

The Effect of FEDERAL
2010
Employment
& Spending In
MARYLAND

SUBMITTED BY
The Federal Facilities Advisory Board &
Maryland Department of Business and Economic Development

FEBRUARY 2012

MARYLAND OF OPPORTUNITY.®

Department of Business & Economic Development

MARTIN O'MALLEY, GOVERNOR | ANTHONY G. BROWN, LT. GOVERNOR | CHRISTIAN S. JOHANSSON, SECRETARY

Table of Contents

Executive Summary.....	ii
I. Introduction.....	1
II. Federal Employment in Maryland.....	1
III. Federal Spending in Maryland, 2000 to 2010	8
IV. Federal Procurement Contract Spending in Maryland	10
V. Federal Grant Activity in Maryland	14
VI. Federal Research and Development Funding in Maryland	16
VII. The Total Effect of Federal Operations and Spending in Maryland	17
VIII. Conclusion: Redefining Maryland’s Pathway to Success	18
IX. Appendix A: Federal Military and Non-Military Facilities	19
X. Appendix B: Previous Studies.....	22
XI. Appendix C: The IMPLAN Model	23

Executive Summary

Maryland's economy is closely intertwined with the operations of the Federal government. This is due to Maryland's proximity to Washington, D.C., the large number of Federal agencies located in or near the Capitol, and their associated Federal workers and contractors. This report reviews data on Federal employment and spending in Maryland during 2010, the most recent year for which complete data was available. It accompanies a risk assessment of Maryland's economy that determines what issues the State could face where federal employment or spending reduced in the future.

Maryland's Highly Skilled Workforce

- **Maryland was home to 314,296¹ Federal workers and service members in 2010, 218,416² of whom were employed in Maryland itself.** Most resident federal workers and service members were employed in Maryland (186 thousand), but 96 thousand commuted to Washington, D.C. and 22 thousand commuted to Virginia. In total, these workers earned \$25.6 billion in wages, income that was generally spent within Maryland. According to the U.S. Bureau of Economic Analysis (BEA), federal workers employed in Maryland in 2010 contributed \$27.3 billion to the state's GDP, or 9.6 percent of the total.
 - In addition, the **household spending of the 314,296 Federal employees who resided in Maryland supported an additional 149,202 "induced" jobs** within the State.³
- In 2010, the #1 top federal employment job sector for both defense and non-defense in regards to federal dollars obligated in Maryland was **Professional, Scientific and Technical Services:**
 - Non-Defense Spending - \$7.5 billion – 53.2%
 - Defense Spending - \$5.3 billion – 44.7%

Manufacturing was in second place - non-defense spending, 8.7% and defense spending, 23.8%.

- **Maryland's federal workforce is predominately comprised of highly skilled "thinkers" and "doers".** A higher share of Federal employees residing in Maryland have advanced degrees than full-time workers in general (57 percent of Federal workers vs. 41 percent of all full-time workers). While Federal workers make up 12 percent of all full-time resident workers, they make up 14 percent of all workers with Bachelor's degrees, 18 percent of workers with Master's or Professional Degrees, and almost one-third of all resident workers with Doctoral degrees.

¹ Analysis of Public Use Microdata Sample (PUMS) data from the 2010 American Community Survey from the U.S. Census Bureau.

² U.S. Bureau of Economic Analysis, Table SA25N

³ DBED analysis using IMPLAN and Public Use Microdata Sample (PUMS) data from the 2010 American Community Survey from the U.S. Census Bureau.

Federal Procurement Contract Spending

- The most volatile and consequential federal funding source for the State is federal procurement spending. **Maryland ranks 4th in total federal procurement expenditures, although it ranks 19th in population.** The State disproportionately receives a large share of procurement dollars which will slowdown business growth when federal budget cuts take effect.
- **Maryland generated \$26 billion in 2010 or 4.8% of the U.S. total procurement expenditures.** Down slightly from \$27 billion in 2009.
- **Spending related to procurement contracts in 2010 created an estimated 315,293 jobs:**
 - 171,298 direct – jobs created by employers who directly received procurement contracts
 - 58,410 indirect – jobs at suppliers who worked w/direct contract recipients.
 - 85,605 induced – job created by spending from direct and indirect employees.

Federal Grant Activity

- **In 2010, 12,376 grants came into the State with an estimated value of \$10.8 billion dollars.** Spending related to grants created 79,648 direct jobs at organizations that received federal grant money. These organizations supported an additional 18,307 indirect jobs and household spending by these employees supported an additional 40,177 jobs. **The total effect of grant spending in Maryland in 2010 was 138,131 jobs created.**

Federal Research and Development Funding

- In FY 2010, various entities received contract grant monies to perform **\$6.3 billion** worth of research and development in Maryland. Grant- and contract-funded R&D spending in Maryland in 2010 created or supported 42,016 direct jobs, 17,475 indirect jobs, and 26,806 induced jobs, **for a total employment effect of 86,297, representing 2.6 percent of all jobs.** Note that these jobs are already included in the previous statistics on contract and grant spending

Total Effect of Federal Employment and Spending in 2010

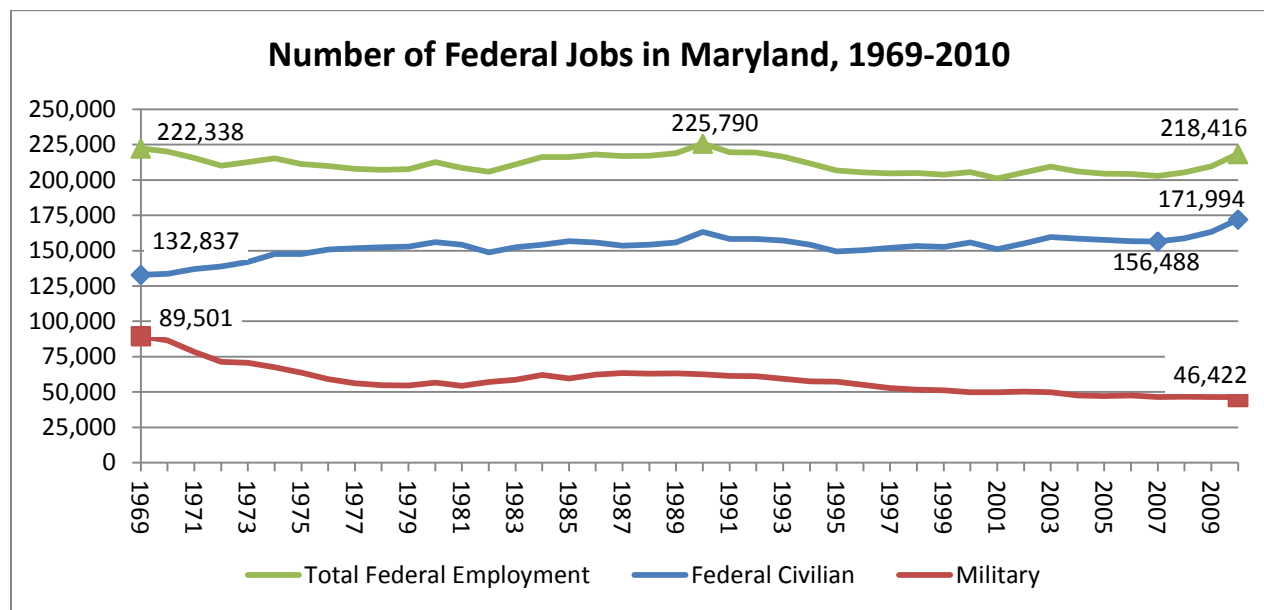
- Federal operations and spending (excluding spending on direct payments and for various small loan and insurance programs) created an **estimated 821 thousand jobs in Maryland in 2010, or 24 percent of the total jobs in the State.**

I. Introduction

Maryland's close proximity to Washington, D.C. has meant that it has been strongly affected by Federal government employment and spending trends. Whenever Federal spending and employment have increased, Maryland's economy has benefitted, and when they have decreased Maryland has seen slower economic growth. This report attempts to measure the effect of current Federal employment and spending in the State to understand how intertwined the State's economy is with Federal activities. This report focuses on three areas of Federal activity in the State: direct Federal employment, procurement contract spending, and grant spending. Quantifying the impact of Federal activity in Maryland, and how that activity has changed over time, will allow the State to understand how it may be affected by changes in Federal spending and priorities in the years ahead.

II. Federal Employment in Maryland

In total, there were 218,416 Federal jobs in Maryland in 2010. Of these, 171,994 were civilian jobs and 46,422 were active military duty jobs.⁴ The number of Federal jobs has risen in Maryland every year since 2007, but is still lower than in 1969 (the earliest year available). Federal jobs in Maryland peaked in 1990 with 225,790 jobs (163,360 civilian and 62,430 military).



Source: U.S. Bureau of Economic Analysis, 2011; Maryland Department of Planning, 2011

In 2010, Maryland had the 6th largest number of Federal jobs in total, and the fifth largest number of Federal civilian jobs. It also had the 14th largest number of military jobs out of the 50 states and the

⁴ BEA

District of Columbia. As a percentage of all employment in the State, Maryland ranked 2nd in civilian jobs, 20th in military jobs, and 5th in all Federal jobs.

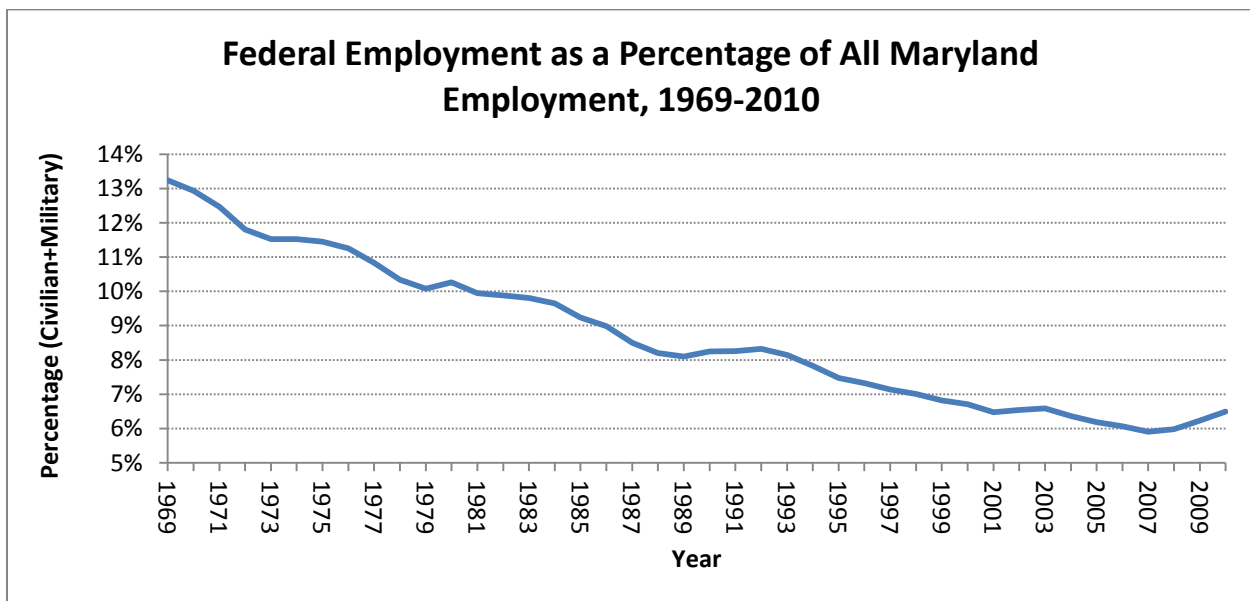
The number of military jobs in Maryland has generally been decreasing since 1969, when there were 89,501 military positions in the State. By 2010, there were only 46,422 (a 48% decrease). During that same time period, the number of civilian jobs increased from 132,837 to 171,994 (a 29% increase). However, from 1976 to 2007 the number of civilian jobs hovered closely around 150,000, peaking in 1990 at 163,360. Since 2007, the civilian jobs have increased 10 percent in the State (by 15,506). The reason for this is shown in the FedScope database.

Change in Federal Agency Employment in Maryland, September 2007 – 2010

Department or Agency	Change 2007-10	Percent Change	Employment in Sep. 2010
Department Of Health And Human Services	4,626	14.3%	36,863
Department Of The Army	4,090	34.0%	16,133
Department Of The Navy	2,230	15.7%	16,442
Department Of Commerce	1,587	15.3%	11,931
Social Security Administration	808	6.7%	12,942
All Other Departments and Agencies	3,688	12.2%	33,970
Total Change, September 2007-September 2010	17,029	15.3%	128,281

Source: FedScope Database, Office of Personnel Management, 2011

In September 2007, FedScope reported that Maryland had 111,252 OPM-covered employees. In September 2010, that number was 128,281, an increase of 17,029 workers. The majority of that increase could be found in five agencies, shown above. This increase was offset somewhat by the loss in Postal Service jobs that has gradually occurred over time in Maryland and in other states.



Source: U.S. Bureau of Economic Analysis, 2011; Maryland Department of Planning, 2011

Overall, 6.5 percent of all jobs in Maryland in 2010 were in the Federal government, either civilian or military. This percentage had been steadily decreasing since 1969, but the trend has reversed course and has increased since 2007 (when it was 5.9 percent). This is partly due to Federal employment increases and partly due to decreased overall employment caused by the 2007-09 recession.

Federal Employment by Agency/Employer in Maryland

The U.S. Bureau of Economic Analysis reports total civilian and military job numbers, but does not break them out into separate agencies. To do this, other sources of data are needed.

Federal Employment Covered by the Office of Personnel Management (OPM), September 2000 and September 2010

Federal Agency	Sept. 2000	Sept. 2010	Change	Percent Change
Health and Human Services (HHS)	30,360	36,863	6,503	21.4%
Social Security Agency (SSA)	12,525	12,942	417	3.3%
Department of Commerce	11,211	11,931	720	6.4%
Treasury Department	4,824	4,758	-66	-1.4%
Office of Veterans Affairs (VA)	3,383	3,990	607	17.9%
Department of Agriculture	3,387	3,576	189	5.6%
Department of Homeland Security *	1,866	3,487	1,621	86.9%
National Aeronautics and Space Administration (NASA)	3,026	3,036	10	0.3%
Nuclear Regulatory Commission (NRC)	1,997	3,029	1,032	51.7%
Department of Energy (DOE)	1,490	1,242	-248	-16.6%
National Archives and Records Administration (NARA)	844	1,083	239	28.3%
Department of the Interior	825	976	151	18.3%
Department of Justice	840	788	-52	-6.2%
Department of Transportation	334	598	264	79.0%
Office of Personnel Management (OPM)	6	495	489	8150.0%
Consumer Product Safety Commission (CPSC)	358	389	31	8.7%
Smithsonian Institution	263	363	100	38.0%
General Services Administration (GSA)	296	155	-141	-47.6%
Department of Labor	65	121	56	86.2%
Department of Housing and Urban Development (HUD)	116	116	0	0.0%
Environmental Protection Agency	95	109	14	14.7%
All Other Agencies	401	311	-90	-22.4%
Total, Civilian Non-DoD Employees	78,512	90,358	11,846	15.1%
Department of the Navy	15,121	16,442	1,321	8.7%
Department of the Army	11,989	16,133	4,144	34.6%
Department of the Air Force	2,200	2,673	473	21.5%
Other Dept. of Defense Employees	2,310	2,675	365	15.8%
Department of Defense Civilian Workforce (DoD)	31,620	37,923	6,303	19.9%
Total, All Civilian OPM Employees	110,132	128,281	18,149	16.5%

* Homeland security employment for 2000 was estimated using employment data for agencies that were moved into the Department in 2002. This includes the U.S. Coast Guard and FEMA, which make up the bulk of DHS employment in 2000. Employment for these agencies was subtracted from their former cabinet-level totals.

Source: FedScope Database, 2012

Office of Personnel Management Agencies: Most of the 171,994 Federal employees located in Maryland fall under the purview of the Office of Personnel Management (OPM). In total, in September 2010 OPM managed 128,281 civilian employees, 37,923 who worked for the Department of Defense and 90,358 who worked for other, non-Defense agencies. This is an increase of 16.5 percent over that decade. Agencies with the largest employment increase over that time period were Health and Human Services (6,503 jobs added), the Department of Defense (6,303 civilian workers added), and Homeland Security (1,621 employees added, mostly in the Transportation Security Agency (TSA), which didn't exist in 2000). Together, the Departments of Defense and of Health and Human Services account for 58 percent of all OPM-covered employment in the State.

OPM Agencies with Large Employment Increases or Decreases since 2000: Most of the increase in Federal employment since 2000 in Maryland has occurred in 10 agencies. Together, they account for 15,105 of 18,149 new positions, or 83 percent of the total. The Army had the largest single increase (4,144 employees), followed by the Food and Drug Administration (3,129 employees) and the National Institutes of Health (2,384 employees).

Increases in Employment: Top 10 Individual OPM Agencies, September 2000 to September 2010

Agency	Sept. 2000	Sept. 2010	Change	Percent
Department of the Army	11,989	16,133	4,144	34.6%
Food and Drug Administration	7,490	10,619	3,129	41.8%
National Institutes of Health	15,973	18,357	2,384	14.9%
Department of the Navy	15,121	16,442	1,321	8.7%
Transportation Security Administration	0	1,069	1,069	N/A
Nuclear Regulatory Commission	1,997	3,029	1,032	51.7%
Patent and Trademark Office	0	603	603	N/A
Office of Personnel Management	6	495	489	8150.0%
Department of the Air Force	2,200	2,673	473	21.5%
Office of the Secretary, Health And Human Services	471	932	461	97.9%

Source: FedScope Database, 2012

While few agencies have lost significant employment since 2000, a few have. On a percentage basis, the Government Printing Office has lost the largest share of its employment (78.9%), while the Agricultural Research Service has lost the largest numeric amount (250 positions).

Decreases in Employment: Bottom 10 OPM Agencies, September 2000 to September 2010

Agency	Sept. 2000	Sept. 2010	Change	Percent
Substance Abuse and Mental Health Services Admin.	589	537	-52	-8.8%
Centers For Disease Control And Prevention	511	454	-57	-11.2%
Bureau Of Prisons/Federal Prison System	426	366	-60	-14.1%
Internal Revenue Service	4,737	4,673	-64	-1.4%
National Institute Of Standards And Technology	2,841	2,760	-81	-2.9%
Government Printing Office	109	23	-86	-78.9%
General Services Administration	296	155	-141	-47.6%
Program Support Center	823	635	-188	-22.8%
Department Of Energy	1,490	1,242	-248	-16.6%
Agricultural Research Service	1,824	1,574	-250	-13.7%

Source: FedScope Database, 2012

United States Postal Service: The USPS employed approximately 16,190 workers in Maryland in 2010 consisting of 14,069 career employees and an estimated 2,121 non-career employees.⁵ While state-specific data is unavailable, since 2000 the number of jobs at the USPS has decreased by almost 26 percent nationwide.

Unreported and Classified Employment: One of the major impediments to measuring Federal employment in Maryland is the large number of classified positions that exist in the State. The BEA estimates that there are approximately 52,000 classified employees and elected officials in the U.S.⁶, but does not break down this estimate state-by-state. Local estimates for classified employment at Fort Meade range from 20,000 to 30,000 persons. Simple math shows that, after adding together reported FedScope (128,281) and USPS employment (16,190), there are 27,523 jobs ‘missing’ from the total 171,994 total jobs reported by the BEA in 2010. Judging from the estimates, it is likely that the majority of these ‘missing’ jobs could be found at Ft. Meade and at other installations that employ classified personnel across the State. Note that even the BEA estimates the number of jobs at these installations, so while this report will treat the BEA data as the definitive number of Federal jobs in the State, it is really just the definitive *estimate*.⁷

Non-Civilian Military Employment: BEA data estimates that there are 46,422 active military personnel in Maryland in 2010, in addition to the 37,436 DoD Federal civilian employees reported by OPM’s FedScope database.⁸ Note that BEA data combines active service members and reserve/National Guard members. In December 2009, the Department of Defense reported that there were 29,160 active duty service members and 16,000 reserve / National Guard members in Maryland.⁹

⁵ Ginsberg, Wendy R. 2011. *U.S. Postal Service Workforce Size and Employment Categories, 1990-2010*. Congressional Research Service, Washington, D.C. Non-career employees estimated using national non-career rate of 13.1 percent of all USPS employees.

⁶ Table J, Local Area Personal Income and Employment Methodology, April 2011. This estimate “consists of the CIA, the NSA, the DMA, and elected officials.”

⁷ The BEA estimates that there were 52,000 persons working for the CIA, the NSA, the DMA (now known as the NGA), and as Federal elected officials nationwide in 2009. None of these workers would be included in any other official employment count. The BEA does not break out this number by state or by employer, and has not changed this estimate since 2007.

⁸ *Comparison with DBED’s Mission Maryland Report*: The Mission Maryland report commissioned by DBED found that there were 118,022 employees on Maryland’s 17 military installations. Of these, 85,683 are directly comparable to employment reported by the OPM and the BEA as discussed above. The balance of the 118,022 employees on the 17 installations were “rotational” staff (28), students (9,311), and an estimated 20,000 NSA employees at Ft. Meade. This number consisted of 26,553 active duty military, 5,459 National Guard members, and 53,671 civilian employees. In September 2008, OPM reported that there were 31,783 Federal Civilian DoD employees in Maryland, fewer employees than reported by the Mission Maryland report. The BEA reported that there were 46,730 active military in Maryland that year, more than reported in Mission Maryland. In total, OPM and BEA together reported 78,513 DoD-related employees in Maryland. These discrepancies are likely due to differing data collection methods and estimation procedures for each data source, and to non-DoD personnel who work on these installations being counted as civilian employees. To maintain consistency in all areas of this report, all employment data in this report will be sourced from the Office of Personnel Management’s FedScope database and the U.S. Bureau of Economic Analysis.

⁹ http://siadapp.dmdc.osd.mil/personnel/L03/fy09/atlas_2009.pdf

Total Economic Impact of Federal Employment in Maryland

In 2009 (the latest year that data is available), Federal civilian and military workers added \$27.3 billion to the State's Gross Domestic Product (GDP), or 9.6 percent of the total of \$295.3 billion.¹⁰ This ranked Maryland 5th out of all 50 states plus the District of Columbia in the effect that Federal employment had on state GDP.

- **Federal Civilian Workers:** Federal civilian workers employed in Maryland added a total of \$22.6 billion in 2009, or 7.9 percent of total GDP that year. This ranked Maryland 4th in monetary GDP contribution and 2nd in percentage of total GDP.
- **Active Military Workers:** Federal military workers employed in Maryland added a total of \$4.6 billion in 2009, or 1.6 percent of total GDP that year. This ranked Maryland 13th in monetary GDP contribution and 18th in percentage of total GDP.

Federal Employees Residing in Maryland (2010)

In total, the 2010 American Community Survey estimated that there were 314,296 Federal civilian employees and military service members residing in Maryland in 2010. These workers earned a total of \$25.6 billion in wages and salaries that year.

Resident Federal Employees, 2010

State	Civilian	Military	Total
Maryland	166,528	19,389	185,917
Washington, D.C.	92,580	2,956	95,536
Virginia	18,942	2,938	21,880
Other	8,372	2,591	10,963
Total	286,422	27,874	314,296

Source: 2010 American Community Survey, U.S. Census Bureau

- **Civilian Employees (All Types):** There were an estimated 286,422 Federal civilian workers residing in Maryland in 2010. The majority of these workers (166,528) both lived and worked in Maryland. In total, these workers earned \$24.2 billion in wages and salaries in that year, or an average of \$84,458 per worker.¹¹
- **Military Service Members:** The 2010 ACS reported an estimated 27,874 persons on active military duty residing in Maryland. The active duty members earned an estimated \$1.4 billion in wages and salaries, or an average of \$51,380 per service member.¹²

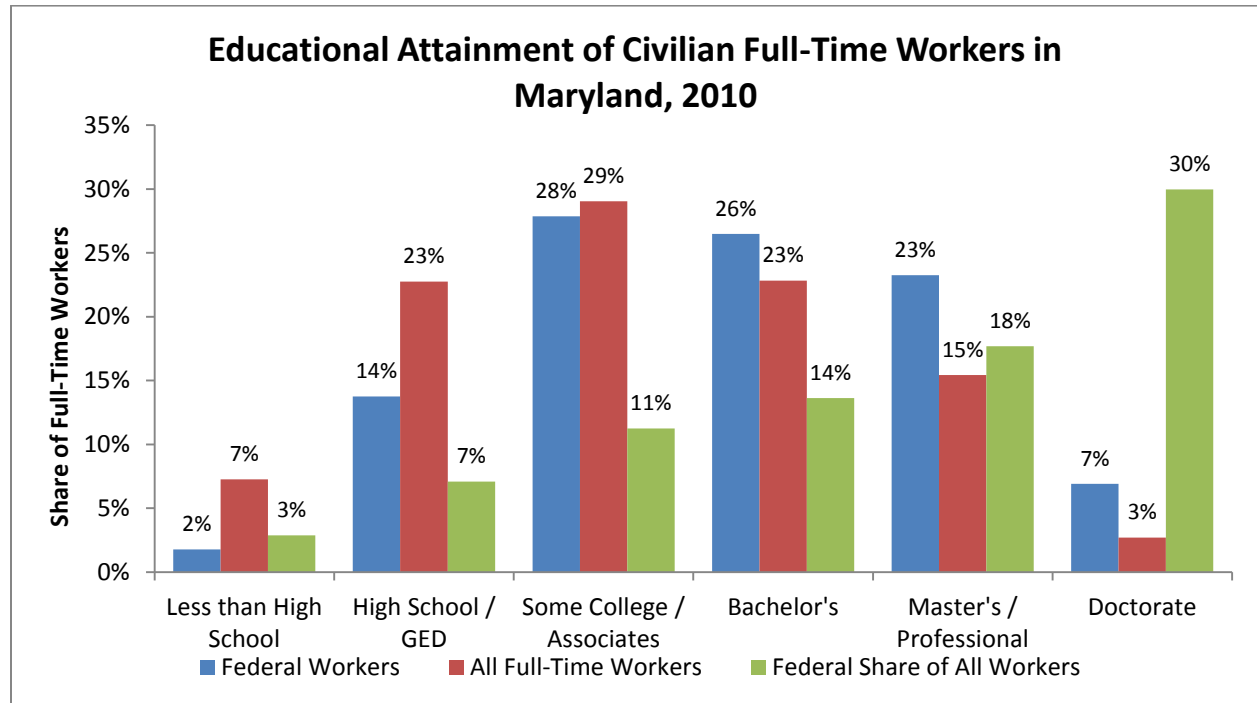
¹⁰ BEA, 2011.

¹¹ DBED analysis of Public Use Microdata Sample (PUMS) data from the 2010 American Community Survey from the U.S. Census Bureau.

¹² Note that this estimate does not include payments to service members for housing and living allowances, which vary by rank and household status but can be significant. For example, the Basic Allowance for Housing (BAH) rate for the Baltimore area for O-1 personnel with dependents is \$1,923 per month, or \$23,076 per year for FY 2012.

Education Level of Federal Civilian Employees Residing in Maryland (2010)

The educational attainment of the 286 thousand civilian Federal employees who reside in Maryland generally exceeds that of the average working resident.¹³ A higher share of Federal employees have advanced degrees (57 percent of Federal workers vs. 41 percent of all full-time workers). While Federal workers make up 12 percent of all full-time resident workers, they make up 14 percent of all workers with Bachelor’s degrees, 18 percent of workers with Master’s or Professional Degrees, and almost one-third of all resident workers with Doctoral degrees.



Source: DBED Analysis of Public Use Microdata Sample (PUMS) data from the 2010 One-Year American Community Survey (ACS), U. S. Census Bureau.

Jobs Created by Household Spending by Federal Employees

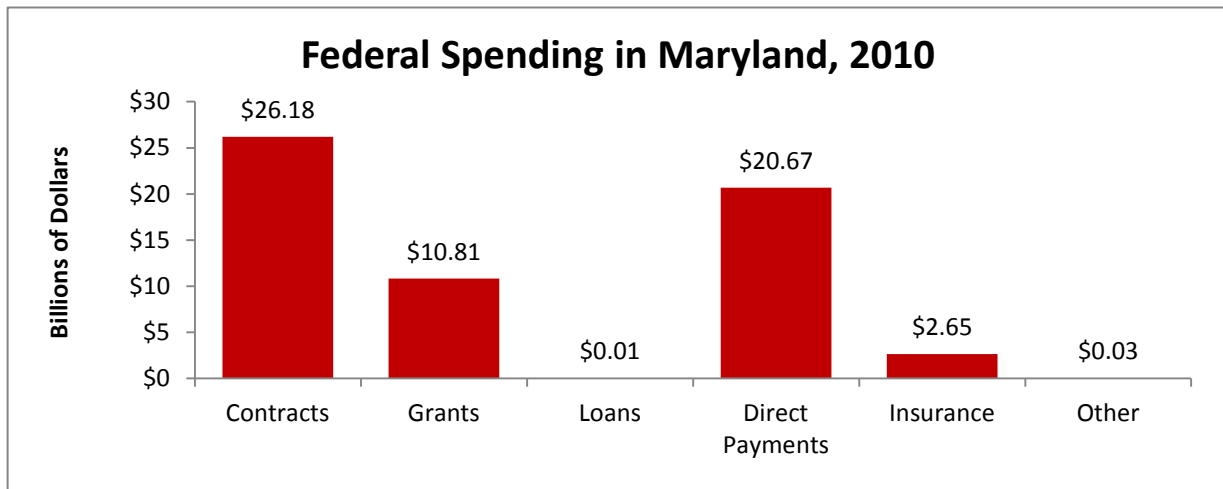
Federal workers earned a total of \$25.6 billion in wages and salaries in 2010. The household spending of all of the Federal civilian employees and military service members who resided in Maryland supported an additional 149,202 “induced” jobs within the State.¹⁴ The household spending of civilian Federal employees supported an additional 140,417 jobs, and household spending of service members residing in Maryland supported an additional 8,785 jobs within the State.

¹³ A full-time working resident is defined as a person between the ages of 16 and 65, any employed class of worker, employed in the civilian workforce, who worked 40 or more weeks in the last 12 months. Federal workers also follow this definition, except that their class of worker is “Federal government employee.”

¹⁴ DBED analysis of Public Use Microdata Sample (PUMS) data from the 2010 American Community Survey from the U.S. Census Bureau.

III. Federal Spending in Maryland, 2000 to 2010

The Federal government sent over \$60 billion to Maryland in 2010, excluding whatever was spent on federal government operations. Procurement contracts, direct payments to individuals, and grants were the largest sources of funding. For this study, we concentrated on contracts and grants. FYI, direct payments were mostly made up of Social Security payments (\$12.1 billion) and Medicare (\$7.3 billion). The largest single Federal funding source in Maryland is procurement contracts. Per capita, Maryland receives over \$4500 in procurement spending.



Source: USASpending.gov

Comparing per capita Maryland funding to the US as a whole shows that, for most categories, Maryland is average. Where Maryland exceeds national averages is in contracts, receiving almost 2.5 times more funding per capita than the nation as a whole.

Total Federal Funding Received by Maryland and the United States, FY 2010

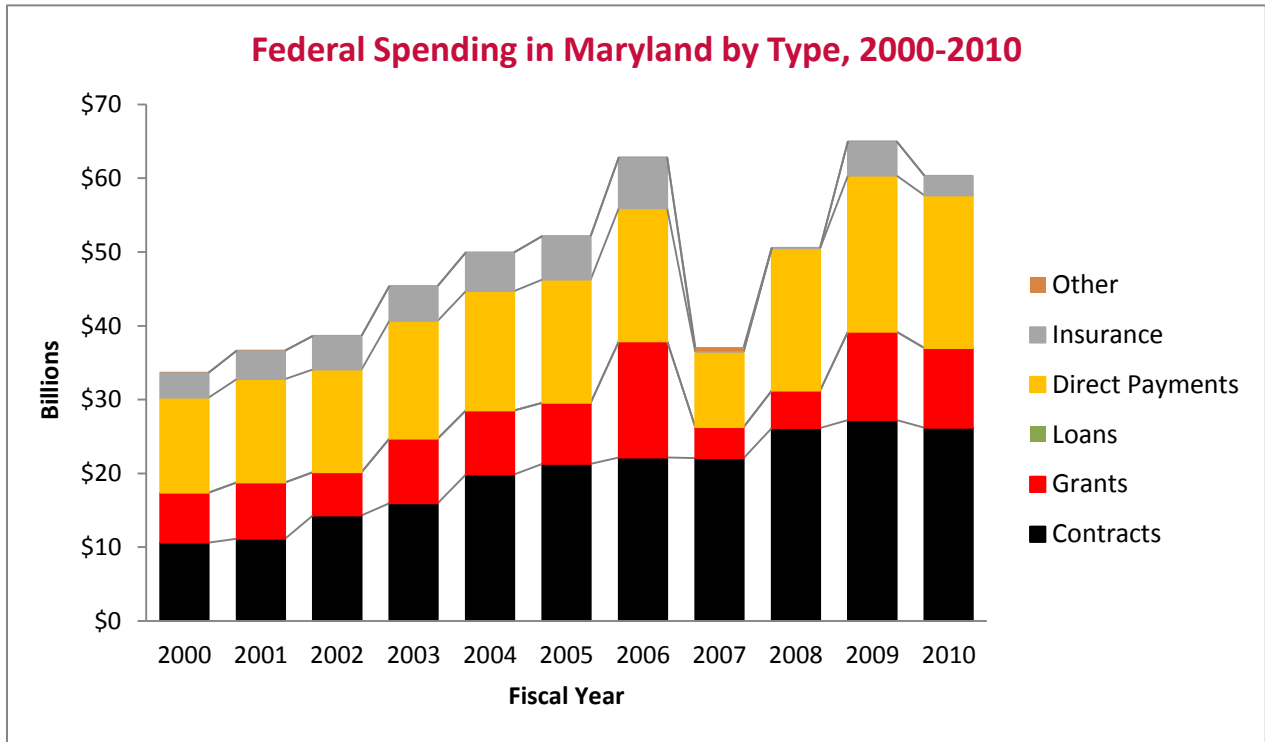
Funding Type	U.S. Total	Maryland Total	Total Rank ²	U.S. Per Capita	Maryland Per Capita	Per Capita Rank ²
Direct Payments	\$1,075,317,879,121	\$20,672,315,797	18	\$3,483	\$3,581	26
Grants	\$592,161,941,562	\$10,808,902,028	17	\$1,918	\$1,872	24
Contracts	\$538,983,859,412	\$26,178,503,870	4	\$1,746	\$4,534	3
Insurance	\$237,829,523,072	\$2,647,625,518	13	\$770	\$459	16
Other Programs ¹	\$3,506,526,496	\$25,082,954	32	\$11.36	\$4.34	44
Loans	\$348,008,303	\$13,907,248	34	\$1.13	\$2.41	40
Total	\$2,448,147,737,966	\$60,346,337,415	14	\$7,929	\$10,452	5

¹ "Other Programs" include certain unclassified programs from many agencies. The largest sources of these funds are the State Department (programs such as refugee assistance), the Department of Veterans Affairs (the Veterans Prescription Service), and the Department of Agriculture (programs such as the Wetlands Reserve Program).

² Maryland ranked 19th in population in 2010.

Source: USASpending.gov

The table above shows that Maryland ranks fourth in the nation out of the 50 states and DC in the amount of contract funding we receive. Per capita, we rank third (after DC and Virginia). In all other categories our rank is more-or-less in line with our population rank of 19th. Note that Maryland obtains this high ranking due to its civilian procurement contract activity (where it ranks fourth), as its Defense contracting activity only ranked 6th in 2010.



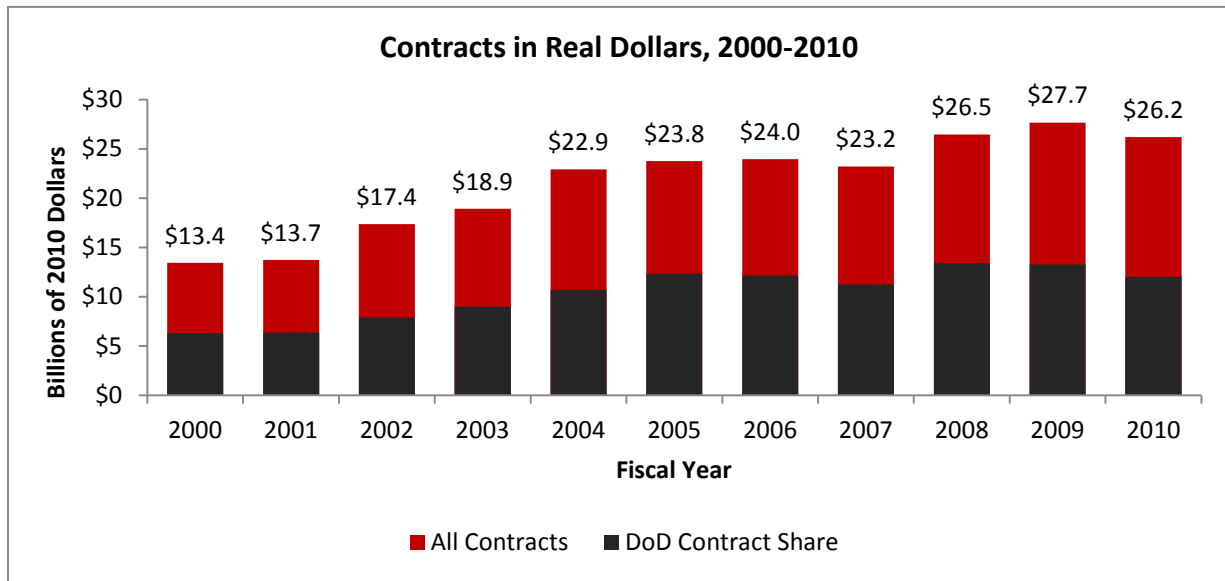
Source: USASpending.gov

Federal spending in Maryland has been volatile since 2005, with large changes in grants and direct payments, mostly relating to Medicare, Medicaid and other health programs.

In 2010, Maryland received 12,376 grants and had 207,991 contract transactions, up from 11,224 grants and 36,215 transactions in 2000. Federal contracts for the procurement of goods and services have been the largest consistent growth area for federal spending in Maryland over the last 10 years. In FY 2000, Maryland received \$10.6 billion in procurement contracts. By FY 2010, that had grown to \$26.2 billion, a \$15.6 billion (147%) increase. Maryland has also seen large growth in direct payments and in grant funding (60% since FY 2000 in both cases), but spending in these areas has been more volatile. In 2010, Maryland ranked fourth out of the 50 states plus the District of Columbia in the total amount of Federal procurement contract funding received, and 14th in all Federal funding received.

IV. Federal Procurement Contract Spending in Maryland

In FY 2010, firms received procurement contracts to perform \$26.1 billion worth of work in Maryland. Of this, \$12 billion was spent by the Department of Defense and \$14.1 billion was spent for civilian purposes.¹⁵ Adjusted for inflation, this is an overall 95 percent increase in contract procurement in 10 years, and a 90 percent increase in Defense contracting.



Source: USASpending.gov

Procurement contracts from the Defense Department made up the single largest source of procurement dollars in the State, and the single largest area of contract dollar increase from 2000 to 2010. The DoD increased contracting in Maryland from \$6.3 billion in 2000 (in inflation-adjusted dollars) to \$12 billion in 2010, a \$5.7 billion (or 90.2%) increase.

While DoD contracts were the largest single source of procurement dollars in Maryland in 2010, they made up only 46 percent of all procurement spending that year. Procurement contracts from the Department of Health and Human Services were also significant in 2010, making up \$5 billion (19%) of all contract dollars. DHHS contracts also saw significant increases from 2000, growing 154 percent from an inflation-adjusted \$2 billion. The Department of Commerce also saw significant increases in contracting in Maryland, growing 179 percent from \$680 million in 2000 to \$1.9 million in 2010.

¹⁵ DBED analysis of USASpending.gov data.

Change in Procurement Contract Funds by Funding Agency, 2000-2010

Agency	2010	2000 (Adjusted to 2010 Dollars)	Change	Percent Change
Department of Defense	\$11,992,354,910	\$6,303,745,846	\$5,688,609,065	90.2%
Department of Health and Human Services	\$5,033,335,227	\$1,978,852,178	\$3,054,483,048	154.4%
Department of Commerce	\$1,895,936,830	\$680,446,869	\$1,215,489,961	178.6%
National Aeronautics and Space Administration	\$1,442,130,858	\$1,296,716,012	\$145,414,846	11.2%
General Services Administration	\$1,012,268,103	\$788,314,684	\$223,953,419	28.4%
Department of the Treasury	\$901,575,625	\$340,036,944	\$561,538,681	165.1%
Department of Transportation	\$517,403,674	\$145,875,899	\$371,527,775	254.7%
Department of Homeland Security	\$495,726,043	\$68,449,577	\$427,276,467	624.2%
Department of Justice	\$369,740,829	\$245,196,919	\$124,543,910	50.8%
Department of Veterans Affairs	\$367,056,943	\$162,340,286	\$204,716,656	126.1%
Social Security Administration	\$365,146,994	\$356,786,794	\$8,360,200	2.3%
Department of Energy	\$349,368,067	\$153,151,889	\$196,216,178	128.1%
Department of the Interior	\$266,507,500	\$54,051,233	\$212,456,267	393.1%
All other agencies	\$218,515,355	\$68,596,282	\$149,919,073	218.6%
Department of Agriculture	\$148,815,797	\$82,115,642	\$66,700,155	81.2%
Nuclear Regulatory Commission	\$144,744,243	\$43,240,176	\$101,504,067	234.7%
Department of Labor	\$122,612,436	\$67,187,080	\$55,425,355	82.5%
Department of State	\$97,399,040	\$145,040,205	(\$47,641,165)	(32.8%)
Department of Education	\$96,116,447	\$268,169,728	(\$172,053,282)	(64.2%)
U. S. Agency for International Development	\$95,677,467	\$13,984,962	\$81,692,505	584.1%
Department of Housing and Urban Development	\$71,804,681	\$105,396,003	(\$33,591,322)	(31.9%)
Environmental Protection Agency	\$60,408,667	\$44,789,108	\$15,619,559	34.9%
Office of Personnel Management	\$37,883,655	\$780,038	\$37,103,617	4756.6%
National Science Foundation	\$22,752,115	\$9,008,423	\$13,743,692	152.6%
Small Business Administration	\$6,958,157	\$1,582,869	\$5,375,288	339.6%
Total	\$26,132,239,660	\$13,423,855,645	\$12,708,384,016	94.7%

Source: USASpending.gov

Below is a list of the top 15 procurement contract recipients in Maryland in 2010. These 15 received almost 36% of all contract funding in the State that year. Note that the largest single recipient of procurement funds, Lockheed Martin Corporation, received 83 percent of all contracts for civilian purposes.

Largest Procurement Contract Recipients by Civilian and Defense Spending, 2010

Recipient Name	Total Dollars	Rank	Civilian	Rank	Defense	Rank
LOCKHEED MARTIN CORPORATION	\$1,697,084,145	1	\$1,409,736,223	1	\$287,347,922	8
JOHNS HOPKINS UNIVERSITY	\$975,421,784	2	\$223,054,294	10	\$752,367,490	1
SAIC INC	\$916,726,538	3	\$703,623,736	2	\$213,102,802	12
NORTHROP GRUMMAN CORPORATION	\$827,767,270	4	\$103,038,203	18	\$724,729,068	2
CLARK ENTERPRISES INC	\$577,411,784	5	\$205,290,695	11	\$372,121,088	5
TEXTRON INC	\$568,626,191	6	\$391,572	1,931	\$568,234,620	3
BAE SYSTEMS PLC	\$558,478,962	7	\$153,515,421	14	\$404,963,541	4
HONEYWELL INTERNATIONAL INC	\$551,810,437	8	\$257,282,841	6	\$294,527,597	7
IBM CORPORATION	\$518,766,628	9	\$385,594,810	3	\$133,171,818	17
COMPUTER SCIENCES CORPORATION	\$510,377,843	10	\$292,602,881	5	\$217,774,961	11
WESTAT INC	\$376,924,107	11	\$376,737,365	4	\$186,742	1,638
CARLYLE GROUP LP	\$343,292,742	12	\$17,563,459	125	\$325,729,283	6
GENERAL DYNAMICS CORPORATION	\$315,708,388	13	\$160,631,025	13	\$155,077,363	15
HEWLETT-PACKARD COMPANY	\$300,861,349	14	\$195,233,310	12	\$105,628,039	20
JOHNS HOPKINS HEALTH SYS CORP	\$266,738,970	15		N/A	\$266,738,970	9

Source: DBED analysis of USASpending.gov data.

Contract Spending by Industry Sector, FY 2010

Industry Sector	Dollars Obligated	Percent of Total
Professional and business services	\$14.5 billion	55.4%
Manufacturing	\$4.1 billion	15.7%
Construction	\$2.6 billion	10.0%
Trade, transportation, and utilities	\$1.5 billion	5.5%
Information	\$1.0 billion	4.0%
Education and health services	\$801 million	3.1%
Unclassified	\$735 million	2.8%
Financial activities	\$493 million	1.9%
Total	\$26.1 billion	100.0%

Source: DBED analysis of USASpending.gov data.

The majority of procurement contract spending in Maryland in 2010 was for professional and business services. This covers diverse areas such as engineering, research, and other knowledge-related areas. A large percentage of spending was in the manufacturing sector.

Civilian Federal Procurement: The Federal government procured \$14.1 billion in civilian (non-Defense) goods and services in FY 2010. Of this, more than half (53.2%) was for professional, scientific, and technical services.

Non-Defense Procurement Spending: Top Five Sectors FY 2010

Industry Sector	Dollars Obligated	Percent of Total
Professional, Scientific and Technical Services	\$ 7,516,716,900	53.2%
Manufacturing	\$ 1,227,711,404	8.7%
Administrative&Support/Waste Management&Remediation Services	\$ 1,122,198,636	7.9%
Construction	\$ 1,052,571,642	7.4%
Information	\$ 697,387,267	4.9%

Source: DBED analysis of USASpending.gov data.

Defense Federal Procurement: The Federal government procured \$14.1 billion in Defense-related goods and services in FY 2010. Of this, close to half (44.7%) was for professional, scientific, and technical services, and almost one-quarter was for manufactured items.

Defense Spending: Top Five Sectors FY 2010

Industry Sector	Dollars Obligated	Percent of Total
Professional, Scientific and Technical Services	\$ 5,363,919,047	44.7%
Manufacturing	\$ 2,859,779,878	23.8%
Construction	\$ 1,559,006,352	13.0%
Administrative&Support/Waste Management&Remediation Services	\$ 458,968,978	3.8%
Health Care and Social Assistance	\$ 404,317,051	3.4%

Source: DBED analysis of USASpending.gov data.

Contract-Related Jobs Created: Spending related to non-Defense-related procurement contracts in 2010 created an estimated 98,212 “direct” jobs, or jobs at employers who directly received procurement contracts. The activity created by contract spending created an additional 30,315 “indirect jobs” at suppliers who worked with direct contract recipients. Finally, household spending stimulated by the salaries paid to direct and indirect employees created an additional 51,692 jobs in Maryland, for a total of 180,219 jobs.

Spending related to Defense contracts created 73,086 direct jobs at Maryland’s defense contractors. These contractors supported an additional 28,095 indirect jobs, and household spending by these employees supported an additional 33,913 jobs. The total effect of Defense procurement contract spending in Maryland in 2010 was 135,293 jobs created.

Contract-Related Jobs Created by Federal Spending in Maryland, 2010

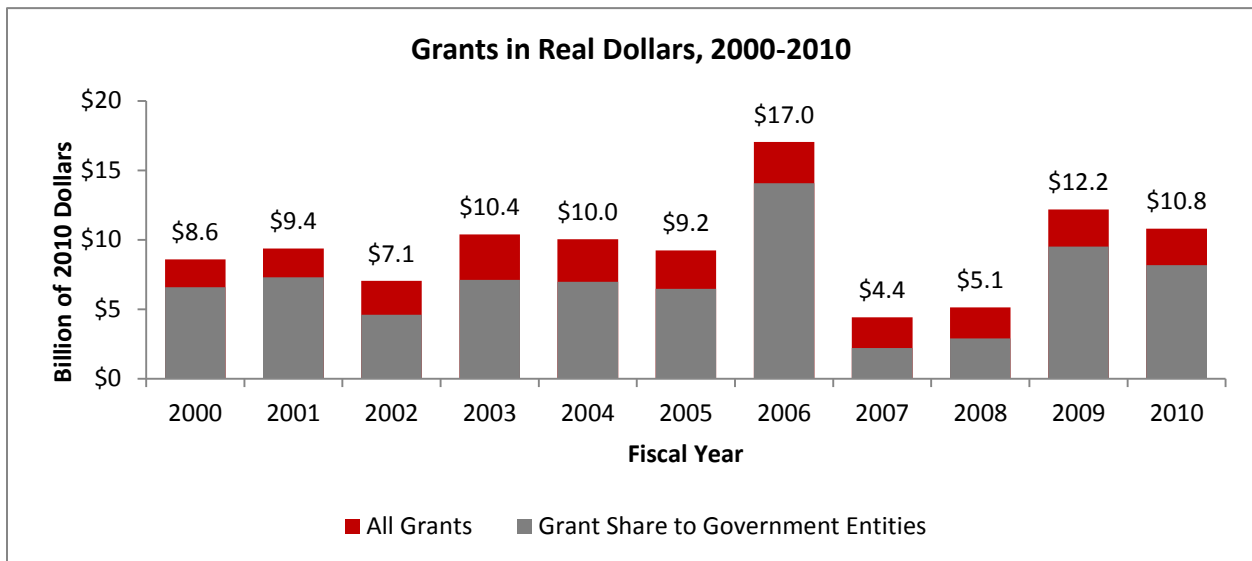
	Direct	Indirect	Induced	Total
Non-Defense Spending	98,212	30,315	51,692	180,219
Defense Spending	73,086	28,095	33,913	135,074
Total	171,298	58,410	85,605	315,293

Source: IMPLAN Analysis of USASpending.gov data by DBED

Overall, procurement spending in Maryland created or supported 315 thousand jobs in 2010. Note that civilian procurement spending was higher than defense spending and created more jobs. In all, the jobs created by contract spending represented 9.4 percent of all jobs in the State.

V. Federal Grant Activity in Maryland

In FY 2010, various entities received grant monies to perform \$10.8 billion worth of research and services in Maryland. Of this, \$7 billion was received by government entities and the balance was spent for other purposes.¹⁶ Viewed over time, it can be seen that grant activity is more variable than contract spending. After adjusting for inflation, we can see that grant spending in FY 2003 was about the same as in FY 2010. Note the jump in FY 2006 and the subsequent decreases in funding in FY 2007 and FY 2008. In FY 2006, Maryland received an outsized Medical Assistance Program grant (\$9.9B). In FY 2007, the State received no funding for this program, and received only \$800M in 2008. By FY 2009 the State was back to receiving approximately \$4 billion in Medical Assistance Program grant funding.



Source: USASpending.gov

The table below shows that six of the top seven grant recipients in Maryland are State agencies, and much of the grant funding is used for health and human services. Note, however, that the second-largest grant recipient is Johns Hopkins, which received over \$600 million from the NIH for research purposes.

Largest Grant Recipients, 2010

Funding Recipient	Program Source Description	Dollars Obligated
MD Department of Health and Mental Hygiene	Grants To States For Medicaid	\$4,184,813,869
Johns Hopkins University	National Institutes Of Health	\$602,326,023
Maryland State Highway Administration	Federal-Aid Highways	\$450,379,060
State of Maryland	State Fiscal Stabilization Fund Recovery Act	\$249,999,182
Maryland Department of Human Resources	Temporary Assistance For Needy Families	\$230,439,536
MD Department of Health and Mental Hygiene	Children's Health Insurance Fund	\$218,483,185
Maryland Department of Education	Special Education	\$214,158,743

Source: DBED analysis of USASpending.gov data.

¹⁶ DBED analysis of USASpending.gov data.

In total, institutions in Maryland received \$10 billion in civilian grant funding, about 16 percent of which was for R&D projects, and received \$354 million in grant funding from the Department of Defense, the vast majority of which was for R&D projects (see the R&D section for details).

Grant-Related Jobs Created: Overall, Federal grant spending was responsible for over 138 thousand jobs in Maryland in 2010:

Grant-Related Jobs Created by Federal Spending in Maryland, 2010				
	Direct	Indirect	Induced	Total
Non-Defense Grants	77,271	17,330	38,690	133,290
Defense-Related Grants	2,377	977	1,487	4,841
Total	79,648	18,307	40,177	138,131

Source: IMPLAN Analysis of USASpending.gov data by DBED

Spending related to civilian grants in 2010 created an estimated 77,271 “direct” jobs, or jobs at employers who directly received grant monies. The activity created by grant spending created an additional 17,330 “indirect jobs” at suppliers who worked with grant recipients. Finally, household spending stimulated by the salaries paid to direct and indirect employees created an additional 38,690 jobs in Maryland, for a total of 133,290 jobs.

Spending related to grants from the Department of Defense created 2,377 direct jobs at organizations that received Federal grant money. These organizations supported an additional 977 indirect jobs, and household spending by these employees supported an additional 1,487 jobs. The total effect of grant spending in Maryland in 2010 was 4,841 jobs created.

Overall, grant spending in Maryland created over 138 thousand jobs in 2010, the vast majority of which were created by civilian grants. Jobs created or supported by grant funding represented 4.1 percent of all jobs that year.

VI. Federal Research and Development Funding in Maryland

According to the National Science Foundation (NSF), all branches of the Federal government spent over \$13.3 billion in FY2008 on research and development within Maryland, representing 10.6 percent of all R&D funds spent by the Federal government, ranking third in total Federal obligations for research and development. On a per capita basis, Maryland ranks second among the states and the District of Columbia in federal R&D obligations. The highest share of this funding (\$8.6 billion, or 65% of the total) was spent on so-called “intramural” R&D, performed by Federal employees at Federal labs. Maryland ranks first in federal intramural R&D. The rest was split between industry, universities, and other recipients.¹⁷

A review of the grant and contract spending in 2010 found that \$6.3 billion of the \$37 billion in grant and contract funding (or 17%) in 2010 was spent on research and development. About two-thirds of this was non-defense spending, mostly for bio-medical research.

Grant and Contract Spending on Research and Development Activities, 2010

	Contract	Grant	Total
Non-Defense	\$2,579,703,399	\$1,571,780,484	\$4,151,483,883
Defense	\$1,828,723,903	\$342,039,420	\$2,170,763,323
TOTAL R&D	\$4,408,427,302	\$1,913,819,904	\$6,322,247,206

Source: DBED analysis of USASpending.gov data.

Grant- and contract-funded R&D spending in Maryland in 2010 created or supported 42,016 direct jobs, 17,475 indirect jobs, and 26,806 induced jobs, for a total employment effect of 86,297, representing 2.6 percent of all jobs. Note that these jobs are already included in the previous statistics on contract and grant spending.

¹⁷ National Science Foundation, 2011

VII. The Total Effect of Federal Operations and Spending in Maryland

Federal operations and spending (excluding spending on direct payments and for various small loan and insurance programs) created an estimated 821 thousand jobs in Maryland in 2010. These jobs were created by the multiple agencies and programs discussed in previous sections:

- Direct Federal employment in the State created 171,994 civilian and 46,422 military jobs, for a total of 218,416 Federal jobs in Maryland.
- There were 314,296 residents of Maryland who worked for the Federal government in any capacity and in any location (though mostly in Maryland, Washington D.C., and Virginia). These residents supported an additional 149,202 jobs through their household spending.
- Federal procurement contracts created or supported 315,293 jobs in 2010.
- Federal grants created or supported 138,131 jobs in 2010.

In total, Federal spending in Maryland of all types created an estimated 821,042 jobs in Maryland in 2010. These jobs represented an estimated 24 percent of the almost 3.4 million jobs reported in Maryland by the U.S. Bureau of Economic Analysis for 2010. A detailed breakdown is below. Note that 76 percent of these jobs are created by Federal civilian spending.

Employment Created by Federal Spending in Maryland, FY 2010

Origination	Spending Type	Resident Employees*	Direct	Indirect	Induced	Total
Civilian	Federal Jobs in Maryland		171,994	-	-	171,994
	Resident Employees	286,422	-	-	140,417	140,417
	Procurement Contracts		98,212	30,315	51,692	180,219
	Grants		77,271	17,330	38,690	133,290
Total	All Civilian Spending	286,422	175,483	47,645	230,799	625,920
Defense	Federal Jobs in Maryland		46,422	-	-	46,422
	Resident Employees	27,874	-	-	8,785	8,785
	Procurement Contracts		73,086	28,095	33,913	135,074
	Grants		2,377	977	1,487	4,841
Total	All Defense Spending	27,874	75,463	29,072	44,185	195,122
Total	Federal Jobs in Maryland		218,416	-	-	218,416
	Resident Employees	314,296	-	-	149,202	149,202
	Procurement Contracts		171,298	58,410	85,605	315,293
	Grants		79,648	18,307	40,177	138,131
Grand Total		314,296	469,362	76,717	274,984	821,042

* Resident employees are not included in the jobs totals, because most would be double-counted. They are shown only to help explain the magnitude of the induced jobs that their household spending creates within the State.

Sources: Public Use Microdata Sample (PUMS), American Community Survey (ACS), U.S. Census Bureau; U.S. Bureau of Economic Analysis; USASpending.gov; DBED analysis.

VIII. Conclusion: Maryland's Dependence on Federal Spending

Federal spending has been an important component of Maryland's economy for many years. As Defense procurement spending has increased since September 11, 2001, Maryland's share of that spending has also increased. The Base Realignment and Closure (BRAC) process has helped to increase Department of Defense-related Federal civilian employment and has contributed to the increase in procurement activity by causing Defense contractors to relocate into the State, though the effect of BRAC-related changes will not fully be seen in the data until 2011 or later.

Civilian Federal civilian employment has also increased since 2000, as has procurement for civilian agencies such as the Departments of Health and Human Services and Commerce. Unlike most states, Maryland receives the majority of its contracting dollars for civilian purposes. Billions of dollars have been spent in the State improving the capacity of various civilian agencies and on ensuring that they have 21st century capabilities.

Maryland is also a popular place for Federal employees to reside. Almost 120,000 Federal workers who reside in Maryland work in the District of Columbia or Virginia. The earnings of these workers add significantly to the State's GDP. These workers are also highly educated. No statistic demonstrates this better than the fact that 30 percent of all employed persons in the State with postgraduate degrees work for the Federal government. Judging from the work that Maryland's contractors perform, their workers are also highly-educated and skilled. There is no doubt that the high educational attainment of Maryland's workforce is dependent on Federal spending.

Overall, Federal spending in Maryland is responsible for an estimated 821 thousand workers, or 24 percent of the total workforce. While many of these workers also earn part of their salaries from other sources, it is clear that any decreases in Federal spending in the State will have a real effect on our economy.

IX. Appendix A: Federal Military and Non-Military Facilities

Federal Military Facilities in Maryland

- Aberdeen Proving Ground (APG)
- Adelphi Laboratory Center
- Carderock Division, Naval Surface Warfare Center
- Fort George G. Meade
- Joint Base Andrews Naval Air Facility Washington (JBANAFW)
- National Geospatial-Intelligence Agency (NGA)
- National Maritime Intelligence Center (NMIC)
- National Naval Medical Center (NNMC) at Bethesda
- Naval Air Station (NAS) Patuxent River
- Naval Air Station (NAS) Patuxent River Webster Field Annex (WFA)
- Naval Research Laboratory (NRL) – Chesapeake Bay Detachment (CBD)
- Naval Support Facility (NSF) Indian Head
- Navy Recreation Center (NRC) Solomons
- U.S. Army Corps of Engineers (USACE), Baltimore District
- U.S. Coast Guard Yard 16
- U.S. Naval Academy (USNA)
- Walter Reed Army Medical Center (WRAMC) Forest Glen Annex

Federal Non-Military Facilities in Maryland

- **Department of Agriculture (USDA)**
 - Animal and Plant Health Inspection Service (APHIS)
 - Foreign Disease-Weed Science Research Unit (FDWSRU)
 - Henry A. Wallace Beltsville Agricultural Research Center (BARC)
- **Department of Commerce (DOC)**
 - Census Bureau
 - Census Bureau - Bowie Computer Center
 - National Institute of Standards and Technology (NIST)
 - National Oceanic and Atmospheric Administration (NOAA)
 - NOAA Center for Weather and Climate Prediction (NCWCP)
 - NOAA Chesapeake Bay Office (NCBO)
 - Cooperative Oxford Laboratory
 - NOAA Satellite Operations Facility (NSOF)
- **Department of Energy (DOE)**
 - Department of Energy (DOE) Germantown Facility
- **Department of Health and Human Services (HHS)**
 - Agency for Healthcare Research and Quality (AHRQ)
 - Centers for Medicare and Medicaid Services (CMS)

- Food and Drug Administration (FDA)
- FDA - Center for Food Safety and Applied Nutrition (CFSAN)
- Health Resources and Services Administration (HRSA)
- Indian Health Service (IHS)
- National Center for Health Statistics (NCHS)
- National Institutes of Health (NIH)
- NIH - Biomedical Research Center at Bayview
- NIH - National Cancer Institute (NCI)
- NIH – National Cancer Institute – Center for Cancer Research (CCR)
- NIH - National Cancer Institute at Frederick (NCI-Frederick)
- Substance Abuse and Mental Health Services Administration (SAMHSA)

- **Department of Homeland Security (DHS)**
 - Citizenship and Immigration Services (USCIS) – Baltimore Field Office
 - Customs and Border Protection – Baltimore Custom House
 - FEMA - National Emergency Training Center (NETC)
 - FEMA - National Processing Service Center (NPSC)
 - National Biodefense Analysis and Countermeasures Center (NBACC)
 - Secret Service - James J. Rowley Training Center (RTC)

- **Department of Housing and Urban Development (HUD)**
 - HUD – Baltimore Field Office

- **Department of the Interior (DOI)**
 - Patuxent Research Refuge
 - USGS - Maryland-Delaware-District of Columbia Water Science Center

- **Department of Justice (DOJ)**
 - ATF - National Laboratory Center
 - FBI - Baltimore Field Office 36
 - Federal Bureau of Prisons - Federal Correctional Institution (FCI)
 - United States Parole Commission (USPC)

- **Department of the Treasury**
 - Financial Management Service (FMS)
 - Internal Revenue Service (IRS)
 - IRS – Delaware-Maryland District Office

- **Department of Veterans Affairs**
 - Baltimore Veterans Affairs Medical Center
 - Baltimore VA Rehabilitation and Extended Care Clinic (BRECC)
 - Loch Raven VA Outpatient Clinic
 - Perry Point Veterans Affairs Medical Center

- **(Independent)**
 - Consumer Product Safety Commission (CPSC)
 - EPA - Environmental Science Center (ESC)

FCC – Office of Engineering and Technology - Laboratory
Government Printing Office - Retail Sales Outlet
Intelligence Advanced Research Projects Activity (IARPA)
NASA - Goddard Space Flight Center (GSFC)
NARA - National Archives at College Park
NARA - Washington National Records Center (WNRC)
National Security Agency (NSA) and Central Security Service (CSS)
Nuclear Regulatory Commission (NRC)
Smithsonian Environmental Research Center (SERC)
Social Security Administration (SSA)
Social Security Administration – Teleservice Center (TSC)

X. Appendix B: Previous Studies

While this is the first comprehensive look in many years at the effect that Federal spending has on the Maryland economy in many years, the Department of Business and Economic Development has recently conducted multiple targeted studies that examined the role of Federal spending in certain sectors of the economy.

Life Sciences Maryland: Jobs Analysis & Economic Impact Report (Dec 2011)

Life Sciences Maryland is a jobs analysis and economic impact study conducted to estimate the employment and economic impact of life sciences activity within the state. The report applies a three-pronged approach to define life sciences activity within the state in order to capture the three major categories of Maryland life sciences activity: private sector life sciences, federal life sciences and academic life sciences. According to the DBED analysis, Maryland life sciences directly accounted for 71,618 Maryland jobs in 2010. These consisted of 33,602 private sector nonacademic jobs, 29,777 federal non-academic jobs and 8,240 jobs in academic institutions. The life sciences directly accounted for \$6.5 billion in aggregate wages and salaries in 2010.

Maryland: The Business of Space Science (May 2011)

This report inventories the state's space and satellite sector, identifies key assets and opportunities, and sets forth a policy to guide strategic planning and investments. It found that the space sector is an important cog in Maryland's economic engine, that each year, NASA contracts \$1.4 billion with Maryland companies, and that NASA's 10,000 employees and thousands of other Marylanders work in space enterprises related to NASA, the National Oceanic and Atmospheric Administration (NOAA), the U.S. Geological Survey and national security agencies.

Mission Maryland: Measuring Economic Impact of Maryland's Military Installations (Oct 2010)

This report was a joint effort of the Maryland Department of Business and Economic Development (DBED) and the Maryland Department of Labor, Licensing and Regulation (DLLR), who retained the Jacob France Institute of the Merrick School of Business at the University of Baltimore (JFI) to prepare an analysis of the economic impact of the seventeen military facilities located in Maryland. It found that Maryland's military installations employed over 118 thousand people, or 3 percent of the State's workforce, and added almost \$36 billion to the economy.

CyberMaryland: Epicenter for Information Security & Innovation (Jan 2010)

This report found that Maryland was a leader in developing a knowledge-driven economy, and had a critical mass of federal agencies, academic institutions, information technology companies and individuals with the skills needed to secure the nation's infrastructure. It also found that Maryland's federal agencies are key leaders in the country's cyber security strategy, and that this leadership combined with the state's superior security industry cluster to place the State at the epicenter of

national cyber security leadership. In addition to collecting and analyzing data to alert users to threats and improve intelligence, Maryland’s companies are developing new technologies and using advanced encryption methods to enhance the security of government communications.

XI. Appendix C: The IMPLAN Model

The employment impacts of Federal spending in Maryland were calculated using the IMPLAN model from MIG. IMPLAN stands for *IMPact analysis for PLANning*, and was originally created in the 1970’s for the U.S. Forest Service to support the 1976 National Forest Management Act. In 1988, it was commercialized by the University of Minnesota, and was spun out as a separate company called the Minnesota IMPLAN Group (MIG) in 1993. Today, IMPLAN is used by multiple Federal, state, and local agencies, as well as universities and corporations. Users include the Department of Defense, the National Institute of Standards and Technology (NIST), agencies from at least 40 state governments, and corporations such as AECOM, Booz, Allen and Hamilton, M&T Bank, and SAIC.¹⁸

Description of IMPLAN

IMPLAN is an *input-output* model. It is based on data collected at the national level by the U.S. Bureau of Economic Analysis that accounts for every input into an industry that is required to create a specific output. So, if an industry is producing automobiles, the inputs for creating that product could be steel, plastic, glass, engineering services, transportation of goods to and from factories, electricity, etc. The creation of each of these inputs is also accounted for, as each input into one industry is an output from another. MIG takes this input-output matrix and adds additional data on “non-market” transactions, such as taxes and unemployment benefits, and creates its own *Social Accounting Matrices (SAMs)*, which “capture the actual dollar amounts of all business transactions taking place in a regional economy as reported each year by businesses and governmental agencies.”

The Social Accounting Matrices are then used to construct “multiplier models” that show the effects of a given change on a local economy. Multiplier Models study the impacts changes in the local economy for 440 different industries. These models measure the *direct*, *indirect*, and *induced* changes in employment caused by changes in the economy:

- **Direct effects** represent the economic change that is being measured in a study, i.e. spending an additional \$100 million in Federal procurement contract dollars to build an airplane;
- **Indirect effects** represent the activity created in the local economy by the new activity described in the direct effect, i.e. materials and services purchased by a contractor in its effort to build an airplane;
- **Induced effects** measure the household and other spending that occurs in the local economy because of the spending from the indirect effect.

¹⁸ MIG Client Listing: http://implan.com/V4/index.php?option=com_content&view=article&id=64&Itemid=25

Spending from each of these three effects continues to cycle through the economy until *leakage* from the local economy ends the cycle. Leakage refers to the fact that, for most transactions, some portion of the money spent goes outside of the local economy to purchase an imported good or service. For example, when purchasing an item from a big-box store, much of the purchase price goes outside of the local economy to a product supplier or a corporate headquarters. Relatively little stays in the local economy. As no local economy is self-sustaining, and must import a large portion of the goods and services used by its residents and local establishments, local spending has a finite life cycle before it essentially falls to zero.

How IMPLAN was used for this Study

IMPLAN version 3.0 was used to complete this study, along with the 2008 IMPLAN dataset adjusted to 2010 dollars. IMPLAN was used in different ways for each portion of this study:

Effect of Federal Employment: The induced effect of Federal employment was calculated by entering the total household spending of civilian and military workers who resided in Maryland in 2010 as reported by the Public Use Microdata Sample for the 2010 American Community Survey 1-year data set. Federal workers were treated as belonging to households that spent \$80,000 to \$100,000 per year, and military workers were treated as belonging to households that spent \$40,000 to \$60,000 per year.

Effect of Federal Procurement Contract Spending: The direct, indirect, and induced impacts of contract spending were calculated by matching the NAICS code as reported by each contract record with one of the 440 industry categories used by IMPLAN. The 2.8 percent of spending that was not assigned to any particular NAICS code was apportioned equally among reported NAICS codes. Some records contained negative spending that represented contract adjustments, these negative amounts were included in the analysis.

Effect of Federal Grant Spending: The direct, indirect, and induced impacts of grant spending were calculated by matching spending by category as reported by each grant record with one of the 440 industry categories used by IMPLAN. Unfortunately, grant spending does not include NAICS industry codes, so some individual interpretation of spending types was required. DBED has created a model that accounts for government spending in areas such as Medicaid, TANF, and CHIP by apportioning that spending to similar IMPLAN industries, so that the effect of large grants such as the \$4.2 billion Medicaid grant could be adequately measured.