



Economic Impact Analysis: Greenville-Spartanburg International Airport

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The economic contribution of the Greenville-Spartanburg International Airport is comprised of three impacts: direct, indirect, and induced.¹ Each of these effects are expressed in terms of their effect on local employment (jobs), local income (wages and proprietor income), total local output (sales plus or minus inventory) and expected tax revenues.

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¹ All impacts are annual for the Greenville-Spartanburg metro area. **Direct effects** are those initial changes occurring to a firm in expenditures or production as a result of a change in demand. **Indirect effects** occur to industries in the backward linked industries that supply the firm. **Induced effects** result from households spending generated by the additional income received in the local area.

I. Total Annual Economic Impact

The total annual economic impact of Greenville-Spartanburg International Airport includes the on-going impacts from airport operations and visitor spending. Annually, the airport supports a total of 3,692 local jobs (Table 1). Directly the airport employs 828 full and part-time persons involved in onsite airport-related operations. Indirect and induced impacts generated from both the airport operations and visitor spending support another 2,864 local jobs.

In dollar terms, the airport generates \$112,014,138 in income to the area. Persons directly employed in airport-related operations produce \$30,578,738 in income, indirect and induced economic activities from the airport and visitor spending produce an additional \$81,435,400 in local income. Total output in the area increases by \$377,525,328 as a result of the airport. Annual tax revenues generated from airport operations and spending by visitors equals \$46,892,898 (Table 2).

Table 1

Total Annual Economic Impact -Summary

	Direct	Indirect²	Induced	Total
Jobs	828	2,333	530	3,692
Income	\$30,578,738	\$63,895,806	\$17,539,594	\$112,014,138
Output	\$135,131,056	\$186,162,817	\$56,231,457	\$377,525,328

Table 2

Total Annual Economic Impact –Tax Revenues

Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
\$25,814,485	\$21,078,413	\$46,892,898

² Combines visitor direct and indirect spending impacts, following the logic that both activities occur away from the airport.

II. Airport Operations

A total of 828 persons are directly employed, full and part-time, in airport-related operations. Indirect and induced economic activities generated by those working at the airport support an additional 645 local jobs (Table 3). Every single job at the airport supports another 0.78 jobs in the community.

In terms of income, the 828 persons directly employed in airport-related operations produce \$30,578,738. Indirect and induced economic activities generated by those working at the airport produce an additional \$24,660,480 in local income. Every dollar of income produced at the airport generates another \$0.81 of income in the community.

It is estimated that each year, the economic activities generated by operations at the airport cause Federal tax revenues to increase by \$12,313,866, and state/local tax revenues to increase by \$7,859,174 (Table 4).

Table 3
Airport Operations Impacts- Jobs & Income

	Direct	Indirect	Induced	Total
Jobs	828	383	262	1,473
Income	\$30,578,738	\$16,008,138	\$8,652,342	\$55,239,218
Output	\$135,131,056	\$46,627,540	\$27,739,596	\$209,498,189

Table 4
Airport Operations Impacts -Tax Revenue

Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
\$12,313,866	\$7,859,174	\$20,173,040

III. Visiting Passenger Spending Impact

The economic activities generated from local spending by visiting business and leisure air passengers supports 2,219 local jobs (Table 5). In terms of income, visitor spending adds \$56,774,919 worth of income dollars to the local economy each year (Table 6). Additional tax revenues generated from spending by visitors equals \$26,719,858 (Table 7), and total output in the area increases by \$168,027,139 (Table 8).

Visitor spending figures were collected via an onsite survey of 486 traveling parties, covering 822 enplaning passengers (Tables 9 and 10).

Table 5
Visitor Spending Impact-Jobs

	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Leisure Travelers	1,203	164	186	1,552
Business Travelers	505	79	83	667
Total	1,707	243	269	2,219

Table 6
Visitor Spending Impact-Income

	Direct Income	Indirect Income	Induced Income	Total Income
Leisure Travelers	\$26,907,517	\$6,305,976	\$6,154,745	\$39,368,237
Business Travelers	\$11,610,254	\$3,063,921	\$2,732,507	\$17,406,682
Total	\$38,517,771	\$9,369,897	\$8,887,252	\$56,774,919

Table 7
Visitor Spending Impact-Tax Revenue

	Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
Leisure Travelers	\$9,335,934	\$9,283,318	\$9,335,934
Business Travelers	\$4,164,685	\$3,935,921	\$4,164,685
Total	\$13,500,619	\$13,219,239	\$26,719,858

Table 8
Visitor Spending Impact-Output

	Direct Output	Indirect Output	Induced Output	Total Output
Leisure Travelers	\$35,079,403	\$9,391,451	\$8,761,419	\$53,232,273
Business Travelers	\$75,508,500	\$19,555,923	\$19,730,442	\$114,794,866
Total	\$110,587,903	\$28,947,374	\$28,491,861	\$168,027,139

Table 9
Survey Summary & Visitor Spending Details

Total Surveys	486	
Total Passengers	822	
Resident Passengers	518	
	Business	Leisure
Nonresident Passengers (visitors)	124	180
Average Party Size	1.3	1.9
Average Length of Stay/Days	2.0	4.2
Total Visitor Days Per Year	195,701	596,575
Per Visitor Daily Spending		
Lodging	\$85.25	\$36.69
Food/Beverage	\$38.42	\$28.77
Ground Transportation	\$26.68	\$16.11
Entertainment & Recreation	\$17.02	\$14.43
Retail Shopping	\$12.16	\$30.66
Total Spending Per Day	\$179.53	\$126.66
Annual Economic Impacts		
Direct Jobs	505	1,203
Indirect Jobs	79	164
Induced Jobs	83	186
Total Jobs	667	1,552
Income		
Direct Income	\$11,610,254	\$26,907,517
Indirect Income	\$3,063,921	\$6,305,976
Induced Income	\$2,732,507	\$6,154,745
Total Income	\$17,406,682	\$39,368,237
Output		
Direct Output	\$75,508,500	\$35,079,403
Indirect Output	\$19,555,923	\$9,391,451
Induced Output	\$19,730,442	\$8,761,419
Total Output	\$114,794,866	\$53,232,273
Tax Revenue		
Federal	\$4,164,685	\$9,335,934
State/Local	\$3,935,921	\$9,283,318
Total	\$8,100,606	\$18,619,252

IV. Capital Improvement Impacts

Total jobs supported as a result of capital improvement projects equals 819 over the fiscal-years 2009-2013. Local income will increase by \$33,731,425, tax revenues by \$9,559,299, and total output by \$94,297,214 (Tables 10-14).

Table 10
Capital Improvement Impacts-Summary

	Total Jobs	Total Income	Total Tax Revenue	Total Output
FY 2009	113	\$4,638,939	\$1,313,923	\$12,954,178
FY 2010	59	\$2,440,744	\$691,263	\$6,810,692
FY 2011	298	\$12,242,488	\$3,472,779	\$34,285,436
FY 2012	323	\$13,287,351	\$3,763,652	\$37,122,748
FY 2013	27	\$1,121,903	\$317,682	\$3,124,160
Total	819	\$33,731,425	\$9,559,299	\$94,297,214

Table 11
Capital Improvement Impacts-Jobs

	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
FY 2009	74	16	22	113
FY 2010	39	8	12	59
FY 2011	197	42	60	298
FY 2012	213	46	64	323
FY 2013	18	4	5	27
Total	541	115	163	819

Table 12
Capital Improvement Impacts-Income

	Direct Income	Indirect Income	Induced Income	Total Income
FY 2009	\$3,063,501	\$835,351	\$740,087	\$4,638,939
FY 2010	\$1,612,428	\$438,923	\$389,393	\$2,440,744
FY 2011	\$8,129,101	\$2,173,490	\$1,964,593	\$12,242,488
FY 2012	\$8,772,709	\$2,394,809	\$2,119,832	\$13,287,351
FY 2013	\$741,912	\$201,002	\$178,989	\$1,121,903
Total	\$22,319,651	\$6,043,575	\$5,392,894	\$33,731,425

Table 13
Capital Improvement Impacts-Tax Revenue

	Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
FY 2009	\$910,907	\$403,016	\$1,313,923
FY 2010	\$479,269	\$211,994	\$691,263
FY 2011	\$2,405,326	\$1,067,453	\$3,472,779
FY 2012	\$2,609,114	\$1,154,538	\$3,763,652
FY 2013	\$220,301	\$97,381	\$317,682
Total	\$6,624,917	\$2,934,382	\$9,559,299

Table 14
Capital Improvement Impacts-Output

	Direct Output	Indirect Output	Induced Output	Total Output
FY 2009	\$8,381,315	\$2,198,034	\$2,374,830	\$12,954,178
FY 2010	\$4,406,022	\$1,155,166	\$1,249,504	\$6,810,692
FY 2011	\$22,268,500	\$5,757,310	\$6,304,087	\$34,285,436
FY 2012	\$24,020,000	\$6,300,522	\$6,802,226	\$37,122,748
FY 2013	\$2,020,500	\$529,311	\$574,348	\$3,124,160
Total	\$61,096,337	\$15,940,343	\$17,304,995	\$94,297,214

V. Per Passenger & Flight Impacts

Using the results of impacts generating from existing operations and visitor spending, a single one-way passenger impact can be derived (Tables 15-16). For example, a single passenger, enplaning or deplaning, would on average, generate \$86.34 in additional income to the area.

Table 15
Per Passenger Impact Summary

	Direct	Indirect	Induced	Total
Jobs	0.0006	0.0018	0.0008	0.0028
Income	\$23.57	\$49.25	\$13.52	\$86.34
Output	\$104.16	\$143.50	\$43.34	\$291.01

Table 16
Per Passenger Impact –Tax Revenues

Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
\$19.90	\$16.25	\$36.15

Below (Tables 17-18) is an example of the economic impact for a round-trip flight of a 50 passenger aircraft at 70 percent load (35 passengers each way).³

Table 17
Single Round-Trip Flight Impact Summary

	Direct	Indirect	Induced	Total
Jobs	0.045	0.126	0.057	0.199
Income	\$1,649.96	\$3,447.67	\$946.40	\$6,044.02
Output	\$7,291.35	\$10,044.91	\$3,034.12	\$20,370.38

Table 18
Single Round-Trip Flight Impact –Tax Revenues

Federal Tax Revenue	State/Local Tax Revenue	Total Tax Revenue
\$1,392.89	\$1,137.34	\$2,530.23

³ Example does not include local impacts due to crew lodging/spending, aircraft fuel or maintenance related activity.

Economic Model and Impact Generation

Impacts were generated by employing an economic model based on the existing industrial structure of a southern state. The IMPLAN economic impact assessment software system⁴ was utilized in the study. The IMPLAN model was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency (FEMA) and the USDI Bureau of Land Management to assist in resource management and planning. Currently the model is used by dozens of public, private, and academic organizations.

The overriding objective of the model is to measure the full economic impact to a regional/local economy of a specific economic activity. The model is built upon a matrix detailing the input-output relationships among industries and consumers. The primary matrix structure is derived from the National Bureau of Economic Analysis's Benchmark Input-Output Model.

The national model is realigned to match the regional economy. Output ratios and imports for over 500 industrial sectors in the area are assigned. Purchase coefficients are derived to measure the percentage of intermediate and final demands that are satisfied from local production and the percentage that are imported from outside the area. Consumer expenditure patterns, price deflators, industry employment levels, household income groups and the area population are also factored in for the local economy.

As a result, the economic impact model is able to generate a set of multipliers. The multipliers calculate changes due to; the initial *direct effects*, the backwards *indirect effects* caused by the changing inputs to effected industries and the *induced effects* on household spending caused by the changes in household income. The multipliers also depict leakage from the area, which eventually diminish the effects to zero.

The model can report the resulting economic impacts in terms of employment, income and changes in estimated tax revenues. Besides aggregate impacts, the reports can also show effects upon individual industrial sectors.

⁴ Minnesota IMPLAN Group, Inc., 1725 Tower Drive West, Suite 140, Stillwater, MN 55082

Authors' Bio

Tom Tveidt

Research Economist & President, SYNEVA Economics, LLC

Mr. Tveidt is a research economist whose expertise is regional economic assessment and evaluation. Mr. Tveidt is an active practitioner with experience in industrial site selection, industry target evaluation, economic impact analysis, and regional economy appraisal.

SYNEVA Economics, LLC is dedicated to the collection, analysis, and presentation of accurate regional economic and demographic information. SYNEVA Economics, LLC is unique in its commitment to making complex regional economic issues understandable to the public.

Tom also serves as the Director of the Asheville Metro Business Research Center in Asheville, North Carolina, where his publications on regional economics enjoy a monthly readership of about 13,000 persons. He regularly speaks before business groups, government organizations and public assemblies, detailing regional economic trends and issues. Mr. Tveidt is frequently quoted in newspapers, business journals, and TV news programs.

Currently, Mr. Tveidt sits on the Editorial Review Board for the journal *Applied Research in Economic Development*, published by Southern Mississippi University. Tom is the current Chair-Elect of the Council for Community and Economic Research (C2ER), and is an active member of the National Association of Business Economics (NABE), and the Association of Public Data Users (APDU). Tom has been an invited instructor for the National Association of State Development Agencies (NASDA), International Economic Development Council (IEDC) and the C2ER. His courses focus on the accurate and effective presentation of regional economic information. In March 2009, Tom was recognized by the U.S. Census Bureau for "Outstanding Practices" in application of Labor Employment Dynamics, for his work in regional economic analysis.

In 2006 and 2007, Mr. Tveidt participated as a senior policy advisor and curriculum developer for a U.S. Department of Economic Development Administration funded program to develop and deliver regional economic development training based on regionalism and industry clusters. The program was a partnership of Western Carolina University, University of Illinois at Urbana-Champaign, and the Council for Community and Economic Research.

Mr. Tveidt has a BA in Economics from the University of California, Santa Barbara, California, and an MBA in Finance from California Lutheran University in Thousand Oaks, California.

Recent Projects:

- * Workforce Analysis: Distribution & Warehousing, GA
- * Economic Assessment: Baton Rouge, LA
- * Industry Economic Impact Analysis: Southeast U.S.
- * Manufacturer Site Selection: Northeast U.S.
- * Economic Impact Analysis: Western North Carolina
- * Economic Assessment & Industry Targeting: Monroe Parish, LA
- * Workforce Assessment: Western North Carolina
- * Economic Assessment: Topeka, KS
- * Workforce Analysis: Back Office Services, Macon GA
- * Economic Impact Analysis & Community Presentation: Lake Havasu, AZ