INTERNATIONAL POLICY REPORT

Minimum Returns

The Economic Impacts of Pentagon Spending

By William D. Hartung
with Natalie Peterson

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Executive Summary

Over the past two years, Pentagon contractors have financed a series of studies that have made exaggerated claims about the economic impacts of reductions in Pentagon spending. This report refutes a number of the key findings of those industry-backed reports, which have been extensively promoted in an effort to influence politicians and the media in Washington and around the country. Specifically, this analysis looks at the impacts of Pentagon contracting for weapons, supplies and services.

Claim #1: Weapons contractors face dire consequences if the Pentagon budget is cut significantly.

Fact: Contractors will be cushioned from the impacts of cuts due to their large backlogs and Pentagon spending already in the pipeline.

- Major contractors like Lockheed Martin, General Dynamics and Northrop Grumman have backlogs of tens of billions of dollars – the equivalent of two to three years' revenue.
- The Pentagon has over $100 billion in unobligated funds that will translate into contract awards over the next few years, providing an additional cushion against budget cuts for Pentagon contractors.
- Pentagon contract awards have more than doubled since 2001, from $145 billion per year then to over $373 billion per year now.

Claim #2: If the Pentagon budget is significantly reduced, up to 1 million jobs could be lost.

Fact: Independent analyses show that the industry's jobs claims are grossly distorted. The number of jobs displaced in the event of significant Pentagon spending cuts will be between 290,000 and 500,000, meaning that industry-backed claims are exaggerated by double or triple.

- Pentagon spending is an especially poor job creator, creating fewer jobs than virtually any other use of the same money, from a tax cut to investments in infrastructure to spending on education.

- If Pentagon spending is preserved at the expense of tax cuts, infrastructure, education or other public investments it will result in a net loss of jobs nationwide.

- An analysis based on independent studies from the Cato Institute and the University of Massachusetts demonstrates that the number of jobs displaced in the event of significant Pentagon spending cuts will be just one-third to one-half the levels claimed by industry-backed studies.

Claim #3: Most states face substantial economic impacts from Pentagon spending cuts.

Fact: Pentagon contracts are concentrated in a small number of states.

- Three states – Virginia ($36.9 billion), California ($36.2 billion), and Texas ($28.4 billion) – account for more than one-third of Pentagon contract awards. And for two of these states – California and Texas – the importance of Pentagon contracting is significantly reduced by the sheer size and diversity of their economies. The top ten states account for 60% of all Pentagon contracting.

- Thirty states have Pentagon prime contract awards that are less than 2% of their state GDP – if evenly distributed across states, even a 10% cut in Pentagon spending would have a direct impact of only one-fifth of one percent of the economic activity in these areas.

- Even in the states that are most dependent on Pentagon contracts, a forward looking economic strategy that marshals local resources now engaged in weapons production to build new industries and expand existing ones can replace or exceed the numbers of jobs displaced by cuts in Pentagon spending.

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Lockheed Martin F-35 assembly line in Fort Worth, Texas.

Introduction

In a series of reports issued over the past two years, the Aerospace Industries Association (AIA) and industry-funded think tanks have argued that significant reductions in Pentagon spending could have "dire" consequences for national, state and local economies. One industry-backed study went so far as to claim that automatic cuts of about 10% – as part of a process known as sequestration – would result in the loss of one million jobs in the military and aerospace industries.

Although sequestration at its originally anticipated levels has been staved off due to the January 2013 budget deal between Congress and the Obama administration, significant additional cuts in Pentagon spending are still likely to occur, and the debate about the impact of those cuts on employment and economic activity will continue. The arms industry will use the same arguments it has used to date in its campaign to block further reductions in Pentagon spending. Part of that effort will rely on analyses of the type that the industry has funded in the past two years. Therefore, it is important to assess the accuracy of the industry's existing claims on the economic impact of Pentagon spending.

Using the Pentagon's own data, supplemented by corporate reports and independent analyses, this report will demonstrate that the industry's claims about the economic impacts of reductions in Pentagon spending are greatly exaggerated.[1] We will show that only one-third to one-half as many jobs would be affected by reductions in Pentagon contracts as industry studies assert, and that many of these could be replaced by increases in other forms of economic activity. In addition, we will demonstrate that Pentagon prime contracts are highly concentrated, with a few states receiving the bulk of the economic benefits from weapons procurement and research. A majority of states and localities will feel a minimal impact from reductions in Pentagon weapons procurement.

National Implications (1): Impacts of Pentagon Spending Reductions on Major Contractors

As noted above, the Aerospace Industries Association and key members like Lockheed Martin and Northrop Grumman have asserted that the automatic cuts of about 10% of Pentagon spending that would have occurred if the nation had gone over the so-called "fiscal cliff" would undermine our defenses while substantially increasing unemployment. Now that a stopgap budget deal has been reached, cuts at the 10% level are unlikely to occur in the short-term. Nonetheless, because the 10% figure roughly matches the numbers used in most industry studies on the economic impacts of Pentagon spending, it is a good point of departure – a worst-case scenario that helps explicate the relatively minimal impacts of Pentagon spending on employment and overall economic activity.

Major Pentagon contractors are well positioned to absorb budgetary reductions, even at the 10% level or beyond. The arms industry will be able to readily absorb Pentagon spending cuts for several reasons.

First, Pentagon contractors are starting at historically high levels in terms of the revenue they receive from the federal government. From 2001 through 2011, Pentagon prime contract awards increased from $145 billion per year to over $373 billion per year – more than doubling, even after adjusting for inflation.[2] In addition, existing contracts and funds already in the pipeline – money approved by Congress but yet to be obligated to specific programs – are currently over $105 billion.[3] This means that major programs like combat aircraft, ships and armored vehicles will proceed smoothly for many months – and probably much longer – before they need to make adjustments to any new spending cuts. Any foreseeable level of Pentagon spending cuts will result in the vast majority of current programs being stretched out, not canceled outright.

Table I: Defense Dependency and Total Backlog, Top Ten Pentagon Contractors, FY2011

Company	Pentagon Contracts (and % Company Revenues)	Backlog
Lockheed Martin	$35.6 billion (78% of total revenue)	$81 billion
Boeing	$20.2 billion (29% of total revenue)	$355 billion
General Dynamics	$18.6 billion (57% of total revenue)	$57 billion
Raytheon	$13.9 billion (56% of total revenue)	$35 billion
Northrop Grumman	$13.8 billion (58% of total revenue)	$40 billion
United Technologies	$7.2 billion (12% of total revenue)	$32 billion*
L-3 Communications	$6.7 billion (44% of total revenue)	$10.7 billion**
BAE Systems	$6.5 billion (22% of total revenue)	$64 billion
SAIC Corp.	$5.2 billion (46% of total revenue)	$17 billion
Oshkosh Corp.	$4.9 billion (65% of total revenue)	$6.5 billion

SOURCE: Company annual reports and 10K's for 2011.

* This figure represents the backlog for Pratt and Whitney and Sikorsky, the units of United Technologies that do the most business with the Department of Defense.
** This represents funded backlog only, a more conservative way of measuring company backlog.

Finally, major Pentagon contractors will be further buffered from budget reductions by the health of their own balance sheets. As demonstrated in Table I, the vast majority of major military contractors have backlogs equal to two to three times their annual revenues from the Pentagon. Companies like Boeing (17 to 1), United Technologies (5 to 1), and BAE Systems (10 to 1) that have substantial commercial business have even larger backlog to Pentagon contract ratios. In addition, major contractors have been hoarding cash. Cash holdings of the top five Pentagon contractors grew by 71% in the final quarter of the 2012 fiscal year. Their total cash holdings are now in excess of $21 billion.[4]

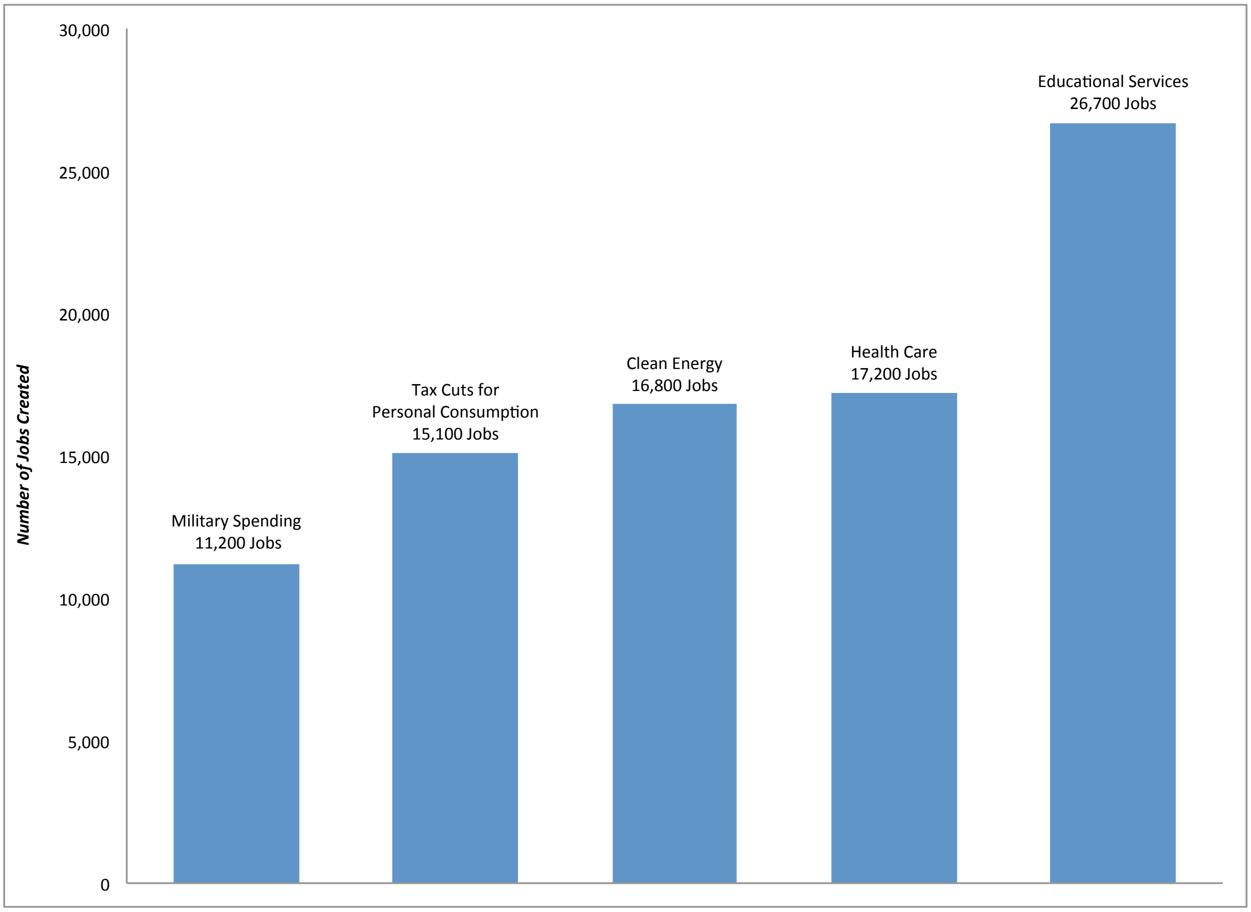
Another indication that arms industry executives are not unduly concerned about adjustments that may be needed to address Pentagon spending cuts is the continuing high level of salaries among industry CEOs. For example, the CEOs at Lockheed Martin, Boeing, United Technologies, and Northrop Grumman earned between $22 million and $27.6 million in 2011. The compensation of the average CEO of a major Pentagon contractor is the equivalent of the pay and benefits of 268 defense/aerospace workers.[5]

National Implications (2): Impacts of Pentagon Spending on Employment

Any analysis of the employment impacts of increases or reductions in Pentagon spending must include one fundamental fact: military spending is a particularly poor job creator. As demonstrated in a January 2011 study by economists at the University of Massachusetts, virtually any other use of the same funds creates more jobs than Pentagon spending. A tax cut creates over 33% more jobs than military spending; spending on clean energy or health care creates one and one-half times as many jobs; and spending on education creates more than twice as many jobs (see chart, following page).

In a climate in which deficit reduction is the central focus of budget policy in Washington, a dollar spent in one area is likely to come from cuts in other areas. If the Pentagon is exempted from significant cuts, as proposed by the arms industry, there will be more jobs lost in programs funded by domestic discretionary spending. Under this

Figure I: Job Creation in the United States through $1 Billion in Spending



Note: Employment estimates include direct, indirect, and induced jobs.
Source for chart:Robert Pollin and Heidi Garrett-Peltier, "The U.S. Employment Effects of Military and Domestic Spending
Priorities: 2011 Update," [PDF] Department of Economics and Political Economy Research Institute (PERI), University of Massachusetts, December 2011.

scenario the more money we spend on weapons programs, the more layoffs there will be of police officers, firefighters, teachers and other workers whose jobs are funded directly or indirectly by federal spending. Thus, depending on how it is financed, preserving Pentagon spending may result in a net loss of jobs due to employment reductions in other sectors of the economy. In short, keeping Pentagon spending at currently planned levels will not save jobs, as industry studies suggest. It may well result in fewer jobs nationwide.

So where does the industry claim of 1 million jobs lost in the event of a 10% cut in Pentagon spending come from? The original source is a study funded by the Aerospace Industries Association and conducted by Dr. Stephen S. Fuller of George Mason University.[6]

The first problem with the Fuller study is not with the analysis itself, but with how the Aerospace Industries Association has chosen to use it. The study looks at the impacts on military contracting of a $1 trillion reduction in proposed Pentagon spending over the next decade, but only about $550 billion of that is due to new spending reductions. The rest – often cited as $487 billion in "cuts" – has already been removed from the Pentagon's spending plans under current law. And this $487 billion is not a cut in the normal sense of the term – it is a scaling back of the Pentagon's proposed growth rate, leveling the Department of Defense budget off at roughly current levels. According to the Department of Defense's proposed budget for FY2013, Pentagon spending would drop by a mere .3% over the next five years.[7]


www.defense.gov

Secretary of Defense Leon Panetta meets with arms industry executives.

So, when the Aerospace Industries Association talks about 1 million jobs lost via the 10% cut that would have occurred under full sequestration, it is counting a $487 billion scaling back of Pentagon spending plans that has already occurred. The study assumes that the full reductions – the $487 billion already planned for and the $550 billion that would have resulted from full sequestration – would result in an annual reduction in military procurement of $45 billion. It is this number that is the foundation of the estimate of 1 million jobs lost due to Pentagon spending cutbacks. But over $19 billion of that $45 billion per year figure used in the AIA study is attributable to the Pentagon budget cuts that have already been agreed upon. Looking only at the cuts that would actually have resulted from full sequestration would mean estimating the job impacts of just $26 billion in procurement cuts. As a result, even by AIA's own estimates, the true impact on jobs that would have resulted from full sequestration would be 42% lower than they claim – 577,000 jobs versus the claimed 1 million.

Either way, whether one chooses to look at the impacts of a $1 trillion ten year reduction in Pentagon spending, or a $550 billion cut, there are serious flaws in the AIA study's methodology that overstate the number of jobs displaced. The study uses an input/output model that measures not only the direct jobs created by Pentagon spending, but the additional jobs that are created as the original spending works its way through the economy. The descriptions of each category are drawn from the University of Massachusetts study cited in Figure I. This works as follows:

1. There are the *direct* jobs created from building a given item of equipment like a fighter plane or tank, for example;

2. There are the *indirect* jobs created by the supply of "intermediate goods" – the steel, glass, rubber, or electronics devices used in the production of the plane or tank; and

3. There are *induced* jobs, which are the jobs created when workers in categories one and two spend their wages on goods and services.[8]

This is the standard approach used in input/output studies. But the AIA study departs from this approach in one extremely important way – it adds a fourth category of job creation that substantially increases its overall estimate of jobs created by Pentagon spending.

Here are the four categories of job creation that the AIA study uses to come up with its inflated job numbers, and how it defines them:

1. Initial jobs: "impacts of initial DoD spending on prime contractors"

2. Direct jobs: "impacts on suppliers to prime contractors"

3. Indirect jobs: "impacts on suppliers to the suppliers to the prime contractors"

4. Induced jobs: "impacts of spending reductions on the remainder of the economy due to decreased payroll disbursements and non-wage operating purchases"[9]

Categories 2 and 3 are what the University of Massachusetts study and other standard input/output studies would call indirect jobs. Using two categories instead of one, as the AIA study does, appears to result in double counting. This is a likely contributing factor to the AIA study's overestimate of the job impacts of Pentagon spending reductions.

Another way of understanding why the AIA study overstates the job impacts of Pentagon cuts is set out in a study on the economic impacts of military spending conducted for the Cato Institute. This study points out that the multiplier effect used by the AIA study to measure the additional impacts of a given amount of Pentagon spending on the overall economy is as much as three times more than the multiplier effects used in other studies of the impact of government expenditures. In particular, studies conducted at the National Bureau of Economic Research and the University of Wisconsin suggest that the multiplier effects of military spending should be in the range of .6% to .9 %, while the AIA puts the multiplier effect at 1.92. This overstatement of the multiplier effect results in a substantial overstatement of the jobs impacted by cuts in Pentagon spending.[10]

How large is the over-estimate of job displacement contained in the AIA study? One way to double check the findings of the AIA study is to multiply its estimate for reduced weapons contracting per year – $45 billion – by the number of jobs per billion created by military spending – 11,200 (the number generated by the University of Massachusetts study, cited above). The resulting estimate for the number of workers displaced is 504,000, or roughly half of what the AIA study claims. But Fuller's $45 billion figure is a sum total of Pentagon budget cuts already written into law with the prospective cuts. Looking only at the $26 billion per year reductions in Pentagon procurement that Fuller assumes would have resulted from sequestration would result in a job displacement figure of just 291,000, well under one-third of the 1 million figure often cited by the AIA.[11]

And, as noted at the beginning of this section, cuts in Pentagon spending may be offset by other economic factors, from lesser cuts in domestic programs to other economic activity generated by the skills and resources freed up by reducing the Pentagon budget. So, depending upon the surrounding economic context, cuts in Pentagon spending could even result in a net increase in jobs nationwide, not a substantial loss as claimed by the AIA.

Pentagon Prime Contracts: Geographic Distribution

As demonstrated in Table II, Pentagon prime contracts are highly concentrated, with the three largest recipient states – Virginia ($36.9 billion), California ($36.2 billion), and Texas ($28.4 billion) – head and shoulders above the rest. These three states alone account for more than one-third of Pentagon contract awards. The next tier – those receiving prime contract awards of $10 billion or above for FY2011 – consists of just six states: Arizona ($12.1 billion), Connecticut ($11.8 billion), Massachusetts ($11.4 billion), Pennsylvania ($11.2 billion), Maryland ($10.9 billion) and Florida ($10.7 billion). The top ten is rounded out by Alabama, which received $8.9 billion in Pentagon prime contract awards in FY2011. Taken

Table II: Pentagon Prime Contracts by State, FY 2011

	State	Contract money awarded in 2011 (millions)
1	Virginia	36,986
2	California	36,225
3	Texas	28,350
4	Arizona	12,146
5	Connecticut	11,840
6	Massachusetts	11,400
7	Pennsylvania	11,253
8	Maryland	10,889
9	Florida	10,771
10	Alabama	8,908
11	Missouri	8,230
12	New York	6,870
13	Georgia	6,868
14	New Jersey	6,838
15	Washington	6,490
16	Kentucky	6,225
17	Colorado	5,832
18	Wisconsin	5,596
19	Illinois	5,369
20	Ohio	4,987
21	Mississippi	4,754
22	Maine	4,388
23	District of Columbia	4,105
24	Indiana	3,686
25	North Carolina	3,408
26	Michigan	3,178

	State	Contract money awarded in 2011 (millions)
27	South Carolina	3,086
28	Louisiana	2,655
29	Tennessee	2,576
30	Hawaii	2,265
31	Oklahoma	2,181
32	Utah	2,064
33	Kansas	1,917
34	Alaska	1,546
35	Nevada	1,361
36	Minnesota	1,334
37	New Hampshire	1,178
38	New Mexico	1,145
39	Iowa	1,098
40	Arkansas	878
41	Oregon	721
42	Rhode Island	627
43	Nebraska	601
44	South Dakota	422
45	North Dakota	325
46	Delaware	286
47	Vermont	274
48	Montana	269
49	West Virginia	171
50	Idaho	155
51	Wyoming	89

SOURCE: Fedspending.org

together, these ten states accounted for over 60% of all Pentagon contract awards disbursed during FY2011.

Pentagon Contract Dependency

Measuring total contracts awarded to companies in a given state offers just one view of geographic impacts. Another key measure is *defense dependency*. This relates to how important Pentagon contracts are to the economy of a given state. This report looks at defense dependency in two ways. First, in Table III, we look at per capita Pentagon contracts. This relates Pentagon contracts to the size of a state's population, which is one way of looking at how important these contracts are to the overall income of that state. Second, in Table IV, we look at Pentagon prime contracts as a share of each state's gross domestic product.

As Table III shows, the top ten states in per capita Pentagon prime contracts differ markedly from the top ten states ranked by sheer volume of Pentagon

Table III: Pentagon Prime Contracts Per Capita, FY 2011

	State	Contract money per capita		State	Contract money per capita
1	Virginia	4568.07	26	Louisiana	580.26
2	Connecticut	3306.57	27	Oklahoma	575.22
3	Maine	3303.53	28	Indiana	565.63
4	Alaska	2138.82	29	Florida	565.16
5	Arizona	1873.71	30	New Mexico	549.97
6	Maryland	1868.24	31	South Dakota	512.00
7	Alabama	1854.80	32	Nevada	499.67
8	Massachusetts	1730.54	33	North Dakota	475.33
9	Hawaii	1647.77	34	Vermont	437.06
10	Mississippi	1596.11	35	Ohio	431.93
11	Kentucky	1424.60	36	Illinois	417.22
12	Missouri	1369.26	37	Tennessee	402.26
13	Colorado	1139.87	38	Iowa	358.71
14	Texas	1104.20	39	New York	352.95
15	Wisconsin	979.78	40	North Carolina	352.95
16	California	961.09	41	Nebraska	326.19
17	Washington	950.22	42	Michigan	321.79
18	New Hampshire	893.73	43	Delaware	314.78
19	Pennsylvania	883.08	44	Arkansas	298.81
20	New Jersey	775.16	45	Montana	269.43
21	Utah	732.47	46	Minnesota	249.56
22	Georgia	699.75	47	Oregon	186.29
23	Kansas	667.62	48	Wyoming	151.18
24	South Carolina	659.48	49	Idaho	98.08
25	Rhode Island	596.19	50	West Virginia	92.19

SOURCE: Fedspending.org

awards. The only states that carry over from Table II to Table III are Virginia ($4,568 per capita), Connecticut ($3,306 per capita), Alabama ($1,854 per capita) and Massachusetts ($1,730 per capita). On the other hand, less populous states that ranked fairly low in total Pentagon contracts show higher dependency when awards are measured on a per capita basis. These include Hawaii, which ranks 30th in total contract awards but 10th in per capita awards (at $1,647); Alaska, which ranks 34th in total prime contract awards but 5th in per capita awards (at $2,138); and Maine, which ranks 22nd in total awards but 4th in per capita awards (at $3,305). These latter states are more vulnerable to Pentagon spending reductions both because of their greater per capita amounts of prime contracts and because the loss of one or two major contracts against a smaller base would have a comparatively greater effect.

Table IV takes a different approach to measuring defense dependency by looking at Pentagon prime contracts as a share of a state's gross domestic product. The most dependent states by this measure are similar to those that come to the top in the per capita measure, with Virginia (9.8% of GDP) and Maine (9.7% of GDP) by far the most Pentagon contract dependent. What is interesting about

Table IV: Pentagon Prime Contracts as a Share of State GDP, FY 2011

	State	Pentagon contracts as % of overall state GDP
1	Virginia	9.84
2	Maine	9.79
3	Alabama	5.93
4	Connecticut	5.88
5	Mississippi	5.64
6	Arizona	5.35
7	District of Columbia	4.48
8	Kentucky	4.41
9	Maryland	4.12
10	Hawaii	3.91
11	Missouri	3.81
12	Alaska	3.46
13	Massachusetts	3.27
14	Wisconsin	2.52
15	Colorado	2.49
16	Texas	2.47
17	Pennsylvania	2.25
18	South Carolina	2.15
19	California	2.09
20	Washington	2.09
21	New Hampshire	2.08
22	Utah	1.90
23	Georgia	1.88
24	Kansas	1.69
25	Florida	1.63
26	Oklahoma	1.63

	State	Pentagon contracts as % of overall state GDP
27	New Mexico	1.62
28	New Jersey	1.60
29	Indiana	1.53
30	Rhode Island	1.44
31	Louisiana	1.29
32	South Dakota	1.23
33	Nevada	1.21
34	Vermont	1.19
35	Ohio	1.19
36	Tennessee	1.10
37	Arkansas	0.96
38	North Dakota	0.95
39	Michigan	0.94
40	Illinois	0.92
41	North Carolina	0.89
42	Iowa	0.85
43	Montana	0.84
44	Nebraska	0.75
45	New York	0.68
46	Minnesota	0.54
47	Delaware	0.50
48	Oregon	0.39
49	West Virginia	0.31
50	Idaho	0.30
51	Wyoming	0.28

SOURCE: Fedspending.org and U.S. Department of Commerce, Bureau of Economic Analysis.

this measure is that a number of states that rank high in total prime contract awards rank relatively low in Pentagon prime contracts as a share of state GDP. For example, despite ranking 2nd with over $36 billion in prime contracts in FY2011, California – due to the size and diversity of its economy – ranks 20th in terms of prime contracts as a share of state GDP. Similarly, Texas, which ranks third in total prime contracts, ranks 16th in prime contracts as a share of GDP.

The prime contracts as a share of GDP measure also demonstrates that Pentagon prime contracts are of relatively small importance to the economies of most states. Thirty states have Pentagon prime contract awards of less than 2% of their state's gross domestic product, and fifteen of those have Pentagon prime contract awards at less than 1% of their state GDP. This means that even under the roughly 10% spending cut that would have resulted from full sequestration, most states would feel direct impacts equivalent to just .2% of their gross domestic product or less.[12] And, as suggested above, these changes will be gradual due to contract funds already in the pipeline.

Largest Contractors by State

Levels of Pentagon prime contract awards are not the only indicator of how a given state may fare when there are budget reductions. It is also useful to know who the prime contractors are in each state, and what good or service they provide to the Pentagon. Table V lists the top Pentagon contractors in each state, along with a description of the primary work performed there. This is a partial view, since a number of states have more than one major contractor and therefore are involved in more than one type of military production. Also, many of these contractors work on a variety of military systems. Nonetheless, the table provides a rough guide to the vulnerability of a given state to reductions in Pentagon contracting.

A review of Table V reveals the following:

- The Pentagon's top five contractors are also the top contractors in 20 of the 50 states, as follows: Lockheed Martin (10 states); Boeing (3 states); General Dynamics (4 states); Raytheon (2 states); and Northrop Grumman (1 state).

- Weapons spending is not the main source of Pentagon contracting dollars for a significant number of states. Support contractors providing goods and services like construction, transport, health care, food, and fuel are the top contractors in 12 states – Alaska, Delaware, Hawaii, Idaho, Montana, Nevada, North Dakota, Oklahoma, South Dakota, Tennessee, and Wyoming. Therefore, contrary to the AIA's position, many states will not suffer significantly from cuts in big ticket military hardware projects.

- Aircraft production and maintenance is the top activity in six states: California, Georgia, Missouri, Ohio, South Carolina, Texas and Washington State.

- Firms that build military vehicles are top contractors in five states: Illinois, Indiana, Michigan, Oregon and Wisconsin.

- Four states have shipbuilding as a top contracting activity: Connecticut, Virginia, Maine and Mississippi.

Economic Adjustment

Despite claims made in arms industry studies on the subject, the Pentagon budget is not a jobs program. This point has now been acknowledged even by representatives of the industry, but they have not retracted the positions put forward in their studies on the issue, which attempt to make jobs a central issue in the Pentagon budget debate. Rather than being seen through the lens of jobs, the deficit challenge should offer an opportunity to reshape our military to address new threats. To do so, we will need a new mix of weapons systems to align with a new strategy. Any attempt to freeze current Pentagon-related employment in place will simply get in the way of needed reforms.

Similarly, a forward looking economic strategy can and should marshal some of the skilled personnel now engaged in excess weapons production to foster new industries and improve U.S. competitiveness in the growth areas of the future. A well-educated and healthy work force supported by state-of-the-art technology holds out the best hope of spurring sustainable economic growth.

Although investing in non-Pentagon programs will create more jobs nationwide, it will not address the issue of job displacement in areas that are particularly defense dependent. In states like Virginia and Connecticut, and cities and towns with significant Pentagon contracting activity, it

Table V: Top Pentagon Contractors by State

State	Top Contractor(s)	Primary Work
Alabama	Boeing	Missile defense
Alaska	Arctic Slope Regional Corp.	Construction, resources
Arizona	Raytheon	Tactical missile systems
Arkansas	General Dynamics	Tactical missiles, rockets
California	Lockheed Martin	F-35 fighter, Trident sub-launched ballistic missiles
Colorado	Lockheed Martin	Military space
Connecticut	General Dynamics	Nuclear submarines
Delaware	Coakley and Williams	Construction
Florida	Lockheed Martin	Tactical missiles, military electronics
Georgia	Lockheed Martin	F-35, C-130 transport
Hawaii	Tesoro petroleum	Jet and marine fuels
Idaho	C-2 Construction	Military construction
Illinois	Navistar	Military trucks
Indiana	Renco Group	Humvees
Iowa	Rockwell Collins	Military communications
Kansas	Hawker-Beechcraft	Training aircraft
Kentucky	Humana, Inc.	Military healthcare
Louisiana	Electronic Data Systems	Data processing
Maine	General Dynamics	Military ships
Maryland	Lockheed Martin	Headquarters
Massachusetts	Raytheon	Military electronics
Michigan	GM defense group	Land vehicles (Stryker)
Minnesota	Lockheed Martin BAE	Avionics* Gun systems
Mississippi	Huntington Ingalls	Military ships
Missouri	Boeing	F-18 aircraft
Montana	West Electronics	Fuel systems
Nebraska	Conagra Foods Northrop Grumman	Food products Missile defense
Nevada	Sierra Nevada Corp. Sierra Health Services	Military electronics Healthcare
New Hampshire	BAE Systems	Military electronics
New Jersey	Lockheed Martin	Aegis missile system
New Mexico	Honeywell	Space/electronics
New York	Lockheed Martin	Electronic systems
North Carolina	Hensel Phelps Construction	Military construction
North Dakota	Tesoro Petroleum	Fuel
Ohio	General Electric	Aircraft engines
Oklahoma	ConocoPhillips	Aviation fuel

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Oregon	DaimlerChrysler	Military trucks
Pennsylvania	BAE Systems	Land armaments
Rhode Island	Raytheon	Naval equipment
South Carolina	Lockheed Martin	Aircraft maintenance
South Dakota	Tyson Foods	Food products
Tennessee	Fedex	Military transport
Texas	Lockheed Martin	F-35, F-16
Utah	Northrop Grumman	ICBM maintenance
Vermont	General Dynamics	Gun systems
Virginia	Huntington Ingalls	Subs/Aircraft carriers
Washington State	Boeing	Military aircraft
West Virginia	Alliant Techsystems	Missile technology
Wisconsin	Oshkosh Truck	Military vehicles
Wyoming	Sinclair Oil	Military fuel

SOURCE: Company websites and industry and local press, building on data from the Department of Defense Military Atlas for FY2009, the most recent year for which this publication is available.
* In November 2010 Lockheed Martin announced its plans to close the Eagan, Minnesota plant where this work is carried out.

will be necessary to make a transition from Pentagon-related jobs to other economic activities. A number of things can be done to speed these transitions and limit the negative economic impacts of reductions in Pentagon spending in defense dependent areas.

First, state and local officials should seek funding that can be used to plan for a different, more diversified future for their local economies. As the Institute for Policy Studies has noted in its work on this subject, there are existing federal programs that can help ease the transition process:

> The Commerce Department's Economic Development Administration and the Defense Department's Office of Economic Adjustment offer community planning grants that give community coalitions—including local elected officials, economic development authorities, business leaders and labor and community groups—the time and resources to explore and analyze the strongest possibilities for alternative job growth. During the planning process communities can examine existing local and regional economic strengths they can build on, and the financial and technical instruments that are available to help. Once a plan is in place, implementation grants are available to support it. Other federal agencies offer financial support in the form of economic development grants and loans and tax incentives, as well as technical support from the network of Manufacturing Extension Centers, and job training grants and programs.[13]

Ideally, part of this process of local economic diversification should involve matching up federal investment in the jobs of the future – in areas such as green energy and modern infrastructure – with the skills and other economic resources available in areas that are reducing their dependency on Pentagon spending.

Even without large infusions of new federal resources, there are precedents for defense dependent localities making successful economic transitions. For example, San Diego was able to adjust to post-Cold War cuts in local Pentagon spending to the point that its unemployment rate was below the national average by the end of the 1990s. A study of the issue, cited by Christopher Preble of the Cato Institute, credits the area's adjustment to "defense engineers and managers diverted, by the loss of their jobs, into entrepreneurial pursuits."[14]

Similarly, Virginia's economy adjusted to the Pentagon cuts of the 1990s – which were larger than anything currently being contemplated – due to growth in civilian technology and business services firms. As Gerald L. Gordon, the head of the Fairfax County Virginia Economic Development Authority, has noted, "We've always believed that you cannot have a sustainable economy based on one industry . . . We've been working to diversify this economy for decades. We won't be as devastated by these cuts as we would have been 30 years ago."[15]

Each community that is dependent on Pentagon spending will have its own unique challenges and opportunities. But the key point is that regardless of the outcome of short-term budgetary maneuvers, the Pentagon budget will go down significantly over the next decade. It only makes sense for the local, state and federal governments – in cooperation with non-governmental organizations from unions to local business organizations – to start putting time and effort into planning for the economic transition process that Pentagon spending reductions will require. Efforts of this sort are more likely to have a longer-term economic payoff than simply trying to maintain existing contracts in a period of Pentagon spending reductions.

Endnotes

[1]Estimates provided here are based on data on Pentagon prime contract awards contained in reports from the Federal Procurement Data Center, supplemented by geographic analysis from the data base Fedspending.org. The focus on prime contracts provides a first order estimate of the economic impacts of Pentagon spending.

[2]Data on annual Pentagon contracts is from Fedspending.org.

[3]"DoD Ends Year With $105.7B Unobligated, 26 Percent Above Forecast," *Inside Defense*, November 20, 2012.

[4]Brendan McGarry, "Defense Contractors Stockpile Cash Ahead of 'Fiscal Cliff'," *Washington Post*, November 25, 2012.

[4]Ben Freeman, "Pentagon CEO Pay is Second to None," POGO (Project on Government Oversight) blog, August 22, 2012.

[6]Stephen S. Fuller, "The U.S. Economic Impact of Approved and Projected DoD Spending Reductions on Equipment in 2013," Center for Regional Analysis, George Mason University, October 24, 2011. Because this study deals with Pentagon contracts—as does the bulk of the data gathered here – the Fuller study will be the focus of the critiques set out in this report. All references to either the Fuller study or the AIA study refer to this document.

[7]U.S. Department of Defense, Fiscal Year 2013 Budget Request, Office of the Undersecretary of Defense (Comptroller)/Chief Financial Officer, February 2012, p. 4.

[8]The description of the three categories of jobs draws on Robert Pollin and Heidi Garrett-Peltier, "The U.S. Employment Effects of Military and Domestic Spending Priorities: 2011 Update," Political Economy Research Institute, University of Massachusetts Amherst, December 2011, p. 4.

[9]Fuller, op. cit., p. 3.

[10]See Benjamin Zycher, "The Economic Effects of Reductions in Defense Outlays," Cato Institute Policy Analysis no. 706, August 8, 2012, p. 7; Valerie A. Ramey, "Identifying Government Spending Shocks: It's All in the Timing," Quarterly Journal of Economics 126, no. 1 (February 2011): 1–50; and Robert J. Barro and Charles J. Redlick, "Macroeconomic Effects from Government Purchases and Taxes," National Bureau of Economic Research Working Paper no. 15369, rev. December 5, 2011, http://www.nber.org/papers/w15369.

[11]The figures in this section are arrived at by taking the Fuller study's estimates of annual procurement spending reductions and multiplying them by the University of Massachusetts study's figure of 11,200 jobs created per $1 billion in military spending. In the first estimate, we multiply the 11,200 jobs per billion figure by $45 billion annual reduction that Fuller estimates will result from

the combination of cuts embodied in current law *plus* the cuts that would have occurred under full sequestration, resulting in total job displacement of 504,000. The second estimate looks only at the $26 billion annual procurement reduction that Fuller calculates would have come as a result of full sequestration only and multiplies it by the 11,200 jobs per billion figure, which results in a total job displacement estimate of 291,000.

[12]Multiplier effects would increase these numbers, but the share of the state economies would still be relatively small, at most .4% for most states, depending upon what multiplier is used. This report looks at primary impacts.

[13]Miriam Pemberton, "How We Can Replace Defense Jobs," Foreign Policy in Focus, Institute for Policy Studies, August 21, 2012.

[14]See Christopher A. Preble, "What Sequestration Might Mean for San Diego (and other places)," *The National Interest*, July 1, 2012.

[15]Tim Loughran, "Staring Down the Barrel: Virginia Prepares for the Effects of Federal Budget Cuts," *Virginia Business*, March 1, 2012.

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IPR · Arms & Security

Center for International Policy
1717 Massachusetts Ave., NW, Suite 801
Washington, DC 20036-2000
(202) 232-3317
Fax: (202) 232-3440
cip@ciponline.org
www.ciponline.org

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