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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



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



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.



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. The project would also yield almost \$768.0 million in Federal tax revenues, as well as about \$593.7 million to various State and Local governments.
- 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.



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- The firm also has extensive expertise in aviation and the model has been the basis for several projects related to aircraft manufacturing 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.



ECONOMIC IMPACT OF THE TAIWAN F-16 PROGRAM



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.



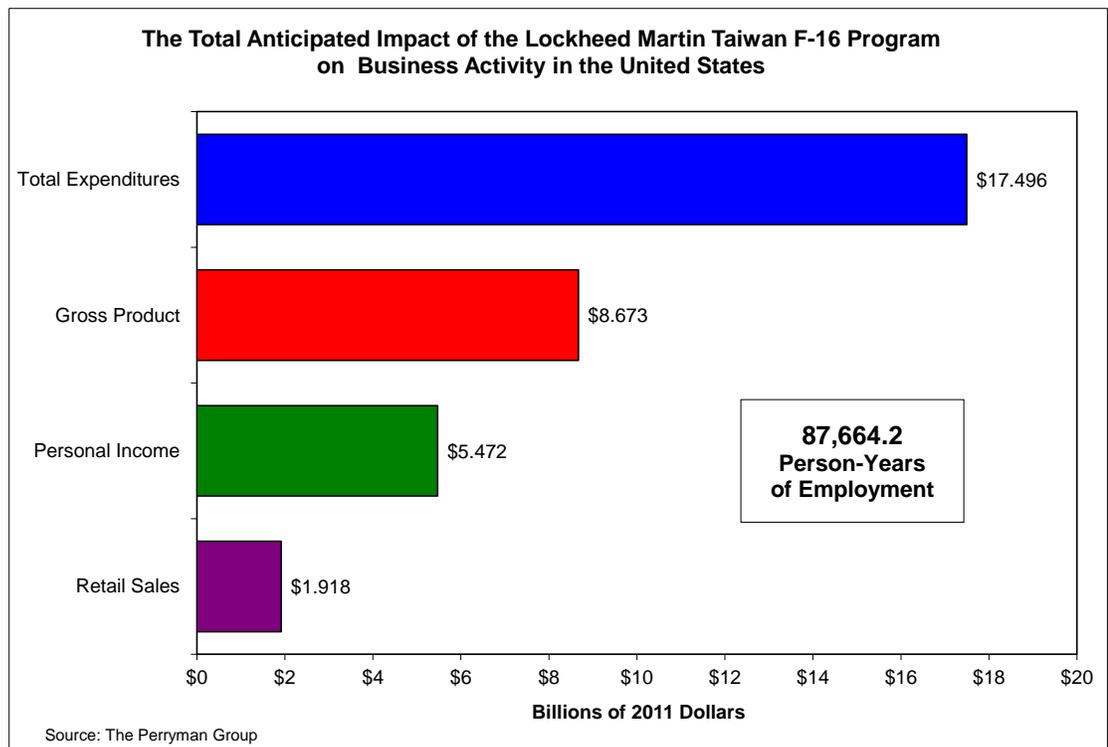
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- Impacts are expressed in terms of several different indicators of business activity.
 - **Total expenditures** (or total spending) measures the dollars changing hands as a result of the economic stimulus.
 - **Gross product** (or output) is production 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.



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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Alabama (AL)	\$10,199,891	41.7	\$34,155,939	\$16,732,584	\$10,607,158	\$3,670,690	168.6	\$1,481,581	\$784,947	\$411,568
Arkansas (AR)	\$15,082,098	48.2	\$51,368,091	\$28,862,266	\$17,653,528	\$6,189,769	261.9	\$2,555,599	\$1,173,512	\$630,000
Arizona (AZ)	\$37,444,214	158.0	\$135,820,589	\$70,641,238	\$46,686,742	\$15,898,538	745.8	\$6,254,904	\$3,036,831	\$1,732,428
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	\$105,474,604	\$51,944,023	\$27,598,344
Colorado (CO)	\$2,098,012	10.6	\$7,218,548	\$3,600,411	\$2,298,579	\$814,982	37.1	\$318,797	\$164,328	\$88,900
Connecticut (CT)	\$348,749,773	1,588.2	\$1,149,335,755	\$595,283,229	\$374,228,504	\$128,203,777	5,876.1	\$52,709,146	\$26,563,107	\$14,183,005
Delaware (DE)	\$378,487	1.9	\$1,144,399	\$578,522	\$368,707	\$122,660	5.9	\$51,225	\$27,296	\$14,373
Florida (FL)	\$99,480,491	477.1	\$339,825,221	\$177,607,453	\$117,794,818	\$42,113,279	1,923.5	\$15,726,190	\$7,755,358	\$4,452,787
Georgia (GA)	\$28,648,591	145.1	\$98,304,846	\$50,145,102	\$32,416,297	\$11,961,529	537.4	\$4,440,081	\$2,239,971	\$1,258,787
Iowa (IA)	\$13,584,820	49.4	\$40,560,674	\$19,138,470	\$12,480,540	\$4,362,722	199.6	\$1,694,609	\$972,068	\$495,798
Idaho (ID)	\$110,797	0.5	\$355,405	\$178,495	\$113,469	\$40,222	1.8	\$15,805	\$8,294	\$4,441
Illinois (IL)	\$45,744,641	156.6	\$161,658,111	\$83,312,809	\$51,089,599	\$18,801,725	777.7	\$7,376,904	\$3,646,467	\$1,903,529
Indiana (IN)	\$26,465,533	134.8	\$88,107,892	\$44,279,858	\$28,268,871	\$10,001,915	463.4	\$3,920,745	\$2,029,012	\$1,105,244
Kansas (KS)	\$4,741,002	18.2	\$15,347,765	\$7,308,620	\$4,691,572	\$1,681,195	75.9	\$647,139	\$356,990	\$185,952
Kentucky (KY)	\$365,818	0.9	\$1,066,304	\$465,853	\$308,174	\$103,602	4.8	\$41,249	\$25,790	\$12,450
Louisiana (LA)	\$71,006	0.2	\$199,425	\$87,068	\$57,325	\$19,833	0.9	\$7,709	\$4,894	\$2,338
Massachusetts (MA)	\$18,957,248	91.1	\$65,642,805	\$36,047,900	\$22,502,944	\$7,715,414	349.2	\$3,191,849	\$1,491,049	\$825,196
Maryland (MD)	\$155,334,739	471.5	\$535,321,265	\$301,633,157	\$183,457,983	\$64,573,671	2,687.3	\$26,708,003	\$12,179,591	\$6,492,670
Maine (ME)	\$29,689,281	152.8	\$91,669,041	\$46,763,662	\$29,826,481	\$10,290,789	484.5	\$4,140,672	\$2,169,444	\$1,165,280
Michigan (MI)	\$52,811,898	265.3	\$165,856,432	\$85,912,916	\$54,818,126	\$18,817,590	879.9	\$7,607,129	\$3,900,626	\$2,108,189
Minnesota (MN)	\$10,985,043	41.2	\$36,306,780	\$18,434,612	\$11,526,341	\$4,205,785	179.6	\$1,632,286	\$838,251	\$438,885
Missouri (MO)	\$12,236,990	45.6	\$40,756,956	\$19,705,235	\$12,470,514	\$4,452,054	197.9	\$1,744,793	\$938,433	\$486,590
Mississippi (MS)	\$831,583	5.4	\$2,877,885	\$1,558,363	\$991,971	\$343,356	16.1	\$137,985	\$65,383	\$37,410
Montana (MT)	\$1,653,763	5.5	\$5,003,694	\$2,689,437	\$1,639,608	\$571,870	23.9	\$238,135	\$119,318	\$59,987
North Carolina (NC)	\$1,486,762	8.2	\$5,102,836	\$2,624,113	\$1,668,501	\$585,338	27.2	\$232,351	\$116,264	\$64,333
New Hampshire (NH)	\$27,274,590	104.5	\$88,849,576	\$49,087,186	\$30,449,702	\$10,339,836	458.6	\$4,346,408	\$2,061,993	\$1,104,698
New Jersey (NJ)	\$45,100,434	172.7	\$152,342,841	\$79,110,684	\$48,755,197	\$17,522,209	747.9	\$7,004,828	\$3,490,366	\$1,827,308
New Mexico (NM)	\$32,082,834	103.4	\$99,824,620	\$54,223,651	\$33,052,352	\$11,533,780	482.8	\$4,801,214	\$2,355,733	\$1,200,296
New York (NY)	\$54,004,749	238.1	\$167,904,391	\$88,941,054	\$55,286,954	\$19,067,341	847.7	\$7,875,255	\$3,963,457	\$2,072,593
Ohio (OH)	\$486,321,809	2,049.6	\$1,727,783,144	\$934,493,646	\$641,732,516	\$231,552,616	10,577.0	\$82,744,414	\$38,902,724	\$23,728,290
Oklahoma (OK)	\$3,806,827	16.0	\$12,746,580	\$6,585,137	\$4,392,943	\$1,575,041	71.8	\$583,079	\$292,942	\$166,896
Oregon (OR)	\$8,391,503	40.9	\$26,354,685	\$13,412,276	\$8,508,947	\$3,052,786	137.8	\$1,187,585	\$619,803	\$331,905
Pennsylvania (PA)	\$15,066,623	64.5	\$51,531,629	\$27,270,755	\$17,084,265	\$5,993,939	266.4	\$2,414,680	\$1,175,526	\$637,130
Rhode Island (RI)	\$86,137	0.2	\$242,565	\$106,101	\$70,238	\$23,181	1.1	\$9,395	\$5,946	\$2,843
South Carolina (SC)	\$3,708,080	19.9	\$12,825,267	\$6,519,795	\$4,139,544	\$1,407,491	66.9	\$577,293	\$291,435	\$159,218
South Dakota (SD)	\$31	0.0	\$99	\$50	\$32	\$11	0.0	\$4	\$2	\$1
Tennessee (TN)	\$79,759	0.4	\$290,238	\$141,826	\$89,651	\$32,217	1.5	\$12,558	\$6,483	\$3,513
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	\$313,248,654	\$162,038,980	\$86,667,851
Utah (UT)	\$121,026,341	500.9	\$419,465,668	\$227,408,876	\$158,014,424	\$56,534,035	2,602.5	\$20,135,840	\$9,524,926	\$5,828,928
Virginia (VA)	\$32,355,427	106.1	\$107,849,628	\$56,391,558	\$34,240,242	\$12,288,563	507.7	\$4,993,171	\$2,482,553	\$1,263,254
Vermont (VT)	\$13,297,345	36.7	\$36,929,336	\$17,479,508	\$11,244,383	\$3,710,723	170.6	\$1,547,717	\$910,231	\$439,814
Washington (WA)	\$3,809,050	15.3	\$12,608,219	\$6,070,220	\$3,880,904	\$1,393,960	62.9	\$537,486	\$290,943	\$133,903



**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Wisconsin (WI)	\$4,546,079	23.5	\$14,738,522	\$7,539,932	\$4,850,247	\$1,709,153	78.9	\$667,621	\$342,636	\$187,546
Wyoming (WY)	\$463,838	1.1	\$1,187,601	\$520,261	\$345,307	\$112,396	5.3	\$46,066	\$30,254	\$14,091
District of Columbia (DC)	\$2,088,990	12.6	\$6,768,379	\$3,487,755	\$2,247,047	\$781,585	36.2	\$308,822	\$157,384	\$86,133
Rest of US (spillover effects)	\$0	0.0	\$2,218,618,056	\$751,738,156	\$427,440,892	\$117,309,396	7,270.2	\$66,562,393	\$33,017,008	\$17,578,518
Total US	\$4,577,073,208	23,407.3	\$17,495,968,426	\$8,673,070,148	\$5,472,023,105	\$1,918,303,813	87,664.2	\$767,953,968	\$384,512,569	\$209,193,215



- 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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Alabama (AL)										
Congressional District 1	\$6,256,289	29.4	\$21,746,355	\$10,757,857	\$6,827,021	\$2,375,625	110.8	\$952,551	\$493,310	\$265,843
Congressional District 2	\$113,514	0.7	\$399,651	\$213,245	\$135,502	\$46,356	2.2	\$18,882	\$9,026	\$5,114
Congressional District 5	\$3,829,858	11.6	\$12,009,136	\$5,761,088	\$3,644,384	\$1,248,622	55.7	\$510,114	\$282,592	\$140,602
Congressional District 6	\$229	0.0	\$797	\$394	\$250	\$87	0.0	\$35	\$18	\$10
Arkansas (AR)										
Congressional District 2	\$172,145	1.1	\$593,732	\$318,860	\$202,671	\$70,790	3.3	\$28,233	\$13,505	\$7,674
Congressional District 3	\$12,843,915	37.4	\$43,736,969	\$25,041,725	\$15,228,017	\$5,328,922	222.3	\$2,217,311	\$999,242	\$535,455
Congressional District 4	\$2,066,038	9.7	\$7,037,390	\$3,501,681	\$2,222,840	\$790,057	36.3	\$310,055	\$160,765	\$86,870
Arizona (AZ)										
Congressional District 2	\$21,735,000	91.7	\$81,143,821	\$42,655,231	\$29,493,881	\$10,081,934	484.4	\$3,776,893	\$1,797,071	\$1,089,866
Congressional District 3	\$3,271,720	21.1	\$11,938,553	\$6,209,881	\$3,920,984	\$1,302,075	63.1	\$549,852	\$266,404	\$148,518
Congressional District 4	\$4,699,467	15.4	\$15,969,635	\$8,179,580	\$4,946,914	\$1,688,360	72.5	\$724,258	\$365,118	\$182,620
Congressional District 5	\$1,479,689	8.4	\$5,365,156	\$2,704,862	\$1,706,932	\$570,523	27.5	\$239,501	\$119,976	\$65,496
Congressional District 6	\$688,418	3.2	\$2,475,833	\$1,197,051	\$754,830	\$254,562	12.2	\$105,992	\$55,516	\$29,481
Congressional District 8	\$5,569,920	18.2	\$18,927,591	\$9,694,632	\$5,863,200	\$2,001,084	86.0	\$858,408	\$432,746	\$216,446
California (CA)										
Congressional District 3	\$1,468,491	9.5	\$5,410,684	\$2,908,018	\$1,844,746	\$657,255	30.1	\$257,489	\$120,350	\$69,463
Congressional District 4	\$1,093,998	2.7	\$3,339,950	\$1,461,578	\$960,195	\$337,360	15.2	\$129,415	\$79,376	\$38,846
Congressional District 10	\$2,267,738	14.6	\$7,455,800	\$3,827,344	\$2,419,136	\$849,441	38.9	\$338,891	\$172,462	\$93,157
Congressional District 13	\$39,295	0.2	\$143,082	\$71,438	\$45,255	\$16,354	0.7	\$6,325	\$3,195	\$1,755
Congressional District 14	\$6,650,504	42.8	\$24,503,227	\$13,167,231	\$8,352,808	\$2,976,075	136.3	\$1,165,888	\$545,030	\$314,540
Congressional District 16	\$26,283,135	65.4	\$80,466,607	\$35,298,397	\$23,173,249	\$8,146,232	367.1	\$3,125,484	\$1,910,349	\$936,771
Congressional District 22	\$655	0.0	\$2,384	\$1,190	\$754	\$272	0.0	\$105	\$53	\$29
Congressional District 23	\$365,322,592	1,197.5	\$1,243,429,012	\$657,426,712	\$399,974,022	\$147,556,036	5,993.7	\$58,211,619	\$28,412,877	\$14,733,175
Congressional District 24	\$5,269,232	24.2	\$18,053,613	\$8,944,377	\$5,732,396	\$2,042,426	92.8	\$791,977	\$411,584	\$222,371
Congressional District 25	\$3,053,898	11.8	\$10,327,236	\$4,934,923	\$3,165,875	\$1,134,685	51.3	\$436,961	\$236,517	\$124,682
Congressional District 26	\$5,779,366	28.2	\$20,681,535	\$10,373,817	\$6,579,773	\$2,382,613	107.8	\$918,546	\$464,529	\$255,579
Congressional District 27	\$7,646,432	23.3	\$24,476,195	\$11,160,095	\$7,249,038	\$2,569,180	115.9	\$988,167	\$571,639	\$289,407
Congressional District 28	\$6,619,308	34.8	\$23,614,577	\$12,036,454	\$7,639,151	\$2,759,878	125.2	\$1,065,764	\$530,959	\$295,131
Congressional District 29	\$6,919,817	37.0	\$24,847,971	\$12,761,449	\$8,117,727	\$2,902,418	132.1	\$1,129,958	\$557,464	\$310,855

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Congressional District 30	\$8,850,912	30.9	\$31,984,609	\$17,682,605	\$10,859,470	\$3,919,705	164.7	\$1,565,700	\$716,046	\$391,798
Congressional District 31	\$103,026	0.5	\$375,142	\$187,301	\$118,654	\$42,879	1.9	\$16,584	\$8,377	\$4,601
Congressional District 32	\$28,761,337	178.1	\$98,609,669	\$51,182,238	\$32,426,446	\$11,519,237	526.1	\$4,531,913	\$2,247,565	\$1,243,455
Congressional District 33	\$182,051	0.9	\$662,888	\$330,966	\$209,665	\$75,769	3.4	\$29,305	\$14,803	\$8,130
Congressional District 34	\$948,445	3.6	\$3,233,954	\$1,544,372	\$990,049	\$354,499	16.0	\$136,746	\$73,851	\$38,940
Congressional District 35	\$8,999,818	50.3	\$29,803,869	\$14,930,580	\$9,483,245	\$3,347,278	152.6	\$1,322,023	\$687,632	\$367,810
Congressional District 36	\$18,203,181	66.3	\$62,586,129	\$32,829,930	\$20,156,756	\$7,390,467	307.4	\$2,906,915	\$1,425,108	\$749,187
Congressional District 37	\$16,166,444	76.6	\$58,882,428	\$29,453,296	\$18,659,140	\$6,740,614	304.8	\$2,607,932	\$1,314,749	\$722,963
Congressional District 38	\$7,922,636	38.1	\$28,870,304	\$14,486,501	\$9,177,989	\$3,313,484	149.9	\$1,282,702	\$644,523	\$355,154
Congressional District 39	\$340,164	1.7	\$1,188,999	\$597,590	\$379,620	\$137,949	6.2	\$52,913	\$26,920	\$14,805
Congressional District 40	\$5,979,118	28.2	\$21,704,718	\$10,842,003	\$6,869,748	\$2,483,632	112.3	\$960,001	\$485,173	\$266,489
Congressional District 42	\$1,229,268	6.1	\$4,485,357	\$2,269,717	\$1,438,222	\$518,371	23.5	\$200,971	\$100,091	\$55,464
Congressional District 43	\$340,440	1.6	\$1,239,619	\$618,915	\$392,079	\$141,691	6.4	\$54,802	\$27,681	\$15,203
Congressional District 44	\$3,992,258	18.7	\$14,536,704	\$7,257,867	\$4,597,811	\$1,661,571	75.1	\$642,645	\$324,612	\$178,280
Congressional District 46	\$4,815,226	25.2	\$17,294,522	\$8,834,079	\$5,615,804	\$2,012,917	91.5	\$782,210	\$387,974	\$215,677
Congressional District 47	\$5,923,444	30.5	\$21,633,900	\$11,013,555	\$6,979,619	\$2,512,655	114.0	\$975,191	\$482,609	\$268,511
Congressional District 48	\$35,532,856	137.5	\$122,873,789	\$65,064,028	\$39,947,625	\$14,631,282	610.5	\$5,761,072	\$2,792,318	\$1,480,079
Congressional District 49	\$1,082,525	5.1	\$3,941,717	\$1,968,015	\$1,246,725	\$450,545	20.4	\$174,257	\$88,020	\$48,342
Congressional District 51	\$2,203,811	8.2	\$7,516,222	\$3,928,078	\$2,415,863	\$888,485	37.1	\$347,810	\$171,627	\$90,347
Congressional District 52	\$72,352,538	458.5	\$265,128,275	\$141,807,777	\$89,974,294	\$32,108,373	1,468.8	\$12,556,320	\$5,907,958	\$3,397,349
Colorado (CO)										
Congressional District 2	\$1,222,293	7.9	\$4,423,947	\$2,339,919	\$1,482,029	\$527,641	24.1	\$207,187	\$98,988	\$56,175
Congressional District 5	\$258,137	1.2	\$920,209	\$452,472	\$286,178	\$103,606	4.7	\$40,064	\$20,696	\$11,184
Congressional District 6	\$617,582	1.5	\$1,874,391	\$808,019	\$530,372	\$183,735	8.3	\$71,546	\$44,645	\$21,541
Connecticut (CT)										
Congressional District 1	\$260,213,136	1,286.6	\$850,299,665	\$429,456,748	\$272,455,640	\$93,457,097	4,371.1	\$38,026,098	\$19,711,588	\$10,540,632
Congressional District 2	\$3,367,434	17.3	\$11,010,016	\$5,532,397	\$3,528,288	\$1,208,363	57.2	\$489,864	\$255,182	\$137,394
Congressional District 3	\$5,240,142	25.9	\$17,273,439	\$8,804,041	\$5,583,502	\$1,900,508	88.7	\$779,551	\$399,185	\$213,750
Congressional District 4	\$64,845,392	190.0	\$221,417,203	\$126,378,784	\$76,880,678	\$26,211,856	1,111.1	\$11,190,165	\$5,053,847	\$2,688,106
Congressional District 5	\$15,083,670	68.3	\$49,335,431	\$25,111,258	\$15,780,395	\$5,425,953	248.0	\$2,223,468	\$1,143,305	\$603,124
Delaware (DE)										
Congressional District 1	\$378,487	1.9	\$1,144,399	\$578,522	\$368,707	\$122,660	5.9	\$51,225	\$27,296	\$14,373



**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Florida (FL)										
Congressional District 1	\$2,157,065	11.1	\$7,009,875	\$3,520,199	\$2,237,739	\$807,167	36.7	\$311,695	\$162,824	\$87,900
Congressional District 3	\$765,676	2.6	\$2,390,694	\$1,106,029	\$714,160	\$251,742	11.4	\$97,933	\$56,345	\$28,480
Congressional District 4	\$2,455,172	12.6	\$7,970,657	\$4,003,445	\$2,545,098	\$918,142	41.7	\$354,484	\$185,208	\$99,987
Congressional District 5	\$1,695,110	7.2	\$5,307,441	\$2,554,459	\$1,639,349	\$585,063	26.5	\$226,184	\$124,960	\$65,060
Congressional District 7	\$128,425	0.3	\$372,582	\$161,910	\$106,423	\$36,957	1.7	\$14,336	\$9,028	\$4,330
Congressional District 9	\$4,388,747	28.3	\$15,284,295	\$8,189,953	\$5,193,932	\$1,832,001	84.2	\$725,177	\$346,491	\$196,332
Congressional District 10	\$15,365,135	85.8	\$53,204,082	\$27,495,826	\$17,426,501	\$6,192,166	282.8	\$2,434,608	\$1,208,511	\$668,427
Congressional District 11	\$186,065	0.5	\$539,805	\$234,579	\$154,188	\$53,544	2.4	\$20,771	\$13,080	\$6,273
Congressional District 13	\$17,922	0.1	\$61,687	\$30,649	\$19,411	\$6,955	0.3	\$2,714	\$1,404	\$757
Congressional District 15	\$4,715	0.0	\$16,419	\$8,789	\$5,574	\$1,966	0.1	\$778	\$372	\$211
Congressional District 21	\$3,194	0.0	\$10,994	\$5,462	\$3,459	\$1,239	0.1	\$484	\$250	\$135
Congressional District 22	\$5,490	0.0	\$18,896	\$9,388	\$5,946	\$2,130	0.1	\$831	\$430	\$232
Congressional District 23	\$1,359,913	7.0	\$4,415,328	\$2,217,661	\$1,409,818	\$508,585	23.1	\$196,362	\$102,592	\$55,385
Congressional District 24	\$70,947,862	321.5	\$243,222,467	\$128,069,105	\$86,333,220	\$30,915,621	1,412.5	\$11,339,834	\$5,543,862	\$3,239,278
Georgia (GA)										
Congressional District 2	\$4,857,672	25.0	\$16,260,316	\$8,133,606	\$5,166,919	\$1,910,578	85.7	\$720,187	\$373,734	\$204,015
Congressional District 3	\$14,133,951	72.8	\$47,311,246	\$23,665,654	\$15,033,742	\$5,559,044	249.2	\$2,095,467	\$1,087,423	\$593,606
Congressional District 5	\$81,324	0.4	\$287,470	\$142,300	\$90,058	\$33,191	1.5	\$12,600	\$6,484	\$3,534
Congressional District 6	\$50,589	0.2	\$178,826	\$88,520	\$56,022	\$20,647	0.9	\$7,838	\$4,033	\$2,199
Congressional District 7	\$1,364,735	8.8	\$4,893,494	\$2,607,213	\$1,652,173	\$598,968	27.1	\$230,855	\$109,839	\$62,887
Congressional District 8	\$5,357,771	21.8	\$19,381,634	\$10,334,497	\$7,140,713	\$2,643,701	119.1	\$915,064	\$433,749	\$266,353
Congressional District 10	\$1,084,420	5.1	\$3,833,278	\$1,897,507	\$1,200,874	\$442,584	19.8	\$168,014	\$86,458	\$47,128
Congressional District 11	\$1,679,129	10.8	\$6,020,722	\$3,207,562	\$2,032,608	\$736,899	33.4	\$284,012	\$135,141	\$77,370
Congressional District 12	\$39,000	0.2	\$137,860	\$68,242	\$43,188	\$15,917	0.7	\$6,042	\$3,109	\$1,695
Iowa (IA)										
Congressional District 1	\$10,828,735	31.7	\$31,358,688	\$14,164,272	\$9,310,381	\$3,229,333	147.7	\$1,254,170	\$760,375	\$375,164
Congressional District 2	\$2,756,085	17.8	\$9,201,986	\$4,974,198	\$3,170,159	\$1,133,389	51.9	\$440,439	\$211,694	\$120,634
Idaho (ID)										
Congressional District 1	\$110,797	0.5	\$355,405	\$178,495	\$113,469	\$40,222	1.8	\$15,805	\$8,294	\$4,441
Illinois (IL)										
Congressional District 6	\$2,365,166	5.8	\$7,590,235	\$3,290,892	\$2,163,246	\$749,791	34.3	\$291,391	\$177,105	\$87,182
Congressional District 8	\$179,175	0.8	\$672,533	\$332,344	\$210,588	\$76,710	3.5	\$29,427	\$14,868	\$8,185
Congressional District 9	\$123,173	0.8	\$469,361	\$248,967	\$157,962	\$56,697	2.6	\$22,045	\$10,326	\$5,965

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Congressional District 10	\$272,649	0.9	\$901,844	\$407,962	\$265,423	\$93,529	4.3	\$36,123	\$20,816	\$10,600
Congressional District 12	\$124	0.0	\$418	\$212	\$134	\$48	0.0	\$19	\$10	\$5
Congressional District 13	\$449,431	2.9	\$1,704,793	\$900,457	\$571,432	\$205,320	9.4	\$79,731	\$37,560	\$21,630
Congressional District 14	\$395,196	1.7	\$1,434,809	\$691,687	\$441,225	\$159,281	7.2	\$61,245	\$32,071	\$17,265
Congressional District 15	\$1,816,402	9.4	\$6,486,433	\$3,227,010	\$2,054,016	\$749,418	34.0	\$285,735	\$145,795	\$80,396
Congressional District 16	\$39,341,898	129.6	\$139,353,455	\$72,621,554	\$44,215,929	\$16,347,483	666.1	\$6,430,250	\$3,140,876	\$1,633,953
Congressional District 17	\$169,325	0.8	\$635,561	\$314,074	\$199,011	\$72,492	3.3	\$27,810	\$14,051	\$7,735
Congressional District 18	\$163,237	1.1	\$622,028	\$329,947	\$209,342	\$75,138	3.4	\$29,215	\$13,684	\$7,906
Congressional District 19	\$468,864	3.0	\$1,786,641	\$947,702	\$601,290	\$215,819	9.8	\$83,914	\$39,305	\$22,707
Indiana (IN)										
Congressional District 2	\$16,579,317	85.4	\$54,701,022	\$27,505,990	\$17,574,052	\$6,219,456	288.5	\$2,435,508	\$1,263,720	\$688,176
Congressional District 3	\$216,700	1.3	\$759,269	\$403,882	\$257,171	\$89,737	4.2	\$35,762	\$17,177	\$9,745
Congressional District 5	\$4,217,602	19.8	\$14,631,880	\$7,294,631	\$4,639,761	\$1,641,768	75.6	\$645,901	\$332,140	\$180,514
Congressional District 6	\$132,613	0.9	\$465,465	\$250,344	\$159,434	\$55,505	2.6	\$22,167	\$10,524	\$6,015
Congressional District 7	\$794,256	4.1	\$2,620,531	\$1,317,714	\$841,910	\$297,952	13.8	\$116,677	\$60,540	\$32,968
Congressional District 8	\$4,525,046	23.3	\$14,929,725	\$7,507,298	\$4,796,542	\$1,697,496	78.7	\$664,731	\$344,911	\$187,826
Kansas (KS)										
Congressional District 1	\$428,884	1.1	\$1,247,486	\$543,207	\$357,685	\$125,041	5.6	\$48,098	\$30,197	\$14,572
Congressional District 2	\$193,131	0.9	\$664,356	\$330,492	\$209,654	\$75,998	3.4	\$29,263	\$15,125	\$8,200
Congressional District 3	\$1,412,185	4.1	\$4,247,741	\$1,905,925	\$1,244,113	\$438,620	19.8	\$168,759	\$101,516	\$50,220
Congressional District 4	\$2,706,803	12.2	\$9,188,182	\$4,528,996	\$2,880,120	\$1,041,535	47.0	\$401,018	\$210,152	\$112,960
Kentucky (KY)										
Congressional District 4	\$365,818	0.9	\$1,066,304	\$465,853	\$308,174	\$103,602	4.8	\$41,249	\$25,790	\$12,450
Louisiana (LA)										
Congressional District 3	\$71,006	0.2	\$199,425	\$87,068	\$57,325	\$19,833	0.9	\$7,709	\$4,894	\$2,338
Massachusetts (MA)										
Congressional District 1	\$1,875,374	9.7	\$6,160,448	\$3,114,685	\$1,985,287	\$691,070	32.4	\$275,789	\$142,543	\$77,477
Congressional District 2	\$191,903	1.0	\$637,710	\$321,758	\$204,928	\$71,225	3.3	\$28,490	\$14,695	\$7,985
Congressional District 3	\$130,437	0.6	\$454,554	\$227,454	\$144,413	\$49,877	2.3	\$20,140	\$10,302	\$5,590
Congressional District 4	\$39,836	0.2	\$138,822	\$69,465	\$44,104	\$15,233	0.7	\$6,151	\$3,146	\$1,707
Congressional District 5	\$7,824,524	22.9	\$27,010,826	\$15,488,041	\$9,426,255	\$3,243,016	137.4	\$1,371,383	\$614,189	\$330,181
Congressional District 6	\$316,329	1.6	\$1,039,114	\$525,370	\$334,869	\$116,566	5.5	\$46,519	\$24,043	\$13,068
Congressional District 7	\$8,530,875	55.0	\$30,034,162	\$16,217,477	\$10,309,976	\$3,510,084	166.7	\$1,435,971	\$678,340	\$387,132
Congressional District 8	\$47,970	0.2	\$167,169	\$83,650	\$53,110	\$18,343	0.9	\$7,407	\$3,789	\$2,056

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Maryland (MD)										
Congressional District 1	\$47,277	0.3	\$167,161	\$89,513	\$56,804	\$19,782	0.9	\$7,926	\$3,770	\$2,142
Congressional District 2	\$123,352,286	359.3	\$428,156,156	\$244,088,513	\$148,114,846	\$52,087,071	2,157.6	\$21,612,732	\$9,717,341	\$5,200,396
Congressional District 3	\$9,578,496	31.3	\$31,581,539	\$16,607,655	\$10,086,840	\$3,616,889	149.0	\$1,470,519	\$729,782	\$370,973
Congressional District 4	\$1,211,283	5.7	\$4,231,513	\$2,100,673	\$1,331,233	\$471,170	21.6	\$186,003	\$95,825	\$51,775
Congressional District 5	\$2,356,754	14.9	\$7,451,422	\$3,799,783	\$2,404,388	\$830,485	38.5	\$336,450	\$174,811	\$93,075
Congressional District 6	\$8,135,640	22.9	\$27,309,628	\$14,887,779	\$9,144,303	\$3,206,403	134.9	\$1,318,233	\$627,074	\$329,053
Congressional District 7	\$10,653,002	37.1	\$36,423,846	\$20,059,241	\$12,319,570	\$4,341,871	184.9	\$1,776,139	\$830,987	\$445,256
Maine (ME)										
Congressional District 1	\$29,554,466	152.2	\$91,226,889	\$46,541,181	\$29,685,046	\$10,242,307	482.3	\$4,120,973	\$2,159,208	\$1,159,791
Congressional District 2	\$134,815	0.6	\$442,152	\$222,480	\$141,435	\$48,482	2.3	\$19,699	\$10,237	\$5,489
Michigan (MI)										
Congressional District 1	\$52,426	0.2	\$172,011	\$86,926	\$55,588	\$19,117	0.9	\$7,697	\$3,982	\$2,153
Congressional District 2	\$33,640,469	173.2	\$104,920,867	\$53,572,410	\$34,406,402	\$11,821,664	560.4	\$4,743,550	\$2,473,821	\$1,340,558
Congressional District 3	\$12,908,985	59.3	\$41,128,672	\$22,136,203	\$13,852,133	\$4,759,987	213.3	\$1,960,042	\$962,191	\$514,485
Congressional District 6	\$1,698,832	10.9	\$5,623,883	\$3,079,348	\$1,971,471	\$666,437	31.8	\$272,660	\$129,770	\$73,945
Congressional District 7	\$1,055,436	3.8	\$3,232,693	\$1,534,666	\$998,052	\$335,974	15.9	\$135,887	\$76,734	\$39,335
Congressional District 11	\$635,689	3.3	\$1,982,852	\$1,012,418	\$650,211	\$223,406	10.6	\$89,644	\$46,750	\$25,334
Congressional District 15	\$2,820,061	14.5	\$8,795,455	\$4,490,944	\$2,884,269	\$991,003	47.0	\$397,649	\$207,379	\$112,378
Minnesota (MN)										
Congressional District 2	\$1,777,245	11.0	\$6,231,161	\$3,304,072	\$2,100,396	\$761,670	34.5	\$292,558	\$140,934	\$80,218
Congressional District 3	\$1,509,375	6.8	\$5,242,262	\$2,595,099	\$1,650,008	\$604,213	27.0	\$229,782	\$118,952	\$64,612
Congressional District 5	\$5,505,404	18.0	\$18,266,218	\$9,667,291	\$5,886,819	\$2,177,739	88.2	\$855,987	\$421,154	\$217,396
Congressional District 7	\$2,193,018	5.4	\$6,567,139	\$2,868,149	\$1,889,118	\$662,163	29.9	\$253,959	\$157,211	\$76,659
Missouri (MO)										
Congressional District 1	\$6,129,936	21.4	\$19,837,097	\$9,168,608	\$5,914,083	\$2,086,838	95.1	\$811,831	\$461,470	\$235,953
Congressional District 2	\$1,600,148	7.5	\$5,636,760	\$2,778,202	\$1,760,544	\$634,140	28.8	\$245,995	\$127,285	\$68,933
Congressional District 3	\$2,881,365	9.6	\$9,667,880	\$5,029,655	\$3,060,112	\$1,108,573	45.7	\$445,349	\$222,025	\$113,459
Congressional District 4	\$398,405	1.9	\$1,403,441	\$691,717	\$438,340	\$157,888	7.2	\$61,248	\$31,691	\$17,163
Congressional District 5	\$210,642	0.5	\$631,027	\$272,202	\$179,049	\$61,776	2.8	\$24,102	\$15,104	\$7,292
Congressional District 8	\$916,912	4.3	\$3,229,959	\$1,591,956	\$1,008,822	\$363,373	16.5	\$140,959	\$72,936	\$39,500
Congressional District 9	\$99,582	0.5	\$350,792	\$172,896	\$109,564	\$39,464	1.8	\$15,309	\$7,921	\$4,290
Mississippi (MS)										
Congressional District 2	\$831,583	5.4	\$2,877,885	\$1,558,363	\$991,971	\$343,356	16.1	\$137,985	\$65,383	\$37,410

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Montana (MT)										
Congressional District 1	\$1,653,763	5.5	\$5,003,694	\$2,689,437	\$1,639,608	\$571,870	23.9	\$238,135	\$119,318	\$59,987
North Carolina (NC)										
Congressional District 3	\$1,102,635	6.2	\$3,829,068	\$1,985,749	\$1,261,965	\$441,418	20.6	\$175,827	\$86,890	\$48,396
Congressional District 6	\$276,758	1.4	\$903,301	\$453,824	\$289,340	\$102,561	4.8	\$40,184	\$20,949	\$11,367
Congressional District 7	\$24,992	0.1	\$86,208	\$42,865	\$27,222	\$9,610	0.4	\$3,795	\$1,961	\$1,062
Congressional District 10	\$2,450	0.0	\$8,557	\$4,590	\$2,918	\$1,013	0.0	\$406	\$194	\$110
Congressional District 12	\$79,693	0.4	\$274,896	\$136,685	\$86,803	\$30,645	1.4	\$12,103	\$6,252	\$3,388
Congressional District 13	\$233	0.0	\$805	\$400	\$254	\$90	0.0	\$35	\$18	\$10
New Hampshire (NH)										
Congressional District 1	\$22,605,908	84.5	\$74,612,624	\$42,155,602	\$25,981,510	\$8,817,744	386.8	\$3,732,653	\$1,723,496	\$928,611
Congressional District 2	\$4,668,682	20.0	\$14,236,952	\$6,931,584	\$4,468,192	\$1,522,092	71.8	\$613,755	\$338,497	\$176,087
New Jersey (NJ)										
Congressional District 3	\$547	0.0	\$1,953	\$973	\$617	\$219	0.0	\$86	\$44	\$24
Congressional District 4	\$37,789	0.2	\$134,971	\$67,229	\$42,612	\$15,162	0.7	\$5,953	\$3,034	\$1,654
Congressional District 5	\$96,673	0.5	\$345,286	\$171,986	\$109,012	\$38,787	1.8	\$15,228	\$7,760	\$4,232
Congressional District 8	\$3,023,219	9.9	\$10,214,960	\$5,380,607	\$3,271,522	\$1,177,621	48.7	\$476,424	\$234,014	\$120,274
Congressional District 9	\$27,845,355	91.2	\$94,070,854	\$49,503,350	\$30,113,493	\$10,837,335	448.1	\$4,383,257	\$2,155,176	\$1,107,804
Congressional District 10	\$42,106	0.2	\$150,390	\$74,909	\$47,480	\$16,894	0.8	\$6,633	\$3,380	\$1,843
Congressional District 11	\$14,054,745	70.7	\$47,424,426	\$23,911,631	\$15,170,460	\$5,436,192	247.9	\$2,117,247	\$1,086,959	\$591,477
New Mexico (NM)										
Congressional District 1	\$32,021,392	103.2	\$99,654,965	\$54,149,267	\$33,003,219	\$11,517,197	482.0	\$4,794,628	\$2,351,541	\$1,198,299
Congressional District 2	\$61,442	0.2	\$169,655	\$74,384	\$49,133	\$16,584	0.8	\$6,586	\$4,191	\$1,997
New York (NY)										
Congressional District 1	\$309,610	1.5	\$1,011,118	\$508,945	\$323,505	\$111,647	5.2	\$45,064	\$23,445	\$12,587
Congressional District 2	\$38,345,762	157.9	\$118,097,135	\$62,697,469	\$38,721,504	\$13,371,285	584.7	\$5,551,526	\$2,797,526	\$1,442,461
Congressional District 3	\$1,009,926	4.9	\$3,227,552	\$1,632,136	\$1,038,887	\$359,188	16.9	\$144,517	\$75,423	\$40,521
Congressional District 4	\$5,022,490	31.2	\$16,435,956	\$8,868,256	\$5,650,382	\$1,918,296	91.1	\$785,237	\$380,818	\$213,626
Congressional District 18	\$12,238	0.1	\$39,967	\$20,117	\$12,787	\$4,413	0.2	\$1,781	\$927	\$498
Congressional District 19	\$124,902	0.6	\$407,902	\$205,317	\$130,507	\$45,040	2.1	\$18,180	\$9,458	\$5,078
Congressional District 20	\$516,737	2.4	\$1,687,548	\$849,425	\$539,926	\$186,339	8.7	\$75,212	\$39,129	\$21,007
Congressional District 22	\$3,478,468	11.6	\$10,715,876	\$5,739,021	\$3,501,470	\$1,219,506	51.5	\$508,160	\$253,816	\$128,560
Congressional District 24	\$1,934,584	10.3	\$6,073,728	\$3,127,860	\$1,993,857	\$688,374	32.4	\$276,955	\$142,859	\$77,487
Congressional District 25	\$3,108,701	17.0	\$9,746,053	\$5,060,184	\$3,226,454	\$1,112,288	52.4	\$448,052	\$229,354	\$125,023

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Congressional District 29	\$141,331	0.7	\$461,556	\$232,324	\$147,674	\$50,965	2.4	\$20,571	\$10,702	\$5,746
Ohio (OH)										
Congressional District 1	\$8,896	0.0	\$30,021	\$15,068	\$9,632	\$3,388	0.2	\$1,334	\$688	\$376
Congressional District 2	\$44,373	0.2	\$149,746	\$75,160	\$48,044	\$16,900	0.8	\$6,655	\$3,432	\$1,875
Congressional District 3	\$140,404	0.5	\$461,803	\$218,449	\$141,145	\$48,826	2.3	\$19,343	\$10,681	\$5,564
Congressional District 4	\$1,161,830	5.1	\$4,030,786	\$1,973,960	\$1,261,703	\$441,937	20.4	\$174,784	\$91,497	\$49,166
Congressional District 7	\$406,614,044	1,718.0	\$1,459,772,540	\$796,341,382	\$555,548,369	\$200,960,523	9,234.3	\$70,511,770	\$32,752,380	\$20,471,189
Congressional District 8	\$16,972,633	54.8	\$56,133,175	\$29,335,086	\$17,957,993	\$6,426,531	267.6	\$2,597,465	\$1,295,701	\$663,349
Congressional District 9	\$130,117	0.8	\$466,610	\$250,526	\$159,627	\$55,298	2.6	\$22,183	\$10,473	\$6,005
Congressional District 10	\$2,369,139	12.2	\$7,995,161	\$4,012,876	\$2,565,129	\$902,319	42.0	\$355,319	\$183,239	\$100,096
Congressional District 11	\$23,437,911	78.2	\$78,105,620	\$41,061,929	\$25,100,945	\$9,000,036	374.9	\$3,635,814	\$1,798,044	\$925,690
Congressional District 12	\$90,237	0.2	\$273,988	\$118,981	\$78,657	\$26,421	1.2	\$10,535	\$6,525	\$3,172
Congressional District 13	\$2,122,860	13.7	\$7,612,768	\$4,087,343	\$2,604,322	\$902,190	42.3	\$361,912	\$170,869	\$97,964
Congressional District 14	\$28,384,071	144.8	\$96,234,188	\$48,249,692	\$30,830,153	\$10,845,416	504.9	\$4,272,252	\$2,201,981	\$1,202,393
Congressional District 16	\$97,134	0.5	\$327,799	\$164,527	\$105,170	\$36,995	1.7	\$14,568	\$7,513	\$4,104
Congressional District 17	\$3,314,060	11.3	\$11,046,123	\$5,827,459	\$3,562,277	\$1,276,362	53.2	\$515,990	\$254,271	\$131,170
Oklahoma (OK)										
Congressional District 2	\$501,083	1.2	\$1,432,049	\$627,690	\$413,875	\$143,188	6.5	\$55,579	\$34,902	\$16,804
Congressional District 3	\$1,573,116	7.4	\$5,317,617	\$2,667,921	\$1,694,264	\$605,989	27.5	\$236,230	\$121,802	\$65,929
Congressional District 4	\$1,629,000	6.9	\$5,646,621	\$3,113,779	\$2,173,196	\$785,944	35.9	\$275,708	\$128,214	\$79,821
Congressional District 5	\$103,628	0.5	\$350,294	\$175,747	\$111,608	\$39,919	1.8	\$15,561	\$8,024	\$4,343
Oregon (OR)										
Congressional District 1	\$85,777	0.2	\$242,891	\$106,082	\$70,082	\$24,022	1.1	\$9,393	\$5,941	\$2,851
Congressional District 3	\$7,320,034	35.6	\$23,015,573	\$11,739,556	\$7,438,796	\$2,669,653	120.2	\$1,039,475	\$541,050	\$289,701
Congressional District 4	\$985,692	5.1	\$3,096,222	\$1,566,638	\$1,000,069	\$359,111	16.4	\$138,717	\$72,812	\$39,353
Pennsylvania (PA)										
Congressional District 3	\$32,324	0.2	\$116,320	\$62,535	\$39,793	\$13,870	0.6	\$5,537	\$2,608	\$1,498
Congressional District 4	\$108,704	0.5	\$386,407	\$192,814	\$122,537	\$43,371	2.0	\$17,073	\$8,699	\$4,754
Congressional District 6	\$4,079	0.0	\$14,499	\$7,235	\$4,598	\$1,627	0.1	\$641	\$326	\$178
Congressional District 7	\$1,628,479	10.0	\$5,848,278	\$3,106,917	\$1,976,669	\$690,621	32.2	\$275,101	\$131,201	\$74,768
Congressional District 8	\$2,278,598	9.2	\$7,123,678	\$3,343,674	\$2,167,853	\$740,245	34.5	\$296,064	\$167,814	\$85,610
Congressional District 11	\$1,220,465	6.3	\$4,125,404	\$2,074,910	\$1,324,563	\$469,265	21.8	\$183,722	\$94,495	\$51,735
Congressional District 12	\$879,904	5.7	\$2,809,151	\$1,442,430	\$914,487	\$315,650	14.7	\$127,719	\$65,670	\$35,283

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Congressional District 13	\$2,337,020	12.0	\$7,899,571	\$3,973,162	\$2,536,353	\$898,577	41.7	\$351,802	\$180,945	\$99,065
Congressional District 16	\$5,831,092	17.1	\$20,556,689	\$11,743,933	\$7,156,525	\$2,523,088	105.2	\$1,039,862	\$464,074	\$251,612
Congressional District 17	\$718,209	3.4	\$2,552,994	\$1,273,925	\$809,605	\$286,554	13.2	\$112,799	\$57,473	\$31,411
Congressional District 18	\$27,749	0.1	\$98,639	\$49,220	\$31,281	\$11,072	0.5	\$4,358	\$2,221	\$1,214
Rhode Island (RI)										
Congressional District 1	\$86,137	0.2	\$242,565	\$106,101	\$70,238	\$23,181	1.1	\$9,395	\$5,946	\$2,843
South Carolina (SC)										
Congressional District 3	\$1,440,476	9.3	\$5,030,897	\$2,679,689	\$1,701,720	\$573,206	27.5	\$237,272	\$113,938	\$64,222
Congressional District 4	\$2,199,890	10.5	\$7,597,896	\$3,755,488	\$2,382,119	\$815,706	38.5	\$332,528	\$172,737	\$92,726
Congressional District 5	\$67,715	0.2	\$196,474	\$84,618	\$55,705	\$18,579	0.9	\$7,492	\$4,760	\$2,269
South Dakota (SD)										
Congressional District 1	\$31	0.0	\$99	\$50	\$32	\$11	0.0	\$4	\$2	\$1
Tennessee (TN)										
Congressional District 3	\$11,124	0.1	\$40,480	\$19,780	\$12,504	\$4,493	0.2	\$1,751	\$904	\$490
Congressional District 9	\$68,635	0.3	\$249,759	\$122,045	\$77,147	\$27,723	1.3	\$10,806	\$5,578	\$3,023
Texas (TX)										
Congressional District 3	\$2,476,405	7.3	\$7,840,478	\$3,527,723	\$2,289,049	\$818,367	36.7	\$312,361	\$183,846	\$92,135
Congressional District 4	\$63,744,847	213.9	\$218,314,700	\$113,895,283	\$69,295,776	\$25,596,851	1,043.5	\$10,084,818	\$4,977,827	\$2,571,300
Congressional District 5	\$709	0.0	\$2,554	\$1,263	\$799	\$293	0.0	\$112	\$57	\$31
Congressional District 6	\$15,507,087	72.8	\$55,844,306	\$27,614,649	\$17,459,287	\$6,406,762	286.4	\$2,445,129	\$1,251,653	\$682,542
Congressional District 7	\$4,030,572	20.8	\$13,739,292	\$6,854,982	\$4,351,307	\$1,604,776	72.0	\$606,972	\$313,784	\$171,377
Congressional District 10	\$330,080	1.5	\$1,188,689	\$587,799	\$371,634	\$136,373	6.1	\$52,046	\$26,642	\$14,528
Congressional District 11	\$267,996	1.3	\$965,111	\$477,241	\$301,734	\$110,723	4.9	\$42,257	\$21,631	\$11,796
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	\$286,898,328	\$148,225,732	\$79,449,159
Congressional District 16	\$11,544,605	54.2	\$41,574,596	\$20,558,368	\$12,997,972	\$4,769,662	213.2	\$1,820,333	\$931,822	\$508,134
Congressional District 17	\$12,507,418	56.9	\$42,282,555	\$20,478,348	\$13,034,644	\$4,718,943	211.6	\$1,813,248	\$968,471	\$513,112
Congressional District 19	\$1,188,170	3.5	\$3,761,252	\$1,692,113	\$1,098,008	\$392,539	17.6	\$149,828	\$88,200	\$44,197
Congressional District 20	\$36,511,600	89.7	\$110,901,557	\$48,166,788	\$31,573,795	\$11,173,343	500.8	\$4,264,911	\$2,640,696	\$1,284,925
Congressional District 23	\$88,513	0.4	\$318,753	\$157,622	\$99,656	\$36,569	1.6	\$13,957	\$7,144	\$3,896
Congressional District 24	\$8,586,947	46.8	\$31,114,210	\$15,889,668	\$10,052,398	\$3,663,533	164.7	\$1,406,945	\$695,934	\$387,759
Congressional District 25	\$203,142	0.5	\$617,030	\$267,989	\$175,669	\$62,166	2.8	\$23,729	\$14,692	\$7,149
Congressional District 26	\$19,477,799	91.4	\$70,143,730	\$34,685,619	\$21,929,887	\$8,047,267	359.7	\$3,071,226	\$1,572,149	\$857,312
Congressional District 28	\$537,000	2.3	\$2,002,331	\$1,078,030	\$745,390	\$277,587	12.5	\$95,454	\$44,363	\$27,652
Congressional District 30	\$549,538	2.6	\$1,979,004	\$978,604	\$618,720	\$227,042	10.1	\$86,650	\$44,356	\$24,188

**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	Federal Tax Revenues	State Tax Revenues	Local Tax Revenues
Congressional District 31	\$108,610	0.5	\$391,126	\$193,409	\$122,283	\$44,872	2.0	\$17,125	\$8,766	\$4,780
Congressional District 32	\$261,474	1.5	\$948,808	\$488,152	\$308,866	\$112,390	5.1	\$43,223	\$21,212	\$11,878
Utah (UT)										
Congressional District 1	\$118,498,542	492.6	\$411,654,439	\$223,808,916	\$155,679,818	\$55,726,750	2,565.4	\$19,817,082	\$9,340,121	\$5,735,953
Congressional District 2	\$757,434	3.6	\$2,583,463	\$1,289,435	\$818,109	\$289,646	13.3	\$114,173	\$58,990	\$31,815
Congressional District 3	\$1,770,364	4.7	\$5,227,766	\$2,310,524	\$1,516,497	\$517,639	23.8	\$204,585	\$125,815	\$61,160
Virginia (VA)										
Congressional District 5	\$206,205	1.0	\$728,339	\$360,247	\$228,208	\$80,655	3.7	\$31,898	\$16,432	\$8,888
Congressional District 9	\$32,355,427	106.1	\$107,849,628	\$56,391,558	\$34,240,242	\$12,288,563	507.7	\$4,993,171	\$2,482,553	\$1,263,254
Vermont (VT)										
Congressional District 1	\$13,297,345	36.7	\$36,929,336	\$17,479,508	\$11,244,383	\$3,710,723	170.6	\$1,547,717	\$910,231	\$439,814
Washington (WA)										
Congressional District 1	\$2,261,808	10.1	\$7,753,422	\$3,820,327	\$2,427,285	\$875,930	39.5	\$338,270	\$176,730	\$95,029
Congressional District 2	\$63,622	0.2	\$185,561	\$80,955	\$53,198	\$18,714	0.8	\$7,168	\$4,487	\$2,168
Congressional District 4	\$82,380	0.2	\$240,270	\$104,824	\$68,883	\$24,232	1.1	\$9,282	\$5,810	\$2,807
Congressional District 6	\$153,959	0.7	\$530,379	\$264,578	\$167,764	\$60,717	2.7	\$23,427	\$12,069	\$6,554
Congressional District 7	\$326,383	1.5	\$1,136,656	\$565,801	\$358,522	\$129,644	5.9	\$50,099	\$25,768	\$13,990
Congressional District 9	\$920,897	2.6	\$2,761,931	\$1,233,735	\$805,253	\$284,724	12.8	\$109,241	\$66,079	\$13,356
Wisconsin (WI)										
Congressional District 1	\$57	0.0	\$194	\$97	\$62	\$22	0.0	\$9	\$4	\$2
Congressional District 3	\$1,196,500	2.9	\$3,459,160	\$1,514,671	\$1,002,898	\$344,431	15.8	\$134,116	\$83,930	\$40,725
Congressional District 4	\$3,349,522	20.5	\$11,279,169	\$6,025,163	\$3,847,286	\$1,364,699	63.0	\$533,496	\$258,701	\$146,818
Wyoming (WY)										
Congressional District 1	\$463,838	1.1	\$1,187,601	\$520,261	\$345,307	\$112,396	5.3	\$46,066	\$30,254	\$14,091
District of Columbia (DC)										
Congressional District 1 (non-voting)	\$2,088,990	12.6	\$6,768,379	\$3,487,755	\$2,247,047	\$781,585	36.2	\$308,822	\$157,384	\$86,133
Rest of US (spillover effects)	\$0	0.0	\$2,218,618,056	\$751,738,156	\$427,440,892	\$117,309,396	7,270.2	\$66,562,393	\$33,017,008	\$17,578,518
Total US	\$4,577,073,208	23,407.3	\$17,495,968,426	\$8,673,070,148	\$5,472,023,105	\$1,918,303,813	87,664.2	\$767,953,968	\$384,512,569	\$209,193,215

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



CONCLUSION



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 project would also yield almost \$768.0 million in Federal tax revenues, as well as about \$593.7 million to various State and Local governments.
- **The Taiwan F-16 program represents a notable source of economic stimulus.**



APPENDIX: US Multi-Regional Impact Assessment System Explanation



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 associated fiscal (tax) effects also reflect the production processes and general tax structures of each state.
- 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 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 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.

