Military Spending and Jobs in Massachusetts

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INTRODUCTION

Since the onset of the economic downturn in 2008 and the widening of the federal deficit, the future of federal spending has been widely debated. In 2010 President Obama created the bipartisan National Commission on Fiscal Responsibility and Reform, which was given the task of identifying steps to improve the federal fiscal situation in the medium term and to achieve fiscal sustainability in the long run. The Commission failed to come to agreement and in August 2011 Congress passed the Budget Control Act of 2011 which contains provisions for automatic cuts (sequestration) in both security and non-security portions of the federal budget.

The issue is of great importance for Massachusetts, which has received about $83 billion in federal dollars annually in recent years. The state is also an important recipient of military spending and in the last year the major defense contractors in the state have warned several times that cuts in the military budget would have an adverse impact on jobs in Massachusetts.

Leaving aside the question of whether the level of military spending should be determined by the number of jobs it creates or by the national security needs of the nation, there are a number of issues around the employment effects of federal spending in Massachusetts that are in need of accurate and detailed explication. That is the purpose of this report. It estimates the jobs created in Massachusetts via military spending and then considers the employment effects of cuts in other areas of federal spending in important sectors of the Massachusetts economy, including education, healthcare, construction and clean energy.

The report finds that cuts in military spending would lead to the loss of jobs in the state. However, the job loss would be approximately 15-20% greater if non-military programs were cut instead. The report also finds that if the federal dollars coming into the state were shifted from military to education, construction, healthcare, or clean energy some 27% to 134% more jobs would be created.

That is because federal funds invested in education, healthcare, construction and clean energy are far more effective job creators than military spending. Massachusetts loses in two ways when federal dollars are allocated to the military beyond the actual security needs of the nation: it loses funds that may be used for education, healthcare, investment in infrastructure and environment and it loses the larger number of potential jobs that would be created from these alternate uses of federal dollars.

FEDERAL SPENDING AND JOBS IN MASSACHUSETTS

An input-output model of the Massachusetts economy was used to determine the jobs created by different forms of federal spending in the state. Data come from the United States Census Bureau as well as other sources and are drawn from 2010, the most recent year for which the relevant data were available at the time of this study. (Further details on the model and methods are given in the appendix to this report.)

Three scenarios for cuts in military spending were considered. The first is that proposed in the Fiscal Year 2013 budget of the Obama administration, which calls for a one percent cut, or $5.2 billion, from the 2012 Pentagon base budget, which are funds allocated every year for the ongoing operations of the Pentagon. The Obama administration budget also calls for cuts in expenditures in Iraq and Afghanistan (or Overseas Contingency Operations) from $115.1 billion in FY 2012 (enacted) to $88.5 billion in FY2013 (proposed). This is a decline of $26.6 billion or 23.1% of the Overseas Contingency Operations budget. Together, Pentagon baseline and Overseas Contingency Operations spending fall by $31.8 billion or 4.9 percent from FY2012 to FY2013.

The second scenario is a larger cut of approximately $55 billion proposed in the budget sequestration portion of the Budget Control Act of 2011. Since that act gives the President the authority to protect military personnel from cuts, two potential sequestration outcomes were considered. The first is cuts across the board, the composition of which is taken to be the same as the cuts proposed in the Obama administration Fiscal Year 2013 budget. The second is shielding military personnel from reduction, in which case the cuts are applied to procurement, operations and maintenance and other expenses.

The size and composition of reductions in military spending (broken down by category of expenditure) for each of these scenarios are given in Table 1 (page 3).

Using the input-output model for Massachusetts, employment multipliers were estimated for different types of federal spending and then used to calculate the employment effects of the above scenarios of defense cuts. It was assumed that 3 percent of the cuts in military spending will fall upon Massachusetts, which is the proportion of total federal defense spending the state has received in recent years, and that the cuts to defense spending in the state will be allocated in the same proportion as the cuts nationally. (The employment multipliers which were used in the calculations are given in the appendix to this report.)

The employment effects of cuts in defense spending are given in Table 2 (page 4). These confirm previous reports that cuts in military spending will lead to the loss of jobs in Massachusetts. Specifically, those proposed in the Obama Administration's FY 2013 budget will lead to a loss of 8,014 jobs in the state. The sequestration with personnel cuts will eliminate 13,913 jobs and without personnel cuts the figure is 13,104.

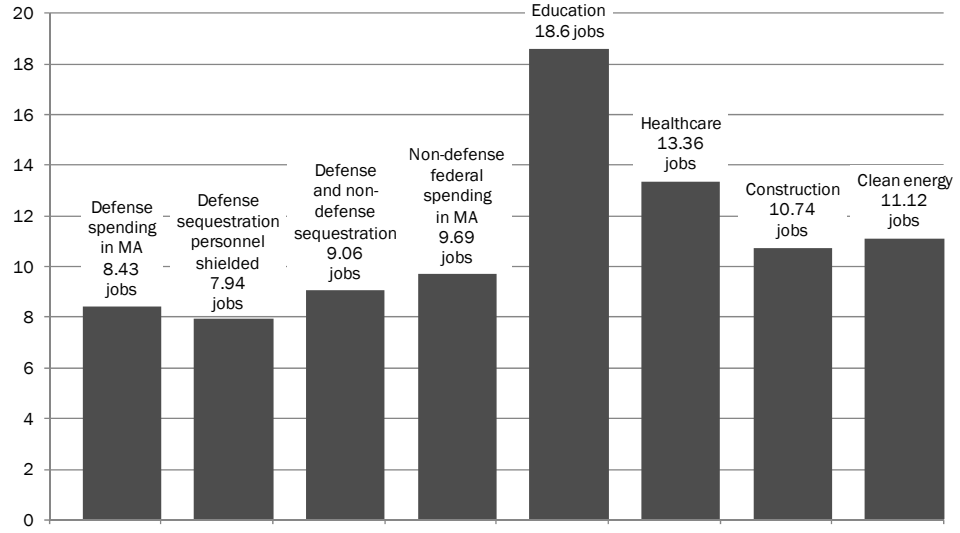
TABLE 1: POTENTIAL REDUCTIONS IN FEDERAL DEFENSE SPENDING, FISCAL YEAR 2013

Level and composition of cuts	Proposed FY2013 budget, cut from 2012-2013 ($ millions)	% of total baseline and OCO budget cut from 2012-2013	Defense sequestration, no change in allocation ($ millions)	% of total	Defense sequestration, personnel shielded ($ millions)	% of total
Personnel	$3,900.00	12%	$6,770.92	12%	$0	0%
Operations & maintenance	$11,200.00	35%	$19,444.69	35%	$22,174.55	40%
Procurement (non-research & development)	$12,100.00	38%	$21,007.21	38%	$23,956.43	44%
Research & development / testing & evaluation	$2,200.00	7%	$3,819.49	7%	$4,355.71	8%
Military construction	$1,800.00	6%	$3,125.04	6%	$3,563.77	6%
Family housing	$32.20	0%	$55.90	0%	$63.75	0%
Other	$447.40	1%	$776.75	1%	$885.79	2%
Total	$31,679.60	100%	$55,000.00	100	$55,000.00	100%

The employment effects of cuts in military spending need to be compared with other scenarios for federal budget cuts, however. These are also found in Table 2 (page 4). These figures show that if the military is exempted and budget reduction is achieved through cuts to other categories of federal spending, the job loss in Massachusetts will be even greater.

This is because federal dollars spent on defense in Massachusetts generate fewer jobs than the same number of dollars spent on other things. For instance, as shown in Figure 1, $1 million of federal defense spending creates about eight jobs in the state. The same million dollars, if allocated to other federal spending in the state, creates close to 10 jobs. In education, healthcare, construction and clean energy a million dollars creates between 11 and 19 jobs.

FIGURE 1: JOBS PER $1 MILLION IN SPENDING IN MASSACHUSETTS



Note: Direct, indirect, and induced employment impacts. See appendix for sources and methods.

For example, a cut in non-military federal spending in the state equivalent to the reduction in the Pentagon budget proposed by the Obama Administration for FY 2013 will lead to the loss of 9,213 Massachusetts jobs. This is a 15 percent greater loss of jobs than the 8,014 that would be lost from cuts in military spending. (Further details on this calculation are given in the appendix.) Similarly, if sequestration is applied to only non-military categories of federal spending, 2,000-3,000 more jobs would be lost than if the cuts in spending were applied to the military budget. (It should be noted that even if budget sequestration is enforced in 2013, actual outlays may differ and thus the reductions of spending and employment may not fully occur in 2013.)

TABLE 2: POTENTIAL FEDERAL SPENDING CUTS AND EMPLOYMENT REDUCTIONS IN MASSACHUSETTS, FISCAL YEAR 2013

Potential spending and employment cuts, by type	Change in federal spending in MA in FY2013 ($ millions)	Change in annual employment in MA	Jobs lost in comparison to defense
Defense budget cuts in MA, as proposed in FY2013 budget	- $950.39	-8,014	--
Non-defense federal spending in MA equivalent to FY2013 defense budget cut	- $950.39	- 9,213	+15%
Defense sequestration	- $1,650.00	-13,913	--
Defense sequestration, personnel exempt	-$1,650.00	-13,104	-6%
Non-defense federal spending in MA equivalent to non-defense sequestration	-$1,650.00	-15,995	+15%

These figures indicate that Massachusetts would be better off in terms of employment if federal budget cuts came from the military rather than other categories of spending. They also suggest that the employment picture in the state would improve if money was transferred from the military portion of the federal budget and devoted to other categories of spending.

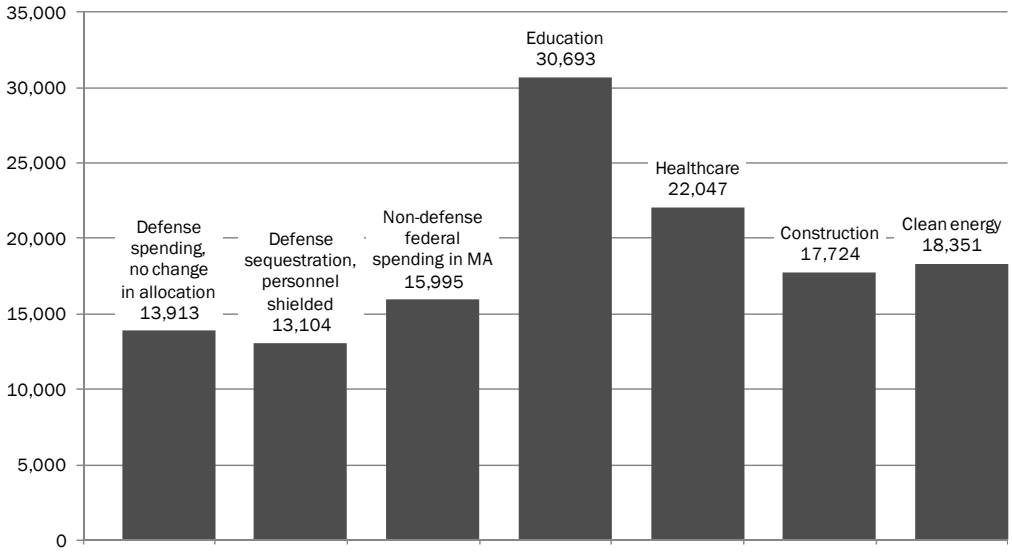
The potential job creation from shifting across the budget in this way is illustrated in Table 3 (page 5), which shows the employment effects of taking the military budget cuts from sequestration and devoting those funds to education, healthcare, construction and clean energy in Massachusetts. (The employment multipliers for these categories of expenditure are given in the appendix.)

Between 13,000 and 14,000 military-related jobs will be lost in Massachusetts if sequestration is carried out and military spending is reduced per the dictates of the Budget Control Act of 2011. However, if these funds are expended on education 30,693 jobs could be created in the state, representing a net gain of 16,000 to 17,000 jobs. The figure for healthcare is 22,047 jobs, with a net gain of 7,000 to 8,000 jobs; construction is 17,724 jobs, net gain of 3,724 to 4,724 jobs; and clean energy is 18,351 jobs, or 4,351 to 5,351 extra jobs (see Figure 2, page 5).

TABLE 3: EMPLOYMENT IMPACTS OF SELECT NON-DEFENSE SPENDING CATEGORIES IN MASSACHUSETTS

Non-defense alternative spending category	Jobs supported by $1.65 billion in spending (MA's share of $55 billion federal budget sequestration)
Education	30,693
Healthcare	22,047
Construction	17,724
Clean energy (weighted average of categories below)	18,351
Building weatherization	19,021
Transit/rail	28,316
Smart grid	12,321
Wind	13,617
Solar	14,266
Advanced biofuels	10,591

FIGURE 2: JOBS SUPPORTED BY $1.65 BILLION IN SPENDING IN MASSACHUSETTS



Note: Direct, indirect, and induced employment impacts. See appendix for sources and methods.

CONCLUSION

The figures given in this report show that military spending is an inferior vehicle for job creation. They also show that if current military spending exceeds what is necessary for the security needs of the country, which is what a number of prominent experts on the military budget believe, then Massachusetts loses in two ways. First, if funds are devoted to the Pentagon rather than to education, healthcare, construction and clean energy, badly needed expenditures and investments in the future of

the state are lost. Second, the greater employment creation from these alternate forms of government spending is also foregone, reducing the availability of jobs in the state at a time of grave economic difficulties for many of the state's residents.

APPENDIX

In this document we use an input-output model to estimate the employment effects of cuts to defense spending in the state of Massachusetts, and to compare these to the alternative of cutting non-defense spending in the state. We use IMPLAN v3, an input-output model maintained by the Minnesota Implan Group, Inc., which is based on data collected by the U.S. Census Bureau as well as additional sources. Our data set for the estimates below is the 2010 Massachusetts data, the most recent input-output data available at the time this analysis was performed.

Using the input-output model, we estimate the effects of cuts to the defense budget as described in the text above and as shown in Appendix Table 1. We first estimate the employment multipliers for each $1 million of spending in each of the allocation titles in the Department of Defense budget, and then calculate weighted average employment impacts for each $1 million cut according to the percentages in the three scenarios in Appendix Table 1.

APPENDIX TABLE 1. MASSACHUSETTS EMPLOYMENT MULTIPLIERS

a. Employment multipliers by defense allocation title, per $1 million

Allocation title	Direct jobs per $1 million	Indirect jobs per $1 million	Induced jobs per $1 million	Total jobs per $1 million
Personnel	9.10	0.00	2.82	11.92
Operations & maintenance	4.63	1.76	1.98	8.37
Procurement (non-research & development)	3.34	1.86	1.61	6.81
Research & development/testing & evaluation	5.00	2.50	2.33	9.83
Military construction	5.80	2.00	2.42	10.22
Family housing	14.00	1.80	4.90	20.70
Other	4.79	1.65	2.00	8.43

b. Employment multipliers for federal spending reductions, per $1 million

Potential federal spending reduction	Direct jobs per $1 million	Indirect jobs per $1 million	Induced jobs per $1 million	Total jobs per $1 million
Defense spending cut in MA, as proposed in FY2013 budget	4.79	1.65	2.00	8.43
Defense sequestration, no change in allocation	4.79	1.65	2.00	8.43
Defense sequestration, personnel exempted	4.18	1.88	1.88	7.94
Defense and non-defense sequestration, no exemptions	5.74	1.17	2.14	9.06
Non-defense federal spending in MA	6.70	0.70	2.29	9.69

c. Employment multipliers by sector, per $1 million

Non-defense alternative spending category	Direct jobs per $1 million	Indirect jobs per $1 million	Induced jobs per $1 million	Total jobs per $1 million
Education	13.70	0.50	4.40	18.60
Healthcare	8.20	2.00	3.16	13.36
Construction	6.10	2.10	2.54	10.74
Clean energy (includes categories below)	6.72	1.77	2.63	11.12
Building weatherization	7.00	1.80	2.73	11.53
Transit/rail	11.50	1.60	4.06	17.16
Smart grid	3.80	1.90	1.77	7.47
Wind	4.30	2.00	1.95	8.25
Solar	4.70	1.90	2.05	8.65
Advanced biofuels	3.40	1.50	1.52	6.42

Industry Composition of Defense Spending in the Input-Output Model

The allocation titles in the Department of Defense budget do not correspond precisely to the industry categories within the input-output model. However, the model does include categories such as military personnel, federal non-military personnel, as well as various industries such as aerospace products and parts manufacturing, ammunitions, electronic signals and instruments, and so on. Where the correspondence between the input-output model and budget allocation title was close, we used the input-output category (for example, for federal military personnel). For other allocation titles, notably for procurement, we used additional data sources to ascertain the composition of the category within the state of Massachusetts and then assigned the appropriate input-output industries and weights.

Procurement data were obtained from usaspending.gov, a searchable public database with detailed data identifiable by agency, type of funding (e.g., contract or grant), dollars obligated, place of performance, and much more. Using this database, we analyzed the Fiscal Year 2011 Massachusetts data on companies receiving contracts from the Department of Defense and performing the work within the state of Massachusetts. These data showed that contracts performed within Massachusetts are primarily in aerospace products and parts, electronic instruments and other communications equipment, engineering, scientific R&D, and other scientific and technical services. Combined, these industries represented approximately 80% of Department of Defense contract dollars coming into the state in FY2011. We assume for the analysis here that budget cuts to procurement and research and development will affect contractors in the same proportion in which they are currently represented in the state.

The industry composition used in the input-output model is presented in Appendix Table 2:

APPENDIX TABLE 2. INDUSTRY COMPOSITION OF DEFENSE DEPARTMENT ALLOCATION TITLES AND NON-DEFENSE INDUSTRIES WITHIN THE INPUT-OUTPUT MODEL

Federal defense allocation title	*As modeled in IMPLAN*
Personnel	"Federal military personnel"
Operations & maintenance	"Federal defense" with payroll removed – includes civilian payroll, goods and contractor services
Procurement (excluding research & development)	Electronic instrument manufacturing (10%), communications equipment (7%), computer and peripheral equipment (3%), aerospace products and parts (48%), architecture and engineering (16%), other professional and technical services (16%)
Research & development / testing & evaluation	Scientific research & development
Military construction	Other construction
Family housing	Services to buildings and dwellings
Other	Includes all above categories
Non-defense spending category	*As modeled in IMPLAN*
Non-defense federal spending	"Federal government, non-military" and "federal government investment" as defined within input-output accounts (includes mainly non-military spending on personnel, construction, research & development, telecommunications, real estate, and smaller amounts of spending in other industries, as well as spending on the federal postal service and transfers to state and local governments)
Education	Primary, secondary, higher education, and "other education", each according to its share of output within the education industry in Massachusetts in 2010
Healthcare	Doctors' offices, clinics and labs, home health care, hospitals, nursing and residential clinics. Each weighted according to share of output within total healthcare industry in Massachusetts in 2010.
Construction	Commercial and healthcare building construction, manufacturing structure construction, construction of other new non-residential structures, construction of new permanent site single- and multifamily structures, other new residential structures, nonresidential maintenance and repair, residential maintenance and repair. Each weighted according to its share of output with total construction industry in Massachusetts in 2010.
Clean energy	40% building weatherization, 20% transit and rail, 10% each smart grid, wind, solar, advanced biofuels. See Pollin et al (2009) for details for each of these.

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