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## Final Report

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# Phase Two: The Economic Impact of Aerospace in Florida

## *-Florida Aerospace Inventory and Economic Analysis*

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## Executive Summary

This report represents the second phase of economic analysis of aerospace industries in Florida. In 2011, on behalf of Space Florida, the Florida State University Center for Economic Forecasting and Analysis (FSU CEFA) conducted an economic impact analysis of the aerospace industry. The framework for the economic analysis involved the usage of a two tiered approach. The first phase of the study provided relevant details for the Legislative meetings in January 2012. The second phase was more detailed in scope and helped provide a more comprehensive profile of Florida’s aerospace industry.

The Phase 2 Report highlights the following:

- Definition of aerospace industries, by 6-digit NAICS and 8-digit SIC codes.
- Datasets compilation and validation.
- Statistical analysis with results for: aerospace specific and Florida specific business, employees and sales
- Trend Analysis: Using 21 years of county-specific aerospace data in Florida.
- Economic Impact Analysis: using advanced economic models.

The economic modeling analysis was performed using Florida based aerospace-specific industries data for year 2010 (based on NETS: National Establishment Time Series). As shown in the following table, the model provided economic impact results, expressed as output (or sales/revenues), employment (or jobs), and income (or wages), in 2012 dollars.

**Table 1 Economic Impact Results of the Aerospace and Aviation-Related Industries in Florida, in Terms of Sales/Revenues, Jobs and Income**

Economic Impact of Aerospace and Aviation In Florida			
	Output*	Employment	Income*
<b>Aerospace &amp; Aviation in Florida</b>	\$17,749,917,450	111,242	\$6,713,179,866

\*February 2012 \$

Economic Impact of Aerospace and Aviation In Florida				
	Direct	Indirect	Induced	Total*
<b>Output</b>	\$8,139,670,730	\$4,427,489,373	\$5,182,757,347	\$17,749,917,450
<b>Jobs</b>	42,602	30,763	37,877	111,242
<b>Income</b>	\$3,444,529,532	\$1,605,119,084	\$1,663,531,250	\$6,713,179,866

## **Key Findings**

- Florida's aerospace-related investment will generate about \$17.8 billion in total output; \$ 8.2 billion in direct output (i.e., the value of goods and services produced), \$4.4 billion, and \$5.1 billion of indirect and induced output, respectively.
- There will be \$3.4 billion in direct income, \$1.6 billion and \$1.7 billion of indirect and induced income, respectively. In addition, 42,602 direct, 30,763 indirect (totaling 73,365), and 37,877 induced jobs, or a total of 111,242 aerospace and aviation jobs are generated across the Florida economy.

# ECONOMIC ANALYSIS OF AEROSPACE IN FLORIDA<sup>1</sup> - 2012



Florida has the aerospace services and marketplace edge like no other region in the world. This is due to its vast aerospace infrastructure and talent pool, aerospace-related target industries, and its geospatial position on the planet's surface.

	Total # of Aerospace-Related Companies (reported)	Total # of Aerospace Industries Employees (reported)	Total Aerospace Industries Sales/Revenues* (reported)		Total # of Aerospace-Related Companies (reported)	Total # of Aerospace Industries Employees (reported)	Total Aerospace Industries Sales/Revenues* (reported)
<b>FLORIDA TOTAL</b>	<b>3,891</b>	<b>74,332</b>	<b>\$9,163,193,758</b>	<b>FLORIDA TOTAL</b>	<b>3,891</b>	<b>74,332</b>	<b>\$9,163,193,758</b>
<b>Florida County</b>				<b>Florida County</b>			
Alachua	65	595	\$56,346,800	Lee	138	1,286	\$161,018,137
Baker	-	-	\$0	Leon	61	1,029	\$97,715,350
Bay	41	1,159	\$19,365,995	Levy	7	22	\$1,712,500
Bradford	1	4	\$0	Liberty	-	-	\$0
Brevard	150	3,058	\$292,065,694	Madison	1	2	\$166,700
Broward	484	5,397	\$1,262,301,575	Manatee	49	468	\$57,512,375
Calhoun	-	-	\$0	Marion	53	389	\$37,611,300
Charlotte	27	142	\$21,426,124	Martin	70	570	\$85,452,300
Citrus	21	91	\$8,744,400	Miami-Dade	551	7,181	\$1,053,891,822
Clay	19	220	\$28,625,197	Monroe	12	59	\$11,100,500
Collier	73	537	\$79,134,881	Nassau	15	80	\$13,800,090
Columbia	8	45	\$8,460,512	Okaloosa	39	16,490	\$35,604,439
DeSoto	5	256	\$65,291,500	Okeechobee	7	67	\$12,967,022
Dixie	-	-	\$0	Orange	276	7,096	\$1,340,189,994
Duval	193	5,160	\$440,336,978	Osceola	28	995	\$55,614,100
Escambia	62	825	\$103,222,843	Palm Beach	322	4,447	\$969,848,683
Flagler	13	74	\$9,199,500	Pasco	63	892	\$117,114,918
Franklin	-	-	\$0	Pinellas	204	4,176	\$640,205,460
Gadsden	3	156	\$15,463,900	Polk	73	812	\$82,749,149
Gilchrist	-	-	\$0	Putnam	6	23	\$3,966,900
Glades	1	3	\$150,000	Saint Johns	34	1,321	\$260,552,786
Gulf	2	3	\$193,000	Saint Lucie	39	526	\$78,373,402
Hamilton	1	6	\$343,500	Santa Rosa	14	112	\$8,594,324
Hardee	2	157	\$320,300	Sarasota	97	1,069	\$114,591,594
Hendry	1	1	\$50,000	Seminole	97	936	\$108,482,949
Hernando	24	90	\$7,068,400	Sumter	13	70	\$10,242,172
Highlands	5	45	\$3,008,700	Suwannee	1	4	\$0
Hillsborough	259	4,528	\$1,200,403,911	Taylor	1	4	\$106,700
Holmes	2	11	\$1,069,000	Union	-	-	\$0
Indian River	30	224	\$24,175,900	Volusia	68	1,023	\$115,062,693
Jackson	5	48	\$2,143,900	Wakulla	1	1	\$90,000
Jefferson	-	-	\$0	Walton	9	84	\$7,557,454
Lafayette	-	-	\$0	Washington	3	8	\$522,100
Lake	42	255	\$31,863,335				

<sup>1</sup>: The Preliminary 2012 Economic Analysis Results based on 2010 NETS data (at 8 digit SIC/NAICS level of detail) and compiled by The Florida State University Center for Economic Forecasting and Analysis (FSU CEFA)

\*The total aerospace industries sales and revenues for Florida counties are displayed in \$2010.

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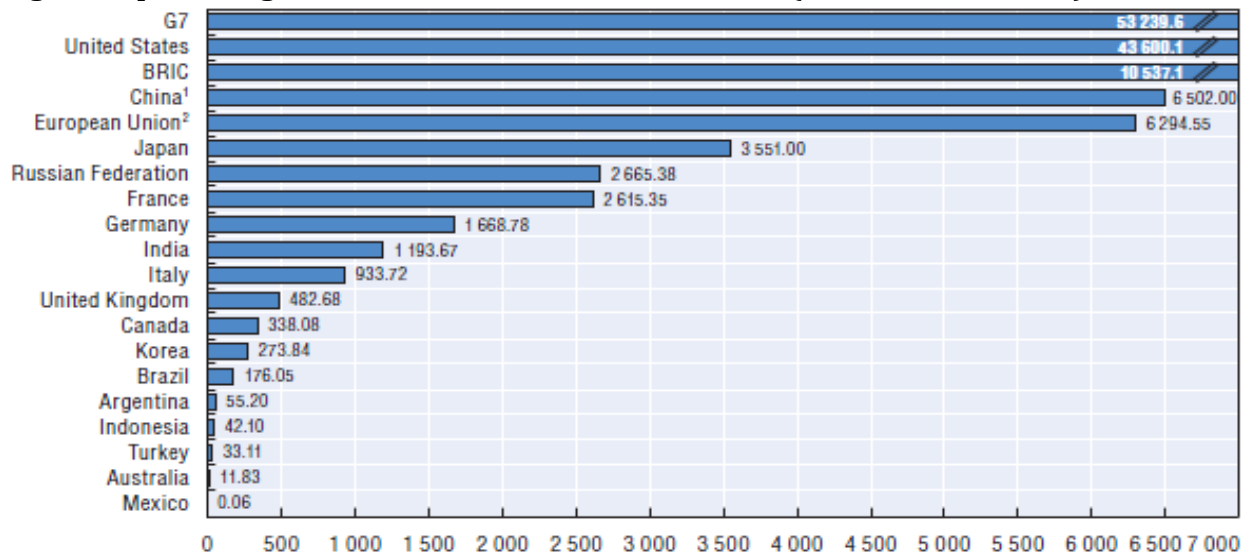
## I. Introduction

### Background

The aerospace economy in Florida and throughout the US has shifted from a traditional federal (government) funding program, towards commercialization. The advancement of the US as a revitalized worldwide leader in space exploration performing earth-benefiting research, technology advancement and operating new space-ports, is heavily dependent upon making commercial space travel a reality. The 'new' space program has finally driven home the message that it's not just about the 7 astronauts who fly on board the International Space Station, but the 7 billion or so who inhabit planet earth. Competition has become ubiquitous, space flights are scarce! Florida, Virginia, New Mexico, other US states, and indeed other countries, all seek their share of a competitive and mixed market. That market encompasses suborbital and orbital activities, space tourism, orbital research and habitable space stations, production of advanced materials as well as the development of traffic at commercial space-ports. All of the above are globally competitive. However, researchers, visionaries and realists are saying; "it's time to fly"!

Public and private entities have responded and are investing. Elon Musk (Space-X & PayPal), Bezos (Blue Origin & Amazon), Allen (StratoLaunch & Microsoft), Branson (Virgin & Virgin Galactic), and Bigelow (Bigelow Aerospace & Budget Suites), are investing heavily and making their mark. Others are in hot pursuit. Although the budget for NASA's 2012 space operations has been cut by nearly \$2 billion, many corporations such as Boeing and Lockheed Martin continue to allocate a large portion of their R&D efforts towards continued development of the aerospace industry and more specifically, that of future commercial space flight.

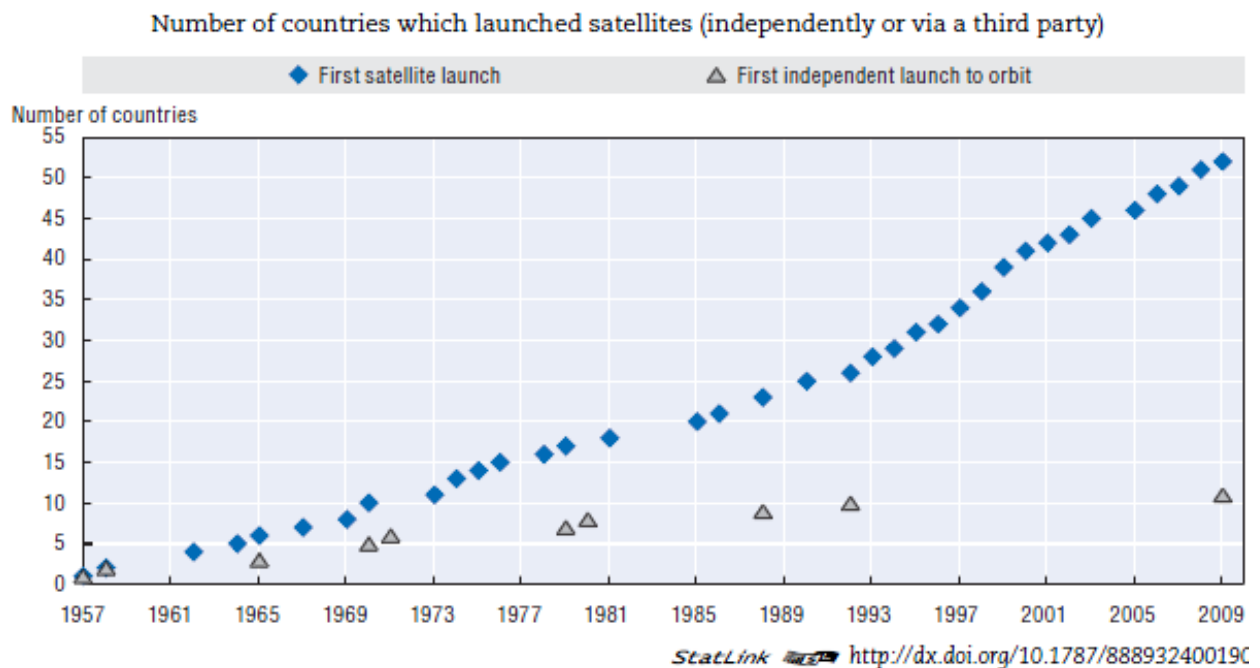
**Figure 1 Space Budgets of G20 countries Estimates in 2010(Current US \$ Million)**



Source: OECD (2011), The Space Economy at a Glance 2011, p. 25, Figure 1.4

The aerospace sector plays an important role in the national economy; however, the aerospace sector has high overhead costs. Historically, the government has provided considerable financial support for aerospace R&D. On a global scale, many countries are currently directing investment to bolstering their aerospace industries. According to the OECD (2011), the total space budget of the 35 countries examined in the report represented ~US \$ 64.4 billion in 2009 and an estimated US \$ 65.3 billion in 2010. All G20 countries currently have space programs. Five countries, which include the United States, China, Japan, France and the Russian Federation have invested more than US \$ 2 billion in both 2009 and 2010<sup>1</sup>, as shown in Figure 1. According to the OECD (2011), until early 2011, more than 50 countries have launched satellites while at least ten other countries intend to have their first satellites in orbit over the next five years. Figure 2 shows the number of countries which launched satellites from 1957 to 2010.

**Figure 2 Countries with Spaceflight Capabilities in 2010**



Source: OECD(2011), The Space Economy at a Glance 2011, p. 20, Figure 1.1

Socio-politically speaking, the aerospace industry was one of the defining industries of the twentieth century. Aerospace has sparked the imaginations of youth (and the older generations) around the world, inspired new schools of industrial design, increased nation's self-confidence, and shrunk the effective size of the globe. As an economic phenomenon, aerospace has consumed a substantial portion of research and development funding across many fields, subsidized innovation

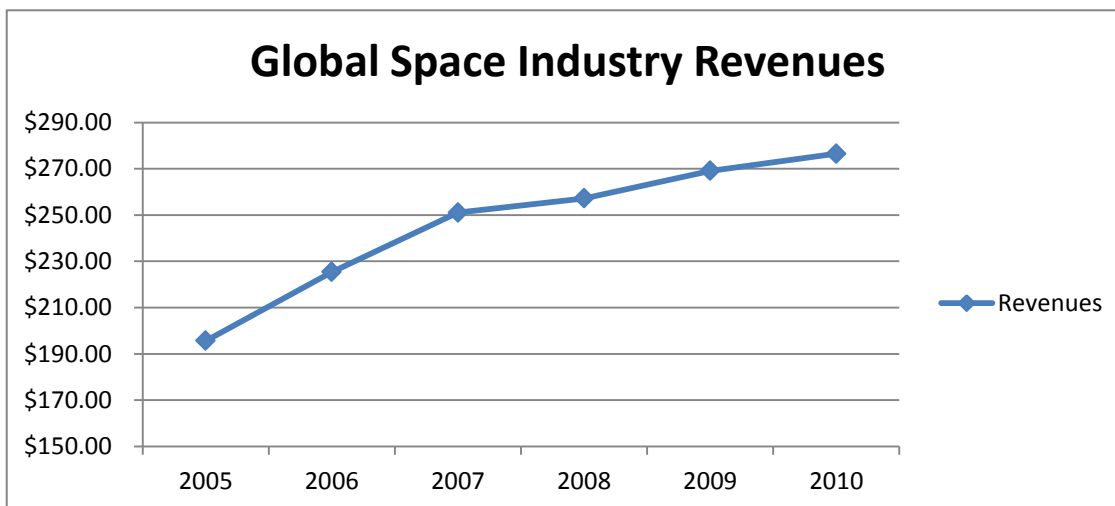
<sup>1</sup> OECD (2011), The Space Economy at a Glance, 2011

in a vast array of component technologies, evoked new forms of production, spurred construction of large manufacturing complexes, inspired technology-sensitive managerial techniques, supported dependent regional economies and fostered global trade.

As reported in the Space Report (2011), the space economy increased by 7.7% in 2010 from 2008, accelerating from annual growth rates of approximately 5% that were observed in 2008 and 2009. As shown in Table 1, the space economy increased by nearly \$20 billion during 2008-2010 and reached an estimated total of \$276.52 billion.

**Table 2 Global Space Industry Revenues from Years 2005 to 2010**

Year	Revenues	Growth rate
2005	\$195.64 B	n/a
2006	\$225.41 B	15%
2007	\$251.04 B	11%
2008	\$257.22 B	2%
2009	\$269.08 B	5%
2010	\$276.52 B	3%

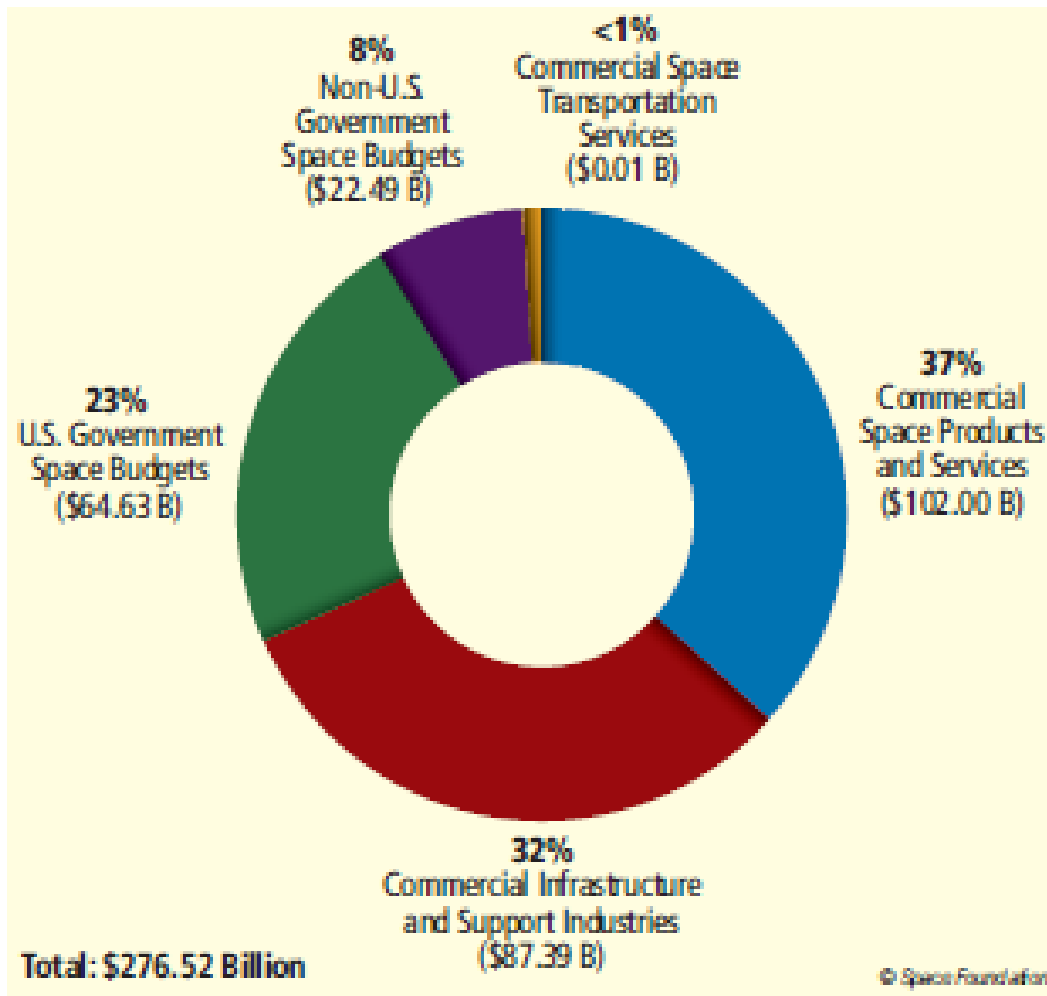


Source: The Space Report 2009, 2011

In 2010, the commercial space products and services market expanded in revenue for a total of 37%, or \$102 billion. Revenue from commercial infrastructure and support industries reached a total of 32%, or \$87.39 billion. Government space spending totaled 31%. Among them, the U.S. space budget, which accounted for 74% of all worldwide governmental space spending, decreased

by 23%, or \$64.63 billion. Meanwhile, and as shown in Figure 3, the budgets of other governments were increased to a total of 8%.

**Figure 3 Global Space Activity in 2010**



Source: The Space Report 2011

In manufacturing, the U.S. has had a balance of trade deficit in many years for almost every industry except one – Aerospace! The U.S. aerospace manufacturing industry showed solid signs of improvement in the second quarter of 2010. Most telling, sales were up from the previous quarter by 7.1%, as well as year-over-year increase of 1.1%. Orders were up by 27.1% over the previous year, signaling renewed confidence in a global economic recovery and higher demand for aerospace/aircraft. As domestic defense spending slows over the next few years, military aircraft

exports will play a more important role for the U.S. aerospace industry<sup>2</sup>. However, Florida had experienced slight negative growth in terms of aerospace manufacturing, from year 2000 to 2007, of -13.5%, while Arkansas growth has more than tripled in the same time period!<sup>3</sup>

**Figure 4 Aerospace Economic Indicators**

Economic Indicators	Quarterly Change			Year-Over-Year Change		Year-End Totals		Annual Change
	2Q 2010	1Q 2010	1Q10 to 2Q10	2Q 2009	2Q09 to 2Q10	2008	2009	2008 to 2009
<i>Values in billions of dollars</i>								
Aerospace Sales	\$60.24	\$56.25	7.1%	\$59.56	1.1%	\$241.56	\$238.57	-1.2%
Profits	\$4.52	\$3.44	31.3%	\$4.25	6.3%	\$15.53	\$16.20	4.3%
Orders	\$46.68	\$48.48	-3.7%	\$36.74	27.1%	\$247.35	\$163.53	-33.9%
Exports: Total	\$18.91	\$18.31	3.3%	\$20.63	-8.3%	\$94.93	\$81.17	-14.5%
Exports: Civil	\$16.66	\$15.72	5.9%	\$18.20	-8.5%	\$82.13	\$70.50	-14.2%
Exports: Military	\$2.26	\$2.59	-12.9%	\$2.43	-7.2%	\$12.80	\$10.67	-16.7%
Trade Balance	\$12.57	\$11.93	5.3%	\$14.01	-10.3%	\$57.42	\$56.03	-2.4%
Employment (in thousands)	622.8	625.5	-0.4%	648.1	-3.9%	659.8	644.2	-2.4%

Source: U.S. Department of Commerce, U.S. Bureau of Labor Statistics, and U.S. Census Bureau, *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations and Manufacturers' Shipments, Inventories, and Orders*.

In the U.S., the Department of Defense (DoD) and the National Aeronautics and Space Administration (NASA) are the two primary consumers of aerospace technology and products.

**Table 3 U.S. Government Agency Space Budgets in 2009**

Agency	Budget	Stimulus
Department of Defense (DoD)	\$26.53 B	-
National Reconnaissance Office (NRO)	\$15.00 B	-
National Geospatial-Intelligence Agency (NGA)	\$2.00 B	-
National Aeronautics and Space Administration (NASA)	\$17.78 B	\$1.00 B
National Oceanic and Atmospheric Administration (NOAA)	\$1.18 B	\$0.07 B
Department of Energy (DOE)	\$0.04 B	-
Federal Aviation Administration (FAA)	\$0.01 B	-
National Science Foundation (NSF)	\$0.65 B	\$0.15 B
<b>Total</b>	<b>\$63.19 B</b>	<b>\$1.23 B</b>
<b>Combined Total</b>	<b>\$64.42B</b>	

Source: Space Foundation (2011), Introduction to Space Activities

<sup>2</sup>Aerospace Industry Association reports Aerospace Economic Indicators, which originate from the *Quarterly Financial Report* (QFR), while the QFR surveys categorize data according to the North American Industry Classification System (NAICS).

[http://www.aia-aerospace.org/resource\\_center/economics/economic\\_indicators](http://www.aia-aerospace.org/resource_center/economics/economic_indicators).

<sup>3</sup> Aerospace Economic Report and Outlook for 2010, by Embry Riddle Aeronautical University



From the *NASA Fiscal Year 2011 Budget Estimates*, there has been an increase of \$6.0 billion in funds over five years, ranging from \$19.0 billion to \$20.99 billion in fiscal year(s) 2011-2015, respectively, totaling \$100 billion over five years (See Table 2). Florida, with \$41.7 billion, is ranked fourth in projected 2010 direct and indirect defense spending behind California, Texas and Virginia.

**Table 4 The NASA Current Projected Budget in 2010, for Years 2011 – 2015**

Budget Authority (\$M)	FY 2009	ARRA	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Science	4,503	400	4,493	5,006	5,429	5,710	5,710	5,814
Aeronautics and Space Research and Technology	500	150	507	1,152	1,597	1,650	1,659	1,818
Exploration	3,506	400	3,780	4,263	4,577	4,719	4,923	5,179
Space Operations	5,765		6,181	4,888	4,290	4,253	4,363	4,131
Education	169		184	146	146	146	146	147
Cross-Agency Support	3,306	50	3,095	3,111	3,190	3,277	3,367	3,462
Construction and Environ. Compliance and Restor			448	397	364	367	394	399
Inspector General	34	2	36	37	38	39	40	41
NASA FY 2010	17,782	1,002	18,724	19,000	19,450	19,960	20,600	20,990
Year to Year Change (%)			5.3	1.5	2.4	2.6	3.2	1.9

Source: <http://www.nasa.gov/news/budget/2011.html>

The current economic outlook in regards to the space industry in the United States looks to be somewhat of a dynamic process, at least in terms of federal funding/investment in aerospace. While there are two main corporations designing and developing for the near term commercialization of space (i.e., SpaceX has a \$1.6 billion contract for 12 cargo flights to the International Space Station (ISS), and Orbital Sciences Corp., has a \$1.9 billion contract for eight supply hauls; both with NASA), when involving human space flight, there are nearly insurmountable regulatory requirements that make space flight a very costly activity. However, under NASA’s commercial crew development program proposed to be launched by year 2014, there are currently five companies competing on creating a Space Florida program<sup>4</sup>. Originally, the Obama administration requested \$6 billion set

<sup>4</sup> Companies are: Sierra Nevada (Dream Chaser), Amazon (Blue Origin), Boeing/Bigelow Aerospace, Paragon Space Development Corp., and United Launch Alliance (currently builds the Atlas and Delta rockets).

aside for commercial space flight in NASA's budget over the next five years. In October, 2010, the amount was diminished and then, in February 2011, all of the \$6 billion proposed funding request was halted. Currently, funding to NASA will remain at the current year 2010 level of \$18.7 billion<sup>5</sup>. The reduced funding is projected to slow rocket development, quite possibly delaying the heavy lift rocket initial launch date of year 2016. NASA would receive about \$850 million to assist private rocket companies create a rocket to travel to and from the ISS. The two areas of NASA's budget that actually increased were for the ISS (\$2.8 billion, up \$500 million from year 2010), and Earth Science (\$1.8 billion; more than \$300 million from year 2010) for research on climate change and planetary science, among other areas.

There are few studies that have conducted economic impact analysis primarily of the aerospace sector (i.e., not including aviation). One recent study (November 2010) examined Virginia's Aerospace Industry. The authors found that the aerospace industry in Virginia supports about 28,110 jobs, and contributed a total of \$7.6 billion (in \$2009) annually to the state economy. The direct economic output was \$4.3 billion, and 9,029 workers. The study also found that, in 2009, the average wage for the aerospace industry was \$99,385 (compared to \$48,334 for all industries in Virginia).

An economic impact analysis study was conducted in 2009, by Deloitte Consulting, of the aerospace industry in Washington. The authors found that the aerospace contributed \$36 billion to the Washington economy. In addition, the aerospace industry employed a total of 209,300 workers, earning \$5.4 billion. The average wage (in \$2009) of an aerospace employee in Washington was \$83,370.

An economic impact analysis study of NASA was conducted in Florida in 2008. The authors found that the economic impact of NASA in the state was \$4.1 billion in output, 40,802 jobs and \$2.1 billion in income. The majority of the economic impact activity was in Central Florida. The average wage of an aerospace employee was found to be: \$77,235 (in FY \$2008). The Kennedy Space Center (KSC), in conjunction with NASA, plays a dominant role in the state's economy where it employs 14,865 workers with an average salary of \$77,235. In 2008, the payroll for all KSC/NASA workers totaled \$1.124 billion, with an estimated economic impact of \$4.1 billion in output and 40,802 jobs. In addition, \$246 million of federal taxes and \$103 million of state and local taxes were paid. At the KSC Visitor Center, \$39 million in wages was generated from 1.6 million out-of-state visitors, in addition to \$5.8 million from travel and lodging expenses. It is important to note that almost the entire economic activity resulting from the KSC/NASA workers was experienced locally, in the seven county Central Florida region. If the KSC is closed, 23,000 total jobs (or 9,000 direct jobs), and an estimated \$1.96 billion in outside monetary injection to Florida's economy will be lost

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<sup>5</sup> Currently in the Obama Administration proposed budget; it might be reduced further based on discussions/debates still in Congress that are focusing on the funding period between March 4 (when federal gov't funding expires) and Sept 30 (when the federal fiscal year ends).

at a time when Florida is committed to maintaining its status as a primary hub for the space industry.<sup>6</sup>

Enterprise Florida Inc. (EFI), a public-private partnership serving as Florida’s primary organization devoted to statewide economic development, included a definition of Florida’s aviation & aerospace industry by counting nearly 2,000 aviation and aerospace companies which employ approximately 83,800 workers with a total payroll of more than \$4.8 billion and an average wage of approximately \$57,021<sup>7</sup>. EFI also examined the quality of life issues that attract aerospace companies to Florida including; the state's excellent education, infrastructure and business development in Space and Aeronautics and its optimal geographic location and climate conditions.

From their summary data chart and an interactive map, it indicates that the majority of space-related businesses are located in or nearby the Cape Canaveral area, but their network of suppliers extends throughout the state. The more than 400 aerospace companies in Florida employ more than 31,000 workers. In addition, the state is host to nearly a third of all commercial space activity worldwide. Almost every major aerospace company and defense contractor from the U.S. and abroad has operations in Florida. The EFI obtains employment data for the specifics of the aerospace industry in Florida, from the Florida Agency for Workforce Innovation (AWI). As portrayed in the following Table, a current “point in time” analysis (based on 2009 data, and generated on January 28, 2011) by the AWI (now “DEO”) found that there are 456 aerospace companies, employing 31,295 employees, with a total payroll of \$2.3 billion. The annual average wage of an aerospace employee was \$74,901.<sup>8</sup>

**Table 5 Employment, Income and Average Wage for the Aerospace Industry in Florida, 2009**

Industry Title	NAICS Code	Companies	Employees	Average Number of Workers	Total Payroll	Average Annual Wage
<b>Aerospace Total</b>		<b>456</b>	<b>31,295</b>	<b>69</b>	<b>\$2,343,993,031</b>	<b>\$74,901</b>
Search, detection, and navigation instruments	334511	69	9,179	133	\$653,395,518	\$71,184
Aerospace product and parts manufacturing	3364	253	19,326	76	\$1,432,507,722	\$74,123
Aircraft manufacturing	336411	65	3,830	59	\$255,760,029	\$66,772
Aircraft engine and engine parts mfg.	336412	70	3,935	56	\$262,060,872	\$66,596
Other aircraft parts and equipment	336413	66	3,296	50	\$167,813,859	\$50,917
Guided missile and space vehicle mfg.	336414	41	6,751	165	\$645,134,804	\$95,566
Space vehicle propulsion units and parts; and other guided missile and space vehicle parts mfg.	336415 & 336419	11	n/a	n/a	n/a	n/a
Satellite telecommunications	517410	119	553	5	\$40,774,318	\$73,744
Space research and technology	927110	15	2,237	149	\$217,315,473	\$97,157

Source: Florida Agency for Workforce Innovation, Labor Market Statistics Center, Quarterly Census of Employment and Wages Program. Prepared January 28, 2011.

<sup>6</sup> Economic Impact of NASA in Florida FY 2008 and <http://www.ketknbc.com/news/economy/23000-now-expected-lose-jobs-after-shuttle-retirement>

<sup>7</sup> Enterprise Florida estimates based on U.S. Department of Labor, BLS data. [View summary data chart. http://www.eflorida.com/Aviation\\_Aerospace.aspx?id=306.](http://www.eflorida.com/Aviation_Aerospace.aspx?id=306)

<sup>8</sup> Florida Agency for Workforce Innovation. Data generated for FSU CEFA on January 28, 2011.

According to the latest DEO report, there was a difference in methodology regarding the previous system of coding for aerospace related industries and occupations. Prior to 2010, NAICS industry codes were used for classification, however, around year 2010, the use of NAICS codes for aerospace was changed to reflect SOCS codes (Standard Occupational Coding System) to provide definition to the aerospace sector in Florida. The results can be seen in the table below:

**Table 6 Employment, Income and Average Wage for the Aerospace Industry in Florida, 2011**

Top Occupations in the Aerospace Industry							
Florida Statewide Occupation Title	Employment		Annual Change		% of Industry Total	2011 Average Wage	Training Requirement
	2011	2019	Total	Percent			
<b>Total, All Occupations</b>	34,650	36,729	260	0.75			
Aircraft Structure, Surfaces, and Systems Assemblers	2,092	2,477	48	2.30	6.04	20.50	Postsecondary Vocational
Electrical and Electronic Equipment Assemblers	1,652	1,655	0	0.02	4.77	14.32	Postsecondary Vocational
Industrial Engineers	1,635	1,903	34	2.05	4.72	33.27	Bachelor's Degree
Aerospace Engineers	1,520	1,584	8	0.53	4.39	43.91	Bachelor's Degree
Inspectors, Testers, Sorters, Samplers, and Weighers	1,450	1,535	11	0.73	4.18	15.82	High School
Team Assemblers	1,136	1,160	3	0.26	3.28	12.75	High School
Aircraft Mechanics and Service Technicians	968	1,049	10	1.05	2.79	22.56	Postsecondary Vocational
Machinists	915	974	7	0.81	2.64	18.14	Postsecondary Vocational
Mechanical Engineers	801	874	9	1.14	2.31	37.07	Bachelor's Degree
Electrical and Electronic Engineering Technicians	792	806	2	0.22	2.29	25.49	Associate's Degree
First-Line Superv. of Production and Operating Workers	706	730	3	0.42	2.04	26.93	Postsecondary Vocational
Sales Representatives, Wholesale & Mfg, Tech. & Sci. Products	625	591	-4	-0.68	1.80	41.77	Postsecondary Vocational
Purchasing Agents, Except Farm Products & Trade	567	633	8	1.46	1.64	26.87	Associate's Degree
Helpers--Production Workers	545	570	3	0.57	1.57	11.50	Less Than High School
Accountants and Auditors	544	575	4	0.71	1.57	31.06	Bachelor's Degree

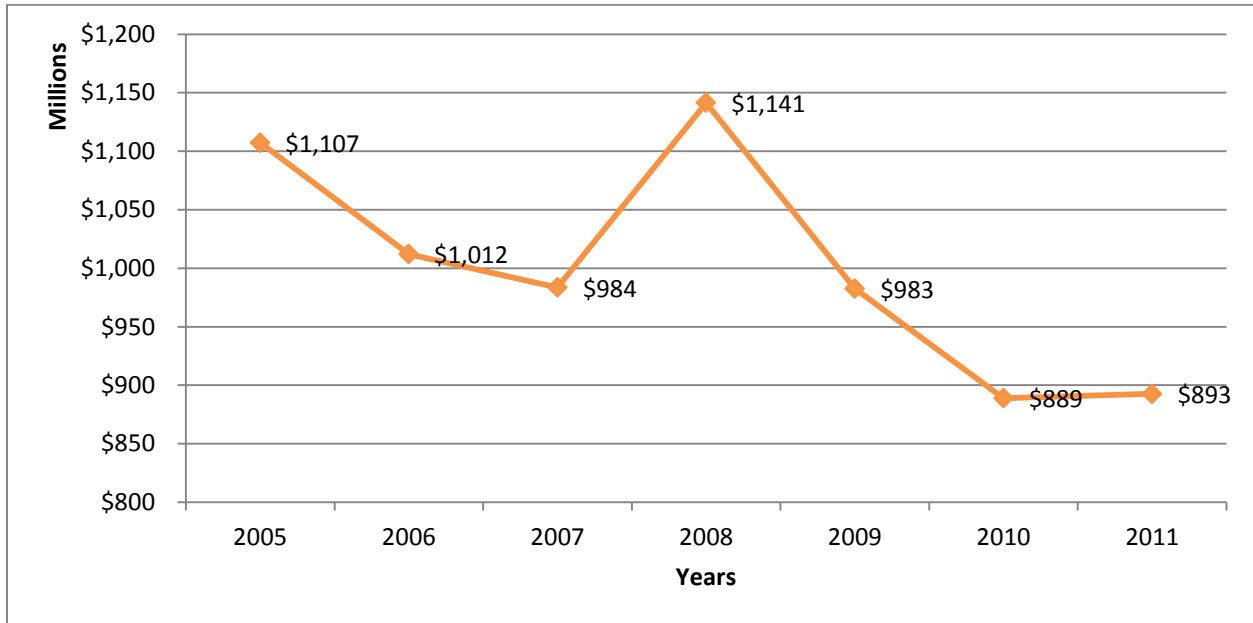
Source: Florida Department of Economic Opportunity, Labor Market Statistics Center, Long Term Projections Program, forecast to 2019. Projections to the year 2019 assume economic recovery.

In the Space Foundation’s Space Report<sup>9</sup>, it was estimated that \$20 billion in economic impact, and over 65,000 jobs, 2,000 companies, and \$4.7 billion in wages can be attributed to the space industry in Florida. The economic impact is generated from primarily: an \$8 billion investment by NASA-KSC/JSC, military and commercial to support the Shuttle Program, commercial, and DoD missions.

<sup>9</sup> [Space Foundation’s Space Report: Economic Impact of Space in Florida, 2008](#)

The \$8 billion in Florida’s space activity represents 3% of the global space activity which includes public and private investment, currently reported to be more than \$250 billion.

**Figure 5 NASA<sup>10</sup> Procurement, or Contracts, in Florida for Years 2005-2011**



Source: <http://prod.nais.nasa.gov/cgi-bin/npdv/usmap02.cgi>

A study completed by SRI International, of the Northwest Florida Aerospace & Defense Industries, found that there were 1,900 businesses and government establishments directly involved in the aerospace and defense industries in Northwest Florida. They categorized aerospace and defense into three components: 1) the region’s major aerospace and defense engines (the military missions and the commercial and general aviation operations) 2) private firms in key aerospace and defense sectors which are increasingly attracted to NW Florida due to the opportunities associated with those engines, and 3) a series of specialized foundations that support and nurture growth and competitiveness of the industry. The three sectors of: 1) IT, Systems Integration, Network Solutions, Telecommunications, 2) Consulting Services and 3) Engineering, Testing, R&D, and Industrial Design comprised over 68% of the aerospace industry in Northwest Florida.

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<sup>10</sup> NASA is one of the largest contractors in the aerospace industry.

## **Purpose of the Phase Two Study**

In 2011, the Florida State University Center for Economic Forecasting and Analysis (FSU CEFA) conducted an economic impact analysis of the aerospace industry in Florida, for Space Florida. The framework for the economic analysis involved using a two tiered approach. The first phase of the study provided relevant details for the Legislative meetings in January 2012. The second phase was more detailed in scope and helped provide a more comprehensive profile of the aerospace industry in Florida.

The following report highlighted the following:

- Definition of aerospace industries, by 6-digit NAICS and 8-digit SIC codes.
- Datasets compilation and validation.
- Statistical analysis with results for: aerospace specific and Florida specific business, employees and sales
- Trend Analysis: Using 21 years of county-specific aerospace data in Florida.
- Economic Impact Analysis: using advanced economic models.

The economic modeling analysis was performed using Florida based aerospace-specific industries data for year 2010 (based on NETS: National Establishment Time Series). As shown in the following table, the model provided economic impact results, expressed as output (or sales/revenues), employment (or jobs), and income (or wages), in 2012 dollars.

## **II. Characteristics of the Aerospace Industry in Florida**

In this chapter, the characteristics of the aerospace industry will be defined, first from a broad global perspective to a Florida-specific level.

### **Defining the Space Economy**

Despite the growing number of countries developing space systems and applications, internationally agreed definitions for statistical terminology on space activities are still be defined.

#### **1) The Organization for Economic Cooperation and Development (OECD) Aerospace Definition**

According to OECD (2010) classification, there are nine main product groups of high-technology: 1) aerospace; 2) computers and office machines; 3) electronics and telecommunications; 4) pharmacy; 5) scientific instruments; 6) electrical machinery; 7) chemistry; 8) non-electrical machinery; and 9) armaments (Hatzichronoglou, 1997). The space sector is embedded into these wider high-tech sectors, mainly in aerospace, with segments in electronics and telecommunications and even armaments, since rockets are considered as weapons (i.e. missiles) in most countries (OECD, 2007).

The current edition of the United Nations International Standard Industrial Classification (ISIC Rev. 4 released in August 2008) includes many elements of the space sector under different aggregate categories. There are no specific terms with regard to “space activity” in the ISIC, and disentangling the space sector from the larger aerospace and defense sectors remains a challenge in most countries. This is also true for other international classifications, such as the Central Product Classification (CPC, Version 2) or the Harmonized Commodity Description and Coding System (HS) of the World Customs Organization (OECD, 2011).

At national and regional levels, some countries go further in identifying space products and services as economic activities, by adding more digits to the general international codes. But this causes discrepancies when trying to compare the data internationally. However, this classification problem, often found for emerging economic sectors, is not new. In the late 1960s, at the beginning of the space age, the general “missiles and spacecraft” statistical category was identified as causing methodological difficulties in the United States when trying to assess aerospace prices over time due to the heterogeneity of the products covered in a single category (Campbell, 1970). One interim solution was to build on existing codes to advance international comparability. This could be done by encouraging statistical standardization between selected countries, using the same lower digits codes and definitions, and gathering data via common industry surveys using the same key questions. Such efforts could be spearheaded by the private sector, particularly via aerospace industry associations agreeing on a number of key definitions. Activities involving partnerships with the private sector are increasing via the OECD Space Forum’s activities, for example via the regular meetings of “the space economy” technical committee. This committee was created in 2008 with the International Astro-nautical Federation to tackle the issue of comparability of economic data on the space sector. Ultimately, a move to modify the international classification system to

reflect specific space-related industries could contribute to greater clarity in space/aerospace industries definition. This occurred, for example, during the ISIC Rev. 4, which created a new and separate ISIC Class specifically for satellite telecommunications activities. (OECD, 2011)

## **2) The Definition of Aerospace According to a Global Space Economy**

Trying to better identify statistically the different space applications has thus become an important theme, as the space sector has been spurring more commercial activities outside its traditional research and development (R&D) scope over the years. Activities include specific information technology products and services, such as GPS receivers, satellite television and even investments in new tourism-related activities (e.g. space-related amusement parks, suborbital flights).

This wider “space economy” can be defined from various perspectives. It can be defined by its products (e.g. satellites, launchers...), by its services (e.g. broadcasting, imagery/data delivering...), by its programmatic objectives (e.g. military, robotic space exploration, human spaceflight, earth observation, telecommunications...), by its actors/value chains (from R&D/innovators to users), and by its impacts (e.g. direct and indirect benefits). One drawback is that too narrow a definition might ignore important aspects, such as the R&D sector (e.g. labs and universities), the role of the military (i.e. as investor in R&D budgets and a customer for space services), or ignore scientific and space exploration programs altogether. (OECD, 2011)

## **3) Florida’s Aerospace Economy**

Florida’s aerospace manufacturing has grown to a level where nearly every major aerospace or defense contractor has a presence in Florida, including major global firms such as Lockheed-Martin, Boeing, and Northrop-Grumman. Manufacturing capabilities include significant design and prototype manufacturing from large employers such as Embraer, with North American headquarters in Ft. Lauderdale, to smaller national manufacturing firms such as Lockwood Aircraft Corporation, an ultra-light aircraft producer based in Sebring. The Florida Center for Advanced Aero-Propulsion<sup>11</sup> (FCAAP) at FSU, in Tallahassee, was formed to meet the research and skills needs of the competitive aerospace industry in Florida. In addition, others such as the Central Florida Aerospace Academy in Lakeland introduces students to career opportunities in aerospace engineering.

Florida’s space research, development, and launch capabilities have long centered on activity at Cape Canaveral, including civilian, military, and commercial space activity. Cecil Field near Jacksonville recently received a federal license to operate a commercial spaceport. From Saturn rockets to the Shuttle program, a number of Florida-generated firms support the U.S. space industry. During this transition phase involving the space program, opportunities in commercial space exploration exist as Florida is poised to leverage existing commercial and education facilities

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<sup>11</sup> Florida Center for Advanced Aero-Propulsion involves four Florida universities: Florida State University, University of Florida, University of Central Florida, and Embry Riddle Aeronautical University. See: <http://www.fcaap.com> for more information.



at Cape Canaveral. Space Florida was recently formed to strengthen Florida’s position as a global leader in aerospace research, investment, exploration and commerce. Space Exploration Technologies Corp. (Space X) has successfully proven the demonstrated commercial space technologies in recent launches of the Falcon space vehicle at Cape Canaveral. Space activities are also statewide, ranging from Raytheon’s payload manufacturing in Tampa Bay to Pratt & Whitney Rocketdyne’s facilities in West Palm Beach to L-3 Communications in Jacksonville. The Advanced Space Technologies Research & Engineering Center at the University of Florida is a recent partnership with the National Aeronautics and Space Administration (NASA) with a goal to become a leading research, education, and training resource for the space industry in Florida.

The following Figure depicts the working definition of the Space Florida aerospace categories numbering from 1 to 12. Those include categories as defined by Space Florida, and in line with Enterprise Florida, and include:

**Figure 6 Florida Aerospace-Related Industries as Defined by Space Florida**



Source: <http://www.spaceflorida.gov/index.php/en/2020-vision>

- Space Transportation and Technologies Support Systems
- Satellite Systems and Payloads
- Ground and Operations Support Systems
- Agriculture, Climate and Environmental Monitoring
- Civil Protection and Environmental Monitoring
- Life Sciences and Biotechnology
- Communication, Cyber security and Robotics
- Clean Energy
- Adventure Tourism
- Advanced Materials and New Products
- International Space Station
- Business and Other Services

## **FSU CEFA(2012) Modeling for Florida's Aerospace Economy: Phase Two<sup>12</sup>**

In the previous Phase One Report, the FSU CEFA (2011) model included the 12 sectors as defined by Space Florida, consisting of 26 NAICS sectors. For this report, FSU CEFA provided greater resolution, in terms of NAICS codes (8 digit SIC codes) that pertain to either the aerospace, and included some aviation, or both sectors.

### **1) Enterprise Florida (2011)**

In 2011, Enterprise Florida divided aviation & aerospace into 3 categories; aerospace, space and aviation. They suggested that aircraft and aircraft parts, avionics, propulsion systems, guided missiles and air defense systems, unmanned aerial vehicles/systems, intelligence surveillance and reconnaissance would all comprise the aerospace category. They classified aeronautical instruments, rockets and spacecraft, satellite systems, payload processing, commercial launch systems and support, ground support operations, intelligence surveillance and reconnaissance as being included in the space category. In addition, the aviation category included maintenance, repair, and overhaul (MRO), passenger to freight conversions, avionics installation and retrofits, global air cargo, logistics, flight training, air travel, NextGen testing and demonstration.

### **2) Florida Department of Economic Opportunity (DEO), 2011**

In 2011, DEO delineated the aviation and aerospace industries. According to DEO, the aviation Industry included the following seven sectors.

- Scheduled passenger and freight air transportation,
- Non-scheduled chartered passenger and freight air transportation,
- Other nonscheduled air transportation,
- Air traffic control,
- Other airport operations,
- Other support activities for air transportation
- Flight training

The following nine sectors were defined as Aerospace by DEO.

- Aircraft manufacturing
- Aircraft engine and engine parts manufacturing
- Other aircraft parts and auxiliary equipment manufacturing
- Guided missile and space vehicle manufacturing
- Guided missile and space vehicle propulsion unit and other parts manufacturing
- Search, detection, and navigation instruments
- Space research and technology

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<sup>12</sup> See: <http://www.cefa.fsu.edu>

- Space vehicle propulsion units and parts manufacturing
- Satellite telecommunications

### **3) Hoovers.com (2011)**

Hoover's.com<sup>13</sup> defined the following aerospace sectors in 2011.

- [Aircraft Dealers](#)
- [Aerospace Manufacturing](#)
- [Aircraft Maintenance Repair & Overhaul](#)
- [Satellite Industry](#)
- [Aerospace Regulation & Policy](#)

### **4) FSU CEFA (2012)**

Based on the various groups' aerospace industries coding methodologies, FSU CEFA determined the following 6- & 8-digit NAICS and SIC<sup>14</sup>, codes, respectively, would be included in this research.

- 314999 Aircraft tie down strap assemblies (except leather) manufacturing
- 326211 Aircraft tire manufacturing
- 332312 Landing mats, aircraft, metal, manufacturing
- 332510 Aircraft hardware, metal, manufacturing
- 332912 Fluid power aircraft subassemblies manufacturing, Hydraulic aircraft subassemblies manufacturing, Pneumatic aircraft subassemblies manufacturing
- 332995 Aircraft artillery manufacturing
- 333924 Aircraft engine cradles manufacturing, Aircraft loading hoists manufacturing, Hoists, aircraft loading, manufacturing
- 333999 Aircraft carrier catapults manufacturing
- 334519 Aircraft engine instruments manufacturing, Fuel densitometers, aircraft engine, manufacturing, Fuel mixture indicators, aircraft engine, manufacturing, Fuel system instruments, aircraft, manufacturing, Fuel totalizers, aircraft engine, manufacturing, Pressure and vacuum indicators, aircraft engine, manufacturing, Testers for checking hydraulic controls on aircraft manufacturing, Thermocouples (except industrial process, aircraft type, glass vacuum) manufacturing, Thrust power indicators, aircraft engine, manufacturing
- 336321 Aircraft lighting fixtures manufacturing
- 336360 Aircraft seats manufacturing, Seat belts, motor vehicle and aircraft, manufacturing

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<sup>13</sup> [http://www.hoovers.com/companyindex/Aerospace\\_Industry-1.html](http://www.hoovers.com/companyindex/Aerospace_Industry-1.html)

<sup>14</sup> See Appendix A; for NAICS 8-digit SIC codes associated with the aerospace industry in Florida

In 2012, after selecting the aforementioned 11 NAICS codes, FSU CEFA established a final aerospace NAICS model, comprising 40 NAICS sector codes associated with aerospace. See the following Table.

**Table 7 FSU CEFA and Space Florida Aerospace-Related Industry Codes (NAICS)**

40 Codes	NAICS Code (6-Digit)	NAICS Code Title
1	334220	Radio and Television Broadcasting and Wireless Communication Equipment
2	541370	Surveying and Mapping (Except Geophysical)
3	423860	Transportation Equipment and Supplies(except Motor Vehicle) Merchant Wholesalers
4	334119	Other Computer Peripheral Equipment Manufacturing
5	515111	Radio Network
6	517919	All Other Telecommunications
7	237130	Power and Communication Line and Related Structures Construction
8	541360	Geophysical Surveying and Mapping Services
9	928110	National Security
10	325411	Medical and Botanical Manufacturing
11	541711	Research and Development in Biotechnology
12	336411	Aircraft Manufacturing
13	336412	Aircraft Engine and Engine Parts Manufacturing
14	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
15	336414	Guided Missile and Space Vehicle Manufacturing
16	336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
17	336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
18	334511	"Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing"
19	927110	Space Research and Technology
20	517410	Satellite Telecommunications
21	541712	Research and Development in the Physical, Engineering, and Life Sciences(except biotechnology)
22	517210	Wireless Telecommunications Carriers (except Satellite)
23	541330	Engineering Services
24	922190	Other Justice, Public Order, and Safety Activities
25	325414	Biological Product (except diagnostic) Manufacturing
26	221119	Other Electric Power Generation
27	481219	Other Nonscheduled Air Transportation
28	541940	Veterinary Services
29	541720	Business Research and Development Services
30	314999	All Other Miscellaneous Textile Product Mills

31	326211	Tire Manufacturing (except Retreading)
32	332312	Fabricated Structural Metal Manufacturing
33	332510	Hardware Manufacturing
34	332912	Fluid Power Valve and Hose Fitting Manufacturing
35	332995	Other Ordnance and Accessories Manufacturing
36	333924	"Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing"
37	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
38	334519	Other Measuring and Controlling Device Manufacturing
39	336321	Vehicular Lighting Equipment Manufacturing
40	336360	Motor Vehicle Seating and Interior Trim Manufacturing

FSU CEFA discussed and verified the aerospace-specific 40 sector NAICS model with the aerospace specialists at Space Florida. Concerning some codes that included both space and aviation industries, Space Florida provided the FSU CEFA research team with an initial estimate (percentage-based) of aerospace-specific industries in Florida. In order to provide greater resolution in terms of aerospace industries, the FSU CEFA research team used NAICS codes at both the 6 digit and 8 digit<sup>15</sup> levels. Often, the 8 digit codes pertained to solely those industries defined as space-related. However, some of the 8 digit codes also applied to space and aviation-related industries. Appendix A provides a table of the aerospace-specific 8-digits SIC codes used for this study.

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<sup>15</sup> FSU CEFA used the 8 digit level of specificity through use of the NETS database.

### III. The Aerospace Industry in Florida in 2010

In this Chapter, the FSU CEFA research team further describes the aerospace industries definition methodology earlier outlined in Chapter Two. The first section depicts the results of the aerospace industries in Florida, using the 2010 NETS database. The second section outlines the Florida-based aerospace companies telephone survey methodology and associated results.

#### Aerospace Industry in Florida by FSU CEFA (2012) Model

The National Establishment Time Series (NETS) database was developed to better describe the dynamics of the US economy. It was developed by Walls & Associates, in partnership with Dun and Bradstreet. In 2012, the NETS Database compiled 21 annual snapshots (taken every January) of the full Duns Marketing Information (DMI) file that collected data from over 44.2 million establishments between January 1990 and January 2010. In the following chapter, FSU CEFA will present the trend in aerospace industries by counties, in Florida. Earlier, FSU CEFA used the year 2010 dataset, the latest year in NETS, and calculated the number of companies, the number of employees and sales/revenues. The following Table shows the 2012 FSU CEFA aerospace-related 40 NAICS code results in \$ 2010. As mentioned earlier in the report, in general, there are 3,891 companies related to aerospace (and including aviation), with \$9.2 billion in sales/revenues, and 74,332 employees in Florida.

**Table 8 2012 FSU CEFA and Space Florida 40 Aerospace Industry Codes\* (NAICS)**

Category (# 40)	NAICS Code (6-Digit)	Number of Companies	Employee(s)	Sales/Revenues
1	334220	108	2,557	\$318,815,945
2	541370	345	3,487	\$230,769,142
3	423860	507	4,808	\$1,696,785,538
4	334119	49	1,270	\$196,475,700
5	515111	-	-	\$0
6	517919	-	-	\$0
7	237130	73	1,566	\$193,903,874
8	541360	1	3	\$350,000
9	928110	42	19,311	\$0
10	325411	18	325	\$44,930,115
11	541711	-	-	\$0
12	336411	19	1,364	\$215,220,300
13	336412	19	169	\$37,199,510
14	336413	38	558	\$126,487,800
15	336414	3	1,339	\$760,024,200
16	336415	-	-	\$0

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17	336419	3	10	\$3,823,700
18	334511	40	2,163	\$437,767,120
19	927110	2	7	\$0
20	517410	3	23	\$6,171,590
21	541712	-	-	\$0
22	517210	-	-	\$0
23	541330	1,821	25,359	\$3,599,987,577
24	922190	15	943	\$21,083,300
25	325414	9	86	\$30,750,100
26	221119	-	-	\$0
27	481219	-	-	\$0
28	541940	279	2,099	\$103,529,100
29	541720	175	1,974	\$522,851,561
30	314999	63	806	\$71,895,123
31	326211	5	49	\$3,116,800
32	332312	86	1,119	\$169,086,859
33	332510	40	665	\$81,197,132
34	332912	3	157	\$21,236,300
35	332995	3	222	\$20,858,400
36	333924	22	219	\$33,789,400
37	333999	44	530	\$103,073,400
38	334519	39	625	\$59,590,372
39	336321	6	59	\$5,110,100
40	336360	11	460	\$47,313,700
Total		3,891	74,332	\$9,163,193,758

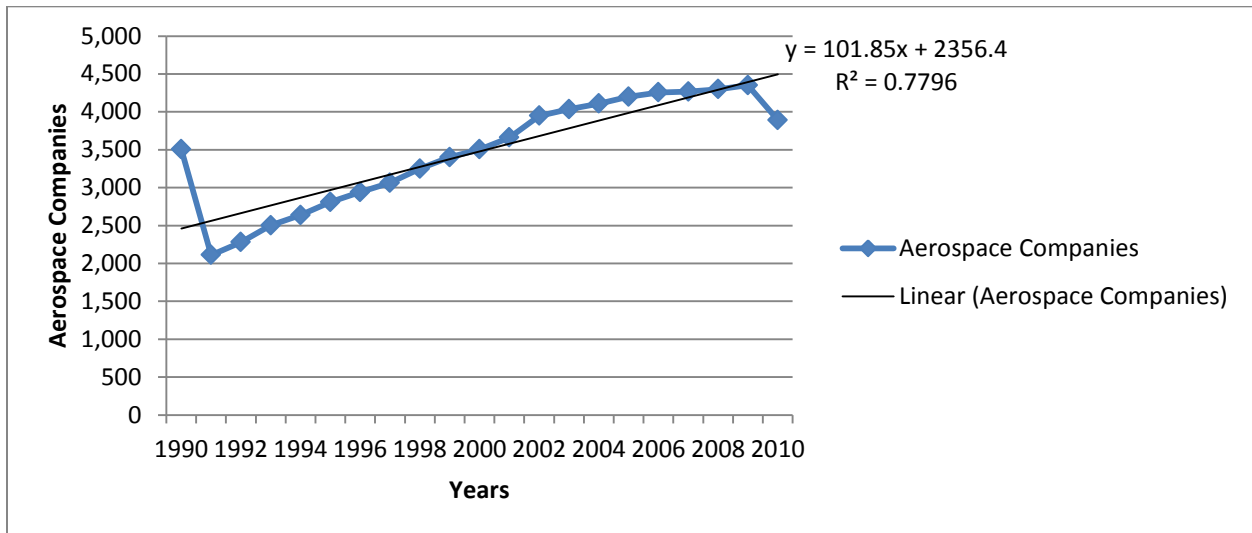
## IV. Trends of the Aerospace Industry in Florida (1990-2010)

In this chapter, FSU CEFA will summarize the trends of the aerospace industry over the last 21 years, using data from the National Establishment Time-Series (NETS) dataset. As explained in an earlier Chapter, the NETS Database consists of twenty-one annual snapshots (taken every January) of the full Duns Marketing Information (DMI) file that followed over 44.2 million establishments between January 1990 and January 2010. FSU CEFA extracted 40 NAICS codes in Florida from the NETS to see the development of the Aerospace Industry in Florida in total and by county.

### Trends of Aerospace Company Number in Florida

The following Figure shows the trend of aerospace companies in Florida. With the exception of years 1990-1991 and 2009-2010, the number of aerospace companies has increased from 2,111 to 4,350. The trend regression line shows coefficient 101.85 from the intercept 2,356.4. Based on the last 21 years, about 102 companies can expect to be added to the Florida economy on an annual basis. Although the recent economic recession during 2009-2010 decreased the number to 3,891 (from 4,350), according to the previous trendline over time, the numbers are likely to recover.

**Figure 7 Trends of Aerospace Companies (Growth) in Florida from Years 1990 to 2010**

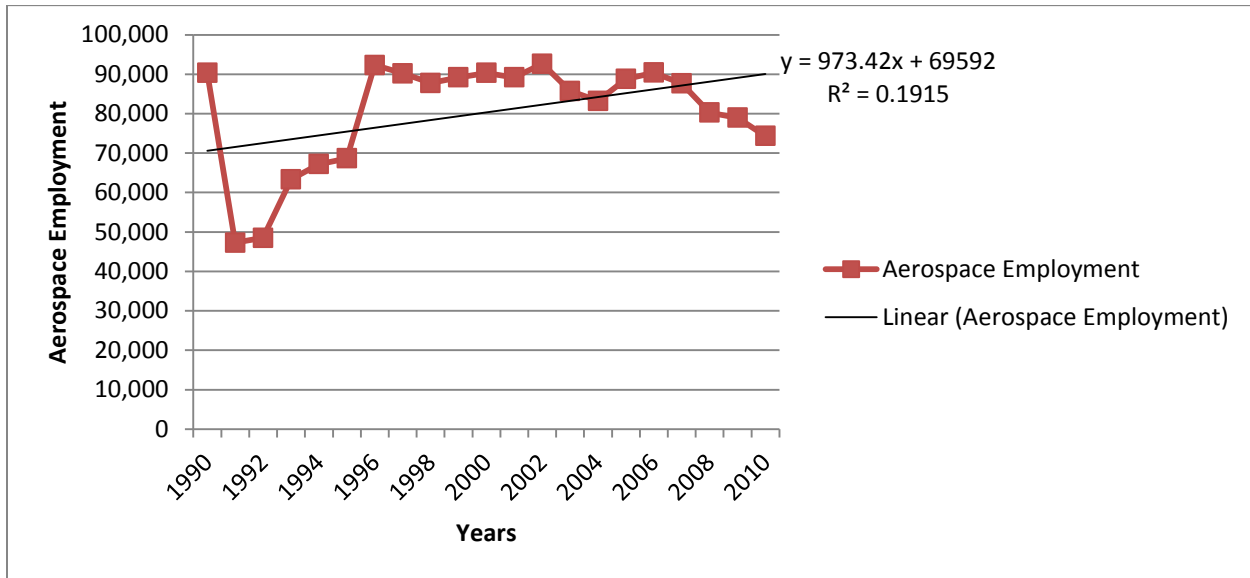




## Trends of Aerospace Employment in Florida

The following Figure depicts the employment trend of the aerospace industries in Florida. There were about 47,000 in the early 1990s, that increased to about 92,000 employees, in the late 1990s.

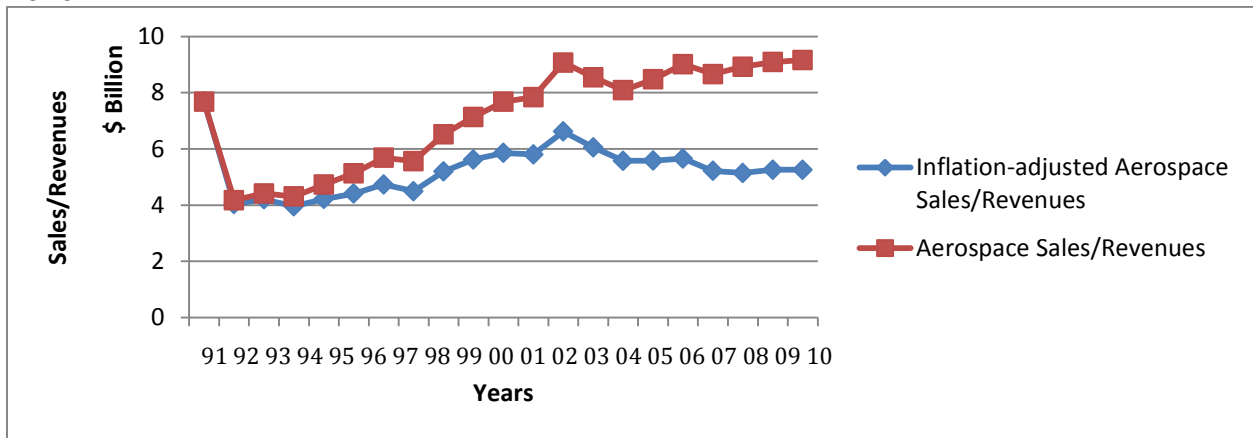
**Figure 8 Employment Trends of Aerospace Industries in Florida from Years 1990-2010**



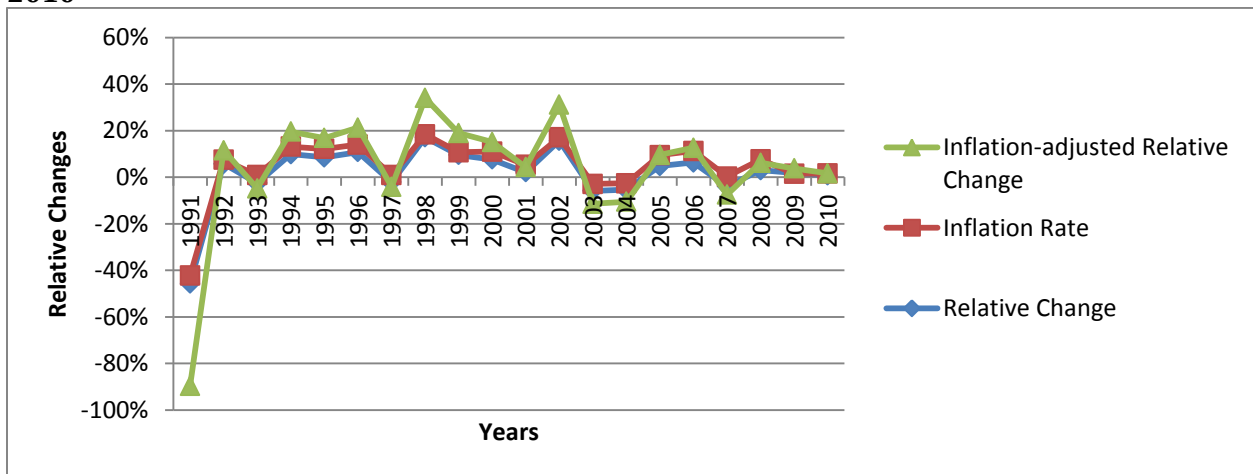
### Trends of Aerospace Sales/Revenues in Florida

The following Figure depicts the sales and revenues trend of the aerospace industries in Florida. The nominal sales/revenues of the aerospace industries in Florida ranged from \$ 4 billion in the early 1990s, to about \$ 9.2 billion, in year 2010. In nominal dollars, the trend line in sales/revenues is increasing over time. However, in terms of inflation adjusted dollars, the sales/revenues<sup>16</sup> haven't increased significantly over time. It has remained relatively stable, at around \$ 5.5 billion, over time. The following Figure portrays the relative changes in sales/revenues, which fluctuate between -6% and 14%, over time.

**Figure 9 The Sales/Revenues Trend of Aerospace Industries in Florida from Years 1990-2010**



**Figure 10 Relative Changes of the Aerospace Industry Sales in Florida from Years 1990 -2010**

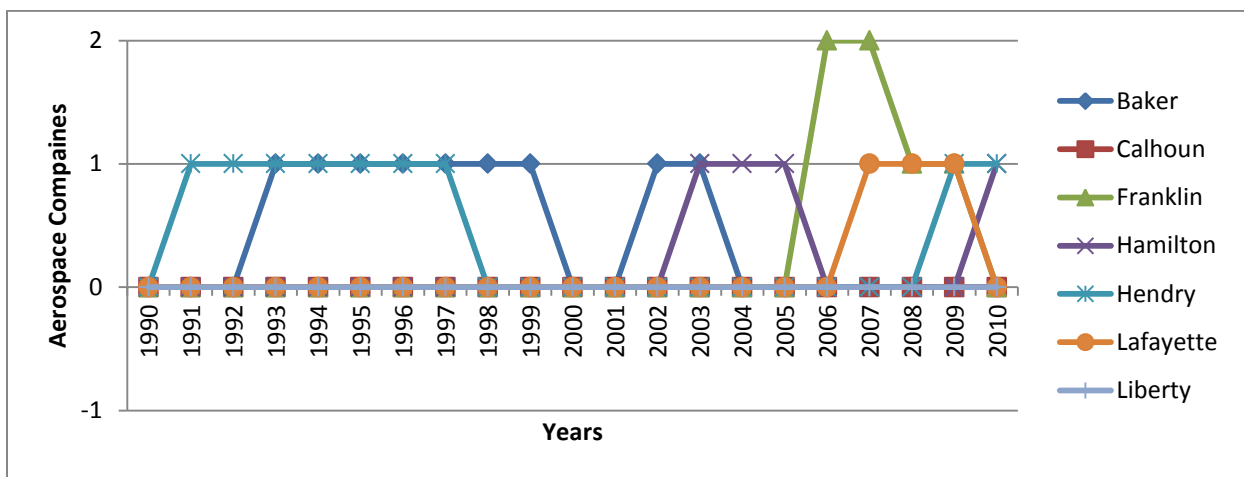


<sup>16</sup> Sales/revenues adjusted by inflation rate

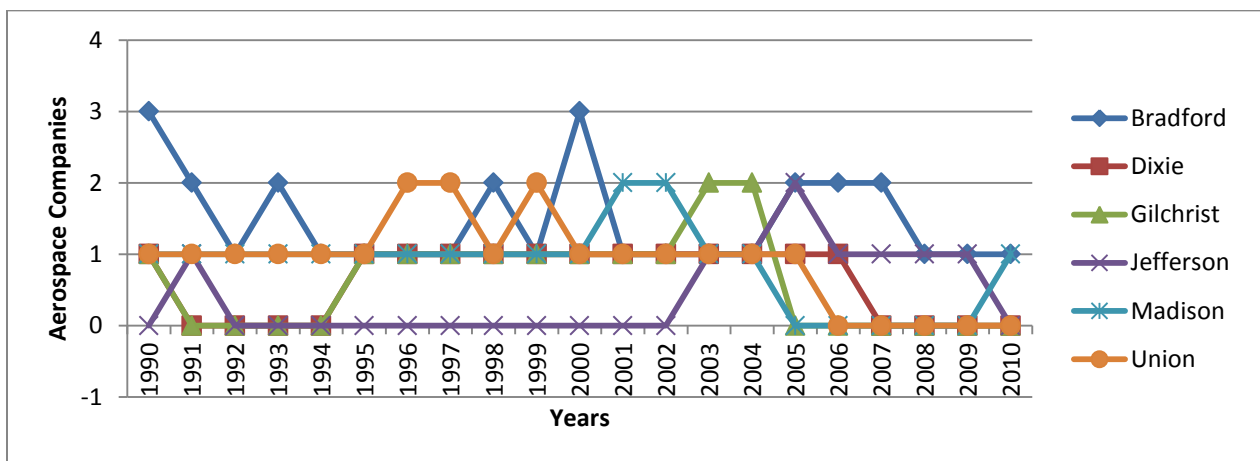
### Trends of Aerospace Companies by Counties in Florida

Figure 13 through 23 depicts the trend over time, of aerospace companies for 67 counties in Florida. Having one Figure with all 67 counties was too cumbersome, so the research team divided the figures into ten groups, with approximately six or seven counties each and plotted the data over time. The following Figure(s) show the results for Baker, Calhoun, Franklin, Hamilton, Hendry, Lafayette, Liberty, Bradford, Dixie, Gilchrist, Jefferson, Madison and Union counties, over time. These 13 counties didn't have much aerospace industry activity. Only Hendry, Hamilton, Bradford and Madison counties had one company related to the aerospace industry in year 2010, and the other 14 counties didn't have any aerospace-related companies.

**Figure 11 Aerospace Companies by Counties in Florida**

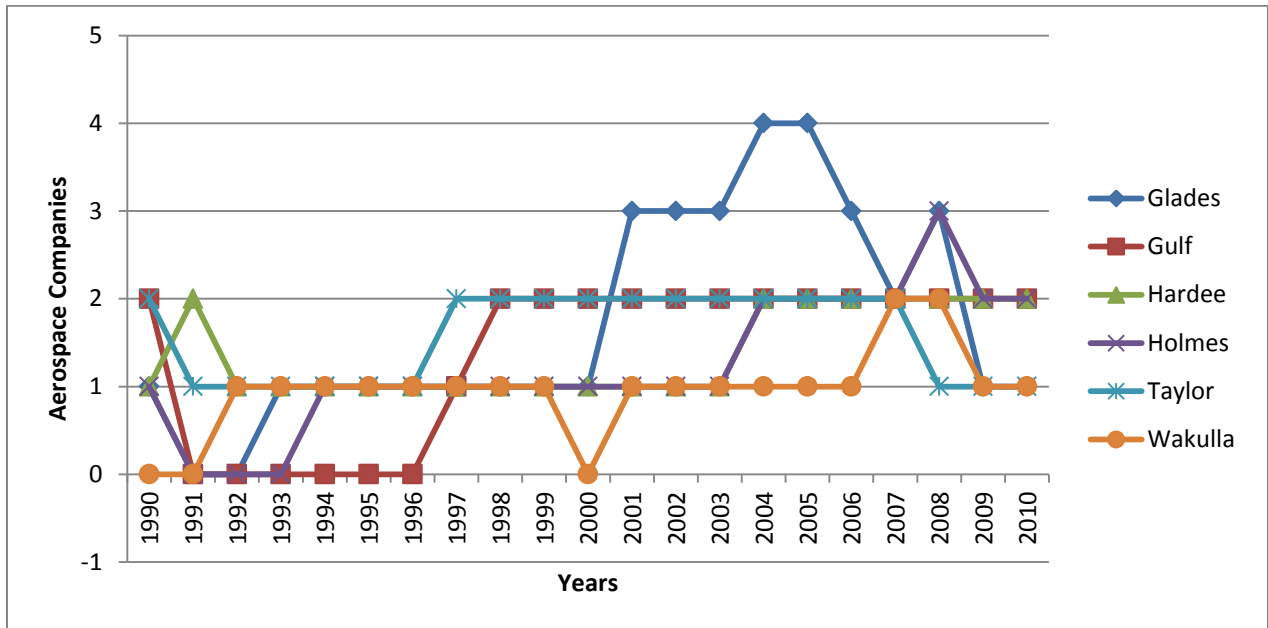


**Figure 12 Aerospace Companies by Counties in Florida**

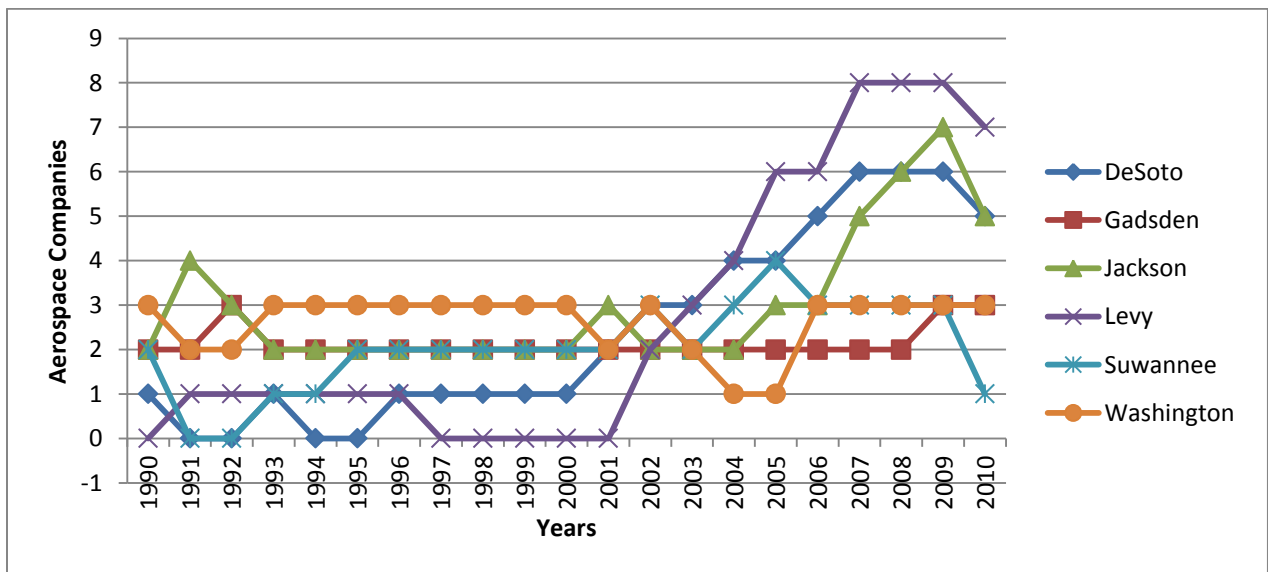


The following Figures show the results for Glades, Gulf, Hardee, Holmes, Taylor, Wakulla, Desoto, Gadsden, Jackson, Levy, Suwannee and Washington Counties. Although these 12 counties have some aerospace related companies, the number is less than 10 in 2010.

**Figure 13 Aerospace Companies by Counties in Florida**

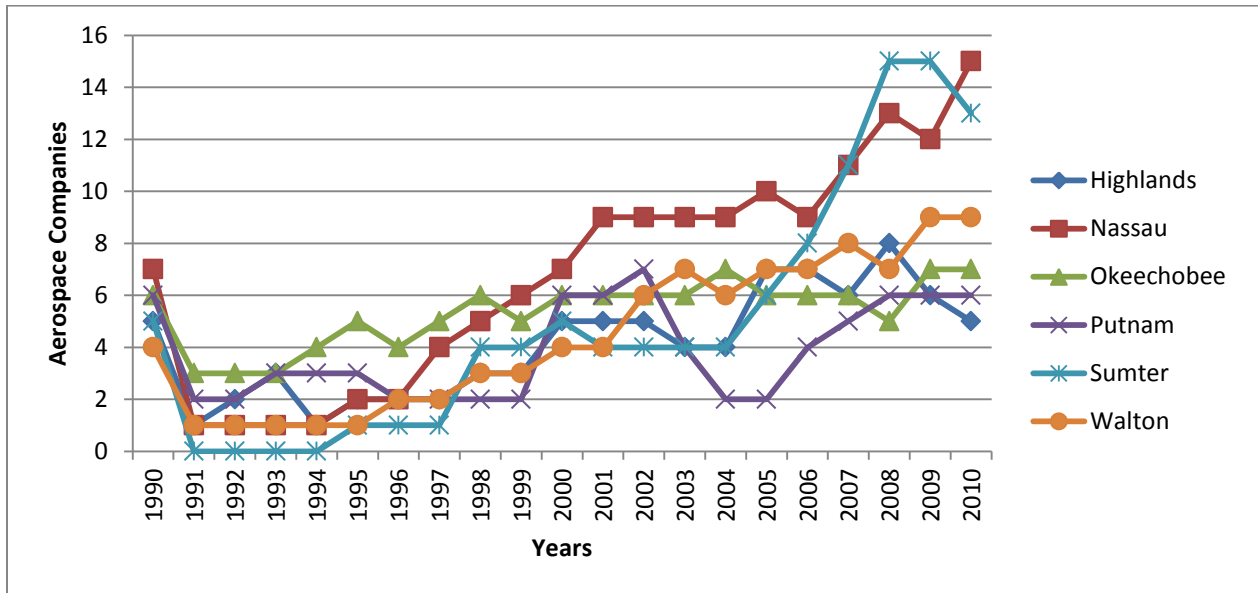


**Figure 14 Aerospace Companies by Counties in Florida**

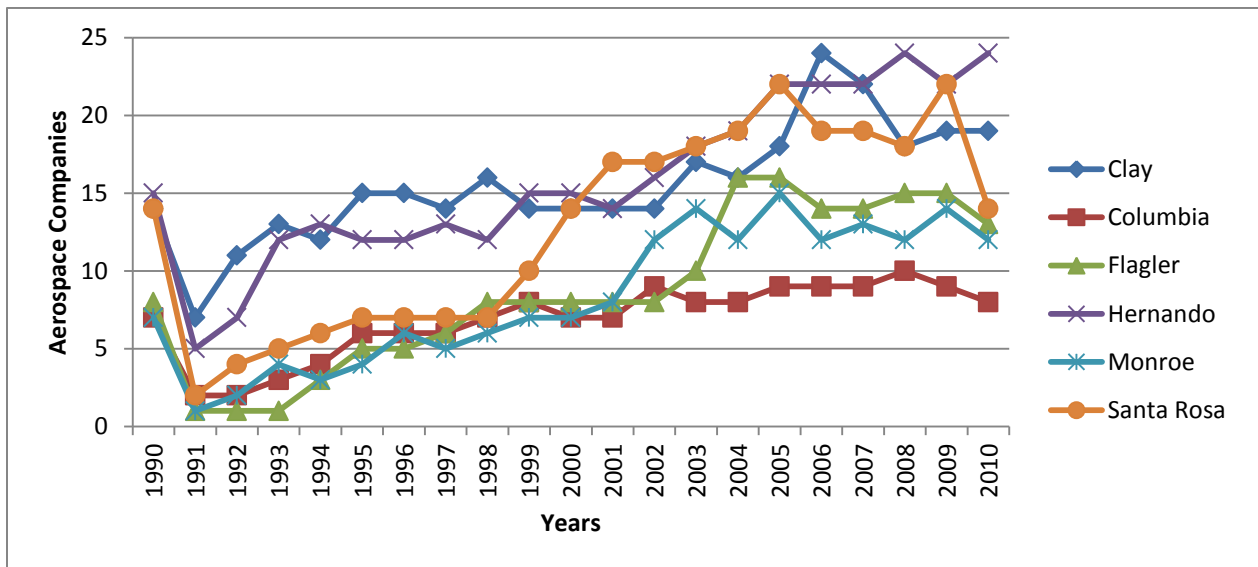


The following Figures portray the results for Highlands, Nassau, Okeechobee, Putnam, Sumter, Walton, Clay, Columbia, Flagler, Hernando, Monroe, Santa Rosa County. Although these 12 counties have shown aerospace related companies over time, the aerospace firms range from 5 to 24.

**Figure 15 Aerospace Companies by Counties in Florida**

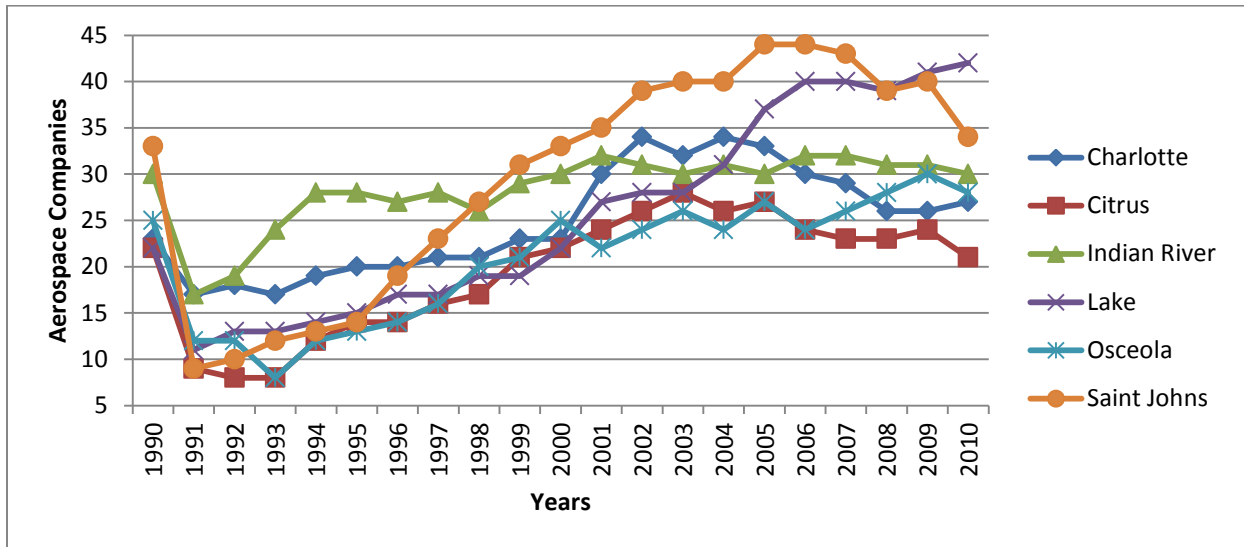


**Figure 16 Aerospace Companies by Counties in Florida**

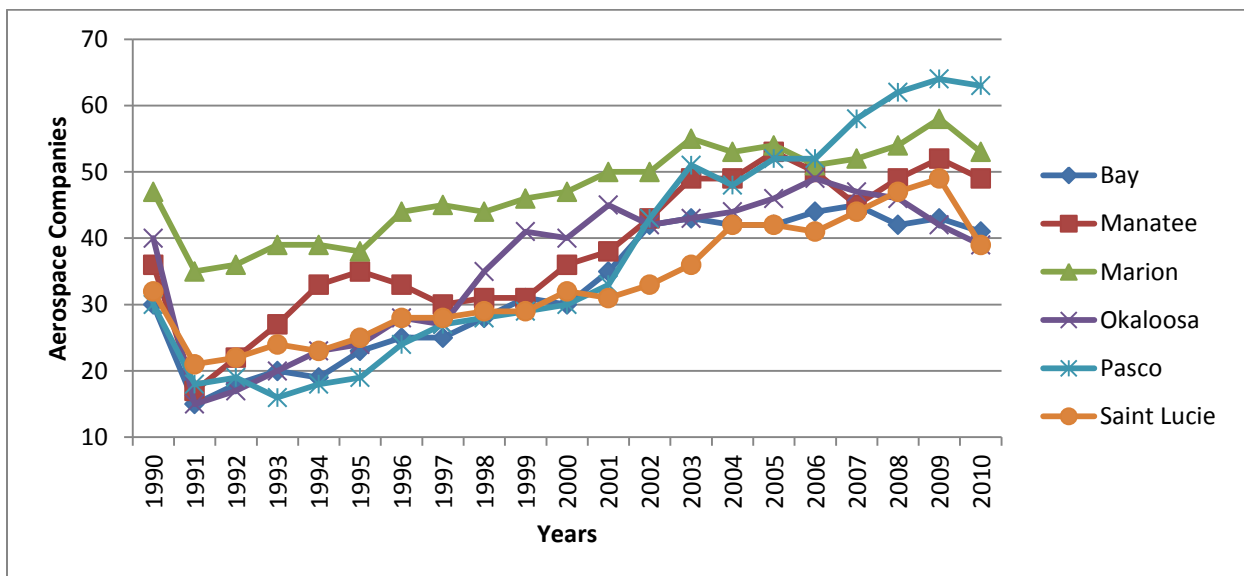


The following Figures portray the results for Charlotte, Citrus, Indian River, Lake, Osceola, Saint Johns, Bay, Manatee, Marion, Okaloosa, Pasco and Saint Lucie counties. These 12 counties have Aerospace related companies ranging from 21 to 63 in 2010.

**Figure 17 Aerospace Companies by Counties in Florida**

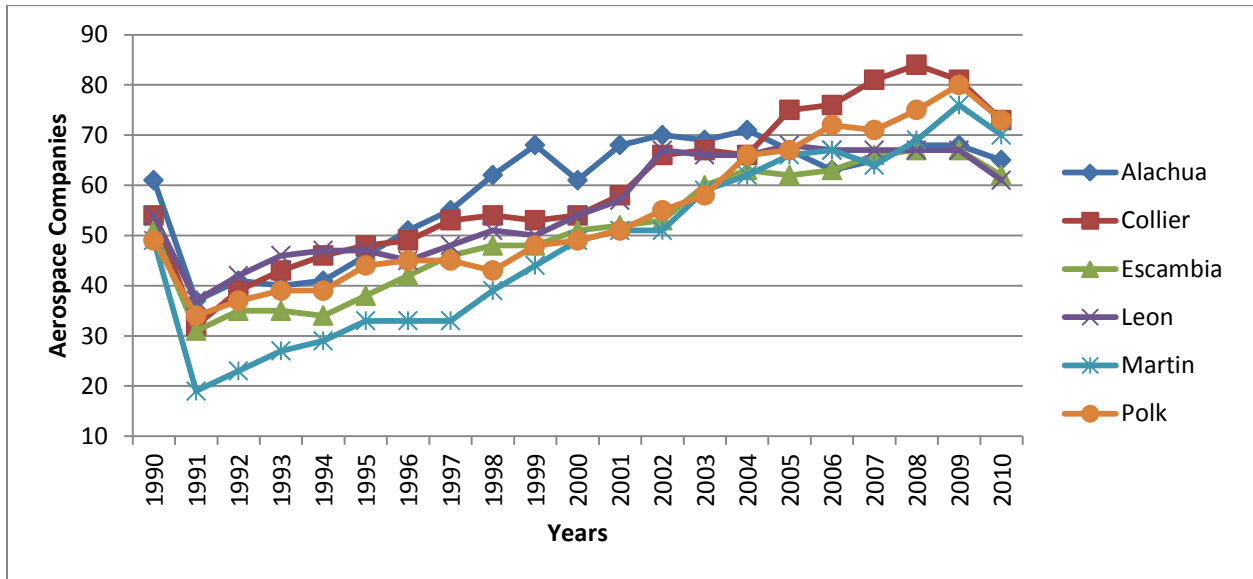


**Figure 18 Aerospace Companies by Counties in Florida**

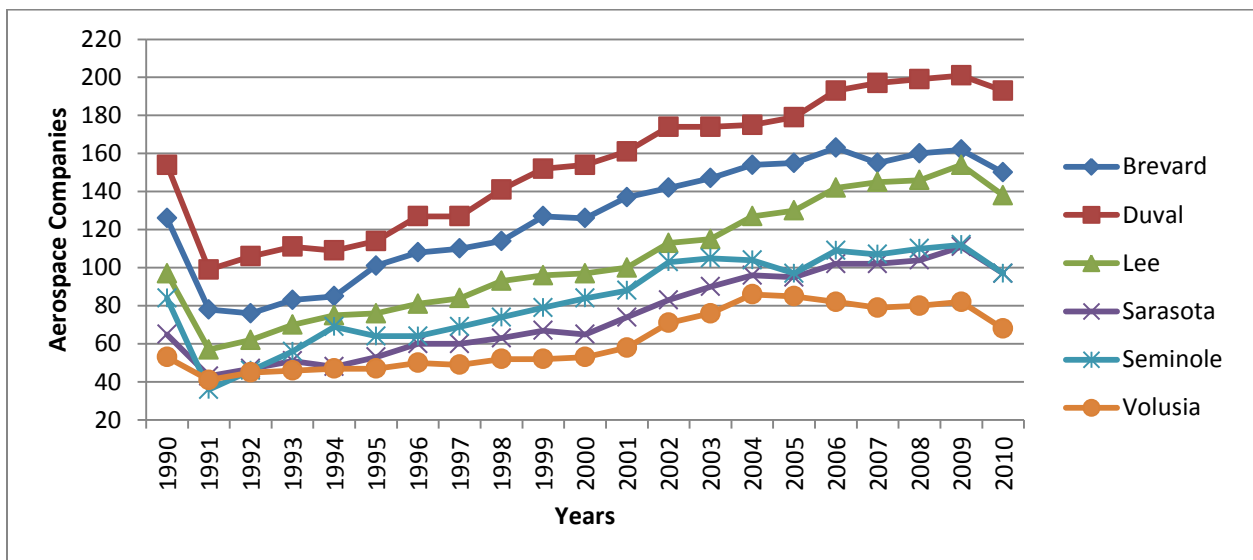


The following Figures depict the results for Alachua, Collier, Escambia, Leon, Martin, Polk, Brevard, Duval, Lee, Sarasota and Volusia counties. Over time, these 12 counties have had aerospace related companies ranging from 61 to 193. With the exception of years 1990-1991 and 2009-2010, all 12 counties show trends of increasing numbers of aerospace firms.

**Figure 19 Aerospace Companies by Counties in Florida**

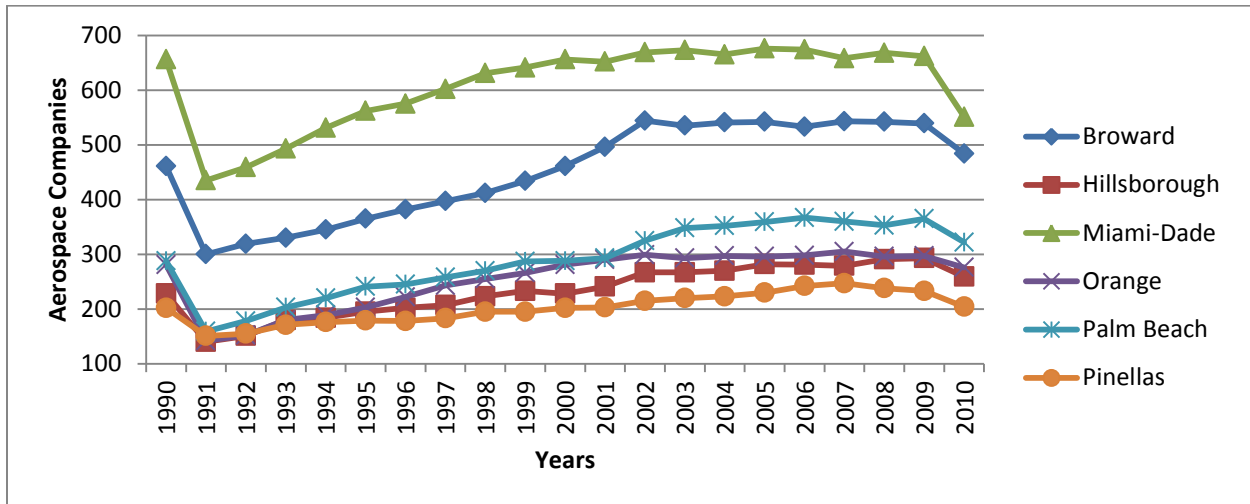


**Figure 20 Aerospace Companies by Counties in Florida**



The following Figures depict the results for Broward, Hillsborough, Miami-Dade, Orange, Palm Beach and Pinellas. These six counties have had aerospace related companies ranging from 204 to 551 in 2010.

Figure 21 Aerospace Companies by Counties in Florida



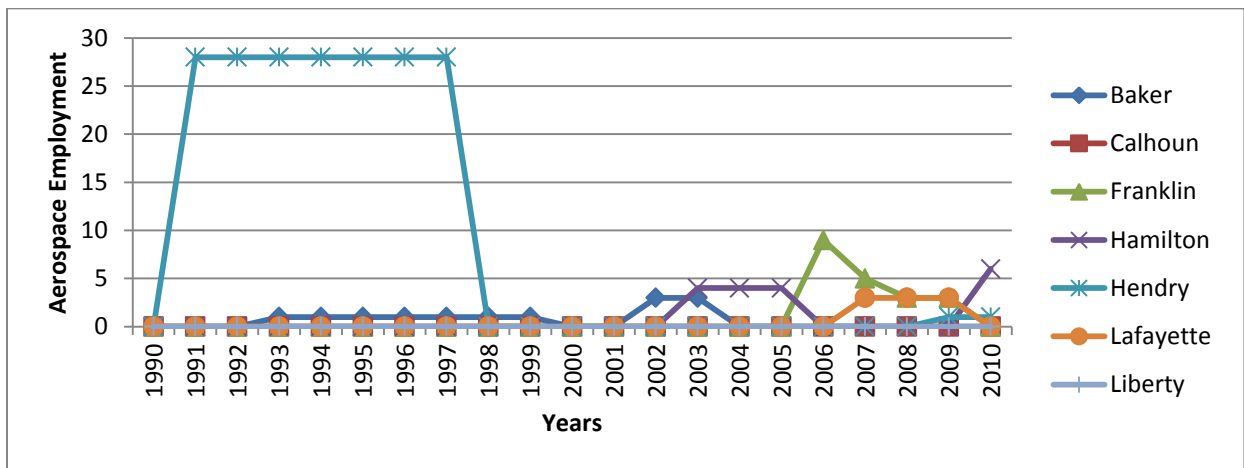


### Trends of Aerospace Employment by Counties in Florida

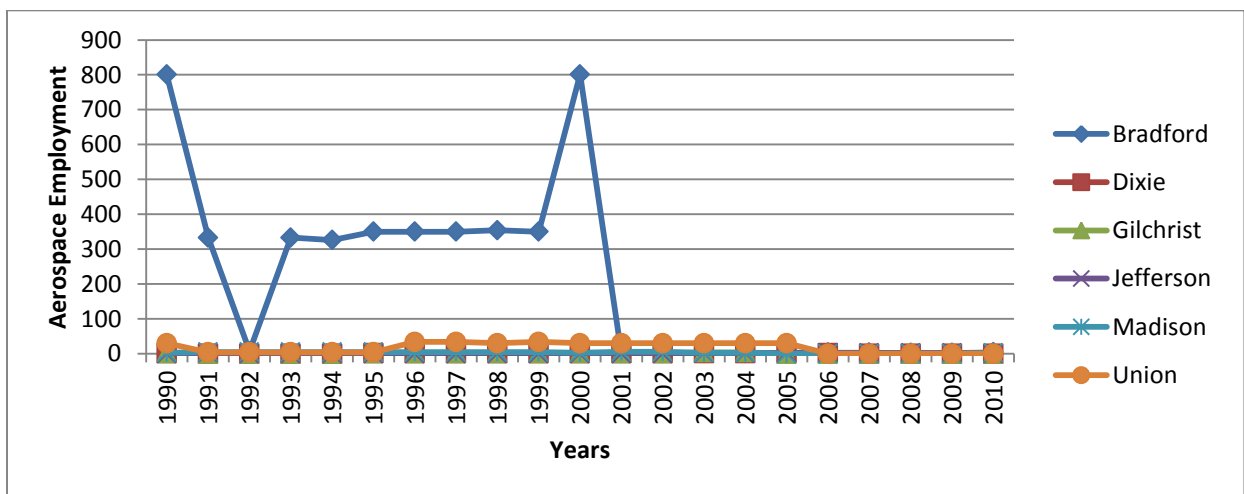
The following Figure(s) demonstrate the trends of aerospace employment by 67 counties in Florida. Similar to the previous figures (reflecting aerospace-related company trends), the research team divided the counties into ten groups, by six or seven counties each, and plotted employment data.

The following Figure(s) portray the results of Baker, Calhoun, Franklin, Hamilton, Hendry, Lafayette, Liberty, Bradford, Dixie, Gilchrist, Jefferson, Madison and Union counties. These 13 counties don't have many aerospace-related companies. Only Hamilton county has six employees related to the aerospace industry (in 2010), and the other 12 counties don't have any aerospace-related companies.

**Figure 22 Aerospace Employment by Counties in Florida**

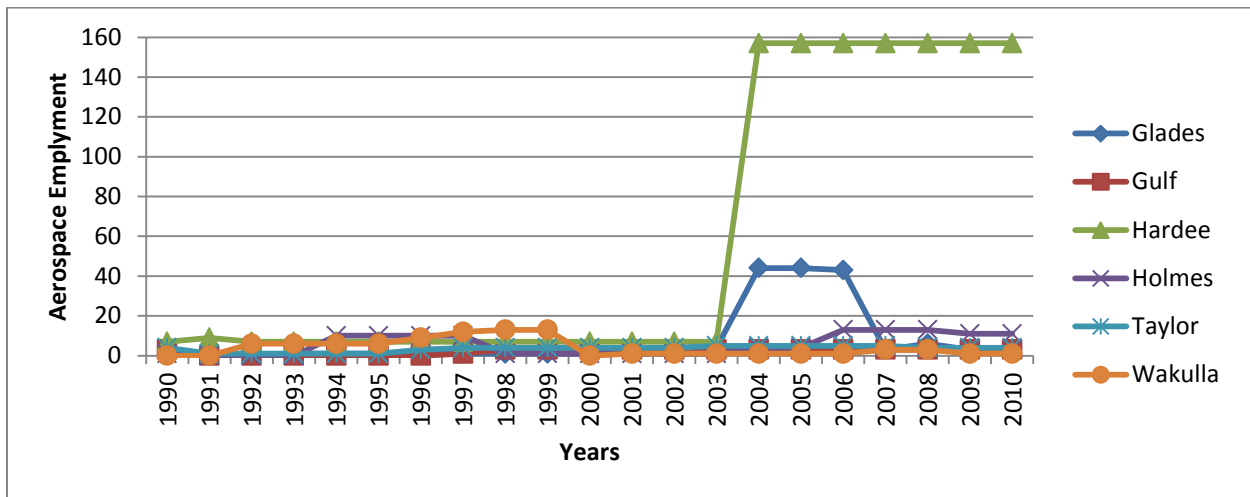


**Figure 23 Aerospace Employment by Counties in Florida**

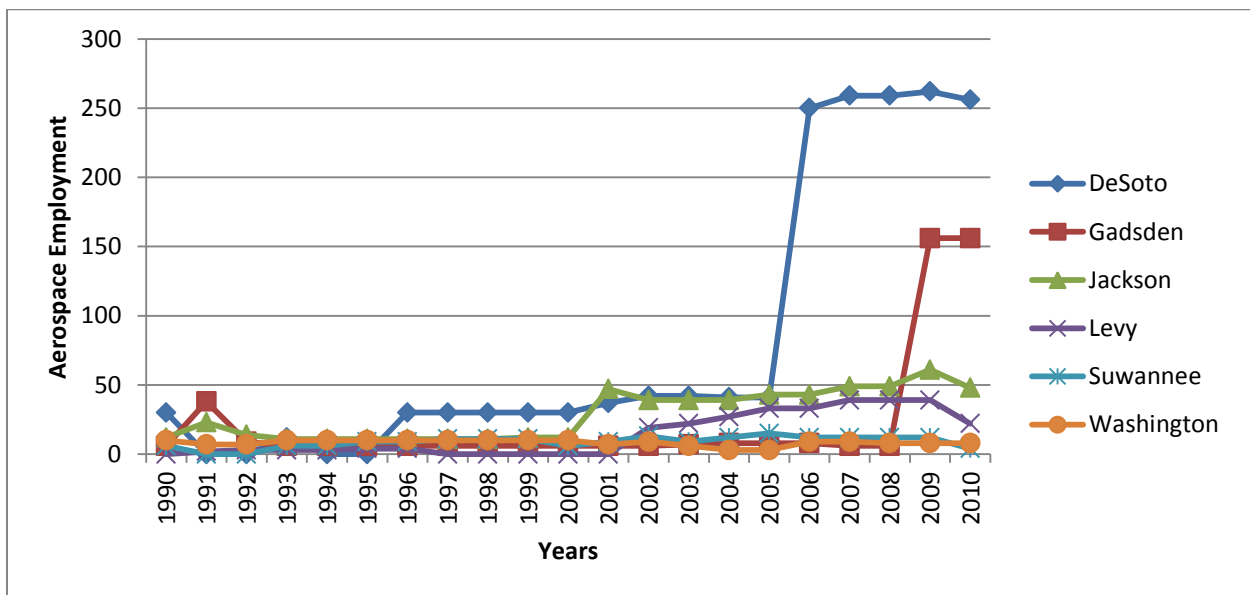


The following Figure(s) depict the results of Glades, Gulf, Hardee, Holmes, Taylor, Wakulla, Desoto, Gadsden, Jackson, Levy, Suwannee and Washington counties. Over time, the 12 counties aerospace-related companies' employment ranges from 1 to 256. Hardee and Desoto counties show sudden increases in employment from years 2003 to 2004 and 2005 to 2006, respectively.

**Figure 24 Aerospace Employment by Counties in Florida**

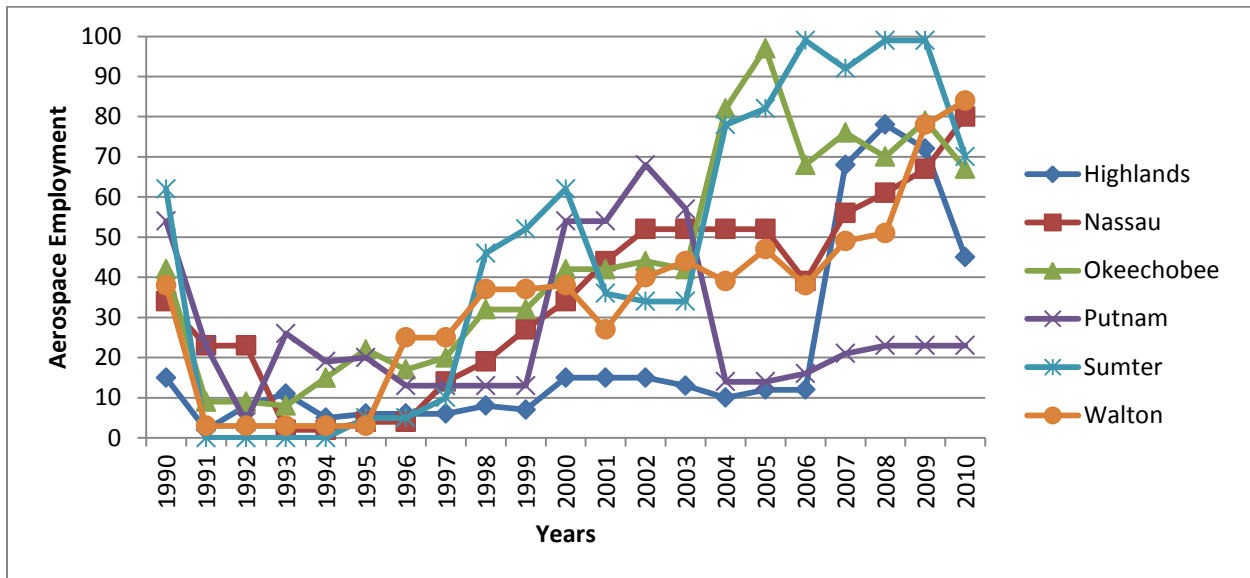


**Figure 25 Aerospace Employment by Counties in Florida**

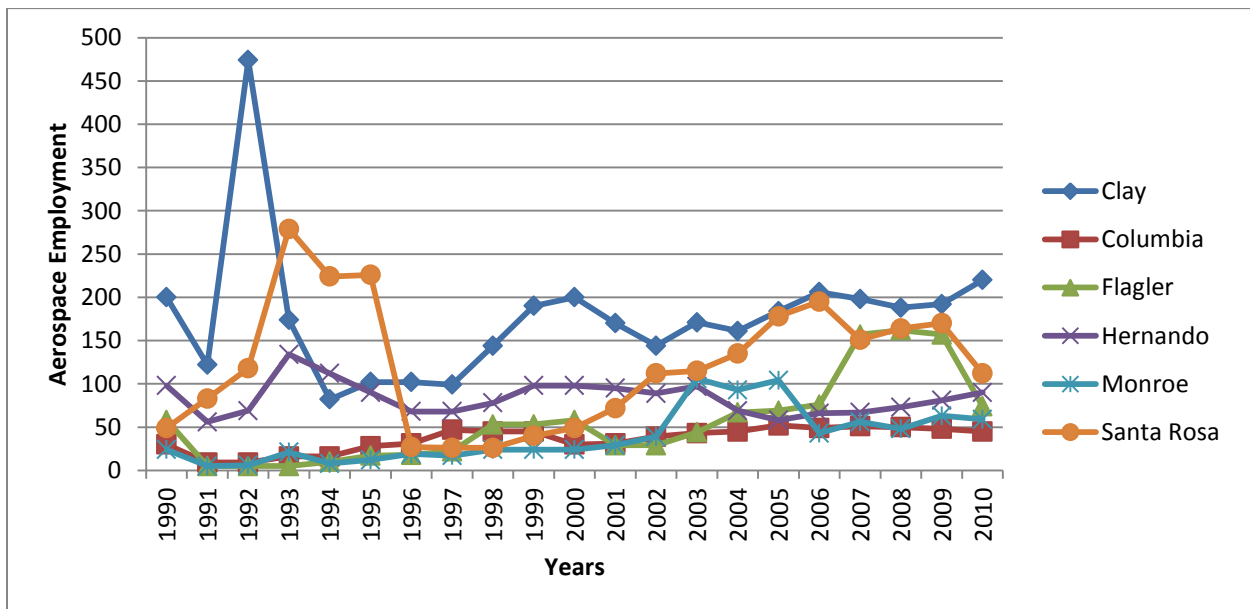


The following Figure(s) depict the results of Highlands, Nassau, Okeechobee, Putnam, Sumter, Walton, Clay, Columbia, Flagler, Hernando, Monroe, Santa Rosa counties. Over time, the 12 counties aerospace-related companies' employment ranges from 23 to 220. Clay county shows a sudden decrease in employment from years 1992 to 1993.

**Figure 26 Aerospace Employment by Counties in Florida**

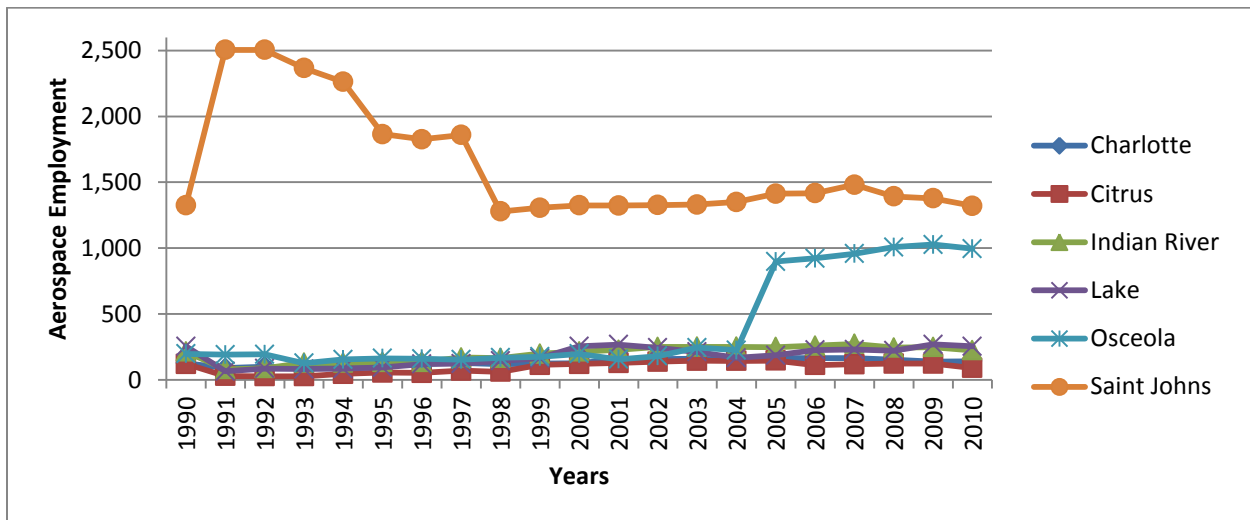


**Figure 27 Aerospace Employment by Counties in Florida**

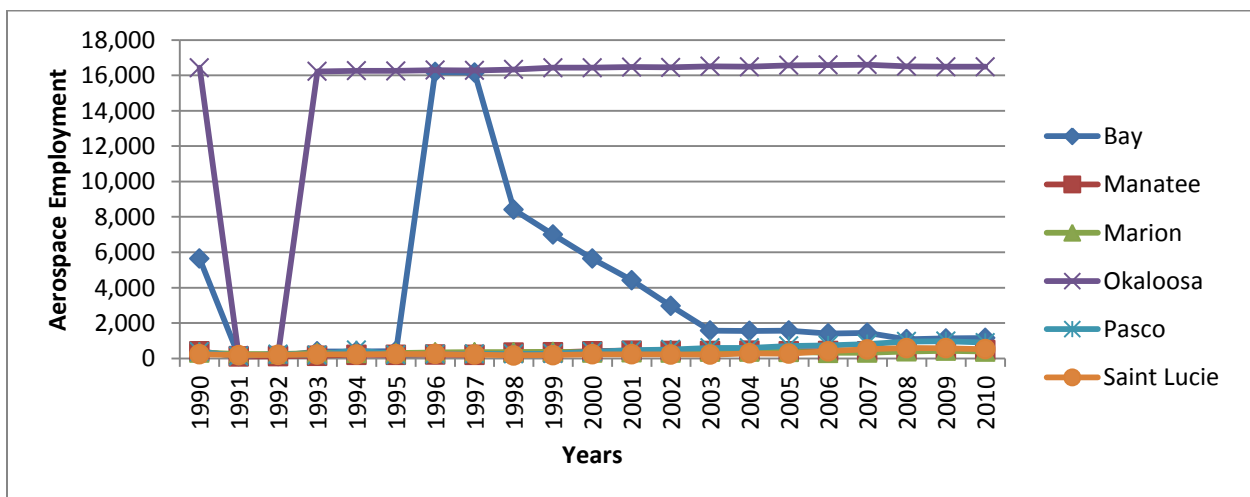


The following Figure(s) show the results of Charlotte, Citrus, Indian River, Lake, Osceola, Saint Johns, Bay, Manatee, Marion, Okaloosa, Pasco and Saint Lucie counties. Over time, the 12 counties have aerospace-related employment ranging from 91 to 16,490. Osceola county increased aerospace employment from years 2004 until 2009. Bay county experienced a decrease in employment, from years 1996 to 2003.

**Figure 28 Aerospace Employment by Counties in Florida**

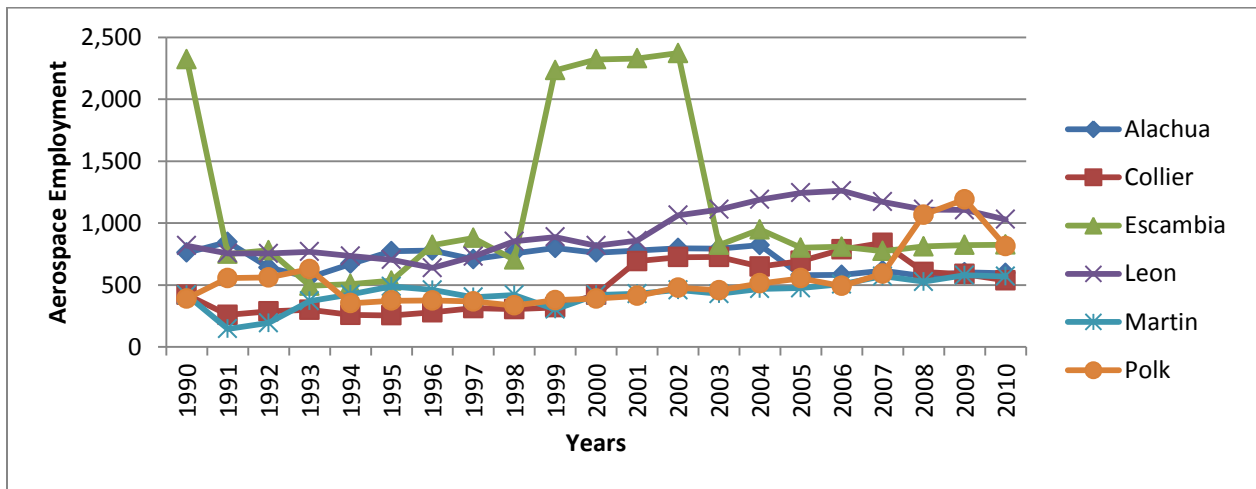


**Figure 29 Aerospace Employment by Counties in Florida**

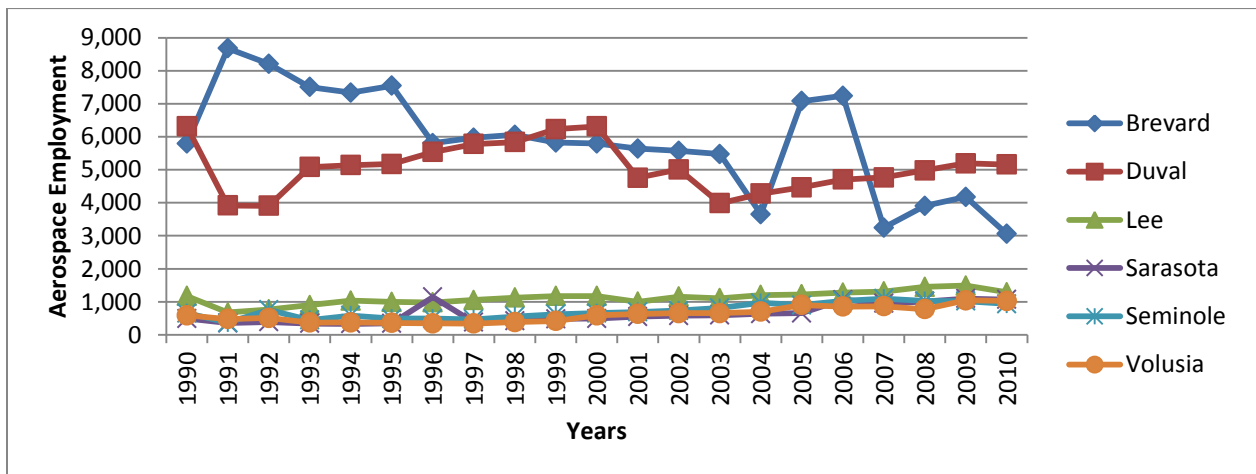


The following Figure(s) show the results of Alachua, Collier, Escambia, Leon, Martin, Polk, Brevard, Duval, Lee, Sarasota, Seminole and Volusia counties. Over time, the 12 counties have aerospace-related employment ranging from 570 to 5,160.

**Figure 30 Aerospace Employment by Counties in Florida**

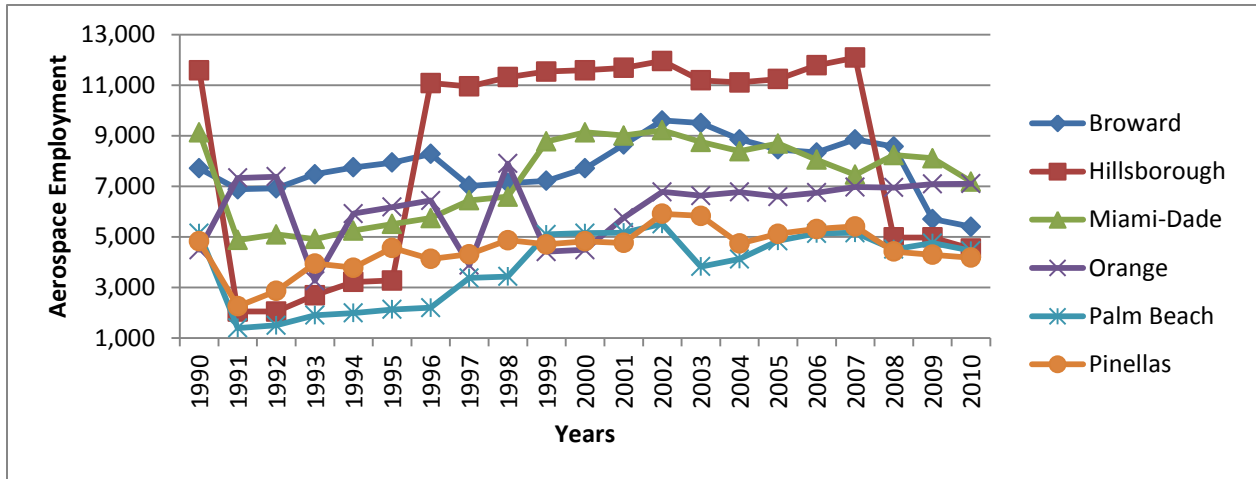


**Figure 31 Aerospace Employment by Counties in Florida**



The following Figure shows the employment results for six counties including Broward, Hillsborough, Miami-Dade, Orange, Palm Beach and Pinellas counties. Over time, the six counties have aerospace-related employment ranging from 4,176 to 7,096. Hillsborough county shows a substantial decrease in employment in 2008.

Figure 32 Aerospace Employment by Counties in Florida

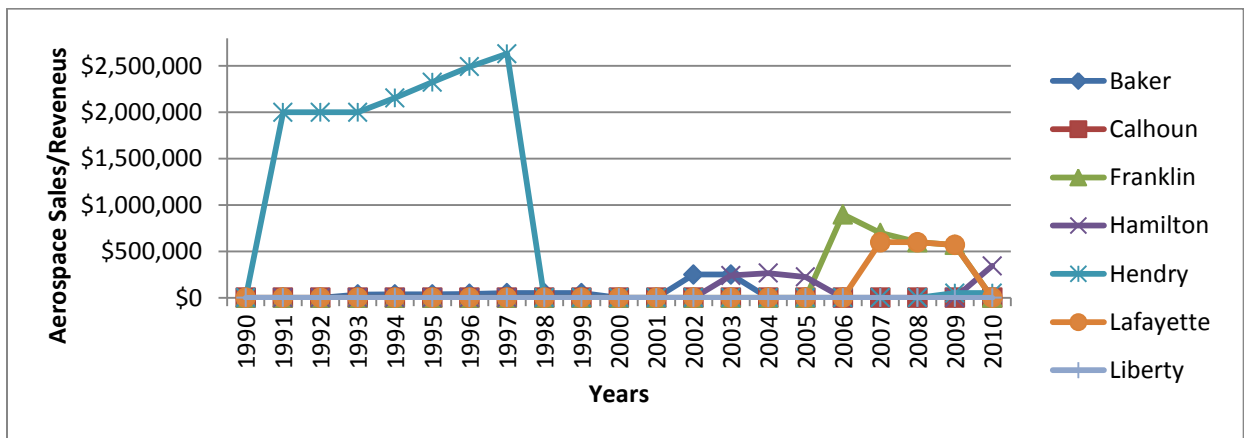


### Trends of Aerospace Sales/Revenues by Counties in Florida

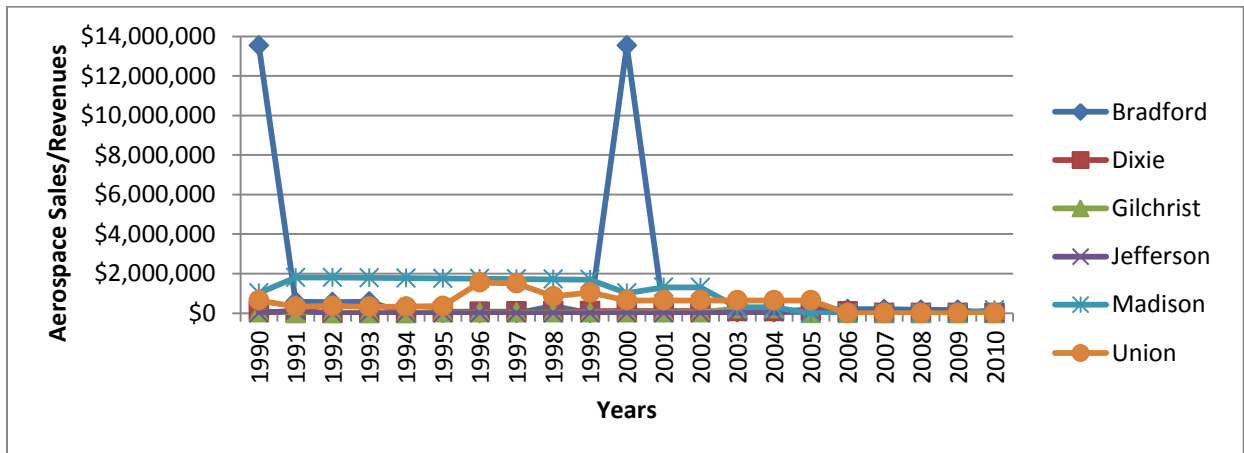
The following Figure(s) portray the trends of Aerospace company sales/ revenues by county. Similar to the previous figures, the research team divided the time series results into the following groups of counties.

The following Figure(s) depict the results for Baker, Calhoun, Franklin, Hamilton, Hendry, Lafayette, Liberty, Bradford, Dixie, Gilchrist, Jefferson, Madison and Union counties. Similar to the aforementioned sections, these 13 counties don't have much aerospace-related company activities. Over time, only Hamilton county had one company with sales/ revenues related to the aerospace industry and the other 12 counties don't have any Aerospace related sales/revenues.

**Figure 33 Aerospace Sales/Revenues by Counties in Florida**

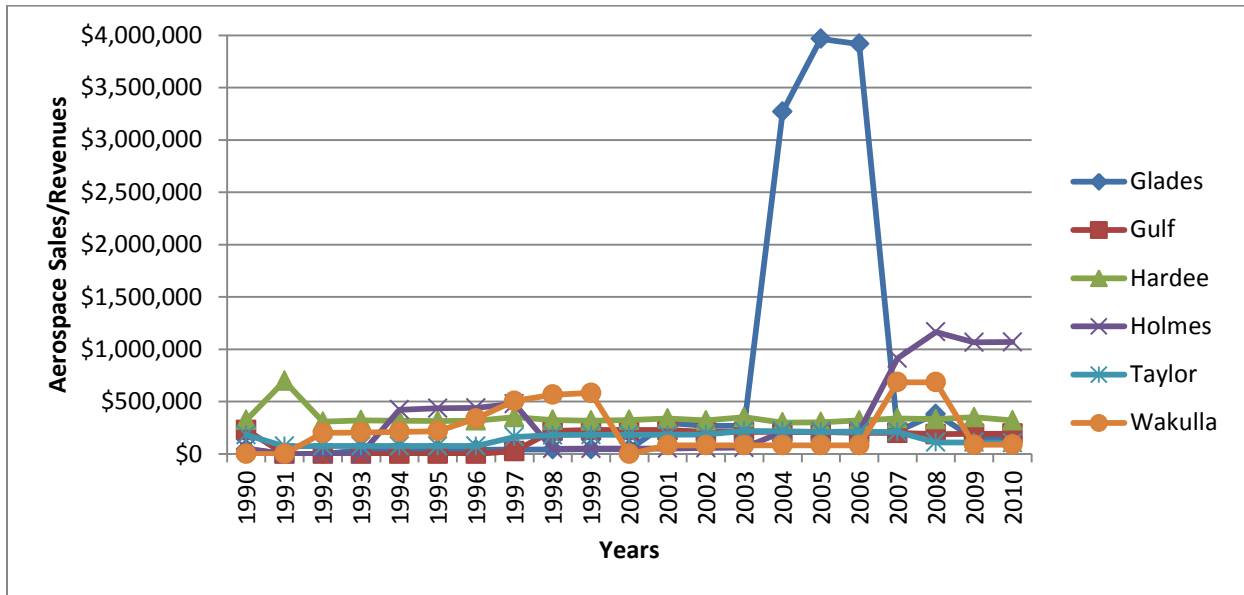


**Figure 34 Aerospace Sales/Revenues by Counties in Florida**

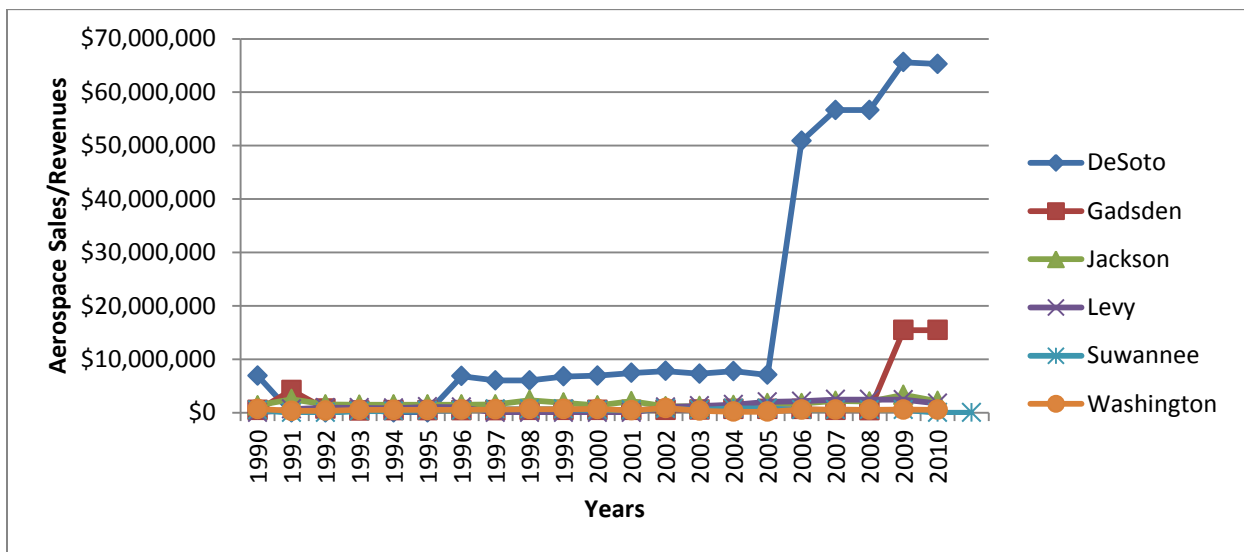


The following Figure(s) present the results for Glades, Gulf, Hardee, Holmes, Taylor, Wakulla, Desoto, Gadsden, Jackson, Levy, Suwannee and Washington counties. Over time, the counties range in terms of sales/revenues from around zero dollars to just over \$65 million dollars, with DeSoto having the highest.

**Figure 35 Aerospace Sales/Revenues by Counties in Florida**



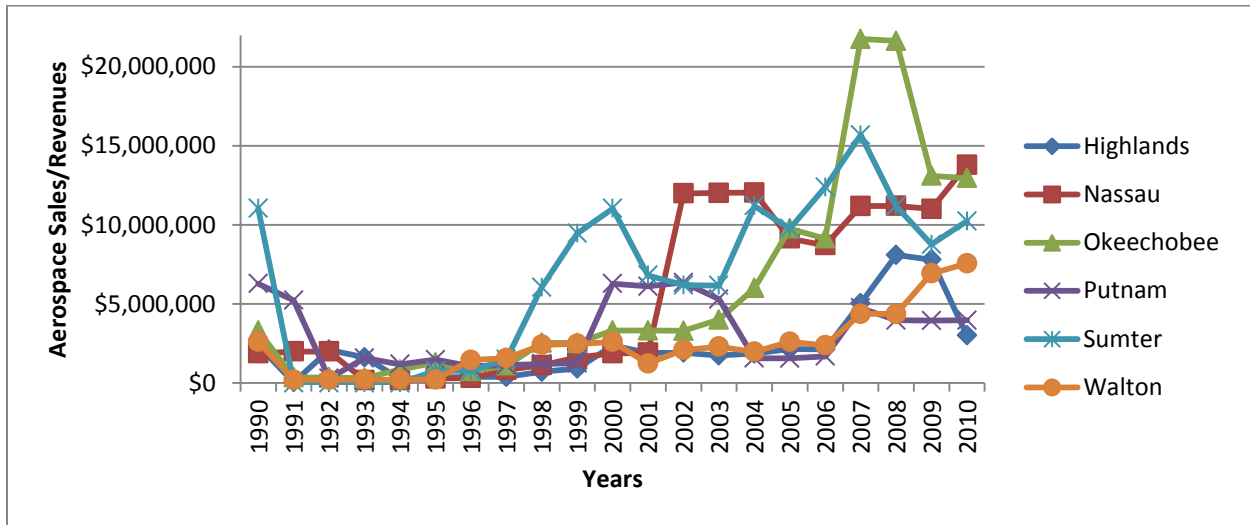
**Figure 36 Aerospace Sales/Revenues by Counties in Florida**



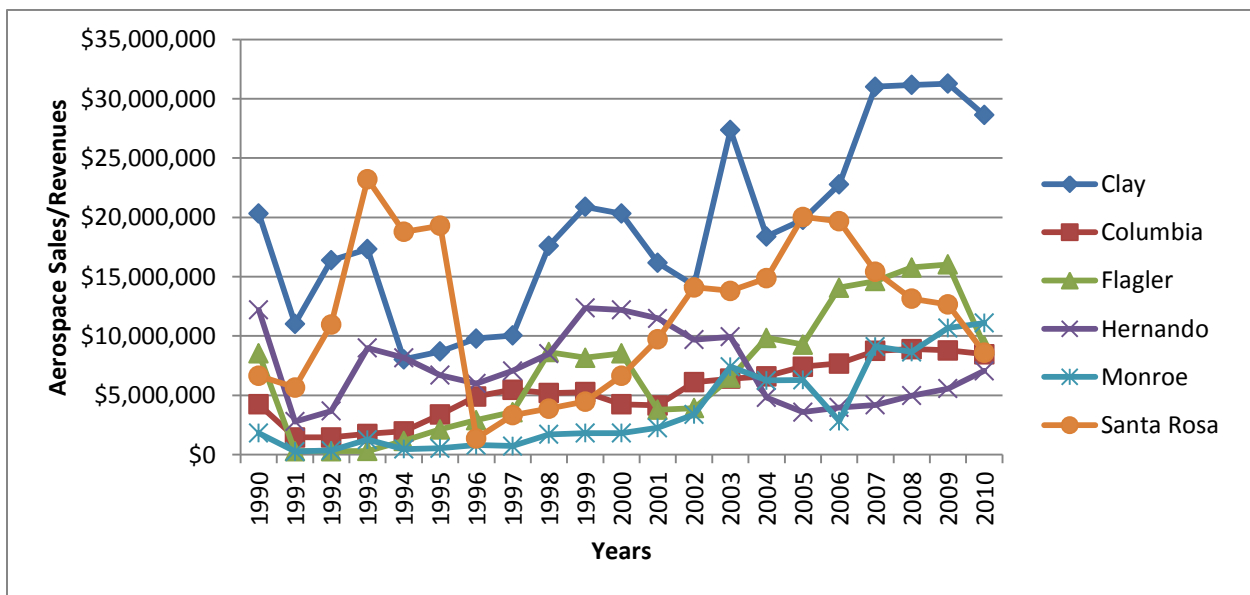


The following Figure(s) show the results of Highlands, Nassau, Okeechobee, Putnam, Sumter, Walton, Clay, Columbia, Flagler, Hernando, Monroe, Santa Rosa Counties. Over time, these aerospace-related companies range in sales/revenues from about \$3 million to just a little over \$31 million.

**Figure 37 Aerospace Sales/Revenues by Counties in Florida**

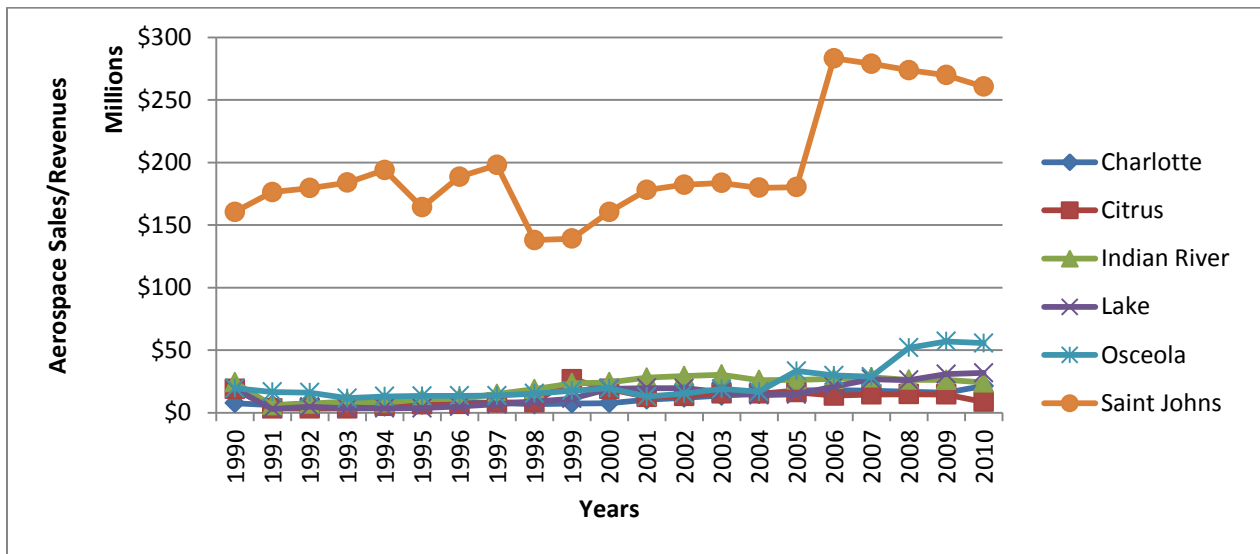


**Figure 38 Aerospace Sales/Revenues by Counties in Florida**

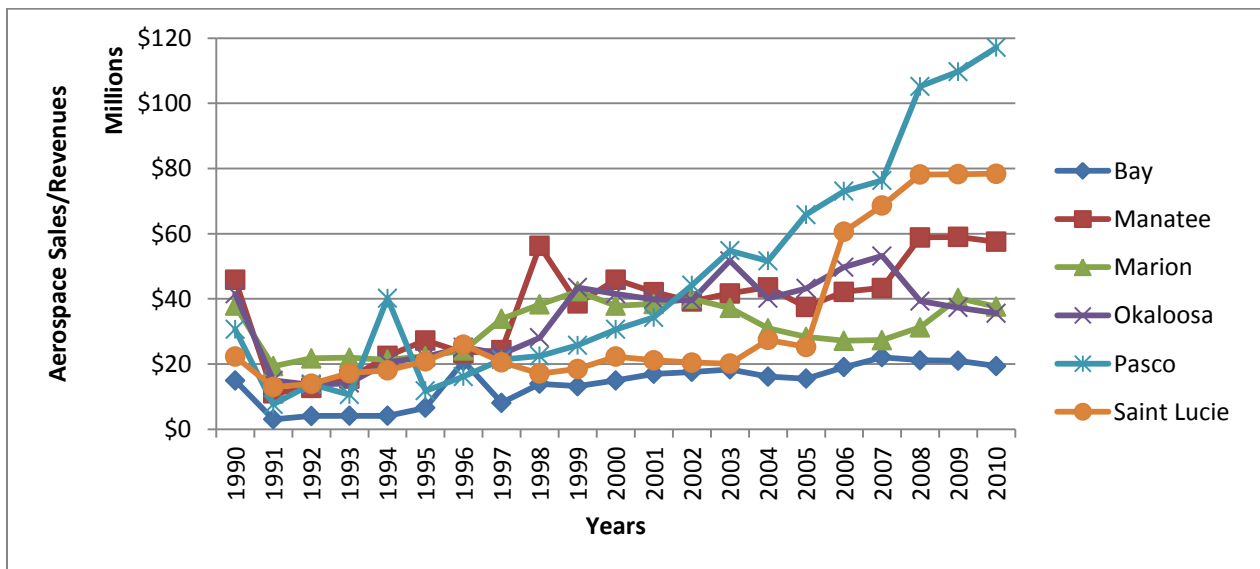


The following Figure(s) present the results for Charlotte, Citrus, Indian River, Lake, Osceola, Saint Johns, Bay, Manatee, Marion, Okaloosa, Pasco and Saint Lucie counties. Over time, the 12 counties reported aerospace-related sales/revenues ranging from about \$9 million to \$120 million. With the exception of years 1990-1991 to 2009-2010, the 12 counties show increasing sales/revenues of aerospace-related companies. Notably, Pasco county shows continuous rapid increasing sales/revenues over time, especially during years 2008-2010.

**Figure 39 Aerospace Sales/Revenues by Counties in Florida**

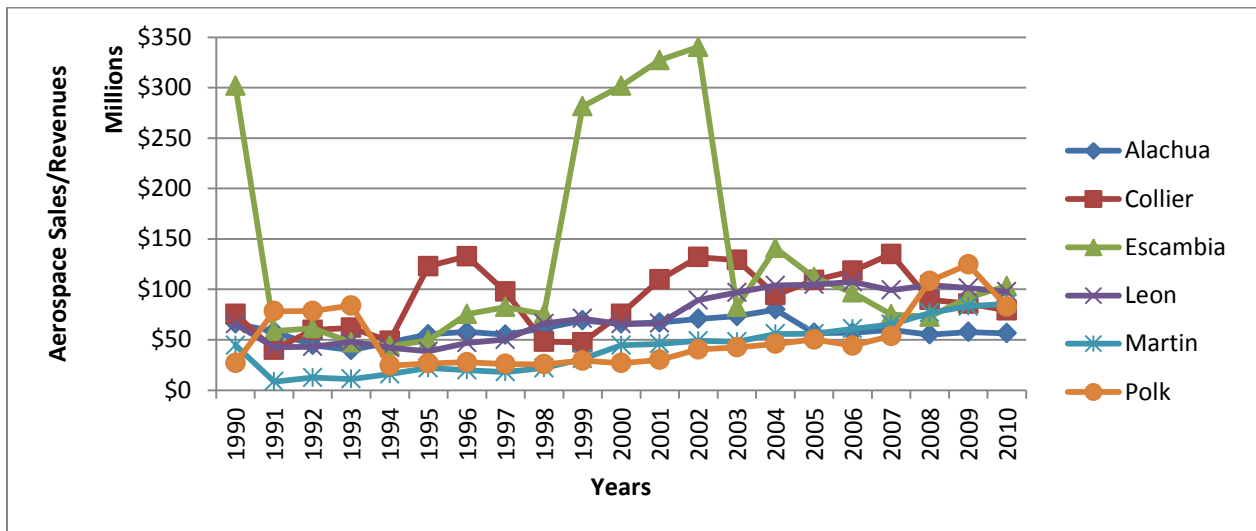


**Figure 40 Aerospace Sales/Revenues by Counties in Florida**

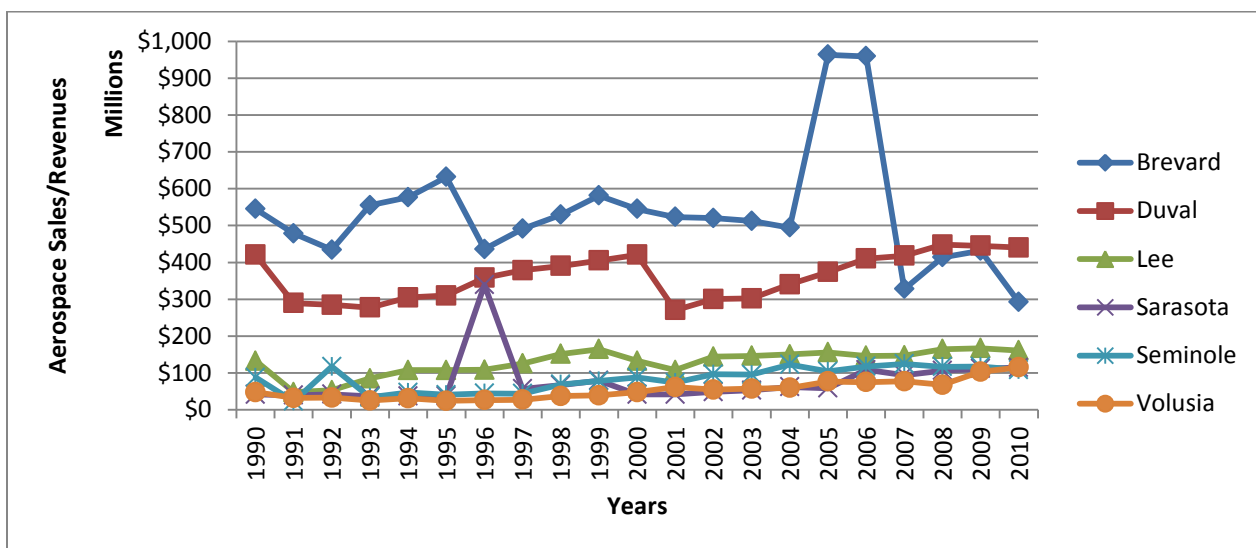


The following Figure(s) show the results of Alachua, Collier, Escambia, Leon, Martin, Polk, Brevard, Duval, Lee, Sarasota, Seminole and Volusia counties. These 12 counties have aerospace related sales/revenues ranging from about \$56 million to about \$440 million. Escambia county's sales/revenues increased substantially during years 1998-2002, and Brevard county also experienced an increase in sales/revenues during years 2004-2006. Over time, Collier county demonstrates a fluctuating pattern in sales/revenues when compared with the other counties. With the exception of years 1990-1991 and 2009-2010, the other nine counties show an increasing trend in aerospace-related sales/revenues.

**Figure 41 Aerospace Sales/Revenues by Counties in Florida**

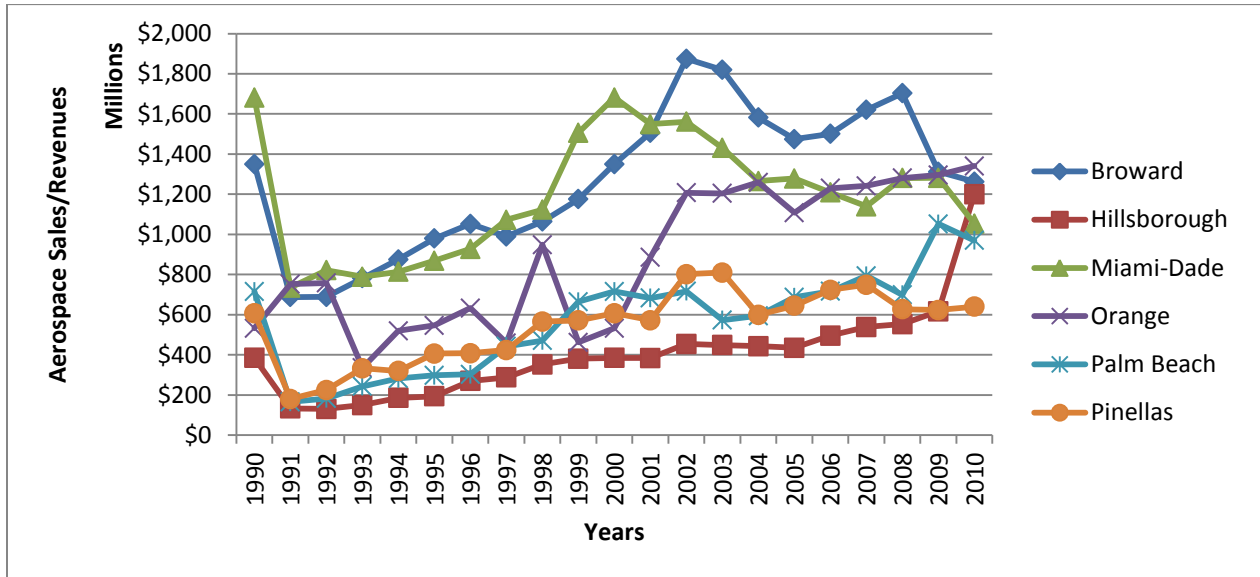


**Figure 42 Aerospace Sales/Revenues by Counties in Florida**



The following Figure portrays the sales/revenues related to aerospace industries for Broward, Hillsborough, Miami-Dade, Orange, Palm Beach, and Pinellas counties in Florida. Over time, the sales/revenues range from \$640,000 to \$1.3 Million. Broward and Miami-Dade show decreasing sales/revenues after the year 2000, whereas Pinellas, Orange, Palm Beach and Hillsborough depict a gradual increase in sales/revenues since year 2000.

**Figure 43 Aerospace Sales/Revenues by Counties in Florida**



## **V. Economic Impact Analysis**

### **The IMPLAN Economic Impact Model Methodology**

The county-specific economic impact analysis was performed using the state of Florida Impact Analysis for Planning, or IMPLAN, model, a widely accepted and used integrated input-output model. IMPLAN is used extensively by state and local government agencies to measure proposed legislative and other program and policy economic impacts across the private and public sectors. In addition, it is the tool of choice to measure these impacts by a number of universities and private research groups that evaluate economic impacts across the state and nation. There are several advantages to using IMPLAN:

- It is calibrated to local conditions using a relatively large amount of local county level and state of Florida specific data;
- It is based on a strong theoretical foundation
- It uses a well-researched and accepted applied economics impact assessment methodology supported by many years of use across all regions of the U.S.

The IMPLAN model used for this analysis was specifically developed for the counties of Florida, and includes 440 sectors, and latest dataset – year 2010 data. IMPLAN’s principal advantage is that it may be used to forecast direct, indirect and induced economic effects for an initial economic stimulus.

### **Primary Input Data for Economic Impact Model(s)**

The following table presents the primary input data for the economic impact model for the Phase One economic analysis.

- National Establishment Time Series (NETS) dataset <sup>17</sup> for Florida aerospace-related businesses, based on 6-digit NAICS codes and 8-digit SIC codes associated with the Space Florida categories (see Appendix A for a listing of “aerospace” industries and other standard definition/NAICS).

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<sup>17</sup> National Establishment Time Series (NETS) dataset was developed to better describe the dynamics of the US economy by Walls & Associates teaming up with Dun and Bradstreet. Presently In 2012, the NETS Database has taken twenty-one annual snapshots (taken every January) of the full Duns Marketing Information (DMI) file that followed over 44.2 million establishments between January 1990 and January 2010.

**Table 9 NETS Input Data for Year 2010 by Space Florida Aerospace-Related Industries**

40	NAICS Code	Aerospace Company	Employee	Sales/Revenues
1	334220	108	2,557	\$318,815,945
2	541370	345	3,487	\$230,769,142
3	423860	507	4,808	\$1,696,785,538
4	334119	49	1,270	\$196,475,700
5	515111	-	-	\$0
6	517919	-	-	\$0
7	237130	73	1,566	\$193,903,874
8	541360	1	3	\$350,000
9	928110	42	19,311	\$0
10	325411	18	325	\$44,930,115
11	541711	-	-	\$0
12	336411	19	1,364	\$215,220,300
13	336412	19	169	\$37,199,510
14	336413	38	558	\$126,487,800
15	336414	3	1,339	\$760,024,200
16	336415	-	-	\$0
17	336419	3	10	\$3,823,700
18	334511	40	2,163	\$437,767,120
19	927110	2	7	\$0
20	517410	3	23	\$6,171,590
21	541712	-	-	\$0
22	517210	-	-	\$0
23	541330	1,821	25,359	\$3,599,987,577
24	922190	15	943	\$21,083,300
25	325414	9	86	\$30,750,100
26	221119	-	-	\$0
27	481219	-	-	\$0
28	541940	279	2,099	\$103,529,100
29	541720	175	1,974	\$522,851,561
30	314999	63	806	\$71,895,123
31	326211	5	49	\$3,116,800
32	332312	86	1,119	\$169,086,859
33	332510	40	665	\$81,197,132
34	332912	3	157	\$21,236,300
35	332995	3	222	\$20,858,400
36	333924	22	219	\$33,789,400
37	333999	44	530	\$103,073,400
38	334519	39	625	\$59,590,372
39	336321	6	59	\$5,110,100
40	336360	11	460	\$47,313,700
<b>Total</b>		<b>3,891</b>	<b>74,332</b>	<b>\$9,163,193,758</b>

### IMPLAN Model Simulation Results

Once the inputs are entered and the economic modeling analysis has been performed, the economic model provided the following economic impacts, expressed as output (or sales/revenues), employment (or jobs), and income (or wages). The following table(s) presents the total economic impacts, and the direct, indirect, and induced economic impact results, respectively, in 2012 dollars.

**Table 10 Economic Impact Results of the Aerospace-Related Industries in Florida, in Terms of Sales/Revenues, Jobs and Income**

<b>Economic Impact of Aerospace In Florida<sup>18</sup></b>			
	<b>Output*</b>	<b>Employment</b>	<b>Income*</b>
<b>Aerospace in Florida</b>	\$17,749,917,450	111,242	\$6,713,179,866

\* in February 2012\$

**Table 11 Economic Impact Results the Aerospace-Related Industries in Florida, Including Direct, Indirect and Induced Impacts, in Terms of Sales/Revenues, Jobs and Income**

<b>Economic Impact of Aerospace in Florida</b>				
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
<b>Output (Sales/Revenues)</b>	\$8,139,670,730	\$4,427,489,373	\$5,182,757,347	\$17,749,917,450
<b>Employment</b>	42,602	30,763	37,877	111,242
<b>Income</b>	\$3,444,529,532	\$1,605,119,084	\$1,663,531,250	\$6,713,179,866

\* in February 2012\$

The output generated represents the value of final goods and services produced across the Florida economy as a result of the sales/revenues generated by the aerospace-related industries in Florida, in 2012 dollars. The direct impacts measure the immediate effects as a result of the aerospace-related industries sales/revenues in Florida; i.e., in employment and income. Indirect impacts are those that include changes to production, employment, income, etc., that occur as a result of the direct effects. Induced impacts are those further impacts of spending derived from direct and indirect activities – i.e., household purchases of consumer goods and services. The total economic impacts of aerospace-related industries in Florida are estimated to be: ~\$17.8 billion in state economic output, and \$6.7 billion in income while generating 111,242 jobs annually.

<sup>18</sup> The definition of aerospace-related industries includes 40 Space Florida-specific aerospace-related NAICS codes, including some aviation industries (see Appendix A).

## **Key Findings**

- The aerospace-related investment will generate about \$17.8 billion in total output; \$ 8.2 billion in direct output (i.e., the value of goods and services produced), \$4.4 billion, and \$5.1 billion of indirect and induced output, respectively.
- There will be \$3.4 billion in direct income, \$1.6 billion and \$1.7 billion of indirect and induced income, respectively. In addition, 42,602 direct, 30,763 indirect, and 37,877 induced jobs, or a total of 111,242 aerospace-related jobs are generated across the Florida economy.



## **VI. Final Conclusions**

In 2011, the Florida State University Center for Economic Forecasting and Analysis (FSU CEFA) conducted the “Phase One” study for defining and analyzing the aerospace industry in Florida for Space Florida. The results of the Phase One study helped to clarify the economics behind the aerospace industry’s impact and linkages on the Florida economy at a time when support for the space industries is declining. This “Phase Two” report represents the second phase of economic analysis of aerospace industries in Florida. Subsequently, this latter phase was more detailed in scope, in terms of providing greater definition of aerospace-related industries in Florida.

This Phase Two report expanded on the Phase One report by providing greater resolution of aerospace-specific industries; using 6-digit NAICS and 8-digit SIC codes. Through use of the National Establishment Time Series (NETS) 21-years dataset, FSU CEFA performed statistical analysis with results for aerospace-specific businesses, employees and sales/revenues in Florida. FSU CEFA also performed a trend analysis (from 1990-2011) regarding aerospace-related industries for the State of Florida, and by counties as well. Based on the additional aerospace-related industries data, an economic model generated economic impact results pertaining to aerospace-related industries output (or sales/revenues), employment (or jobs), and income (or wages), in 2012 dollars.

In Summary:

- After updating recent studies, FSU CEFA established a final aerospace-related industries database, comprising 40 NAICS sector codes and the associated aerospace-specific 8-digit SIC codes. In general, based on the Space Florida 40 sector codes, there are 3,891 companies related to aerospace (including aviation), with \$9.2 billion in sales/revenues, and 74,332 employees in Florida.
- With the exception of years 1990-1991 and 2009-2010, the number of aerospace companies has increased over time, from 2,111 to 4,350. According to the timeframe from 1990-2011, one can expect about 102 companies to be added to the Florida economy on an annual basis.
- The nominal sales/revenues of the aerospace industries in Florida ranged from \$ 4 billion in the early 1990s, to about \$ 9.2 billion, in year 2010. In nominal dollars, the trend line in sales/revenues is increasing over time. However, in terms of inflation adjusted dollars, the sales/revenues have remained relatively flat, yet stable, at around \$ 5.5 billion, over time.
- The aerospace-related investment will generate about \$17.8 billion in total output; \$ 8.2 billion in direct output (i.e., the value of goods and services produced), \$4.4 billion, and \$5.1 billion of indirect and induced output, respectively.
- There will be \$3.4 billion in direct income, \$1.6 billion and \$1.7 billion of indirect and induced income, respectively. In addition, 42,602 direct, 30,763 indirect, and 37,877 induced jobs, or a total of 111,242 aerospace and aviation jobs are generated across the Florida economy.

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**Appendix A - 40 NAICS Codes to SIC Codes**

<b>40</b>	<b>NAICS Code</b>	<b>US NAICS Title</b>
1	334220	Radio and Television Broadcasting and Wireless Communication Equipment
2	541370	Surveying and Mapping (Except Geophysical)
3	423860	Transportation Equipment and Supplies(except Motor Vehicle) Merchant Wholesalers
4	334119	Other Computer Peripheral Equipment Manufacturing
5	515111	Radio Network
6	517919	All Other Telecommunications
7	237130	Power and Communication Line and Related Structures Construction
8	541360	Geophysical Surveying and Mapping Services
9	928110	National Security
10	325411	Medical and Botanical Manufacturing
11	541711	Research and Development in Biotechnology
12	336411	Aircraft Manufacturing
13	336412	Aircraft Engine and Engine Parts Manufacturing
14	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
15	336414	Guided Missile and Space Vehicle Manufacturing
16	336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
17	336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
18	334511	"Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing"
19	927110	Space Research and Technology
20	517410	Satellite Telecommunications
21	541712	Research and Development in the Physical, Engineering, and Life Sciences(except biotechnology)
22	517210	Wireless Telecommunications Carriers (except Satellite)
23	541330	Engineering Services
24	922190	Other Justice, Public Order, and Safety Activities
25	325414	Biological Product (except diagnostic) Manufacturing
26	221119	Other Electric Power Generation
27	481219	Other Nonscheduled Air Transportation
28	541940	Veterinary Services
29	541720	Business Research and Development Services
30	314999	All Other Miscellaneous Textile Product Mills
31	326211	Tire Manufacturing (except Retreading)
32	332312	Fabricated Structural Metal Manufacturing
33	332510	Hardware Manufacturing
34	332912	Fluid Power Valve and Hose Fitting Manufacturing
35	332995	Other Ordnance and Accessories Manufacturing

36	333924	"Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing"
37	333999	All Other Miscellaneous General Purpose Machinery Manufacturing
38	334519	Other Measuring and Controlling Device Manufacturing
39	336321	Vehicular Lighting Equipment Manufacturing
40	336360	Motor Vehicle Seating and Interior Trim Manufacturing

**1. Radio and Television Broadcasting and Wireless Communication Equipment**

SIC	Meaning
36630000	RADIO and T.V. COMMUNICATIONS EQUIPMENT
36630100	RADIO BROADCASTING AND COMMUNICATIONS EQUIPMENT
36630101	AIRBORNE RADIO COMMUNICATIONS EQUIPMENT
36630102	AMPLIFIERS, RF POWER AND IF
36630103	CARRIER EQUIPMENT, RADIO COMMUNICATIONS
36630104	CELLULAR RADIO TELEPHONE
36630106	MARINE RADIO COMMUNICATIONS EQUIPMENT
36630107	MULTIPLEX EQUIPMENT
36630108	PAGERS(ONE-WAY)
36630109	RADIO RECEIVER NETWORKS
36630110	RECEIVERS, RADIO COMMUNICATIONS
36630111	TRANSMITTER-RECEIVERS, RADIO
36631200	TELEVISION BROADCASTING AND COMMUNICATIONS EQUIPMENT
36631201	CABLE TELEVISION EQUIPMENT
36631205	TELEVISION CLOSED CIRCUIT EQUIPMENT
36631206	TELEVISION MONITORS
36639901	ANTENNAS, TRANSMITTING AND COMMUNICATIONS
36639902	DIGITAL ENCODERS
36639903	ENCRYPTION DEVICES
36639904	LIGHT COMMUNICATIONS EQUIPMENT
36639905	MICROWAVE COMMUNICATIONS EQUIPMENT
36639906	MOBILE COMMUNICATIONS EQUIPMENT
36639908	RECEIVER-TRANSMITTER UNITS (TRANSCEIVER)
36639909	SATELLITES, COMMUNICATIONS
36639910	SPACE SATELLITE COMMUNICATIONS EQUIPMENT
36639912	TELEMETERING EQUIPMENT, ELECTRONIC
36639914	GLOBAL POSITIONING SYSTEMS (GPS) EQUIPMENT
36799901	ANTENNAS, RECEIVING
36799902	ANTENNAS, SATELLITE: HOUSEHOLD USE

**2. Surveying and Mapping (Except Geophysical)**

SIC	Meaning
73890800	MAPMAKING SERVICES
73890801	MAPMAKING OR DRAFTING, INCLUDING AERIAL
73890802	PHOTOGRAMMATIC MAPPING
87130000	SURVEYING SERVICES
87139901	PHOTOGRAMMETRIC ENGINEERING
87139902	SURVEYING TECHNICIANS

### 3. Transportation Equipment and Supplies(except Motor Vehicle) Merchant Wholesalers

SIC	Meaning
50880000	TRANSPORTATION EQUIPMENT AND SUPPLIES
50880100	MARINE CRAFTS AND SUPPLIES
50880101	BOATS, NON-RECREATIONAL
50880102	MARINE PROPULSION MACHINERY AND EQUIPMENT
50880103	MARINE SUPPLIES
50880104	NAVIGATION EQUIPMENT AND SUPPLIES
50880105	SHIPS
50880200	COMBAT VEHICLES
50880300	AIRCRAFT AND SPACE VEHICLE SUPPLIES AND PARTS
50880301	AERONAUTICAL EQUIPMENT AND SUPPLIES
50880302	AIRCRAFT AND PARTS, NEC
50880303	AIRCRAFT ENGINES AND ENGINE PARTS
50880304	AIRCRAFT EQUIPMENT AND SUPPLIES, NEC
50880305	GUIDED MISSILES AND SPACE VEHICLES
50880306	HELICOPTER PARTS
50889901	GOLF CARTS
50889903	RAILROAD EQUIPMENT AND SUPPLIES
73891705	YACHT BROKERS

### 4. Other Computer Peripheral Equipment Manufacturing

SIC	Meaning
35770000	COMPUTER PERIPHERAL EQUIPMENT, NEC
35770100	PRINTERS AND PLOTTERS
35770102	PRINTERS, COMPUTER
35770300	DISK AND DISKETTE EQUIPMENT, EXCEPT DRIVES
35770302	DISKETTE OR KEY-DISK EQUIPMENT
35770500	MAGNETIC INK AND OPTICAL SCANNING DEVICES

35770501	BAR CODE (MAGNETIC INK) PRINTERS
35770502	MAGNETIC INK RECOGNITION DEVICES
35770503	OPTICAL SCANNING DEVICES
35770504	READERS, SORTERS, OR INSCRIBERS, MAGNETIC INK
35770902	DATA CONVERSION EQUIPMENT, MEDIA-TO-MEDIA: COMPUTE
35770906	GRAPHIC DISPLAYS, EXCEPT GRAPHIC TERMINALS
35770907	INPUT/OUTPUT EQUIPMENT, COMPUTER
35780104	POINT-OF-SALE DEVICES
35780300	BANKING MACHINES
35780301	AUTOMATIC TELLER MACHINES (ATM)

**5. Radio Network => 0 company in Florida**

**6. All Other Telecommunications => 0 company in Florida**

**7. Power and Communication Line and Related Structures Construction**

SIC	Meaning
16230200	COMMUNICATION LINE AND TRANSMISSION TOWER CONSTRUC
16230201	CABLE LAYING CONSTRUCTION
16230202	CABLE TELEVISION LINE CONSTRUCTION
16230203	TELEPHONE AND COMMUNICATION LINE CONSTRUCTION
16230204	TRANSMITTING TOWER (TELECOMMUNICATION) CONSTRUCTIO
16239901	ELECTRIC POWER LINE CONSTRUCTION

**8. Geophysical Surveying and Mapping Services**

SIC	Meaning
13829901	AERIAL GEOPHYSICAL EXPLORATION, OIL AND GAS
13829903	GEOPHYSICAL EXPLORATION, OIL AND GAS FIELD

**9. "National Security"**

SIC	Meaning
97110000	NATIONAL SECURITY
97110401	NATIONAL SECURITY, FEDERAL GOVERNMENT
97119901	AIR FORCE

97119902	ARMY
97119903	CIVIL DEFENSE
97119904	MARINE CORPS
97119905	MILITARY TRAINING SCHOOLS
97119906	NATIONAL GUARD
97119907	NAVY

### **10. Medical and Botanical Manufacturing**

SIC	Meaning
28330000	MEDICINALS AND BOTANICALS
28330109	VITAMINS, NATURAL OR SYNTHETIC: BULK, UNCOMPOUNDED
28330200	ALKALOIDS AND OTHER BOTANICAL BASED PRODUCTS
28330210	DRUGS AND HERBS: GRADING, GRINDING, AND MILLING
28330400	ANIMAL BASED PRODUCTS

### **11. Research and Development in Biotechnology=> 0 company in Florida**

### **12. Aircraft Manufacturing**

SIC	Meaning
37210000	AIRCRAFT
37210101	AIRPLANES, FIXED OR ROTARY WING
37210102	HELICOPTERS
37210200	NONMOTORIZED AND LIGHTER-THAN-AIR AIRCRAFT
37210201	AIRSHIPS
37210206	HANG GLIDERS

### **13. Aircraft Engine and Engine Parts Manufacturing**

SIC	Meaning
37240000	AIRCRAFT ENGINES AND ENGINE PARTS
37249915	TURBINES, AIRCRAFT TYPE

### **14. Other Aircraft Parts and Auxiliary Equipment Manufacturing**



SIC	Meaning
37280000	AIRCRAFT PARTS AND EQUIPMENT, NEC
37280100	AIRCRAFT BODY AND WING ASSEMBLIES AND PARTS
37280102	AIRCRAFT BODY ASSEMBLIES AND PARTS
37280111	Nacelles, aircraft
37280112	PONTOONS, AIRCRAFT
37280113	RUDDERS, AIRCRAFT
37280200	AIRCRAFT PROPELLERS AND ASSOCIATED EQUIPMENT
37280201	ACCUMULATORS, AIRCRAFT PROPELLER
37280205	GEARS, AIRCRAFT POWER TRANSMISSION
37280300	AIRCRAFT LANDING ASSEMBLIES AND BRAKES
37280301	AIRCRAFT ARRESTING DEVICE SYSTEM
37280400	MILITARY AIRCRAFT EQUIPMENT AND ARMAMENT
37280500	AIRCRAFT TRAINING EQUIPMENT
37280504	TOW TARGETS
37289901	AIRCRAFT ASSEMBLIES, SUBASSEMBLIES, AND PARTS, NEC
37289910	REFUELING EQUIPMENT FOR USE IN FLIGHT, AIRPLANE

#### 15. Guided Missile and Space Vehicle Manufacturing

SIC	Meaning
37610000	GUIDED MISSILES AND SPACE VEHICLES
37619901	BALLISTIC MISSILES, COMPLETE

#### 16. Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing

SIC	Meaning
37649903	PROPULSION UNITS FOR GUIDED MISSILES AND SPACE VEH

#### 17. Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing

SIC	Meaning
37690000	SPACE VEHICLE EQUIPMENT, NEC
37699903	CASINGS, MISSILES AND MISSILE COMPONENTS: STORAGE

#### 18. "Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing"

SIC	Meaning
36990405	UNDERWATER SOUND EQUIPMENT
38120000	SEARCH AND NAVIGATION EQUIPMENT
38120100	AIRCRAFT/AEROSPACE FLIGHT INSTRUMENTS AND GUIDANCE
38120101	ACCELERATION INDICATORS AND SYSTEMS COMPONENTS, AE
38120104	ALTIMETERS, STANDARD AND SENSITIVE
38120110	ELECTRONIC DETECTION SYSTEMS (AERONAUTICAL)
38120120	INFRARED OBJECT DETECTION EQUIPMENT
38120123	OMNIBEARING INDICATORS
38120200	AIRCRAFT CONTROL INSTRUMENTS
38120201	AIRCRAFT CONTROL SYSTEMS, ELECTRONIC
38120300	NAVIGATIONAL SYSTEMS AND INSTRUMENTS
38120301	ANTENNAS, RADAR OR COMMUNICATIONS
38120306	RADAR SYSTEMS AND EQUIPMENT
38120307	SONAR SYSTEMS AND EQUIPMENT
38120500	DEFENSE SYSTEMS AND EQUIPMENT
38120600	SEARCH AND DETECTION SYSTEMS AND INSTRUMENTS
38120601	AIR TRAFFIC CONTROL SYSTEMS AND EQUIPMENT, ELECTRO
38120602	DETECTION APPARATUS: ELECTRONIC/MAGNETIC FIELD, LI

### 19. Space Research and Technology

SIC	Meaning
96619901	SPACE FLIGHT OPERATIONS, GOVERNMENT
96619902	SPACE RESEARCH AND DEVELOPMENT, GOVERNMENT

### 20. Satellite Telecommunications

SIC	Meaning
48999905	SATELLITE EARTH STATIONS

### 21. Research and Development in the Physical, Engineering, and Life Sciences(except biotechnology) => 0 company in Florida

### 22. Wireless Telecommunications Carriers (except Satellite) => 0 company in Florida

### 23. Engineering Services

SIC	Meaning
87110000	ENGINEERING SERVICES
87110100	SANITARY ENGINEERS
87110101	POLLUTION CONTROL ENGINEERING
87110200	INDUSTRIAL ENGINEERS
87110201	MACHINE TOOL DESIGN
87110202	MECHANICAL ENGINEERING
87110301	CHEMICAL ENGINEERING
87110302	MINING ENGINEER
87110400	CONSTRUCTION AND CIVIL ENGINEERING
87110401	BUILDING CONSTRUCTION CONSULTANT
87110402	CIVIL ENGINEERING
87110403	HEATING AND VENTILATION ENGINEERING
87110404	STRUCTURAL ENGINEERING
87119901	ACOUSTICAL ENGINEERING
87119902	AVIATION AND/OR AERONAUTICAL ENGINEERING
87119903	CONSULTING ENGINEER
87119904	DESIGNING: SHIP, BOAT, MACHINE, AND PRODUCT
87119905	ELECTRICAL OR ELECTRONIC ENGINEERING
87119906	ENERGY CONSERVATION ENGINEERING
87119907	FIRE PROTECTION ENGINEERING
87119908	MARINE ENGINEERING
87119909	PROFESSIONAL ENGINEER
87480204	TRAFFIC CONSULTANT

### 24. Other Justice, Public Order, and Safety Activities

SIC	Meaning
92290000	PUBLIC ORDER AND SAFETY, NEC
92290100	PUBLIC ORDER AND SAFETY STATISTICS CENTERS
92290101	CRIMINAL JUSTICE STATISTICS CENTER, GOVERNMENT
92290102	LAW ENFORCEMENT STATISTICS CENTER, GOVERNMENT
92290103	PUBLIC SAFETY STATISTICS CENTER, GOVERNMENT
92290400	PUBLIC ORDER AND SAFETY, LEVEL OF GOVERNMENT
92290403	PUBLIC ORDER AND SAFETY, COUNTY GOVERNMENT
92299902	EMERGENCY MANAGEMENT OFFICE, GOVERNMENT

### 25. Biological Product (except diagnostic) Manufacturing

SIC	Meaning
28360000	BIOLOGICAL PRODUCTS, EXCEPT DIAGNOSTIC
28360102	PLASMAS
28360400	CULTURE MEDIA
28360402	BACTERIOLOGICAL MEDIA
28360502	INDUSTRY: VENOMS

**26. "Other Electric Power Generation"=> 0 company in Florida**

**27. Other Nonscheduled Air Transportation=> 0 company in Florida**

**28. Veterinary Services**

SIC	Meaning
07410000	VETERINARY SERVICES FOR LIVESTOCK
07419901	ANIMAL HOSPITAL SERVICES, LIVESTOCK
07419902	VETERINARIAN, LIVESTOCK
07420000	VETERINARY SERVICES, SPECIALTIES
07429901	ANIMAL HOSPITAL SERVICES, PETS AND OTHER ANIMAL SP
07429902	VETERINARIAN, ANIMAL SPECIALTIES
87349910	VETERINARY TESTING

**29. Business Research and Development Services**

SIC	Meaning
87320000	COMMERCIAL NONPHYSICAL RESEARCH
87320100	MARKET ANALYSIS, BUSINESS, AND ECONOMIC RESEARCH
87320101	BUSINESS ANALYSIS
87320102	BUSINESS ECONOMIC SERVICE
87320103	BUSINESS RESEARCH SERVICE
87320104	ECONOMIC RESEARCH
87320106	MERGER, ACQUISITION, AND REORGANIZATION RESEARCH
87320201	EDUCATIONAL RESEARCH
87330200	NONCOMMERCIAL SOCIAL RESEARCH ORGANIZATION
87330201	ARCHEOLOGICAL EXPEDITIONS
87330202	ECONOMIC RESEARCH, NONCOMMERCIAL
87330203	EDUCATIONAL RESEARCH AGENCY

87339901	PHYSICAL RESEARCH, NONCOMMERCIAL
87339902	RESEARCH INSTITUTE
87339903	SAFETY RESEARCH, NONCOMMERCIAL
87339904	SCIENTIFIC RESEARCH AGENCY
89991003	PSYCHOLOGICAL CONSULTANT

### 30. All Other Miscellaneous Textile Product Mills

SIC	Meaning
22990100	BATTING, WADDING, PADDING AND FILLINGS
22990104	PADDING AND WADDING, TEXTILE
22990108	UPHOLSTERY FILLING, TEXTILE
22990705	WOOL TOPS, COMBING AND CONVERTING
22990503	CRASH, LINEN
22990504	LINEN FABRICS
23920503	POLISHING CLOTHS, PLAIN
23920504	TOWELS, FABRIC AND NONWOVEN: MADE FROM PURCHASED M
23950000	PLEATING AND STITCHING
23950100	QUILTING AND QUILTING SUPPLIES
23950101	QUILTED FABRICS OR CLOTH
23960100	APPAREL AND OTHER LININGS, EXCEPT MILLINERY
23960102	LININGS, APPAREL: MADE FROM PURCHASED MATERIALS
23960204	RIBBONS AND BOWS, CUT AND SEWED
23990100	EMBLEMS, BADGES, AND INSIGNIA
23990102	MILITARY INSIGNIA, TEXTILE
23990200	HORSE AND PET ACCESSORIES, TEXTILE
23990202	HORSE HARNESSES AND RIDING CROPS, ETC.: NON-LEATHE
23990203	PET COLLARS, LEASHES, ETC.: NON-LEATHER
23990300	BANNERS, PENNANTS, AND FLAGS
23990301	BANNERS, MADE FROM FABRIC
23990302	FLAGS, FABRIC
23990500	HAND WOVEN AND CROCHETED PRODUCTS
23990502	HAND WOVEN APPAREL
23990600	HAMMOCKS AND OTHER NET PRODUCTS
23990601	FISHING NETS
23999901	APRONS, BREAST (HARNESS)
23999902	AUTOMOTIVE COVERS, EXCEPT SEAT AND TIRE COVERS
23999905	DIAPERS, EXCEPT DISPOSABLE: MADE FROM PURCHASED MA
23999908	PARACHUTES
73890304	EMBROIDERY ADVERTISING

73890408	RUG BINDING
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### 31. Tire Manufacturing (except Retreading)

SIC	Meaning
30110203	AUTOMOBILE TIRES, PNEUMATIC
30110205	INDUSTRIAL TIRES, PNEUMATIC
30110207	TRUCK OR BUS TIRES, PNEUMATIC
30110300	TIRE AND INNER TUBE MATERIALS AND RELATED PRODUCTS
30110303	Industry: Tiring, continuous lengths: rubber, with metal core.

### 32. Fabricated Structural Metal Manufacturing

SIC	Meaning
34410000	FABRICATED STRUCTURAL METAL
34410100	FABRICATED STRUCTURAL METAL FOR SHIPS
34410101	BOAT AND BARGE SECTIONS, PREFABRICATED METAL
34410102	SHIP SECTIONS, PREFABRICATED METAL
34419901	BUILDING COMPONENTS, STRUCTURAL STEEL
34419902	DAM GATES, METAL PLATE
34419903	EXPANSION JOINTS (STRUCTURAL SHAPES), IRON OR STEEL
34419908	TOWER SECTIONS, RADIO AND TELEVISION TRANSMISSION
34490000	MISCELLANEOUS METALWORK
34490101	BARS, CONCRETE REINFORCING: FABRICATED STEEL

### 33. Hardware Manufacturing

SIC	Meaning
34290000	HARDWARE, NEC
34290100	FURNITURE, BUILDERS' AND OTHER HOUSEHOLD HARDWARE
34290101	BUILDERS' HARDWARE
34290102	CABINET HARDWARE
34290103	DOOR OPENING AND CLOSING DEVICES, EXCEPT ELECTRICAL
34290104	FIREPLACE EQUIPMENT, HARDWARE: ANDIRONS, GRATES, S
34290105	FURNITURE HARDWARE
34290200	KEYS, LOCKS, AND RELATED HARDWARE
34290203	LOCKS OR LOCK SETS
34290401	AIRCRAFT HARDWARE
34290402	MARINE HARDWARE

34299908	METAL FASTENERS
34299910	PARACHUTE HARDWARE
34990103	DOORS, SAFE AND VAULT: METAL
34990105	LOCKS, SAFE AND VAULT: METAL
34990108	SAFES AND VAULTS, METAL

**34. Fluid Power Valve and Hose Fitting Manufacturing**

SIC	Meaning
34920000	FLUID POWER VALVES AND HOSE FITTINGS
34920101	CONTROL VALVES, AIRCRAFT: HYDRAULIC AND PNEUMATIC
34929901	CONTROL VALVES, FLUID POWER: HYDRAULIC AND PNEUMAT
34929903	HOSE AND TUBE FITTINGS AND ASSEMBLIES, HYDRAULIC/P
34929904	HOSE AND TUBE COUPLINGS, HYDRAULIC/PNEUMATIC

**35. Other Ordnance and Accessories Manufacturing**

SIC	Meaning
34890000	ORDNANCE AND ACCESSORIES, NEC
34890103	GUNS OR GUN PARTS, OVER 30 MM.
34899905	RIFLES, RECOILLESS

**36. "Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing"**

SIC	Meaning
35370000	INDUSTRIAL TRUCKS AND TRACTORS
35370106	LOADING DOCKS: PORTABLE, ADJUSTABLE, AND HYDRAULIC
35370112	TABLES, LIFT: HYDRAULIC
35370200	TRUCKS, TRACTORS, LOADERS, CARRIERS, AND SIMILAR E
35370201	AIRCRAFT LOADING HOISTS
35370208	FORKLIFT TRUCKS
35370210	LIFT TRUCKS, INDUSTRIAL: FORK, PLATFORM, STRADDLE,
35370218	TRUCKS: FREIGHT, BAGGAGE, ETC.: INDUSTRIAL, EXCEPT

**37. All Other Miscellaneous General Purpose Machinery Manufacturing**

SIC	Meaning
35690100	FILTERS

35690102	FILTERS AND STRAINERS, PIPELINE
35690103	FILTERS, GENERAL LINE: INDUSTRIAL
35690200	FIREFIGHTING AND RELATED EQUIPMENT
35690201	FIREFIGHTING APPARATUS
35690202	FIREHOSE EQUIPMENT: DRIERS, RACK, AND REELS
35690204	SPRINKLER SYSTEMS, FIRE: AUTOMATIC
35690300	LUBRICATING EQUIPMENT
35690302	LUBRICATION EQUIPMENT, INDUSTRIAL
35690400	GAS PRODUCERS, GENERATORS, AND OTHER GAS RELATED E
35690401	GAS GENERATORS
35690402	GAS PRODUCERS (MACHINERY)
35690405	SEPARATORS FOR STEAM, GAS, VAPOR, OR AIR (MACHINER
35699901	ASSEMBLY MACHINES, NON-METALWORKING
35699902	BALING MACHINES, FOR SCRAP METAL, PAPER, OR SIMILA
35699903	BLAST CLEANING EQUIPMENT, DUSTLESS
35699905	BRIDGE OR GATE MACHINERY, HYDRAULIC
35699907	CENTRIFUGES, INDUSTRIAL
35699908	CREMATING OVENS
35699911	JACK SCREWS
35699912	JACKS, HYDRAULIC
35699913	LIQUID AUTOMATION MACHINERY AND EQUIPMENT
35699914	ROBOTS, ASSEMBLY LINE: INDUSTRIAL AND COMMERCIAL
35699918	INDUSTRIAL SHOCK ABSORBERS
35990000	INDUSTRIAL MACHINERY, NEC
35999902	BOILER TUBE CLEANERS
35999903	CATAPULTS
35999919	WATER LEAK DETECTORS

### 38. Other Measuring and Controlling Device Manufacturing

SIC	Meaning
36999902	FIRE CONTROL OR BOMBING EQUIPMENT, ELECTRONIC
38290000	MEASURING AND CONTROLLING DEVICES, NEC
38290104	FUEL SYSTEM INSTRUMENTS, AIRCRAFT
38290200	GEOPHYSICAL AND METEOROLOGICAL TESTING EQUIPMENT
38290207	HUMIDITY INSTRUMENTS, EXCEPT INDUSTRIAL PROCESS TY
38290215	SEISMOGRAPHS
38290219	WEATHER TRACKING EQUIPMENT
38290300	SURVEYING AND DRAFTING EQUIPMENT
38290312	SURVEYING INSTRUMENTS AND ACCESSORIES



38290400	PHYSICAL PROPERTY TESTING EQUIPMENT
38290408	TESTING EQUIPMENT: ABRASION, SHEARING STRENGTH, ET
38290500	NUCLEAR RADIATION AND TESTING APPARATUS
38290506	MEDICAL DIAGNOSTIC SYSTEMS, NUCLEAR
38290700	THERMOMETERS AND TEMPERATURE SENSORS
38290701	TEMPERATURE SENSORS, EXCEPT INDUSTRIAL PROCESS AND
38290704	THERMOMETERS, LIQUID-IN-GLASS AND BIMETAL TYPE
38299902	BREATHALYZERS
38299913	PRESSURE TRANSDUCERS
38299922	ULTRASONIC TESTING EQUIPMENT
38299925	POLYGRAPH DEVICES
38299926	LIQUID LEAK DETECTION EQUIPMENT

### 39. Vehicular Lighting Equipment Manufacturing

SIC	Meaning
36470000	VEHICULAR LIGHTING EQUIPMENT
36470100	MOTOR VEHICLE LIGHTING EQUIPMENT
36470101	AUTOMOTIVE LIGHTING FIXTURES, NEC

### 40. Motor Vehicle Seating and Interior Trim Manufacturing

SIC	Meaning
23960000	AUTOMOTIVE AND APPAREL TRIMMINGS
23969901	AUTOMOTIVE TRIMMINGS, FABRIC
23999910	SEAT COVERS, AUTOMOBILE
25310300	VEHICLE FURNITURE
25310302	SEATS, AIRCRAFT
34999904	AUTOMOBILE SEAT FRAMES, METAL

**Appendix B - The 8-Digit SIC Codes for Aerospace in Florida**

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
07410000	2	8	\$287,500
07419901	2	15	\$634,300
07419902	4	6	\$374,500
07420000	77	474	\$21,865,300
07429901	100	884	\$45,805,900
07429902	93	711	\$34,521,600
13829901	1	3	\$350,000
16230200	11	212	\$28,049,630
16230201	15	274	\$33,150,500
16230202	10	149	\$18,598,009
16230203	10	379	\$30,973,663
16230204	18	235	\$54,542,619
16239901	9	317	\$28,589,453
22990100	1	6	\$617,800
22990104	1	50	\$5,000,000
22990705	1	2	\$3,200,000
23920503	1	38	\$3,093,023
23920504	1	4	\$280,000
23950000	4	15	\$967,400
23950100	3	6	\$353,000
23950101	3	4	\$150,000
23960000	4	16	\$1,301,700
23960100	1	5	\$363,800
23960102	1	5	\$363,800
23960204	1	7	\$3,000,000
23969901	1	2	\$126,700
23990100	2	151	\$15,035,000
23990200	3	22	\$1,700,000
23990202	1	4	\$200,000
23990203	1	1	\$100,000
23990300	4	18	\$1,767,900
23990301	5	118	\$14,097,100
23990302	3	25	\$2,250,000
23990500	1	1	\$45,000
23990502	1	4	\$1,462,400
23990600	2	3	\$144,700

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
23990601	1	1	\$45,000
23999901	1	3	\$188,000
23999902	1	58	\$952,300
23999905	1	1	\$45,000
23999908	4	181	\$11,662,900
23999910	1	1	\$58,500
25310302	4	436	\$44,826,800
28330000	5	35	\$3,846,800
28330109	10	252	\$27,844,515
28330200	1	30	\$11,908,600
28330210	1	6	\$1,230,200
28330400	1	2	\$100,000
28360000	3	24	\$21,098,000
28360102	1	8	\$100,000
28360400	3	46	\$9,223,500
28360402	1	2	\$200,000
28360502	1	6	\$128,600
30110203	1	35	\$1,458,200
30110205	1	3	\$400,000
30110207	1	5	\$618,800
30110300	1	1	\$250,000
30110303	1	5	\$389,800
34290000	7	83	\$9,201,200
34290100	2	9	\$1,674,900
34290101	3	43	\$11,178,200
34290102	2	8	\$1,012,532
34290103	1	2	\$200,000
34290104	2	18	\$1,971,000
34290105	1	2	\$100,000
34290200	1	25	\$2,941,200
34290203	1	2	\$150,000
34290402	16	285	\$31,082,400
34299908	1	90	\$7,985,700
34410000	65	838	\$124,586,959
34410100	2	28	\$2,543,800
34410101	1	40	\$2,765,300
34410102	1	3	\$990,000
34419901	1	2	\$200,000
34419902	1	5	\$900,000

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
34419903	1	11	\$1,540,000
34419908	2	38	\$5,180,000
34490000	9	52	\$4,990,600
34490101	3	102	\$25,390,200
34890000	1	30	\$1,700,000
34890103	1	2	\$158,400
34899905	1	190	\$19,000,000
34920101	1	145	\$19,772,700
34929903	1	10	\$1,363,600
34929904	1	2	\$100,000
34990105	1	3	\$200,000
34990108	2	95	\$13,500,000
34999904	1	5	\$1,000,000
35370000	6	31	\$1,916,500
35370106	1	2	\$200,000
35370112	1	25	\$296,000
35370200	4	27	\$4,921,800
35370208	7	53	\$10,341,000
35370210	3	81	\$16,114,100
35690100	4	12	\$2,203,900
35690102	1	9	\$1,847,000
35690103	4	114	\$47,748,100
35690200	1	19	\$2,442,900
35690201	1	2	\$300,000
35690302	1	3	\$255,000
35690400	2	8	\$1,165,000
35690402	2	31	\$4,507,800
35690405	1	6	\$685,700
35699901	3	24	\$3,257,900
35699902	2	11	\$3,037,100
35699903	1	5	\$3,702,600
35699905	2	50	\$1,555,700
35699908	4	134	\$18,214,200
35699911	1	10	\$1,429,500
35699912	2	3	\$201,000
35699913	1	5	\$500,000
35699914	1	5	\$700,000
35699918	1	20	\$2,571,400
35770000	21	279	\$49,603,000

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
35770102	4	79	\$7,103,100
35770300	1	6	\$2,000,000
35770302	1	2	\$190,000
35770500	1	5	\$510,000
35770501	6	39	\$5,809,500
35770503	3	18	\$1,491,200
35779902	2	100	\$17,879,300
35779906	1	2	\$19,500,000
35779907	5	528	\$58,190,600
35780104	2	202	\$33,423,000
35780301	2	10	\$776,000
35990000	4	6	\$600,000
35999902	1	30	\$3,500,000
35999903	1	6	\$1,022,500
35999919	3	17	\$1,626,100
36470000	5	42	\$3,960,400
36470101	1	17	\$1,149,700
36630000	26	606	\$134,971,900
36630100	6	115	\$13,380,900
36630101	4	82	\$12,093,000
36630102	1	1	\$40,000
36630103	1	12	\$1,787,000
36630104	7	57	\$6,315,900
36630106	1	6	\$893,500
36630110	3	27	\$2,248,300
36630111	2	2	\$1,972,300
36630200	5	90	\$7,789,700
36630201	6	43	\$14,445,381
36630206	1	5	\$750,000
36639901	7	152	\$22,288,064
36639902	1	1	\$80,000
36639903	1	2	\$160,000
36639904	1	20	\$1,867,800
36639905	4	35	\$4,885,000
36639906	3	97	\$8,505,200
36639908	3	107	\$16,958,000
36639909	18	874	\$34,085,600
36639912	1	200	\$29,782,500
36639914	1	1	\$25,000

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
36799901	2	11	\$2,600,000
36799902	3	11	\$890,900
36990405	2	22	\$2,851,400
36999902	1	3	\$421,900
37210000	13	228	\$81,935,300
37210101	2	1,101	\$128,421,400
37210102	1	15	\$2,500,000
37210200	1	3	\$500,000
37210201	1	2	\$800,000
37210206	1	15	\$1,063,600
37240000	19	169	\$37,199,510
37280000	23	219	\$62,825,100
37280102	1	14	\$17,500,000
37280111	1	4	\$484,500
37280113	1	4	\$400,000
37280200	2	9	\$412,800
37280201	1	10	\$750,000
37280205	2	12	\$643,500
37280301	1	2	\$80,000
37280302	1	7	\$4,000,000
37280400	1	185	\$22,409,500
37280500	1	55	\$8,478,800
37280504	1	1	\$100,000
37289901	1	30	\$7,890,000
37289910	1	6	\$513,600
37610000	2	7	\$6,911,400
37619901	1	1,332	\$753,112,800
37690000	2	9	\$3,793,700
37699903	1	1	\$30,000
38120000	8	292	\$36,046,600
38120100	2	9	\$1,218,200
38120101	1	7	\$1,079,900
38120104	1	14	\$2,032,800
38120110	2	16	\$4,839,500
38120200	1	4	\$1,100,000
38120201	3	785	\$223,900,600
38120300	1	1	\$100,000
38120301	2	22	\$2,768,645
38120306	3	187	\$28,027,600

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
38120307	2	201	\$30,324,700
38120500	5	47	\$9,226,675
38120600	1	2	\$2,500,000
38120601	1	30	\$4,530,300
38120602	5	524	\$87,220,200
38290000	14	156	\$26,929,300
38290104	1	16	\$2,753,500
38290200	1	6	\$690,000
38290207	1	1	\$80,000
38290300	1	3	\$359,400
38290312	1	2	\$250,000
38290400	5	41	\$3,489,772
38290408	1	10	\$1,459,300
38290500	1	11	\$4,600,000
38290506	3	319	\$12,172,400
38290700	1	15	\$1,800,000
38290701	1	9	\$1,152,500
38290704	1	9	\$1,035,000
38299902	1	1	\$80,000
38299913	1	2	\$160,000
38299922	1	4	\$367,300
38299925	2	10	\$985,000
38299926	1	7	\$805,000
48999905	3	23	\$6,171,590
50880000	29	646	\$144,234,700
50880100	28	227	\$60,689,500
50880101	1	3	\$177,900
50880102	8	72	\$15,584,200
50880103	56	582	\$185,302,899
50880104	1	10	\$3,409,000
50880105	12	272	\$70,582,300
50880200	1	10	\$2,700,000
50880300	33	258	\$95,029,337
50880301	9	108	\$42,128,027
50880302	141	1,184	\$557,592,703
50880303	37	434	\$140,968,111
50880304	59	516	\$179,026,317
50880305	1	3	\$600,000
50880306	2	4	\$500,000

SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
50889901	10	51	\$7,794,844
50889903	6	30	\$20,892,400
73890304	13	71	\$4,732,500
73890408	1	2	\$78,500
73890800	4	64	\$3,600,400
73890801	7	23	\$1,552,800
73890802	2	12	\$738,925
73891705	73	398	\$169,573,300
87110000	731	11,392	\$1,295,869,503
87110100	2	13	\$1,250,000
87110101	9	112	\$16,512,580
87110200	9	86	\$14,050,890
87110201	1	1	\$480,000
87110202	29	225	\$25,945,223
87110301	3	32	\$5,350,000
87110302	1	7	\$1,735,200
87110400	39	802	\$124,081,181
87110401	67	487	\$54,341,600
87110402	174	3,020	\$974,976,998
87110403	5	37	\$4,977,300
87110404	49	325	\$29,875,400
87119901	2	16	\$2,000,000
87119902	32	363	\$41,499,000
87119903	491	6,796	\$775,372,279
87119904	16	128	\$14,199,325
87119905	68	659	\$86,460,343
87119906	6	58	\$8,435,500
87119907	7	72	\$6,617,300
87119908	22	217	\$66,867,177
87119909	46	347	\$34,686,478
87130000	324	3,310	\$210,266,917
87139901	6	68	\$6,190,100
87139902	2	10	\$8,420,000
87320000	37	476	\$359,215,800
87320100	19	339	\$28,252,467
87320101	4	128	\$10,194,600
87320102	8	32	\$9,520,100
87320103	23	176	\$16,744,679
87320104	4	18	\$1,834,600



SIC 8	Aerospace Companies	Aerospace Employment	Sales/Revenues
87320106	9	33	\$3,420,100
87320201	9	109	\$5,374,300
87330200	1	19	\$1,900,000
87330201	5	124	\$7,651,400
87330202	1	6	\$500,000
87330203	11	130	\$22,510,909
87339901	1	5	\$500,000
87339902	18	265	\$39,926,285
87339903	2	11	\$1,881,600
87339904	11	74	\$11,827,521
87349910	1	1	\$40,000
87480204	12	164	\$14,404,300
89991003	12	29	\$1,597,200
92290000	1	253	\$21,083,300
92290100	4	220	\$0
92290101	2	39	\$0
92290102	3	296	\$0
92290103	1	1	\$0
92290400	1	50	\$0
92290403	1	65	\$0
92299902	2	19	\$0
96619901	1	6	\$0
96619902	1	1	\$0
97110000	2	15	\$0
97110401	1	1	\$0
97119901	11	17,463	\$0
97119902	6	769	\$0
97119903	2	63	\$0
97119904	5	128	\$0
97119905	1	1	\$0
97119906	4	684	\$0
97119907	10	187	\$0
<b>Total</b>	<b>3,891</b>	<b>74,332</b>	<b>\$9,163,193,758</b>