

# **The Economic Impact of 182<sup>nd</sup> Airlift Wing closure on Peoria, Woodford, and Tazewell Counties**

## **IMPLAN Economic Impact Analysis**

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## PART I. INTRODUCTION

This study uses Input-Output (I-O) analysis to measure the economic impact of the 182<sup>nd</sup> Airlift Wing closure on Peoria, Woodford, and Tazewell counties region (3-County region). This report consists of three sections. The introduction, Part I, discusses the I-O model in more detail. Part II discusses the data, and Part III presents the results of the I-O analysis.

### Economic Input-Output Modeling

The I-O model was developed by Vassily Leontief in 1936 to explain how the outputs of various industries and the prices of their products react to changes in productivity and savings (Johnson 1994). The first formal application of the model occurred in the late 1940's to determine the effect of demobilization on the US economy at the end of World War Two. The validity of I-O analysis was confirmed in 1973 when Leontief won the Nobel Prize in Economics (Oser and Brue 1988).

#### *The Multipliers of the Input-Output Model*

The I-O model is a favored tool among economic analysts because it can measure the following three items:

- Changes in final demand in the economy due to the presence of a particular firm or institution.
- Total multiplier effects made by an entity including employment, earnings, and output.
- Inter-industry linkages affected by a particular firm, institution or economic sector.

The main thing to understand about multipliers is that they forecast the extent by which the economy will increase or decrease because of a change in a particular sector that changes demand or changes the way financial resources circulate within that given economy. For example a multiplier of 2 for a given industry means that for a \$1 investment in another industry you would expect to see a two-fold increase in the business activity of the industry in question. This increase affects other industries in a chain reaction that is best understood by using mathematical matrices. The multiplier is composed of 3 elements including:

1. **Direct effects:** revenues, jobs, and wages that a new business or expanding business brings into the local economy (or removes from the economy).
2. **Indirect effects:** purchases that business makes from other local firms, which in turn generate revenues, wages and jobs in those affected companies and industries.
3. **Induced effects:** relate to the specific behavior of the labor force. These effects occur when employees working at the affected businesses have more (or less) money to spend on items such as food, transportation, housing, entertainment and a wide variety of other services (Bureau of Economic Analysis 1992).

The total effect on the economy is determined by examining the combined impacts on all of the industries present in the area. An investment in one part of the economy will have a ripple effect that affects other areas of the economy in what amounts to a virtuous cycle (in the case of growth) where development in one industry feeds the development of another. I-O modeling is therefore a valuable tool for economic planners and developers in making forecasts that can be used to plan the long-run fiscal management of a community, plan for housing developments, attract businesses, and apply for bank loans. More recently, the Illinois Institute for Rural Affairs used an I-O model to understand the possible cluster activities among industries from 16 counties in the southern Illinois Delta Region.

Despite the strengths of I-O analysis there are weaknesses that users should take into consideration. I-O projections, based as they are upon time-specific data, are not dynamic projections. They do not take into

account changes that might occur after the specific projection has been completed. I-O models only provide a snapshot of the economy at a given point of time and do not account for any intervening events besides the impact being studied. Specific limitations and assumptions affecting the accuracy of I-O analysis include:

- **Constant coefficients:** Constant coefficients imply that advances in production technology, new inventions, import substitution, changes in consumer patterns of demand, and the increase or decrease of relative prices are not taken into account.
- **Linearity:** Linearity is the property of a system in which, if inputs  $X$  and  $Y$  result in system outputs  $S(X)$  and  $S(Y)$  respectively, the input signals  $aX + bY$  will result in the output  $aS(X) + bS(Y)$ , where  $S$  is the system transfer functions and  $a$  and  $b$  are scalars. In laymans terms, it means that changes in one sector have proportional changes in other sectors.
- **Sector homogeneity:** Sector homogeneity means simply that all businesses in an industry are assumed to be the same.
- **No capacity constraints:** Finally, no capacity constraints simply means that the model does not take into account limitations on the growth of industries based on scarce inputs such as land, labor, capital, skills, or intellectual property rights.

### The IMPLAN Economic Impact Model

Developed by the Minnesota Implan Group (MIG, Inc.) in Minneapolis, IMPLAN (Impact Analysis and Planning) is an I-O modeling system. Like all I-O models, IMPLAN is based on the theory that when new money enters a community through investment, revenues, or income, some of it is re-spent one or more times in the local economy, thereby creating additional economic impact. This “multiplier effect” or impact is measured in terms of employment or income. The total economic effect on a region caused by a change in final demand is measured in terms of industrial output, employment, employee compensation, and value-added in dollars, giving rise to industrial output, employment, personal income, and value-added multipliers.

*Output multipliers* show the effect of changing the demand for one industry's products on the output of the entire economy. These multipliers represent the value of production required from all sectors, by that industry, to deliver a given dollar amount of output to final demand.

*Employment multipliers* show the effect of new employment or loss of employment in one industry on the level of employment in the entire economy. These multipliers do this by estimating the number of jobs created/lost from the production/loss of a given dollar amount of additional output for final demand.

*Employee compensation multipliers* show the effect of new income in one industry on the level of wages and salaries in the entire economy. These multipliers do this by estimating the effects on employee compensation generated by a given dollar amount of additional output for final demand.

*Value-added multipliers* show the change in total value-added that occurs throughout the economy per unit of value-added change in any industrial sector. They estimate the effects on total value-added for the economy as a whole generated from the production of a given dollar amount of additional output for final demand by a particular industry.

## IMPLAN Economic Impact Analysis on 3-County region.

**Impact Event:** The purpose of this study is to measure the estimated negative economic impact of the closure of 182<sup>nd</sup> Airlift Wing on 3-County region economy.

### PART II. DATA

The analysis was conducted utilizing the IMPLAN economic impact analysis model. The model is conducted with data from a variety of sources.

- The IMPLAN Group provided 2001 U.S. and Illinois economic, demographic, and industry (by NAICs code) data.
  - IMPLAN data is based on national industry averages (509 sectors) and annual Illinois data (2001);
  - Bureau of Labor Statistics data was used to convert to full-time equivalent (FTE) employment impact;
  - Results are adjusted for a specific county or region via Regional Purchasing Coefficients.

#### IMPLAN 2001 data for 3-County region

Population: 345,824	Households: 146,232
Number of Industries: 291	Income/hhs: \$68,949
Employment: 215,371	Income Per capita: \$23,703

182<sup>nd</sup> Airlift Wing provided the data for employment, payroll, and military base local purchases:

	<u>Amount/Numbers</u>
1. <u>Full time employees:</u>	343 FT military
2. <u>Payroll for full-time (military/state) employees:</u>	\$20,479,922
3. <u>Part-time employees:</u>	938
a. Part-time employees from 3-County area:	549
b. Part-time employees from outside 3-County area:	389
c. Hotel charges:	\$118,000
e. Meal chits:	\$11,715
4. <u>Payroll for part-time employees:</u>	\$8,154,120
5. <u>Amounts paid for local services:</u>	
a. Water	\$18,378
b. Utilities (Electric/Gas)	\$271,640+\$166,762
c. Sewer & Refuse:	\$26,927
d. Dining and custodial services:	\$119,975
e. Equipment rental:	\$43,101
f. Maintenance:	\$334,766
g. Airport Agreement and Land lease:	\$74,328+\$40,500
6. <u>Education aid, tuition assistance, and other bonuses:</u>	
a. National Guard Scholarship	\$3,500,000
b. GI Bill	\$3,500,000
c. "Kickers"	\$2,210,000
d. Bonuses	\$175,000

7. Vendor Listing

Food Stores	\$ 31,018
Advertising	\$ 4,566
Apparel & Accessory Stores	\$ 2,636
Automobile Repair and Services	\$ 71,780
Automotive Dealers and Service Stations	\$ 4,453
Building Materials & Gardening	\$ 14,720
Commercial Printing	\$ 3,783
Computer and Data Processing Services	\$ 40,950
Electrical Repair Service	\$ 1,229
Furniture & Home Furnishings Stores	\$ 25,258
General Merchandise Stores	\$ 44,433
Laundry- Cleaning and Shoe Repair	\$ 1,358
Miscellaneous Repair Shops	\$ 3,111
Miscellaneous Retail	\$ 190,637
Newspapers	\$ 260
Other Business Services	\$ 444,473
Radio and TV Broadcasting	\$ 2,399
U.S. Postal Service	\$ 14,146
Wholesale Trade, including medical supplies	\$ 319,776
Communication except Radio and TV	\$ 713,981

8. Construction and Facility Sustainment: \$750,000 annually.

### **PART III. Economic Impact Analysis of 182<sup>nd</sup> Airlift Wing Closure RESULTS**

The IMPLAN economic impact analysis has been run for following situations:

- full-time employees spending in the 3-County region: \$15,359,940 (\$20,479,922 payroll minus \$5,119,982 taxes\*)
- part-time guards spending: \$3,579,380 (\$4,772,507 payroll for 549 PT guards living in the region minus \$1,193,127 taxes\*)
- 182<sup>nd</sup> Airlift Wing local spending and education assistance aid provided to its employees.

\* Note: The taxes paid from the total payroll were estimated by IMPLAN model by applying the payroll to the military industry as direct effect.

**Table 1. IMPLAN Economic Impact on the 3-County region economy.**

IMPACT Name	Tax Impact	Output Impact	FTE Employment Impact	Employee Compensation Impact	Value-Added Impact
<b>182nd Employment</b>	-\$6,313,109	NA	-480*	-\$25,252,430**	NA
<b>Full-time Employees Spending</b>	-\$2,282,205	-\$20,514,372	-151	-\$4,373,180	-\$8,490,443
<b>Guardsmen Spending</b>	-\$521,019	-\$4,784,505	-35	-\$1,043,611	-\$1,944,799
<b>182<sup>nd</sup> Spending and Education Aid</b>	-\$3,090,579	-\$20,208,807	-243	-\$8,497,095	-\$11,807,203
<b>Total</b>	-\$12,206,912	-\$45,507,684	-909	-\$39,166,316	-\$22,242,445

\*Note: 182<sup>nd</sup> Full-Time Equivalent (FTE) Employment of 480 includes 343 FT military and 549 PT guards

\*\*Note: 182<sup>nd</sup> Airlift Wing Employee Compensation of \$25,252,430 is just for the 889 employees living in the 3-County region.

**Table 2. Top Most Affected Industries in the region.**

Top Most Affected Industries				
	Industry	Total FTE Employment Impact	Total Output Impact	Total Employee Compensation
1	Military	-480	\$0	-\$25,252,430
2	Colleges- universities- and junior colleges	-119	-\$7,199,317	-\$4,960,436
3	Food services and drinking places	-29	-\$1,481,309	-\$419,850
4	Hospitals	-15	-\$1,898,845	-\$731,596
5	Real estate	-14	-\$1,471,148	-\$122,192
6	Wholesale trade	-12	-\$1,413,220	-\$512,444
7	Offices of physicians- dentists- and other health	-10	-\$1,435,065	-\$776,701
8	Nursing and residential care facilities	-10	-\$442,944	-\$245,248
9	General merchandise stores	-9	-\$459,409	-\$211,491
10	Private households	-9	-\$77,393	-\$57,613
11	Food and beverage stores	-8	-\$437,934	-\$155,192
12	Miscellaneous store retailers	-8	-\$434,813	-\$117,957
13	Services to buildings and dwellings	-8	-\$240,967	-\$122,524
14	Motor vehicle and parts dealers	-8	-\$661,702	-\$301,377
15	Employment services	-7	-\$198,784	-\$150,499
16	Monetary authorities and depository credit intermediaries	-7	-\$1,049,630	-\$214,273
17	Other maintenance and repair construction	-7	-\$545,780	-\$268,118
18	Telecommunications	-7	-\$1,215,209	-\$292,700
19	Non-store retailers	-6	-\$242,457	-\$60,541
20	Social assistance- except child day care services	-6	-\$161,537	-\$95,748
21	All other miscellaneous professional and technical	-6	-\$449,050	-\$83,918
22	Automotive repair and maintenance- except car wash	-5	-\$793,786	-\$126,733
23	Other educational services	-5	-\$259,643	-\$109,992
24	Civic- social- professional and similar organizations	-5	-\$164,656	-\$66,933
25	Insurance carriers	-5	-\$774,850	-\$167,962
26	Building material and garden supply stores	-4	-\$271,913	-\$119,439
27	Home health care services	-4	-\$163,147	-\$73,735
28	Maintenance and repair of nonresidential buildings	-4	-\$391,310	-\$156,437

29	Hotels and motels- including casino hotels	-3	-\$248,450	-\$82,360
30	Clothing and clothing accessories stores	-3	-\$179,124	-\$74,770
31	Other ambulatory health care services	-3	-\$518,614	-\$99,094
32	Gasoline stations	-3	-\$177,992	-\$56,940
33	Securities- commodity contracts- investments	-3	-\$269,657	-\$110,791
34	Child day care services	-3	-\$104,983	-\$30,748
35	Personal care services	-3	-\$102,402	-\$33,984
36	Legal services	-3	-\$299,788	-\$133,237
37	Other Industries*	-68	-\$19,270,856	-\$2,570,313
	Total	-909	-\$45,507,684	-\$39,166,316

\*Note: See Appendix 1 for all the industries affected by the 182<sup>nd</sup> Airlift Wing closure.

### Appendix 1. Industries Affected by the 182nd Airlift Wing Closure In the 3-County Region.

	Industry	Total FTE Employment Impact	Total Output Impact	Total Employee Compensation
1	Military	-480	\$0	-\$25,252,430
2	Colleges- universities- and junior colleges	-119	-\$7,199,317	-\$4,960,436
3	Food services and drinking places	-29	-\$1,481,309	-\$419,850
4	Hospitals	-15	-\$1,898,845	-\$731,596
5	Real estate	-14	-\$1,471,148	-\$122,192
6	Wholesale trade	-12	-\$1,413,220	-\$512,444
7	Offices of physicians- dentists- and other health	-10	-\$1,435,065	-\$776,701
8	Nursing and residential care facilities	-10	-\$442,944	-\$245,248
9	General merchandise stores	-9	-\$459,409	-\$211,491
10	Private households	-9	-\$77,393	-\$57,613
11	Food and beverage stores	-8	-\$437,934	-\$155,192
12	Miscellaneous store retailers	-8	-\$434,813	-\$117,957
13	Services to buildings and dwellings	-8	-\$240,967	-\$122,524
14	Motor vehicle and parts dealers	-8	-\$661,702	-\$301,377
15	Employment services	-7	-\$198,784	-\$150,499
16	Monetary authorities and depository credit intermediaries	-7	-\$1,049,630	-\$214,273
17	Other maintenance and repair construction	-7	-\$545,780	-\$268,118
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19	Non-store retailers	-6	-\$242,457	-\$60,541
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22	Automotive repair and maintenance- except car wash	-5	-\$793,786	-\$126,733
23	Other educational services	-5	-\$259,643	-\$109,992
24	Civic- social- professional and similar organizations	-5	-\$164,656	-\$66,933
25	Insurance carriers	-5	-\$774,850	-\$167,962
26	Building material and garden supply stores	-4	-\$271,913	-\$119,439
27	Home health care services	-4	-\$163,147	-\$73,735
28	Maintenance and repair of nonresidential buildings	-4	-\$391,310	-\$156,437
29	Insurance agencies- brokerages- and related	-3	-\$179,099	-\$83,079
30	Truck transportation	-3	-\$370,114	-\$106,114
31	Hotels and motels- including casino hotels	-3	-\$248,450	-\$82,360
32	Clothing and clothing accessories stores	-3	-\$179,124	-\$74,770
33	Other ambulatory health care services	-3	-\$518,614	-\$99,094
34	Gasoline stations	-3	-\$177,992	-\$56,940
35	Securities- commodity contracts- investments	-3	-\$269,657	-\$110,791
36	Child day care services	-3	-\$104,983	-\$30,748
37	Personal care services	-3	-\$102,402	-\$33,984
38	Legal services	-3	-\$299,788	-\$133,237
39	Advertising and related services	-3	-\$210,744	-\$87,571
40	Power generation and supply	-3	-\$788,663	-\$172,503
41	Federal Non-Military	-3	-\$232,755	-\$198,433
42	Postal service	-2	-\$146,567	-\$113,819
43	Accounting and bookkeeping services	-2	-\$116,178	-\$65,170
44	Electronics and appliance stores	-2	-\$98,290	-\$63,018
45	Health and personal care stores	-2	-\$173,529	-\$93,829
46	Sporting goods- hobby- book and music stores	-2	-\$121,612	-\$39,132
47	Business support services	-2	-\$156,044	-\$70,170

48	Elementary and secondary schools	-2	-\$85,181	-\$49,220
49	Performing arts companies	-2	-\$27,920	-\$8,829
50	Transit and ground passenger transportation	-2	-\$56,512	-\$14,518
51	Furniture and home furnishings stores	-2	-\$144,643	-\$59,551
52	Other amusement- gambling- and recreation industries	-2	-\$266,733	-\$69,427
53	Dry-cleaning and laundry services	-2	-\$80,969	-\$31,680
54	Grant-making and giving and social advocacy organizations	-2	-\$52,109	-\$19,328
55	Other State and local government enterprises	-2	-\$266,234	-\$89,396
56	Fitness and recreational sports centers	-1	-\$20,170	-\$13,717
57	Non-depository credit intermediation	-1	-\$119,480	-\$47,775
58	Architectural and engineering services	-1	-\$117,531	-\$54,998
59	Couriers and messengers	-1	-\$95,705	-\$34,528
60	Religious organizations	-1	-\$162,020	-\$109,133
61	Bread and bakery product- except frozen- manufacturers	-1	-\$136,110	-\$33,438
62	General and consumer goods rental except video tapes	-1	-\$51,384	-\$26,832
63	Veterinary services	-1	-\$50,342	-\$18,113
64	Car washes	-1	-\$31,945	-\$9,480
65	Commercial printing	-1	-\$101,392	-\$31,717
66	Computer systems design services	-1	-\$46,636	-\$20,522
67	Management consulting services	-1	-\$48,477	-\$24,441
68	Office administrative services	-1	-\$58,695	-\$15,686
69	Other support services	-1	-\$37,120	-\$9,709
70	State and local government passenger transit	-1	-\$16,923	-\$20,220
71	Scenic and sightseeing transportation and support	-1	-\$80,981	-\$31,262
72	Newspaper publishers	-1	-\$65,918	-\$22,969
73	Spectator sports	-1	-\$11,800	-\$7,778
74	Death care services	-1	-\$51,733	-\$16,702
75	Other computer related services	-1	-\$42,559	-\$21,667
76	Plastics plumbing fixtures and all other plastics	-1	-\$133,391	-\$31,035
77	Automotive equipment rental and leasing	-1	-\$72,401	-\$15,647
78	Video tape and disc rental	-1	-\$35,229	-\$9,818
79	Investigation and security services	-1	-\$30,007	-\$18,919
80	Electronic equipment repair and maintenance	-1	-\$60,651	-\$18,374
81	Commercial machinery repair and maintenance	-1	-\$55,488	-\$16,756
82	Other personal services	-1	-\$54,605	-\$9,318
83	Other Industries*	0	-\$13,908,267	-\$444,972
	Total	-909	-\$45,507,684	-\$39,166,316

\*Other industries include: Domestic Trade, Owners-Occupied Buildings, and Foreign Trade.