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**An Assessment of the Potential Impact of the Lockheed Martin Taiwan F-16 Program on Business Activity in Affected States and Congressional Districts**



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# INTRODUCTION



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# INTRODUCTION

- Lockheed Martin combines technology and engineering in expertise across a spectrum of areas ranging from air power to national security to training and simulation. Headquartered in Bethesda, Maryland, Lockheed Martin employs 126,000 people around the world and is the largest provider of information technology (IT) services, systems integration, and training to the US government. Major customers include the US Department of Defense and other US federal government agencies as well as international government and commercial entities. Reported sales in 2010 totaled \$45.8 billion.
- The company engages in research, design, development, manufacture, integration and sustainment of advanced technology systems, products, and services. Major operating units include aeronautics, electronic systems, information systems and global solutions (IS&GS), and space systems.
- The aeronautics unit (Lockheed Martin Aeronautics Company) employs roughly 20,000 personnel and is known worldwide for building quality military aircraft. Lockheed Martin products play a vital role in the defense of this nation as well as many other countries, contributing to stability around the world. Among the long list of aircrafts produced by Lockheed Martin is the F-16 Fighting Falcon.
- The F-16 is an international favorite, consistently selected as the most capable, best-value multirole fighter in the world. Over 4,400 F-16s have been produced for 25 countries around the world



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including Belgium, Denmark, the Netherlands, Norway, Israel, Egypt, Korea, Pakistan, Venezuela, Turkey, Greece, Singapore, Thailand, Indonesia, Bahrain, Portugal, Taiwan, Jordan, the UAE, Italy, Chile, Oman, Poland, and Morocco. These aircraft have flown over 13 million flight hours in peacetime and combat operations.

- Some of the advantages of the F-16 include affordability in terms of procurement and operational life-cycle costs, continual technology upgrades to ensure long-lasting viability, and a large global logistics network. Notable capabilities of the aircraft include:
  - Deep interdiction with substantial payloads and an unrefueled combat radius exceeding 800 nautical miles,
  - All-weather, day or night precision strike,
  - Advanced, beyond-visual-range missiles,
  - Air-to-ground precision-guided munitions,
  - Suppression or destruction of enemy air defense systems,
  - Highest technology cockpit, systems and sensors,
  - High survivability achieved through a combination of low radar cross section and advanced electronic warfare systems,
  - Minimum operation and support costs, and
  - Low manpower requirements.
  
- Currently, the sale of a number of F-16s to Taiwan is under consideration; these aircraft would be used to enhance and update the current F-16 fleet. The production of these aircraft would involve substantial gains in business activity in hundreds of communities across the US through the manufacture of various parts and equipment.
  
- The Perryman Group (TPG) was asked to perform a comprehensive assessment of the gains in business activity stemming from the production of F-16s for sale to Taiwan by state and congressional district. This report presents the findings from TPG's analysis.



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## Highlights of Study Findings

- The Perryman Group estimates that the Lockheed Martin Taiwan F-16 program would generate some \$8.7 billion in output (gross product) and more than 87,651 person-years of employment in the US. Approximately 23,407 person-years of employment represent direct activity associated with the production and direct supply procurement process.
- These substantial gains in business activity stem from Lockheed Martin operations as well as through acquisition of necessary input goods and services. Economic benefits would likely be realized in 44 states and the District of Columbia.

## The Perryman Group's Perspective

- TPG is an economic research and analysis firm based in Waco, Texas. The firm has more than 30 years of experience in assessing the economic impact of corporate expansions, regulatory changes, real estate developments, public policy initiatives, and myriad other factors affecting business activity. TPG has conducted hundreds of impact analyses for local areas, regions, and states throughout the US. Impact studies have been performed for hundreds of clients including many of the largest corporations in the world, governmental entities at all levels, educational institutions, major health care systems, utilities, and economic development organizations.
- The firm also has extensive expertise in aviation and the model has been the basis for several projects related to aircraft manufacturing



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including (1) an assessment of the Lockheed Martin Joint Strike Fighter program, (2) analysis of Vought Aircraft operations in the Dallas/Fort Worth area, and (3) several studies of the V-22 project. TPG has also completed numerous comparable reports in other industries.



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# ECONOMIC IMPACT OF THE TAIWAN F-16 PROGRAM



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# ECONOMIC IMPACT OF THE TAIWAN F-16 PROGRAM

- As noted, manufacturing F-16s involves substantial gains in business activity through Lockheed Martin operations as well as through acquisition of necessary input goods and services from vendors located in 44 states and the District of Columbia.
- The Perryman Group measured the economic benefits stemming from manufacturing F-16s for sale to Taiwan for the US and affected states and congressional districts.

## Measuring the Economic Impacts

- Production of these aircraft (like any economic activity) generates multiplier or **ripple effects through the economy**. As noted earlier, The Perryman Group developed a model some 30 years ago (with continual updates and refinements since that time) to describe these interactions. This dynamic input-output assessment model uses a variety of data (from surveys, industry information, and other sources) to describe the various goods and services (known as resources or inputs) required to produce another good/service. The submodels used in the current analysis reflect the specific industrial composition and characteristics of each affected district and state, as well as the nation as a whole. Estimated direct spending in various areas by type of activity was provided by Lockheed Martin based on current production and procurement plans.



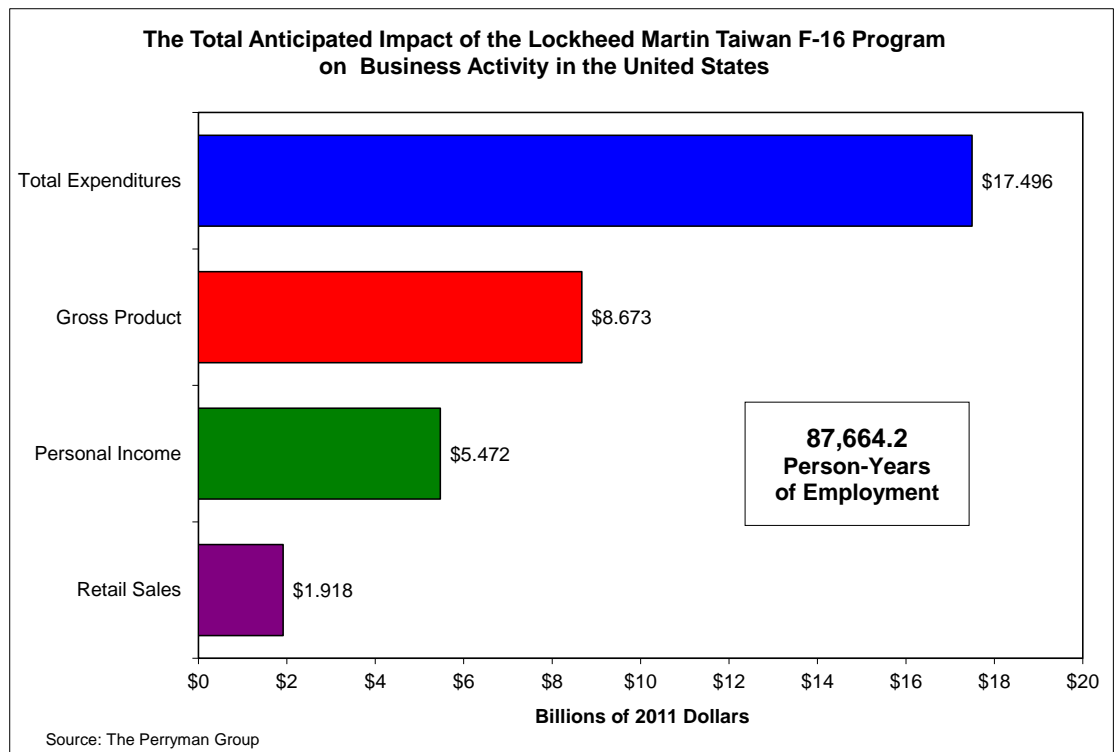
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- Impacts are expressed in terms of several different indicators of business activity.
    - **Total expenditures** (or total spending) measures the dollars changing hands as a result of the economic stimulus.
    - **Gross product** (or output) is production of goods and services that will come about in each area as a result of the activity. This measure is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.
    - **Personal income** is dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.
    - **Job gains** are expressed as person-years of employment (one person working for one year).
  
  - All results are expressed on an annual basis in constant (2011) dollars. Additional information regarding the methods and assumptions used in this report may be found in Appendix A. An accompanying volume includes industry-level results for the US, as well as detailed results by state and congressional district.



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# Economic Benefits of the Taiwan F-16 Program for the US

- The Lockheed Martin Taiwan F-16 program would generate some \$8.7 billion in output (gross product) and more than 87,664 person-years of employment in the US.



- The following table provides summary results on a state-by-state basis.
  - Direct expenditures represents the amount of money actually anticipated to be spent within each state (the direct stimulus described above).
  - Direct jobs converts this spending into likely patterns of employment.



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by State  
(in constant 2011 dollars)**

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
Alabama (AL)	\$10,199,891	41.7	\$34,155,939	\$16,732,584	\$10,607,158	\$3,670,690	168.6
Arizona (AZ)	\$37,444,214	158.0	\$135,820,589	\$70,641,238	\$46,686,742	\$15,898,538	745.8
Arkansas (AR)	\$15,082,098	48.2	\$51,368,091	\$28,862,266	\$17,653,528	\$6,189,769	261.9
California (CA)	\$662,343,959	2,658.7	\$2,283,304,685	\$1,191,202,433	\$737,192,951	\$268,581,629	11,399.8
Colorado (CO)	\$2,098,012	10.6	\$7,218,548	\$3,600,411	\$2,298,579	\$814,982	37.1
Connecticut (CT)	\$348,749,773	1,588.2	\$1,149,335,755	\$595,283,229	\$374,228,504	\$128,203,777	5,876.1
Delaware (DE)	\$378,487	1.9	\$1,144,399	\$578,522	\$368,707	\$122,660	5.9
Florida (FL)	\$99,480,491	477.1	\$339,825,221	\$177,607,453	\$117,794,818	\$42,113,279	1,923.5
Georgia (GA)	\$28,648,591	145.1	\$98,304,846	\$50,145,102	\$32,416,297	\$11,961,529	537.4
Iowa (IA)	\$13,584,820	49.4	\$40,560,674	\$19,138,470	\$12,480,540	\$4,362,722	199.6
Idaho (ID)	\$110,797	0.5	\$355,405	\$178,495	\$113,469	\$40,222	1.8
Illinois (IL)	\$45,744,641	156.6	\$161,658,111	\$83,312,809	\$51,089,599	\$18,801,725	777.7
Indiana (IN)	\$26,465,533	134.8	\$88,107,892	\$44,279,858	\$28,268,871	\$10,001,915	463.4
Kansas (KS)	\$4,741,002	18.2	\$15,347,765	\$7,308,620	\$4,691,572	\$1,681,195	75.9
Kentucky (KY)	\$365,818	0.9	\$1,066,304	\$465,853	\$308,174	\$103,602	4.8
Louisiana (LA)	\$71,006	0.2	\$199,425	\$87,068	\$57,325	\$19,833	0.9
Massachusetts (MA)	\$18,957,248	91.1	\$65,642,805	\$36,047,900	\$22,502,944	\$7,715,414	349.2
Maryland (MD)	\$155,334,739	471.5	\$535,321,265	\$301,633,157	\$183,457,983	\$64,573,671	2,687.3
Maine (ME)	\$29,689,281	152.8	\$91,669,041	\$46,763,662	\$29,826,481	\$10,290,789	484.5
Michigan (MI)	\$52,811,898	265.3	\$165,856,432	\$85,912,916	\$54,818,126	\$18,817,590	879.9
Minnesota (MN)	\$10,985,043	41.2	\$36,306,780	\$18,434,612	\$11,526,341	\$4,205,785	179.6
Missouri (MO)	\$12,236,990	45.6	\$40,756,956	\$19,705,235	\$12,470,514	\$4,452,054	197.9
Mississippi (MS)	\$831,583	5.4	\$2,877,885	\$1,558,363	\$991,971	\$343,356	16.1
Montana (MT)	\$1,653,763	5.5	\$5,003,694	\$2,689,437	\$1,639,608	\$571,870	23.9

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by State**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
North Carolina (NC)	\$1,486,762	8.2	\$5,102,836	\$2,624,113	\$1,668,501	\$585,338	27.2
New Hampshire (NH)	\$27,274,590	104.5	\$88,849,576	\$49,087,186	\$30,449,702	\$10,339,836	458.6
New Jersey (NJ)	\$45,100,434	172.7	\$152,342,841	\$79,110,684	\$48,755,197	\$17,522,209	747.9
New Mexico (NM)	\$32,082,834	103.4	\$99,824,620	\$54,223,651	\$33,052,352	\$11,533,780	482.8
New York (NY)	\$54,004,749	238.1	\$167,904,391	\$88,941,054	\$55,286,954	\$19,067,341	847.7
Ohio (OH)	\$486,321,809	2,049.6	\$1,727,783,144	\$934,493,646	\$641,732,516	\$231,552,616	10,577.0
Oklahoma (OK)	\$3,806,827	16.0	\$12,746,580	\$6,585,137	\$4,392,943	\$1,575,041	71.8
Oregon (OR)	\$8,391,503	40.9	\$26,354,685	\$13,412,276	\$8,508,947	\$3,052,786	137.8
Pennsylvania (PA)	\$15,066,623	64.5	\$51,531,629	\$27,270,755	\$17,084,265	\$5,993,939	266.4
Rhode Island (RI)	\$86,137	0.2	\$242,565	\$106,101	\$70,238	\$23,181	1.1
South Carolina (SC)	\$3,708,080	19.9	\$12,825,267	\$6,519,795	\$4,139,544	\$1,407,491	66.9
South Dakota (SD)	\$31	0.0	\$99	\$50	\$32	\$11	0.0
Tennessee (TN)	\$79,759	0.4	\$290,238	\$141,826	\$89,651	\$32,217	1.5
Texas (TX)	\$2,144,066,322	13,324.2	\$6,980,796,039	\$3,537,747,915	\$2,231,038,020	\$798,239,619	35,944.8
Utah (UT)	\$121,026,341	500.9	\$419,465,668	\$227,408,876	\$158,014,424	\$56,534,035	2,602.5
Virginia (VA)	\$32,355,427	106.1	\$107,849,628	\$56,391,558	\$34,240,242	\$12,288,563	507.7
Vermont (VT)	\$13,297,345	36.7	\$36,929,336	\$17,479,508	\$11,244,383	\$3,710,723	170.6
Washington (WA)	\$3,809,050	15.3	\$12,608,219	\$6,070,220	\$3,880,904	\$1,393,960	62.9
Wisconsin (WI)	\$4,546,079	23.5	\$14,738,522	\$7,539,932	\$4,850,247	\$1,709,153	78.9
Wyoming (WY)	\$463,838	1.1	\$1,187,601	\$520,261	\$345,307	\$112,396	5.3
District of Columbia (DC)	\$2,088,990	12.6	\$6,768,379	\$3,487,755	\$2,247,047	\$781,585	36.2
Rest of US (spillover effects)	\$0	0.0	\$2,218,618,056	\$751,738,156	\$427,440,892	\$117,309,396	7,270.2
<b>Total US</b>	<b>\$4,577,073,208</b>	<b>23,407.3</b>	<b>\$17,495,968,426</b>	<b>\$8,673,070,148</b>	<b>\$5,472,023,105</b>	<b>\$1,918,303,813</b>	<b>87,664.2</b>

- The results by congressional district are summarized in the table below.



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District  
(in constant 2011 dollars)**

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Alabama (AL)</b>							
<b>Congressional District 1</b>	\$6,256,289	29.4	\$21,746,355	\$10,757,857	\$6,827,021	\$2,375,625	110.8
<b>Congressional District 2</b>	\$113,514	0.7	\$399,651	\$213,245	\$135,502	\$46,356	2.2
<b>Congressional District 5</b>	\$3,829,858	11.6	\$12,009,136	\$5,761,088	\$3,644,384	\$1,248,622	55.7
<b>Congressional District 6</b>	\$229	0.0	\$797	\$394	\$250	\$87	0.0
<b>Arkansas (AR)</b>							
<b>Congressional District 2</b>	\$172,145	1.1	\$593,732	\$318,860	\$202,671	\$70,790	3.3
<b>Congressional District 3</b>	\$12,843,915	37.4	\$43,736,969	\$25,041,725	\$15,228,017	\$5,328,922	222.3
<b>Congressional District 4</b>	\$2,066,038	9.7	\$7,037,390	\$3,501,681	\$2,222,840	\$790,057	36.3
<b>Arizona (AZ)</b>							
<b>Congressional District 2</b>	\$21,735,000	91.7	\$81,143,821	\$42,655,231	\$29,493,881	\$10,081,934	484.4
<b>Congressional District 3</b>	\$3,271,720	21.1	\$11,938,553	\$6,209,881	\$3,920,984	\$1,302,075	63.1
<b>Congressional District 4</b>	\$4,699,467	15.4	\$15,969,635	\$8,179,580	\$4,946,914	\$1,688,360	72.5
<b>Congressional District 5</b>	\$1,479,689	8.4	\$5,365,156	\$2,704,862	\$1,706,932	\$570,523	27.5
<b>Congressional District 6</b>	\$688,418	3.2	\$2,475,833	\$1,197,051	\$754,830	\$254,562	12.2
<b>Congressional District 8</b>	\$5,569,920	18.2	\$18,927,591	\$9,694,632	\$5,863,200	\$2,001,084	86.0
<b>California (CA)</b>							
<b>Congressional District 3</b>	\$1,468,491	9.5	\$5,410,684	\$2,908,018	\$1,844,746	\$657,255	30.1
<b>Congressional District 4</b>	\$1,093,998	2.7	\$3,339,950	\$1,461,578	\$960,195	\$337,360	15.2
<b>Congressional District 10</b>	\$2,267,738	14.6	\$7,455,800	\$3,827,344	\$2,419,136	\$849,441	38.9
<b>Congressional District 13</b>	\$39,295	0.2	\$143,082	\$71,438	\$45,255	\$16,354	0.7
<b>Congressional District 14</b>	\$6,650,504	42.8	\$24,503,227	\$13,167,231	\$8,352,808	\$2,976,075	136.3
<b>Congressional District 16</b>	\$26,283,135	65.4	\$80,466,607	\$35,298,397	\$23,173,249	\$8,146,232	367.1
<b>Congressional District 22</b>	\$655	0.0	\$2,384	\$1,190	\$754	\$272	0.0
<b>Congressional District 23</b>	\$365,322,592	1,197.5	\$1,243,429,012	\$657,426,712	\$399,974,022	\$147,556,036	5,993.7



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
Congressional District 24	\$5,269,232	24.2	\$18,053,613	\$8,944,377	\$5,732,396	\$2,042,426	92.8
Congressional District 25	\$3,053,898	11.8	\$10,327,236	\$4,934,923	\$3,165,875	\$1,134,685	51.3
Congressional District 26	\$5,779,366	28.2	\$20,681,535	\$10,373,817	\$6,579,773	\$2,382,613	107.8
Congressional District 27	\$7,646,432	23.3	\$24,476,195	\$11,160,095	\$7,249,038	\$2,569,180	115.9
Congressional District 28	\$6,619,308	34.8	\$23,614,577	\$12,036,454	\$7,639,151	\$2,759,878	125.2
Congressional District 29	\$6,919,817	37.0	\$24,847,971	\$12,761,449	\$8,117,727	\$2,902,418	132.1
Congressional District 30	\$8,850,912	30.9	\$31,984,609	\$17,682,605	\$10,859,470	\$3,919,705	164.7
Congressional District 31	\$103,026	0.5	\$375,142	\$187,301	\$118,654	\$42,879	1.9
Congressional District 32	\$28,761,337	178.1	\$98,609,669	\$51,182,238	\$32,426,446	\$11,519,237	526.1
Congressional District 33	\$182,051	0.9	\$662,888	\$330,966	\$209,665	\$75,769	3.4
Congressional District 34	\$948,445	3.6	\$3,233,954	\$1,544,372	\$990,049	\$354,499	16.0
Congressional District 35	\$8,999,818	50.3	\$29,803,869	\$14,930,580	\$9,483,245	\$3,347,278	152.6
Congressional District 36	\$18,203,181	66.3	\$62,586,129	\$32,829,930	\$20,156,756	\$7,390,467	307.4
Congressional District 37	\$16,166,444	76.6	\$58,882,428	\$29,453,296	\$18,659,140	\$6,740,614	304.8
Congressional District 38	\$7,922,636	38.1	\$28,870,304	\$14,486,501	\$9,177,989	\$3,313,484	149.9
Congressional District 39	\$340,164	1.7	\$1,188,999	\$597,590	\$379,620	\$137,949	6.2
Congressional District 40	\$5,979,118	28.2	\$21,704,718	\$10,842,003	\$6,869,748	\$2,483,632	112.3
Congressional District 42	\$1,229,268	6.1	\$4,485,357	\$2,269,717	\$1,438,222	\$518,371	23.5
Congressional District 43	\$340,440	1.6	\$1,239,619	\$618,915	\$392,079	\$141,691	6.4
Congressional District 44	\$3,992,258	18.7	\$14,536,704	\$7,257,867	\$4,597,811	\$1,661,571	75.1
Congressional District 46	\$4,815,226	25.2	\$17,294,522	\$8,834,079	\$5,615,804	\$2,012,917	91.5
Congressional District 47	\$5,923,444	30.5	\$21,633,900	\$11,013,555	\$6,979,619	\$2,512,655	114.0
Congressional District 48	\$35,532,856	137.5	\$122,873,789	\$65,064,028	\$39,947,625	\$14,631,282	610.5
Congressional District 49	\$1,082,525	5.1	\$3,941,717	\$1,968,015	\$1,246,725	\$450,545	20.4

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 51</b>	\$2,203,811	8.2	\$7,516,222	\$3,928,078	\$2,415,863	\$888,485	37.1
<b>Congressional District 52</b>	\$72,352,538	458.5	\$265,128,275	\$141,807,777	\$89,974,294	\$32,108,373	1,468.8
<b>Colorado (CO)</b>							
<b>Congressional District 2</b>	\$1,222,293	7.9	\$4,423,947	\$2,339,919	\$1,482,029	\$527,641	24.1
<b>Congressional District 5</b>	\$258,137	1.2	\$920,209	\$452,472	\$286,178	\$103,606	4.7
<b>Congressional District 6</b>	\$617,582	1.5	\$1,874,391	\$808,019	\$530,372	\$183,735	8.3
<b>Connecticut (CT)</b>							
<b>Congressional District 1</b>	\$260,213,136	1,286.6	\$850,299,665	\$429,456,748	\$272,455,640	\$93,457,097	4,371.1
<b>Congressional District 2</b>	\$3,367,434	17.3	\$11,010,016	\$5,532,397	\$3,528,288	\$1,208,363	57.2
<b>Congressional District 3</b>	\$5,240,142	25.9	\$17,273,439	\$8,804,041	\$5,583,502	\$1,900,508	88.7
<b>Congressional District 4</b>	\$64,845,392	190.0	\$221,417,203	\$126,378,784	\$76,880,678	\$26,211,856	1,111.1
<b>Congressional District 5</b>	\$15,083,670	68.3	\$49,335,431	\$25,111,258	\$15,780,395	\$5,425,953	248.0
<b>Delaware (DE)</b>							
<b>Congressional District 1</b>	\$378,487	1.9	\$1,144,399	\$578,522	\$368,707	\$122,660	5.9
<b>Florida (FL)</b>							
<b>Congressional District 1</b>	\$2,157,065	11.1	\$7,009,875	\$3,520,199	\$2,237,739	\$807,167	36.7
<b>Congressional District 3</b>	\$765,676	2.6	\$2,390,694	\$1,106,029	\$714,160	\$251,742	11.4
<b>Congressional District 4</b>	\$2,455,172	12.6	\$7,970,657	\$4,003,445	\$2,545,098	\$918,142	41.7
<b>Congressional District 5</b>	\$1,695,110	7.2	\$5,307,441	\$2,554,459	\$1,639,349	\$585,063	26.5
<b>Congressional District 7</b>	\$128,425	0.3	\$372,582	\$161,910	\$106,423	\$36,957	1.7
<b>Congressional District 9</b>	\$4,388,747	28.3	\$15,284,295	\$8,189,953	\$5,193,932	\$1,832,001	84.2
<b>Congressional District 10</b>	\$15,365,135	85.8	\$53,204,082	\$27,495,826	\$17,426,501	\$6,192,166	282.8
<b>Congressional District 11</b>	\$186,065	0.5	\$539,805	\$234,579	\$154,188	\$53,544	2.4
<b>Congressional District 13</b>	\$17,922	0.1	\$61,687	\$30,649	\$19,411	\$6,955	0.3
<b>Congressional District 15</b>	\$4,715	0.0	\$16,419	\$8,789	\$5,574	\$1,966	0.1

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
Congressional District 21	\$3,194	0.0	\$10,994	\$5,462	\$3,459	\$1,239	0.1
Congressional District 22	\$5,490	0.0	\$18,896	\$9,388	\$5,946	\$2,130	0.1
Congressional District 23	\$1,359,913	7.0	\$4,415,328	\$2,217,661	\$1,409,818	\$508,585	23.1
Congressional District 24	\$70,947,862	321.5	\$243,222,467	\$128,069,105	\$86,333,220	\$30,915,621	1,412.5
<b>Georgia (GA)</b>							
Congressional District 2	\$4,857,672	25.0	\$16,260,316	\$8,133,606	\$5,166,919	\$1,910,578	85.7
Congressional District 3	\$14,133,951	72.8	\$47,311,246	\$23,665,654	\$15,033,742	\$5,559,044	249.2
Congressional District 5	\$81,324	0.4	\$287,470	\$142,300	\$90,058	\$33,191	1.5
Congressional District 6	\$50,589	0.2	\$178,826	\$88,520	\$56,022	\$20,647	0.9
Congressional District 7	\$1,364,735	8.8	\$4,893,494	\$2,607,213	\$1,652,173	\$598,968	27.1
Congressional District 8	\$5,357,771	21.8	\$19,381,634	\$10,334,497	\$7,140,713	\$2,643,701	119.1
Congressional District 10	\$1,084,420	5.1	\$3,833,278	\$1,897,507	\$1,200,874	\$442,584	19.8
Congressional District 11	\$1,679,129	10.8	\$6,020,722	\$3,207,562	\$2,032,608	\$736,899	33.4
Congressional District 12	\$39,000	0.2	\$137,860	\$68,242	\$43,188	\$15,917	0.7
<b>Iowa (IA)</b>							
Congressional District 1	\$10,828,735	31.7	\$31,358,688	\$14,164,272	\$9,310,381	\$3,229,333	147.7
Congressional District 2	\$2,756,085	17.8	\$9,201,986	\$4,974,198	\$3,170,159	\$1,133,389	51.9
<b>Idaho (ID)</b>							
Congressional District 1	\$110,797	0.5	\$355,405	\$178,495	\$113,469	\$40,222	1.8
<b>Illinois (IL)</b>							
Congressional District 6	\$2,365,166	5.8	\$7,590,235	\$3,290,892	\$2,163,246	\$749,791	34.3
Congressional District 8	\$179,175	0.8	\$672,533	\$332,344	\$210,588	\$76,710	3.5
Congressional District 9	\$123,173	0.8	\$469,361	\$248,967	\$157,962	\$56,697	2.6
Congressional District 10	\$272,649	0.9	\$901,844	\$407,962	\$265,423	\$93,529	4.3
Congressional District 12	\$124	0.0	\$418	\$212	\$134	\$48	0.0



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 13</b>	\$449,431	2.9	\$1,704,793	\$900,457	\$571,432	\$205,320	9.4
<b>Congressional District 14</b>	\$395,196	1.7	\$1,434,809	\$691,687	\$441,225	\$159,281	7.2
<b>Congressional District 15</b>	\$1,816,402	9.4	\$6,486,433	\$3,227,010	\$2,054,016	\$749,418	34.0
<b>Congressional District 16</b>	\$39,341,898	129.6	\$139,353,455	\$72,621,554	\$44,215,929	\$16,347,483	666.1
<b>Congressional District 17</b>	\$169,325	0.8	\$635,561	\$314,074	\$199,011	\$72,492	3.3
<b>Congressional District 18</b>	\$163,237	1.1	\$622,028	\$329,947	\$209,342	\$75,138	3.4
<b>Congressional District 19</b>	\$468,864	3.0	\$1,786,641	\$947,702	\$601,290	\$215,819	9.8
<b>Indiana (IN)</b>							
<b>Congressional District 2</b>	\$16,579,317	85.4	\$54,701,022	\$27,505,990	\$17,574,052	\$6,219,456	288.5
<b>Congressional District 3</b>	\$216,700	1.3	\$759,269	\$403,882	\$257,171	\$89,737	4.2
<b>Congressional District 5</b>	\$4,217,602	19.8	\$14,631,880	\$7,294,631	\$4,639,761	\$1,641,768	75.6
<b>Congressional District 6</b>	\$132,613	0.9	\$465,465	\$250,344	\$159,434	\$55,505	2.6
<b>Congressional District 7</b>	\$794,256	4.1	\$2,620,531	\$1,317,714	\$841,910	\$297,952	13.8
<b>Congressional District 8</b>	\$4,525,046	23.3	\$14,929,725	\$7,507,298	\$4,796,542	\$1,697,496	78.7
<b>Kansas (KS)</b>							
<b>Congressional District 1</b>	\$428,884	1.1	\$1,247,486	\$543,207	\$357,685	\$125,041	5.6
<b>Congressional District 2</b>	\$193,131	0.9	\$664,356	\$330,492	\$209,654	\$75,998	3.4
<b>Congressional District 3</b>	\$1,412,185	4.1	\$4,247,741	\$1,905,925	\$1,244,113	\$438,620	19.8
<b>Congressional District 4</b>	\$2,706,803	12.2	\$9,188,182	\$4,528,996	\$2,880,120	\$1,041,535	47.0
<b>Kentucky (KY)</b>							
<b>Congressional District 4</b>	\$365,818	0.9	\$1,066,304	\$465,853	\$308,174	\$103,602	4.8
<b>Louisiana (LA)</b>							
<b>Congressional District 3</b>	\$71,006	0.2	\$199,425	\$87,068	\$57,325	\$19,833	0.9
<b>Massachusetts (MA)</b>							
<b>Congressional District 1</b>	\$1,875,374	9.7	\$6,160,448	\$3,114,685	\$1,985,287	\$691,070	32.4

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 2</b>	\$191,903	1.0	\$637,710	\$321,758	\$204,928	\$71,225	3.3
<b>Congressional District 3</b>	\$130,437	0.6	\$454,554	\$227,454	\$144,413	\$49,877	2.3
<b>Congressional District 4</b>	\$39,836	0.2	\$138,822	\$69,465	\$44,104	\$15,233	0.7
<b>Congressional District 5</b>	\$7,824,524	22.9	\$27,010,826	\$15,488,041	\$9,426,255	\$3,243,016	137.4
<b>Congressional District 6</b>	\$316,329	1.6	\$1,039,114	\$525,370	\$334,869	\$116,566	5.5
<b>Congressional District 7</b>	\$8,530,875	55.0	\$30,034,162	\$16,217,477	\$10,309,976	\$3,510,084	166.7
<b>Congressional District 8</b>	\$47,970	0.2	\$167,169	\$83,650	\$53,110	\$18,343	0.9
<b>Maryland (MD)</b>							
<b>Congressional District 1</b>	\$47,277	0.3	\$167,161	\$89,513	\$56,804	\$19,782	0.9
<b>Congressional District 2</b>	\$123,352,286	359.3	\$428,156,156	\$244,088,513	\$148,114,846	\$52,087,071	2,157.6
<b>Congressional District 3</b>	\$9,578,496	31.3	\$31,581,539	\$16,607,655	\$10,086,840	\$3,616,889	149.0
<b>Congressional District 4</b>	\$1,211,283	5.7	\$4,231,513	\$2,100,673	\$1,331,233	\$471,170	21.6
<b>Congressional District 5</b>	\$2,356,754	14.9	\$7,451,422	\$3,799,783	\$2,404,388	\$830,485	38.5
<b>Congressional District 6</b>	\$8,135,640	22.9	\$27,309,628	\$14,887,779	\$9,144,303	\$3,206,403	134.9
<b>Congressional District 7</b>	\$10,653,002	37.1	\$36,423,846	\$20,059,241	\$12,319,570	\$4,341,871	184.9
<b>Maine (ME)</b>							
<b>Congressional District 1</b>	\$29,554,466	152.2	\$91,226,889	\$46,541,181	\$29,685,046	\$10,242,307	482.3
<b>Congressional District 2</b>	\$134,815	0.6	\$442,152	\$222,480	\$141,435	\$48,482	2.3
<b>Michigan (MI)</b>							
<b>Congressional District 1</b>	\$52,426	0.2	\$172,011	\$86,926	\$55,588	\$19,117	0.9
<b>Congressional District 2</b>	\$33,640,469	173.2	\$104,920,867	\$53,572,410	\$34,406,402	\$11,821,664	560.4
<b>Congressional District 3</b>	\$12,908,985	59.3	\$41,128,672	\$22,136,203	\$13,852,133	\$4,759,987	213.3
<b>Congressional District 6</b>	\$1,698,832	10.9	\$5,623,883	\$3,079,348	\$1,971,471	\$666,437	31.8
<b>Congressional District 7</b>	\$1,055,436	3.8	\$3,232,693	\$1,534,666	\$998,052	\$335,974	15.9
<b>Congressional District 11</b>	\$635,689	3.3	\$1,982,852	\$1,012,418	\$650,211	\$223,406	10.6



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 15</b>	\$2,820,061	14.5	\$8,795,455	\$4,490,944	\$2,884,269	\$991,003	47.0
<b>Minnesota (MN)</b>							
<b>Congressional District 2</b>	\$1,777,245	11.0	\$6,231,161	\$3,304,072	\$2,100,396	\$761,670	34.5
<b>Congressional District 3</b>	\$1,509,375	6.8	\$5,242,262	\$2,595,099	\$1,650,008	\$604,213	27.0
<b>Congressional District 5</b>	\$5,505,404	18.0	\$18,266,218	\$9,667,291	\$5,886,819	\$2,177,739	88.2
<b>Congressional District 7</b>	\$2,193,018	5.4	\$6,567,139	\$2,868,149	\$1,889,118	\$662,163	29.9
<b>Missouri (MO)</b>							
<b>Congressional District 1</b>	\$6,129,936	21.4	\$19,837,097	\$9,168,608	\$5,914,083	\$2,086,838	95.1
<b>Congressional District 2</b>	\$1,600,148	7.5	\$5,636,760	\$2,778,202	\$1,760,544	\$634,140	28.8
<b>Congressional District 3</b>	\$2,881,365	9.6	\$9,667,880	\$5,029,655	\$3,060,112	\$1,108,573	45.7
<b>Congressional District 4</b>	\$398,405	1.9	\$1,403,441	\$691,717	\$438,340	\$157,888	7.2
<b>Congressional District 5</b>	\$210,642	0.5	\$631,027	\$272,202	\$179,049	\$61,776	2.8
<b>Congressional District 8</b>	\$916,912	4.3	\$3,229,959	\$1,591,956	\$1,008,822	\$363,373	16.5
<b>Congressional District 9</b>	\$99,582	0.5	\$350,792	\$172,896	\$109,564	\$39,464	1.8
<b>Mississippi (MS)</b>							
<b>Congressional District 2</b>	\$831,583	5.4	\$2,877,885	\$1,558,363	\$991,971	\$343,356	16.1
<b>Montana (MT)</b>							
<b>Congressional District 1</b>	\$1,653,763	5.5	\$5,003,694	\$2,689,437	\$1,639,608	\$571,870	23.9
<b>North Carolina (NC)</b>							
<b>Congressional District 3</b>	\$1,102,635	6.2	\$3,829,068	\$1,985,749	\$1,261,965	\$441,418	20.6
<b>Congressional District 6</b>	\$276,758	1.4	\$903,301	\$453,824	\$289,340	\$102,561	4.8
<b>Congressional District 7</b>	\$24,992	0.1	\$86,208	\$42,865	\$27,222	\$9,610	0.4
<b>Congressional District 10</b>	\$2,450	0.0	\$8,557	\$4,590	\$2,918	\$1,013	0.0
<b>Congressional District 12</b>	\$79,693	0.4	\$274,896	\$136,685	\$86,803	\$30,645	1.4
<b>Congressional District 13</b>	\$233	0.0	\$805	\$400	\$254	\$90	0.0

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>New Hampshire (NH)</b>							
Congressional District 1	\$22,605,908	84.5	\$74,612,624	\$42,155,602	\$25,981,510	\$8,817,744	386.8
Congressional District 2	\$4,668,682	20.0	\$14,236,952	\$6,931,584	\$4,468,192	\$1,522,092	71.8
<b>New Jersey (NJ)</b>							
Congressional District 3	\$547	0.0	\$1,953	\$973	\$617	\$219	0.0
Congressional District 4	\$37,789	0.2	\$134,971	\$67,229	\$42,612	\$15,162	0.7
Congressional District 5	\$96,673	0.5	\$345,286	\$171,986	\$109,012	\$38,787	1.8
Congressional District 8	\$3,023,219	9.9	\$10,214,960	\$5,380,607	\$3,271,522	\$1,177,621	48.7
Congressional District 9	\$27,845,355	91.2	\$94,070,854	\$49,503,350	\$30,113,493	\$10,837,335	448.1
Congressional District 10	\$42,106	0.2	\$150,390	\$74,909	\$47,480	\$16,894	0.8
Congressional District 11	\$14,054,745	70.7	\$47,424,426	\$23,911,631	\$15,170,460	\$5,436,192	247.9
<b>New Mexico (NM)</b>							
Congressional District 1	\$32,021,392	103.2	\$99,654,965	\$54,149,267	\$33,003,219	\$11,517,197	482.0
Congressional District 2	\$61,442	0.2	\$169,655	\$74,384	\$49,133	\$16,584	0.8
<b>New York (NY)</b>							
Congressional District 1	\$309,610	1.5	\$1,011,118	\$508,945	\$323,505	\$111,647	5.2
Congressional District 2	\$38,345,762	157.9	\$118,097,135	\$62,697,469	\$38,721,504	\$13,371,285	584.7
Congressional District 3	\$1,009,926	4.9	\$3,227,552	\$1,632,136	\$1,038,887	\$359,188	16.9
Congressional District 4	\$5,022,490	31.2	\$16,435,956	\$8,868,256	\$5,650,382	\$1,918,296	91.1
Congressional District 18	\$12,238	0.1	\$39,967	\$20,117	\$12,787	\$4,413	0.2
Congressional District 19	\$124,902	0.6	\$407,902	\$205,317	\$130,507	\$45,040	2.1
Congressional District 20	\$516,737	2.4	\$1,687,548	\$849,425	\$539,926	\$186,339	8.7
Congressional District 22	\$3,478,468	11.6	\$10,715,876	\$5,739,021	\$3,501,470	\$1,219,506	51.5
Congressional District 24	\$1,934,584	10.3	\$6,073,728	\$3,127,860	\$1,993,857	\$688,374	32.4
Congressional District 25	\$3,108,701	17.0	\$9,746,053	\$5,060,184	\$3,226,454	\$1,112,288	52.4



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 29</b>	\$141,331	0.7	\$461,556	\$232,324	\$147,674	\$50,965	2.4
<b>Ohio (OH)</b>							
<b>Congressional District 1</b>	\$8,896	0.0	\$30,021	\$15,068	\$9,632	\$3,388	0.2
<b>Congressional District 2</b>	\$44,373	0.2	\$149,746	\$75,160	\$48,044	\$16,900	0.8
<b>Congressional District 3</b>	\$140,404	0.5	\$461,803	\$218,449	\$141,145	\$48,826	2.3
<b>Congressional District 4</b>	\$1,161,830	5.1	\$4,030,786	\$1,973,960	\$1,261,703	\$441,937	20.4
<b>Congressional District 7</b>	\$406,614,044	1,718.0	\$1,459,772,540	\$796,341,382	\$555,548,369	\$200,960,523	9,234.3
<b>Congressional District 8</b>	\$16,972,633	54.8	\$56,133,175	\$29,335,086	\$17,957,993	\$6,426,531	267.6
<b>Congressional District 9</b>	\$130,117	0.8	\$466,610	\$250,526	\$159,627	\$55,298	2.6
<b>Congressional District 10</b>	\$2,369,139	12.2	\$7,995,161	\$4,012,876	\$2,565,129	\$902,319	42.0
<b>Congressional District 11</b>	\$23,437,911	78.2	\$78,105,620	\$41,061,929	\$25,100,945	\$9,000,036	374.9
<b>Congressional District 12</b>	\$90,237	0.2	\$273,988	\$118,981	\$78,657	\$26,421	1.2
<b>Congressional District 13</b>	\$2,122,860	13.7	\$7,612,768	\$4,087,343	\$2,604,322	\$902,190	42.3
<b>Congressional District 14</b>	\$28,384,071	144.8	\$96,234,188	\$48,249,692	\$30,830,153	\$10,845,416	504.9
<b>Congressional District 15</b>	\$1,434,100	9.2	\$5,142,812	\$2,761,208	\$1,759,352	\$609,475	28.6
<b>Congressional District 16</b>	\$97,134	0.5	\$327,799	\$164,527	\$105,170	\$36,995	1.7
<b>Congressional District 17</b>	\$3,314,060	11.3	\$11,046,123	\$5,827,459	\$3,562,277	\$1,276,362	53.2
<b>Oklahoma (OK)</b>							
<b>Congressional District 2</b>	\$501,083	1.2	\$1,432,049	\$627,690	\$413,875	\$143,188	6.5
<b>Congressional District 3</b>	\$1,573,116	7.4	\$5,317,617	\$2,667,921	\$1,694,264	\$605,989	27.5
<b>Congressional District 4</b>	\$1,629,000	6.9	\$5,646,621	\$3,113,779	\$2,173,196	\$785,944	35.9
<b>Congressional District 5</b>	\$103,628	0.5	\$350,294	\$175,747	\$111,608	\$39,919	1.8
<b>Oregon (OR)</b>							
<b>Congressional District 1</b>	\$85,777	0.2	\$242,891	\$106,082	\$70,082	\$24,022	1.1
<b>Congressional District 3</b>	\$7,320,034	35.6	\$23,015,573	\$11,739,556	\$7,438,796	\$2,669,653	120.2



**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 4</b>	\$985,692	5.1	\$3,096,222	\$1,566,638	\$1,000,069	\$359,111	16.4
<b>Pennsylvania (PA)</b>							
<b>Congressional District 3</b>	\$32,324	0.2	\$116,320	\$62,535	\$39,793	\$13,870	0.6
<b>Congressional District 4</b>	\$108,704	0.5	\$386,407	\$192,814	\$122,537	\$43,371	2.0
<b>Congressional District 6</b>	\$4,079	0.0	\$14,499	\$7,235	\$4,598	\$1,627	0.1
<b>Congressional District 7</b>	\$1,628,479	10.0	\$5,848,278	\$3,106,917	\$1,976,669	\$690,621	32.2
<b>Congressional District 8</b>	\$2,278,598	9.2	\$7,123,678	\$3,343,674	\$2,167,853	\$740,245	34.5
<b>Congressional District 11</b>	\$1,220,465	6.3	\$4,125,404	\$2,074,910	\$1,324,563	\$469,265	21.8
<b>Congressional District 12</b>	\$879,904	5.7	\$2,809,151	\$1,442,430	\$914,487	\$315,650	14.7
<b>Congressional District 13</b>	\$2,337,020	12.0	\$7,899,571	\$3,973,162	\$2,536,353	\$898,577	41.7
<b>Congressional District 16</b>	\$5,831,092	17.1	\$20,556,689	\$11,743,933	\$7,156,525	\$2,523,088	105.2
<b>Congressional District 17</b>	\$718,209	3.4	\$2,552,994	\$1,273,925	\$809,605	\$286,554	13.2
<b>Congressional District 18</b>	\$27,749	0.1	\$98,639	\$49,220	\$31,281	\$11,072	0.5
<b>Rhode Island (RI)</b>							
<b>Congressional District 1</b>	\$86,137	0.2	\$242,565	\$106,101	\$70,238	\$23,181	1.1
<b>South Carolina (SC)</b>							
<b>Congressional District 3</b>	\$1,440,476	9.3	\$5,030,897	\$2,679,689	\$1,701,720	\$573,206	27.5
<b>Congressional District 4</b>	\$2,199,890	10.5	\$7,597,896	\$3,755,488	\$2,382,119	\$815,706	38.5
<b>Congressional District 5</b>	\$67,715	0.2	\$196,474	\$84,618	\$55,705	\$18,579	0.9
<b>South Dakota (SD)</b>							
<b>Congressional District 1</b>	\$31	0.0	\$99	\$50	\$32	\$11	0.0
<b>Tennessee (TN)</b>							
<b>Congressional District 3</b>	\$11,124	0.1	\$40,480	\$19,780	\$12,504	\$4,493	0.2
<b>Congressional District 9</b>	\$68,635	0.3	\$249,759	\$122,045	\$77,147	\$27,723	1.3

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**

(in constant 2011 dollars)

*(continued)*

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Texas (TX)</b>							
Congressional District 3	\$2,476,405	7.3	\$7,840,478	\$3,527,723	\$2,289,049	\$818,367	36.7
Congressional District 4	\$63,744,847	213.9	\$218,314,700	\$113,895,283	\$69,295,776	\$25,596,851	1,043.5
Congressional District 5	\$709	0.0	\$2,554	\$1,263	\$799	\$293	0.0
Congressional District 6	\$15,507,087	72.8	\$55,844,306	\$27,614,649	\$17,459,287	\$6,406,762	286.4
Congressional District 7	\$4,030,572	20.8	\$13,739,292	\$6,854,982	\$4,351,307	\$1,604,776	72.0
Congressional District 10	\$330,080	1.5	\$1,188,689	\$587,799	\$371,634	\$136,373	6.1
Congressional District 11	\$267,996	1.3	\$965,111	\$477,241	\$301,734	\$110,723	4.9
Congressional District 12	\$1,966,143,812	12,656.2	\$6,376,865,958	\$3,240,154,265	\$2,044,211,145	\$730,039,561	32,993.6
Congressional District 16	\$11,544,605	54.2	\$41,574,596	\$20,558,368	\$12,997,972	\$4,769,662	213.2
Congressional District 17	\$12,507,418	56.9	\$42,282,555	\$20,478,348	\$13,034,644	\$4,718,943	211.6
Congressional District 19	\$1,188,170	3.5	\$3,761,252	\$1,692,113	\$1,098,008	\$392,539	17.6
Congressional District 20	\$36,511,600	89.7	\$110,901,557	\$48,166,788	\$31,573,795	\$11,173,343	500.8
Congressional District 23	\$88,513	0.4	\$318,753	\$157,622	\$99,656	\$36,569	1.6
Congressional District 24	\$8,586,947	46.8	\$31,114,210	\$15,889,668	\$10,052,398	\$3,663,533	164.7
Congressional District 25	\$203,142	0.5	\$617,030	\$267,989	\$175,669	\$62,166	2.8
Congressional District 26	\$19,477,799	91.4	\$70,143,730	\$34,685,619	\$21,929,887	\$8,047,267	359.7
Congressional District 28	\$537,000	2.3	\$2,002,331	\$1,078,030	\$745,390	\$277,587	12.5
Congressional District 30	\$549,538	2.6	\$1,979,004	\$978,604	\$618,720	\$227,042	10.1
Congressional District 31	\$108,610	0.5	\$391,126	\$193,409	\$122,283	\$44,872	2.0
Congressional District 32	\$261,474	1.5	\$948,808	\$488,152	\$308,866	\$112,390	5.1
<b>Utah (UT)</b>							
Congressional District 1	\$118,498,542	492.6	\$411,654,439	\$223,808,916	\$155,679,818	\$55,726,750	2,565.4
Congressional District 2	\$757,434	3.6	\$2,583,463	\$1,289,435	\$818,109	\$289,646	13.3

**Summary Measures of the Total Anticipated Impact of the  
Lockheed Martin Taiwan F-16 Program on  
Business Activity by Congressional District**  
(in constant 2011 dollars)  
(continued)

	Direct Expenditures	Direct Employment	Total Expenditures	Total Gross Product	Total Personal Income	Total Retail Sales	Total Employment
<b>Congressional District 3</b>	\$1,770,364	4.7	\$5,227,766	\$2,310,524	\$1,516,497	\$517,639	23.8
<b>Virginia (VA)</b>							
<b>Congressional District 5</b>	\$206,205	1.0	\$728,339	\$360,247	\$228,208	\$80,655	3.7
<b>Congressional District 9</b>	\$32,149,222	105.2	\$107,121,290	\$56,031,311	\$34,012,034	\$12,207,908	503.9
<b>Vermont (VT)</b>							
<b>Congressional District 1</b>	\$13,297,345	36.7	\$36,929,336	\$17,479,508	\$11,244,383	\$3,710,723	170.6
<b>Washington (WA)</b>							
<b>Congressional District 1</b>	\$2,261,808	10.1	\$7,753,422	\$3,820,327	\$2,427,285	\$875,930	39.5
<b>Congressional District 2</b>	\$63,622	0.2	\$185,561	\$80,955	\$53,198	\$18,714	0.8
<b>Congressional District 4</b>	\$82,380	0.2	\$240,270	\$104,824	\$68,883	\$24,232	1.1
<b>Congressional District 6</b>	\$153,959	0.7	\$530,379	\$264,578	\$167,764	\$60,717	2.7
<b>Congressional District 7</b>	\$326,383	1.5	\$1,136,656	\$565,801	\$358,522	\$129,644	5.9
<b>Congressional District 9</b>	\$920,897	2.6	\$2,761,931	\$1,233,735	\$805,253	\$284,724	
<b>Wisconsin (WI)</b>							
<b>Congressional District 1</b>	\$57	0.0	\$194	\$97	\$62	\$22	0.0
<b>Congressional District 3</b>	\$1,196,500	2.9	\$3,459,160	\$1,514,671	\$1,002,898	\$344,431	15.8
<b>Congressional District 4</b>	\$3,349,522	20.5	\$11,279,169	\$6,025,163	\$3,847,286	\$1,364,699	63.0
<b>Wyoming (WY)</b>							
<b>Congressional District 1</b>	\$463,838	1.1	\$1,187,601	\$520,261	\$345,307	\$112,396	5.3
<b>District of Columbia (DC)</b>							
<b>Congressional District 1 (non-voting)</b>	\$2,088,990	12.6	\$6,768,379	\$3,487,755	\$2,247,047	\$781,585	36.2
<b>Rest of US (spillover effects)</b>							
	\$0	0.0	\$2,218,618,056	\$751,738,156	\$427,440,892	\$117,309,396	7,270.2
<b>Total US</b>	<b>\$4,577,073,208</b>	<b>23,407.3</b>	<b>\$17,495,968,426</b>	<b>\$8,673,070,148</b>	<b>\$5,472,023,105</b>	<b>\$1,918,303,813</b>	<b>87,651.4</b>



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- As noted, further detail regarding this spending, including both industry-level and regional effects, is presented in a separate volume.



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# CONCLUSION



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# CONCLUSION

- The Taiwan F-16 program would lead to spending in communities in many parts of the US for various input products and services. These outlays by Lockheed Martin would, in turn, lead to sizable multiplier effects.
- The Perryman Group estimates that the total economic benefits for the US of the Taiwan F-16 program include gains in business activity of some \$8.7 billion in output (gross product) and more than 87,664 person-years of employment, including 23,407 person-years directly at various production locales.
- **The Taiwan F-16 program represents a notable source of economic stimulus.**



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# APPENDIX: US Multi-Regional Impact Assessment System Explanation



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## US Multi-Regional Impact Assessment System

- The basic modeling technique employed in this study is known as input-output analysis. This methodology essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.
- There are two essential steps in conducting an input-output analysis once the system is operational. The first major endeavor is to accurately define the levels of direct activity to be evaluated.
- In this case, estimates of spending for the Taiwan F-16 program were provided by Lockheed Martin at the zip code level. These amounts were then aggregated into congressional districts and states.
- Once the direct input values were determined, the present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility. In addition, the model has been in operation and continually updated for over two decades. The systems used in the current simulations reflect the unique industrial structures of each legislative district and state; national results reflect the US industrial structure.
- The USMRIAS is somewhat similar in format to the Input-Output Model of the United States and the Regional Input-Output Modeling System, both of which are maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models. The models used for the present investigation have been thoroughly tested for reasonableness and historical reliability.
- As noted earlier, the impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than



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- physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the *direct effect*. The ensuing transactions in the output chain constitute the *indirect effect*.
- Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings, and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, healthcare services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the *ACCRA Cost of Living Index*, a privately compiled inter-regional measure which has been widely used for several decades, and the *Consumer Expenditure Survey* of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the *induced effect*. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.
  - Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources. Note that all monetary values, unless otherwise noted, are given in constant (2011) dollars to eliminate the effects of inflation.
  - The USMRIAS generates estimates of the effect on several measures of business activity. The most comprehensive measure of economic activity used in this study is **Total Expenditures**. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for \$0.50; the miller then sells flour to a baker for \$0.75; the baker, in turn, sells bread to a customer for \$1.25. The Total Expenditures recorded in this instance would be \$2.50, that is,  $\$0.50 + \$0.75 + \$1.25$ . This measure is quite broad, but is useful in that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.
  - A second measure of business activity frequently employed in this analysis is that of **Gross Product**. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of, say, Amarillo is the amount of US output that is produced in that area. It is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over



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intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is \$1.25 (the value of the bread) rather than \$2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, \$0.50; the miller, \$0.25 (\$0.75 - \$0.50); and the baker, \$0.50 (\$1.25 - \$0.75). The total value-added is, therefore, \$1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.

- The third gauge of economic activity used in this evaluation is **Personal Income**. As the name implies, Personal Income is simply the income received by individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.
- The fourth measure, **Retail Sales**, represents the component of Total Expenditures which occurs in retail outlets (general merchandise stores, automobile dealers and service stations, building materials stores, food stores, drugstores, restaurants, and so forth). Retail Sales is a commonly used measure of consumer activity.
- The final aggregates used are **Permanent Jobs** and **Person-Years of Employment**. The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. A person-year is simply the equivalent of a person working for a year. As an example, it could be a carpenter employed for five months, a mason for three months, and a painter for four months. In the case of a construction project, these are typically spread over the course of the construction and development phase. It should be noted that, unlike the dollar values described above, Permanent Jobs is a "stock" rather than a "flow." In other words, if an area produces \$1 million in output in 2007 and \$1 million in 2008, it is appropriate to say that \$2 million was achieved in the 2007-2008 period. If the same area has 100 people working in 2007 and 100 in 2008, it only has 100 Permanent Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Person-Years (a person working for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

