernizing the air traffic system with NextGen investment.

Table 19 – FAA Spending, FY 2022

State Total	FAA Spending ($Millions)	Percent of FAA Spending
Alabama	157.1	0.7%
Alaska	542.5	2.5%
Arizona	395.9	1.8%
Arkansas	108.7	0.5%
California	1,487.4	6.9%
Colorado	635.1	3.0%
Connecticut	101.0	0.5%
Delaware	27.3	0.1%
District of Columbia	826.6	3.8%
Florida	1,296.6	6.0%
Georgia	914.1	4.3%
Hawaii	175.2	0.8%
Idaho	91.5	0.4%
Illinois	1,124.9	5.2%
Indiana	253.6	1.2%
Iowa	138.9	0.6%
Kansas	252.3	1.2%
Kentucky	132.9	0.6%
Louisiana	156.2	0.7%
Maine	53.1	0.2%
Maryland	867.0	4.0%
Massachusetts	1,055.8	4.9%
Michigan	304.9	1.4%
Minnesota	315.4	1.5%
Mississippi	108.7	0.5%
Missouri	283.9	1.3%

Table 19 – FAA Spending, FY 2022 *continued*

State Total	FAA Spending ($Millions)	Percent of FAA Spending
Montana	132.7	0.6%
Nebraska	70.3	0.3%
Nevada	153.5	0.7%
New Hampshire	176.6	0.8%
New Jersey	418.4	1.9%
New Mexico	155.8	0.7%
New York	946.3	4.4%
North Carolina	434.4	2.0%
North Dakota	266.0	1.2%
Ohio	243.5	1.1%
Oklahoma	995.4	4.6%
Oregon	61.6	0.3%
Pennsylvania	756.5	3.5%
Rhode Island	30.7	0.1%
South Carolina	132.3	0.6%
South Dakota	64.7	0.3%
Tennessee	265.0	1.2%
Texas	1,564.4	7.3%
Utah	310.3	1.4%
Vermont	0.0	0.0%
Virginia	1,663.8	7.7%
Washington	501.7	2.3%
West Virginia	86.8	0.4%
Wisconsin	142.6	0.7%
Wyoming	114.3	0.5%
State Total	**21,494.2**	**100.0**

Table 20 – FAA Spending by Top 5 States, FY 2022

2022 FAA Spending (Top 5 States, $Millions)		
State	**FAA Expenditures**	**Percent of All Expenditures**
Virginia	1,663.8	8%
Texas	1,564.4	7%
California	1,487.4	7%
Florida	1,296.6	6%
Illinois	1,124.9	5%

FAA spending includes payroll, non-payroll expenses (including facilities and equipment, operations, research, etc.), and grants issued through the Airport Improvement Program (AIP).

CONCLUSION

***The State Report* supplement** updates and highlights the economic impact of civil aviation on all 50 state economies and the District of Columbia for 2022. The strength and importance of the civil aviation industry at the state level provides a platform for decision makers at the national and state levels to better formulate policies that support economic development and job creation. At the national level in 2022, direct civil aviation impacts were $856 billion in economic activity, supporting over 4.0 million jobs. When visitor spending and travel arrangements are included, aviation supports $1.8 trillion in economic activity and 9.4 million jobs with $502.0 billion in earnings. Direct and catalytic impacts accounted for 4.0 percent of U.S. GDP.

In 2022, the U.S. civil aviation sector was recovering from the pandemic recession, but not all States' recoveries were equal. Hawaii and Nevada's civil aviation sectors have experienced the most disruptions with civil aviation's share of these states' economies eight and four percentage points below expectations, respectively. In addition, states that attract foreign tourists and states with large aircraft manufacturers are still lagging their long run potential. However, the civil aviation sector experienced real improvements in these states between 2020 and 2022, providing hope that they have already recovered by the publishing of this report, but it is not certain until the data becomes available.

Due to the evolving nature of civil aviation, additional category estimates will be added to the report over time. For example, commercial space launches and unmanned aircraft systems are rapidly expanding industries, but source data are sparse. As soon as reliable data are available, the inclusion of these categories will provide an even more robust picture of the importance of civil aviation to the U.S. economy at both the national and state levels.

Notes

1. Previous versions of The State Report were published in 2009, 2011, 2015, 2017, and 2020. The 2020 version contained statistics for the year 2016. The National Report was published by the FAA in 2007, 2009, 2011, 2014, 2016, 2020, 2021, and 2022.
2. U.S. Department of Transportation, Federal Aviation Administration. 2022. The Economic Impact of U.S. Civil Aviation. August 2022. https://www.faa.gov/sites/faa.gov/files/2022-08/2022-APL-038%202022_economic%20impact_report.pdf
3. U.S. Department of Transportation, Federal Aviation Administration. 2024. The Economic Impact of U.S. Civil Aviation. www.faa.gov/2024-economic-impact-report
4. The RIMS model was developed by the U.S. Department of Commerce, Bureau of Economic Analysis. Regional Input-Output Modeling System. http://www.bea.gov/regional/rims/index.cfm. The RIMS II multipliers are used in these analysis to capture both indirect and induced secondary economic effects from the primary spending.
5. State GDP is the sum of the value added of all economic activities in the state. GDP can also be measured as total economic activities less intermediate purchases.
6. U.S. Department of Transportation, Federal Aviation Administration. 2024. Op. cit.
7. U.S. Department of Transportation, Federal Aviation Administration. 2024. Op. cit.
8. Mariya A. Ishutkina and R. John Hansman. 2009. "Analysis of the Interaction Between Air Transportation and Economic Activity: A Worldwide Perspective," MIT International Center for Air Transportation.
9. U.S. Department of Transportation, Federal Highway Administration and Bureau of Transportation Statistics. 2022. Freight Analysis Framework. Versions 5.4.1.
10. For a list of the detailed commodities that make up the categories that appear on Table 15, see, U.S. Bureau of the Census, SCTG Commodity Codes, 2017 Commodity Flow Survey. March 2022. https://www2.census.gov/programs-surveys/cfs/technical-documentation/code-list/CFS-1200_17.pdf
11. U.S. Department of Transportation, Federal Aviation Administration. 2020. The Economic Impact of Civil Aviation – State Supplement. March 2023. https://www.faa.gov/about/plans_reports/media/....pdf

Glossary of Economic Terms

Catalytic Sector
This is a term used to categorize the various sectors within the civil aviation industry. In this report, these sectors provide goods and services that are related to, and partially dependent upon, civil aviation, but their main function is not to support aviation. The sectors categorized as catalytic are visitor expenditures and travel arrangers.[1]

Direct Sector
This is a term used to categorize the various sectors within the civil aviation industry. In this report, these sectors provide goods and services that are fundamental to, and inseparable from, civil aviation. Airline operations, aircraft manufacturing, air couriers and others all are grouped in this category.

Earnings
Earnings are wages and salaries and other labor income, such as overtime, benefits and proprietors' income, paid to all employed persons by employers for a given unit of work or time. The Bureau of Labor Statistics (BLS) publishes earnings data.

Employment (Jobs)
The BLS is responsible for collecting and publishing data on the number of persons employed within the United States. According to BLS:

Employment data refer to persons on establishment payrolls who received pay for any part of the pay period that includes the 12th day of the month.

Data exclude proprietors, the unincorporated self-employed, unpaid volunteer or family workers, farm workers, and domestic workers. Salaried officers of corporations are included. Government employment covers only civilian employees; military personnel are excluded. Employees of the Central Intelligence Agency, the National Security Agency, the National Imagery and Mapping Agency and the Defense Intelligence Agency also are excluded.[2]

Enabling Impact
Enabling impact is the economic impact on employment and income generated by economic activities that are dependent on the availability of air transportation services.[3]

FAA Spending
FAA spending includes FAA expenditures on payroll, non-payroll (including facilities and equipment, operations, research), and grants issued through the Airport Improvement Program (AIP).

Gross Domestic Product
Gross domestic product (GDP) is a measure of overall economic production during a period of time. It represents the current dollar value of all final goods and services produced within a country during a specified time period, such as a year or quarter. These goods and services include consumption, investment, government expenditures and net exports. GDP also can be viewed as the sum or aggregate of value added over each stage of production over the entire economy. The Bureau of Economic Analysis (BEA) publishes annual and quarterly measures of GDP.

Gross Output
For an industry, gross output is the dollar value of goods or services produced by the industry and made available for use outside that industry during a specified time period.[4] It is measured as total sales or receipts, plus other operating income, commodity taxes (sales and excise taxes) and changes in inventories; or, equivalently, as value added, plus goods and services purchased for use in production. For an entire nation, total gross output is equal to total intermediate inputs plus GDP, and thus exceeds GDP. The BEA publishes annual national and industry-level estimates of gross output.

Input
The total monetary value of goods and services consumed or used to produce a final good or service including capital, labor, energy, materials, and services.

Multipliers
Multipliers measure the impact of a particular category of spending on the rest of the economy, specifically on output, earnings and employment. The BEA publishes industry-level multiplier estimates.

Output
Output is the current dollar production of goods or services by a production unit and is measured by total sales or receipts of that unit, plus other operating income, commodity taxes (sales and excise taxes) and changes in inventories.

Primary Impact
This is a term used to categorize the dollar amounts that flow through the civil aviation industry. Primary impact refers to the first round of expenditures within each sector that are collected from government and private sources. These amounts are applied against the RIMS II multipliers to derive secondary impacts.

Secondary Impact
This is a term used to categorize the dollar amounts that flow through the civil aviation industry. Secondary impacts result from follow-on spending down the supply chain after the initial round or primary impact. This includes payments- to suppliers, and suppliers of suppliers, as well as spending by employees of those businesses. Secondary impacts therefore capture both interindustry and household spending that derive from activity in the respective sectors.

Total Economic Activity
Total economic activity is a term used interchangeably with gross output.

Total Impact
Total impact is the sum of primary and secondary impacts.

Value Added
Value added refers to the current dollar contribution to production by an individual producer, industry or sector during a specified time period. It is measured as the difference between gross output and goods and services purchased for use in production. (These purchased goods and services are also called input purchases or intermediate inputs.) Measures of value added consist of employee compensation, production-related taxes, imports less subsidies, and gross operating surplus. Value added can be summed or aggregated across individual producers over an entire sector, industry or nation; at the national level, total value added equals GDP. The BEA publishes national and selected sector-level annual and quarterly measures of value added, as well as selected annual industry measures.

Glossary Notes

1. ACI Europe, "The Social and Economic Impact of Airports in Europe," 2004, p. 5.
2. Bureau of Labor Statistics, U.S. Department of Labor, Chapter 2. Employment, Hours, and Earnings from the Establishment Survey. In *Handbook of Methods*, (accessed October 1, 2020) https://www.bls.gov/opub/hom/pdf/ces-20110307.pdf
3. Mariya A. Ishutkina and R. John Hansman. 2009. "Analysis of the Interaction Between Air Transportation and Economic Activity: A Worldwide Perspective," MIT International Center for Air Transportation.
4. Organization for Economic Co-operation and Development. 2002. "Glossary of Statistical Terms."

Acknowledgments

The Forecast and Performance Analysis Division is very grateful for the helpful contribution, comments and guidance from:

Murali Darivemula, FAA
Lourdes Duca, FAA
Jon Henning, FAA
Ramesh Iyer, FAA Contractor
Sherri Jensen, FAA
Kathy Kowsky, FAA
Emma Place, FAA
Allison Ritman, FAA
Jonathan Stanewick, FAA

For more information, please send inquiries to:

W. Gavin Ekins, Economist
Forecast and Performance Analysis Division
Office of Aviation Policy and Plans
william.g.ekins@faa.gov

Or visit: www.faa.gov/economic-impact

U.S. Department of Transportation

Federal Aviation Administration

Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591
www.faa.gov

2025-APL-031_MM264