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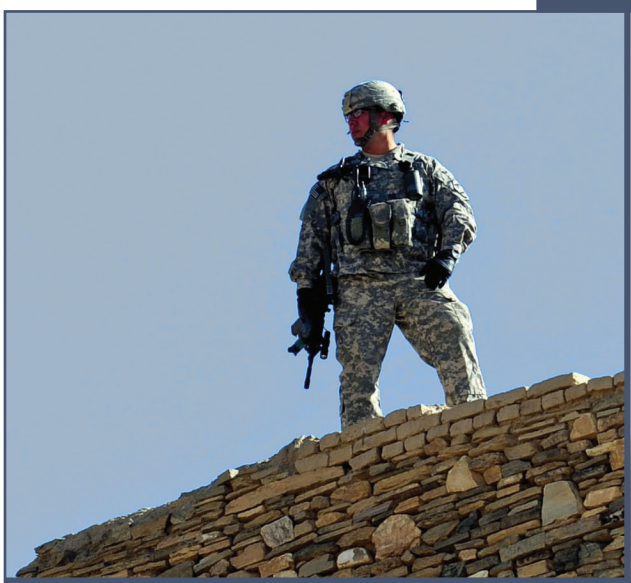
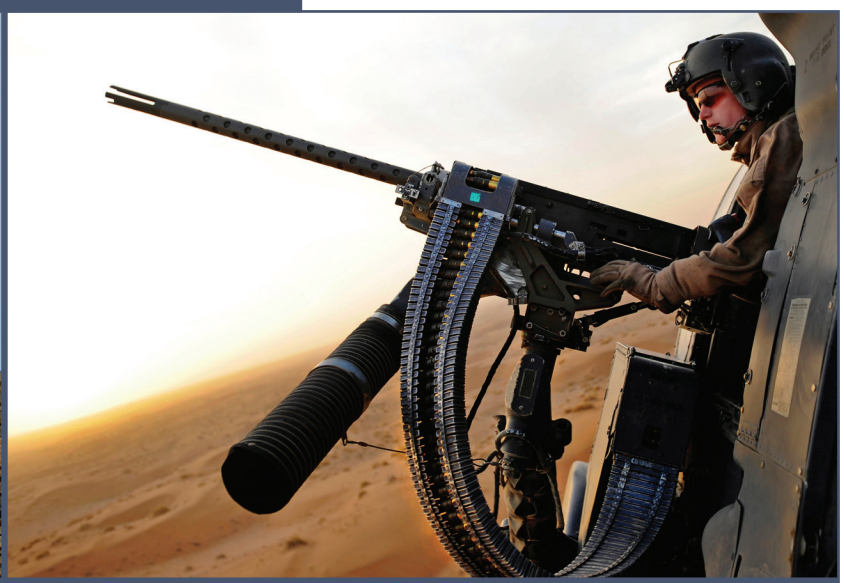
CBO

Long-Term Implications of the 2011 Future Years Defense Program





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STUDY

Long-Term Implications of the 2011 Future Years Defense Program

February 2011

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Notes

Numbers in the text and tables may not add up to totals because of rounding.

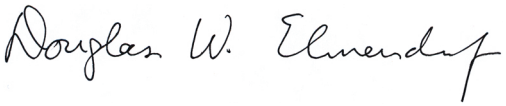
On the cover—Top left: an Army staff sergeant at Tepe Sardar, which is outside Ghazni City, Afghanistan, November 2010, photo by Senior Airman Courtney Witt, U.S. Air Force; top right: an Air Force staff sergeant, aboard an HH-60 Pave Hawk helicopter, near Kandahar, Afghanistan, December 2010, photo by Staff Sergeant Eric Harris, U.S. Air Force; bottom: Navy personnel aboard the amphibious transport dock ship U.S.S. *Denver* with an AH-1W Cobra helicopter, in the South China Sea, November 2010, photo by Petty Officer 3rd Class Bryan Blair, U.S. Navy; inset: Marine personnel in Marjah, Afghanistan, December 2010, photo by Petty Officer 2rd Class Kevin S. O'Brien, U.S. Navy.

Preface

This Congressional Budget Office (CBO) study—prepared at the request of the Senate Budget Committee—projects the costs of the Department of Defense's plan for national defense for the years 2011 to 2028, providing a basis for discussions about future defense spending. The study is the latest in an annual series that CBO has published over the past eight years. In particular, it updates the projections contained in CBO's *Long-Term Implications of the Fiscal Year 2010 Defense Budget,* published in January 2010. In keeping with CBO's mandate to provide objective, impartial analysis, this study makes no recommendations. A future CBO study will examine the implications that possible constraints on defense budgets might have for the future size, composition, and capabilities of the military services.

David Arthur, Daniel Frisk, and Adam Talaber of CBO's National Security Division coordinated the preparation of this study—under the supervision of Matthew S. Goldberg and David E. Mosher. Michael Bennett, Alec Johnson, Bernard Kempinski, Eric J. Labs, Frances Lussier, Christopher Murphy, and Allison Percy of the National Security Division contributed to the analysis. Kent Christensen, Raymond Hall, David Newman, Dawn Sauter Regan, Matthew Schmit, and Jason Wheelock of CBO's Defense, International Affairs, and Veterans' Affairs Cost Estimates Unit—under the supervision of Sarah Jennings—also contributed to the study.

John Skeen edited the study, and Sherry Snyder and Chris Howlett proofread it. Maureen Costantino designed the cover, and Jeanine Rees prepared the study for publication. Monte Ruffin produced the printed copies, and Linda Schimmel handled the print distribution. The study is available on CBO's Web site (www.cbo.gov).



Douglas W. Elmendorf
Director

February 2011

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Summary

In most years, the Department of Defense (DoD) provides a five- or six-year plan, called the Future Years Defense Program (FYDP), associated with the budget that it submits to the Congress. Because decisions made in the near term can have consequences for the defense budget well beyond that period, the Congressional Budget Office (CBO) has examined the programs and plans contained in DoD's FYDP and projected their budgetary impact in subsequent years. For this analysis, CBO used the FYDP provided to the Congress in April 2010, which covers fiscal years 2011 through 2015—the most recent plan available when this analysis was conducted. CBO's projections span 2011 through 2028.

CBO's Projections

In February 2010, DoD requested an appropriation of $707 billion for 2011. Of that amount, $548 billion was to fund the "base" programs that constitute the department's normal activities, such as the development and procurement of weapon systems and day-to-day operations of the military and civilian workforce. The remaining $159 billion was requested to pay for overseas contingency operations—the wars in Afghanistan and Iraq and other military activities elsewhere.[1] CBO focused its analysis on the base budget because it reflects DoD's future plans for manning, training, and equipping the military.

CBO has projected the costs of DoD's plans for its base budget (reflected in the FYDP, along with other long-term plans released by the department) by using factors that are consistent with the department's recent experience. CBO's analysis yields these conclusions:

- To execute its base-budget plans for the period covered by the FYDP, DoD would need about $187 billion (or 7 percent) more over those five years than if funding was held at the 2010 level of $537 billion.[2] Over the 10 years from 2012 to 2021, DoD would need a total of $680 billion (or 13 percent) more than if funding was held at the 2010 level.

- From 2011 to 2015, DoD's base budget would grow at an average annual rate of 2.3 percent, after an adjustment for inflation. Beyond the FYDP period, from 2016 to 2028, average annual growth in the costs of DoD's base-budget plans would be 0.8 percent after an adjustment for inflation. At those rates, DoD's base budget would rise from $548 billion in 2011 to $601 billion in 2015 and to $665 billion in 2028.

- The primary cause of long-term growth in DoD's budget from 2011 through 2028 would be increasing costs for operation and support, which would account for nearly all of the increase. In particular, CBO projects that there would be significant increases in the costs for military and civilian compensation, military medical care, and various operation and maintenance activities.

- That large contribution of operation and support costs to budget growth is a change from earlier projections, in which sharp growth in anticipated requirements to

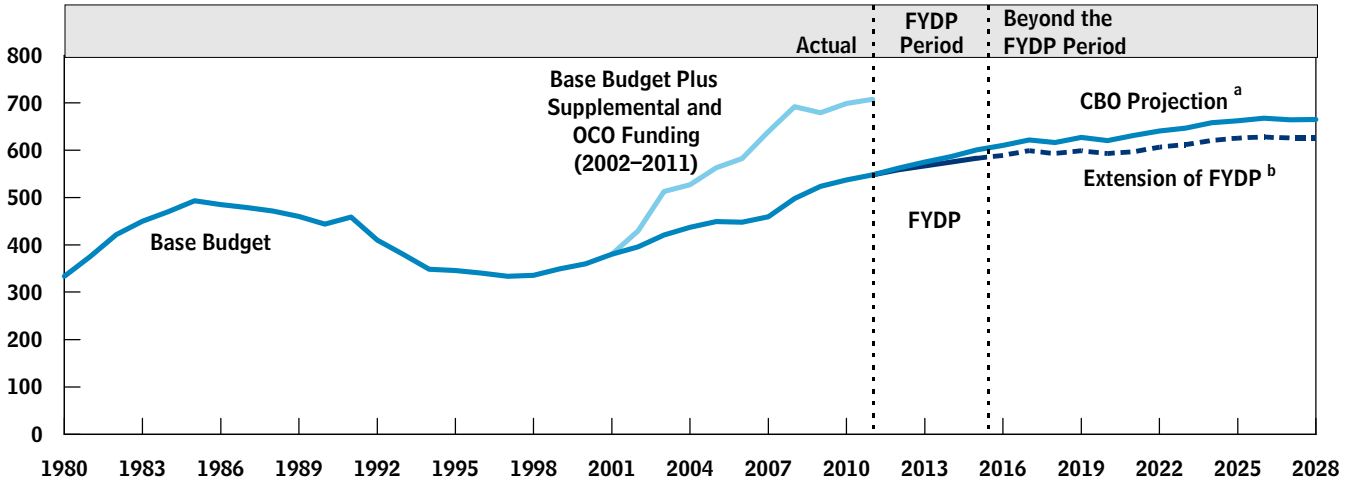
1. For 2011, the Congress has not yet provided full-year appropriations to DoD, and as a result, the department currently is operating under a short-term continuing resolution—the Continuing Appropriations Act, 2011 (Public Law 111-242), as amended by the Continuing Appropriations and Surface Transportation Extensions Act, 2011 (P.L. 111-322)—which expires on March 4, 2011.

2. Unless otherwise stated, all costs are expressed as fiscal year 2011 dollars.

Summary Figure 1.

Costs of the Department of Defense's Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

replace and modernize weapon systems (the so-called bow wave) was the primary factor underlying budget growth beyond the years covered by the FYDP. In the current projections, acquisition costs would steadily grow from $189 billion in 2011 to a peak of $218 billion in 2017 (an increase of about 15 percent) before decreasing and leveling off—albeit with year-to-year variations—at an average of about $200 billion per year thereafter.

Comparison With Projections Incorporating DoD's Estimates

CBO compared its projection (labeled in this study "the CBO projection") with DoD's estimate of the costs of the FYDP (for the 2011–2015 period) and with "an extension of the FYDP" (for the 2016–2028 period). The latter is a projection based on DoD's estimates of costs, where they are available for years beyond 2015 (for some weapon systems, for instance), and on costs consistent with the broader U.S. economy, where estimates from the department are not available (for pay and medical costs, for instance).

CBO's projection of the total cost of the FYDP through 2015—at $2,874 billion—is $41 billion (or about 1 percent) higher than the department's estimate (see Summary Figure 1). Much of the difference derives from an assumption that recent trends in the costs of weapon systems, medical care, and other support activities persist.

By DoD's estimates, executing its plans for 2011 through 2015 would require real (inflation-adjusted) increases in spending of about 1.5 percent annually (excluding emergency and supplemental funding for overseas contingency operations). Over the five-year period, that growth rate would result in costs that were $146 billion (or 5 percent) greater than the amount of DoD's budget if it was held at the 2010 level.

By 2015, the end of the FYDP period, annual costs under the CBO projection would be about $18 billion (or 3 percent) higher than the estimate in the FYDP; at the

end of 10 years, in 2021, annual costs under the CBO projection would be $34 billion (or 6 percent) higher than the extension of the FYDP; and similarly, by 2028, the end of the projection period, annual costs under the CBO projection would be about $37 billion (or 6 percent) more than the estimate for the extension of the FYDP.

The degree to which the plans laid out by DoD are executed in the future will depend on the amount of funding that will be provided in an era of increasing pressure on the federal budget as a whole and on the success of ongoing efforts to curb cost growth in areas such as medical care and advanced weapon systems. Indeed, Secretary of Defense Gates announced in January 2011 that DoD will trim its plans by a total of $78 billion (or about 3 percent) from 2012 to 2016 in recognition of the fiscal environment. Because many details of those revisions to plans have not yet been released, an analysis of the possible effects if they were adopted is not possible and is not included in this study.

CHAPTER

1

CBO's Projections of DoD's Plans

Fiscal pressures and the potential drawdown of forces in Afghanistan are likely to increase scrutiny of the Department of Defense's (DoD's) budget in the coming years. In conjunction with its annual budget request, DoD develops a detailed description of its plans for national defense and their associated costs over the next several years. The latest of those Future Years Defense Programs (FYDPs) at the time the Congressional Budget Office (CBO) conducted its analysis was issued in April 2010 and covers the years 2011 to 2015.

However, near-term decisions about issues such as pay raises, weapon systems, and health benefits for retirees can have effects on the composition and costs of the nation's armed forces that last far beyond the FYDP period. Although DoD publishes information about longer-term plans for some activities, such as shipbuilding and aircraft procurement, details about most activities beyond the FYDP period are unspecified. To gain a more complete picture of the funding that may be needed for defense plans over the longer term, CBO has projected the costs of DoD's defense plans over the next 18 years.

DoD's Requested Budget for 2011

CBO's projections and the FYDP both begin with DoD's proposed budget for 2011, in which the department requested a total of $707 billion. That request can be separated into two parts:

- $548 billion for "base" DoD programs that constitute the normal activities of the department, including the development and procurement of weapon systems and day-to-day operations of the military and related civilian workforce, and

- $159 billion for overseas contingency operations (or OCO) to pay for the wars in Afghanistan and Iraq and other military activities elsewhere. Depending on how those conflicts progress, a supplemental request to support them may be forthcoming in 2011.

CBO's analysis focuses on DoD's base budget, the portion excluding emergency and supplemental funding for overseas contingency operations, because it reflects the department's future plans for manning, training, and equipping the military. The request for the base budget in 2011 is 2.0 percent higher than the amount that the Congress appropriated for the base budget in 2010. Although overseas operations have accounted for a significant fraction of DoD's total spending over the past nine years, the FYDP does not include estimates for those operations. Future spending for such operations will depend on how conditions evolve in Afghanistan and Iraq and whether new contingencies arise elsewhere around the globe.

Nearly all of DoD's base budget is funded through six primary appropriation categories. In its analysis of future funding needs, CBO organized those appropriation categories into three groups. The first group, called operation and support (O&S), is focused on the day-to-day activities of DoD and includes the operation and maintenance (O&M) and military personnel appropriations (see Table 1-1). O&M appropriations fund the day-to-day operations of the military and training of military units. The majority of costs of the military's health program and the compensation for most civilian employees are funded out of O&M accounts. O&M represents the largest portion, or nearly 37 percent, of the request for the base budget in 2011. The next largest is the request for military personnel, constituting about 25 percent of the base-budget request. Military personnel accounts fund compensation for uniformed service members, including pay, and housing and food allowances, and related activities such as permanent change-of-station movement of service members.

Table 1-1.

CBO Projection of Costs of DoD's Plans in Selected Years

(Billions of dollars)

	Actual, 2001	Actual, 2010	FYDP Period 2011	FYDP Period 2015	Beyond the FYDP 2021	Beyond the FYDP 2028	Average, 2011–2028
				Base Budget			
Operation and Support							
Operation and maintenance[a]	144	190	202	230	260	291	251
Military personnel	99	136	139	147	160	175	157
Subtotal	243	326	341	377	420	466	408
Acquisition							
Procurement	79	107	115	142	131	127	134
Research, development, test, and evaluation	48	78	74	68	68	60	68
Subtotal	127	185	189	210	200	187	202
Infrastructure							
Military construction	7	22	17	12	10	11	11
Family housing	5	4	2	2	2	2	2
Subtotal	11	26	19	14	12	12	13
Total Base Budget	**381**	**537**	**548**	**601**	**631**	**665**	**623**
			Funding for Overseas Contingency Operations				
Supplemental, Emergency, and Contingency Funding	n.a.	162	159 [b]	n.a.	n.a.	n.a.	n.a.
			Total DoD Budget				
Total	381	699	707	n.a.	n.a.	n.a.	n.a.

Source: Congressional Budget Office.

Notes: The CBO projection incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified; n.a. = not applicable.

a. For this analysis, CBO folds appropriations for revolving funds for such items as the National Defense Sealift Fund and the Defense Commissary Agency into the appropriation for operation and maintenance.

b. The Administration may request additional funds in a supplemental request for fiscal year 2011.

The second group, acquisition, includes procurement and research, development, test, and evaluation (RDT&E). Procurement accounts fund the purchase of new weapon systems and other major equipment and upgrades to existing weapon systems. RDT&E accounts pay for the development of technology and weapons. Procurement represented about 21 percent of the request for the base budget; and RDT&E, about 13 percent.

The third group is focused on infrastructure at DoD facilities. The military construction and family housing accounts fund the construction of buildings and housing on military installations and together account for 3 percent of the request for the base budget.

CBO's Approach for the Projections

This study provides CBO's independent projections of the costs of implementing DoD's plans for operation and support, acquisition, and infrastructure contained in the FYDP that spans 2011 to 2015. Extrapolating from those plans, CBO also projects costs through 2028. In making its projections, CBO relied on the force levels, acquisition programs, and policies spelled out in DoD's 2011–2015 FYDP and the long-term acquisition plans that DoD publishes in other official documents, such as the Navy's 30-year shipbuilding plan, the department's 30-year aviation plan, and the department's Selected Acquisition

Table 1-2.

Cost Assumptions for Two Projections of DoD's Plans

	CBO Projection (2011-2028)	Extension of FYDP (Beyond 2015)
Military Pay	ECI	ECI
Civilian Pay	No increase in 2011 and 2012; ECI after 2012	ECI
Military Health Care	Until 2019: Tracks DoD's recent experience After 2019: Slowly approaches growth rates for health care nationally	Tracks growth rates for health care nationally
Operating Forces	Nonpay costs grow at long-standing rate for ground forces and at rate for aging weapons in air and naval forces	No real growth in nonpay costs
Acquisition	Historical average cost growth	DoD's estimates with no cost growth
Military Construction and Family Housing	DoD's estimates through 2015; no real growth beyond 2015	No real growth

Source: Congressional Budget Office.

Notes: The extension of the Future Years Defense Program (FYDP) uses the cost estimates provided in the FYDP through 2015.

ECI = employment cost index (the Bureau of Labor Statistics' index for wages and salaries in the private sector).

Reports.[1] CBO made two different projections of the costs of DoD's plans: "the CBO projection," which is based on CBO's own estimates of future costs, and the "extension of the FYDP," which incorporates the department's estimates as available.

More specifically, the CBO projection begins with DoD's plans and applies CBO's estimates of the costs of the department's plans through 2028 (see Table 1-2 for the assumptions used in CBO's estimates). The CBO projection has been developed using cost factors and growth rates that are consistent with DoD's past experience—not necessarily with its official plans or with the broader economy. In general, but not always, costs under the CBO projection are higher than costs in the FYDP and under the extension of the FYDP. For instance, medical costs for DoD have grown faster than medical costs in the broader economy, and the costs of developing and buying weapons have been, on average, 20 percent to 30 percent higher historically than DoD's initial estimates. The CBO projection—which, starting with 2012, includes estimates of those costs based on past experience—provides an indication of how rapidly defense budgets would have to grow to execute DoD's plans under the assumption that the department's costs continue to grow as they have in the past.

The extension of the FYDP starts with DoD's cost estimates for 2015 and projects the costs of DoD's plans through 2028 using the department's estimates of longer-term costs where they are available (for some major weapon systems, for instance) or costs that are consistent with the broader U.S. economy where estimates from DoD are not available (for pay and medical costs, for instance).

Neither of the two sets of projections should be viewed as predictions of defense spending in the future; rather, they are estimates of the costs of executing DoD's current plans. Defense plans can be affected by unpredictable changes in the international security environment, Congressional decisions, and other factors that could result in substantial departures from current intentions. Moreover, DoD and the Congress frequently respond to higher-than-expected costs by changing acquisition plans—by,

1. In situations in which a weapon system reaches the end of its service life before the end of the projection period (in 2028) and DoD has not planned a replacement system, CBO assumes that the department will develop and purchase a new system to replace the aging weapons. DoD has not published plans for research and development and minor procurement extending beyond the FYDP. CBO estimated costs on the basis of historical correlations between those categories of spending and related major procurement categories.

Table 1-3.

Comparison of the CBO Projection of DoD's Future Years Defense Program and DoD's Own Projection

(Billions of 2011 dollars)

	Actual,	FYDP Period					Total,
	2010	2011	2012	2013	2014	2015	2011-2015
CBO Projection	537	548	562	575	587	601	2,874
DoD's 2011 FYDP	537	548	559	567	575	583	2,833
Difference Between the CBO Projection and DoD's FYDP	0	0	3	8	12	18	41

Source: Congressional Budget Office.

Notes: The CBO projection incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

FYDP = Future Years Defense Program.

for example, delaying purchases of weapons, reducing quantities, or canceling systems outright.

Some information that has recently become available about DoD's plans for the 2012 FYDP illustrates how external factors can cause changes in plans. In recognition of the constrained fiscal environment, Secretary of Defense Gates announced in January 2011 that DoD will trim the budget for its next five-year plan (covering the 2012–2016 period) by a total of $78 billion. Those cuts are actually reductions in the rate of growth of DoD's base budget relative to the growth anticipated in the 2011 FYDP—DoD still expects that its requests for its base budget will grow in real terms under the 2012 FYDP. Because a full description of DoD's recently announced plans has not been released, CBO's analysis focuses on the 2011 FYDP. In the near term, the changes announced in January 2011 are of relatively small magnitude—constituting 2 percent to 3 percent of spending over the next five years. An analysis of their longer-term effects is not yet possible and is not included in this study.

Projections of Overall Costs

The two sets of detailed projections describe the costs of DoD's base budget over two spans: the period from 2011 to 2015 covered by the Future Years Defense Program and the period from 2016 to 2028. Because the size of overseas contingency operations in the future is uncertain, costs for them are projected only as illustrative totals and not broken out by budget category.

Costs for the Base Budget from 2011 to 2015

Under the CBO projection, which uses prices that are consistent with DoD's historical experience, annual costs of carrying out DoD's plans for the FYDP would reach $601 billion by 2015, a 12 percent increase over the base budget in 2010. Total costs for 2011 through 2015 would be about $187 billion (or 7 percent) more than if funding was kept at the 2010 level of $537 billion (see Figure 1-1).[2] That projection translates to annual increases in defense budgets of about 2.3 percent, on average, after adjusting for inflation.

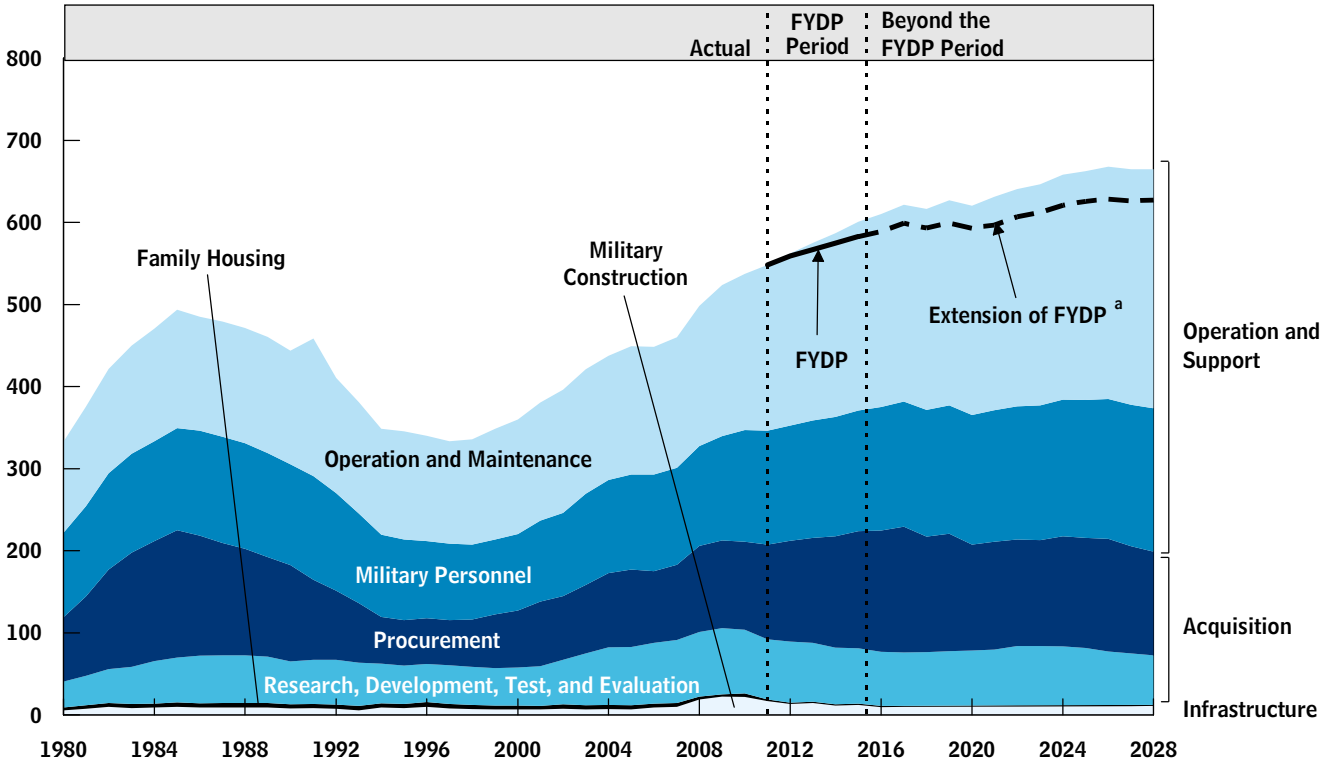
By contrast, the FYDP anticipates that carrying out current plans will require the DoD base budget to grow at an average annual rate of about 1.5 percent in real terms through 2015, reaching $583 billion by 2015, a 9 percent increase over the base budget in 2010 (see Table 1-3). The difference between the CBO projection and DoD's estimates for the FYDP is only about 1 percent over the five-year period. The majority of that difference results from CBO's higher estimates of the costs to develop and procure new weapon systems and to provide health care to service members, their families, and retirees.

2. All costs in this study are expressed in fiscal year 2011 dollars of total obligational authority (TOA) unless noted otherwise. TOA differs from budget authority in that it excludes the effects of certain receipts, permanent spending in certain trust funds and other accounts, and certain payments to the Military Retirement Fund. In recent years, the difference between TOA and budget authority in the DoD budget has been quite small, generally $2 billion or less.

Figure 1-1.

Costs of DoD's Plans for Its Base Budget, by Appropriation Category

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all categories.

Base-budget data include supplemental funding prior to 2002.

FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

Costs for the Base Budget Beyond the FYDP Period

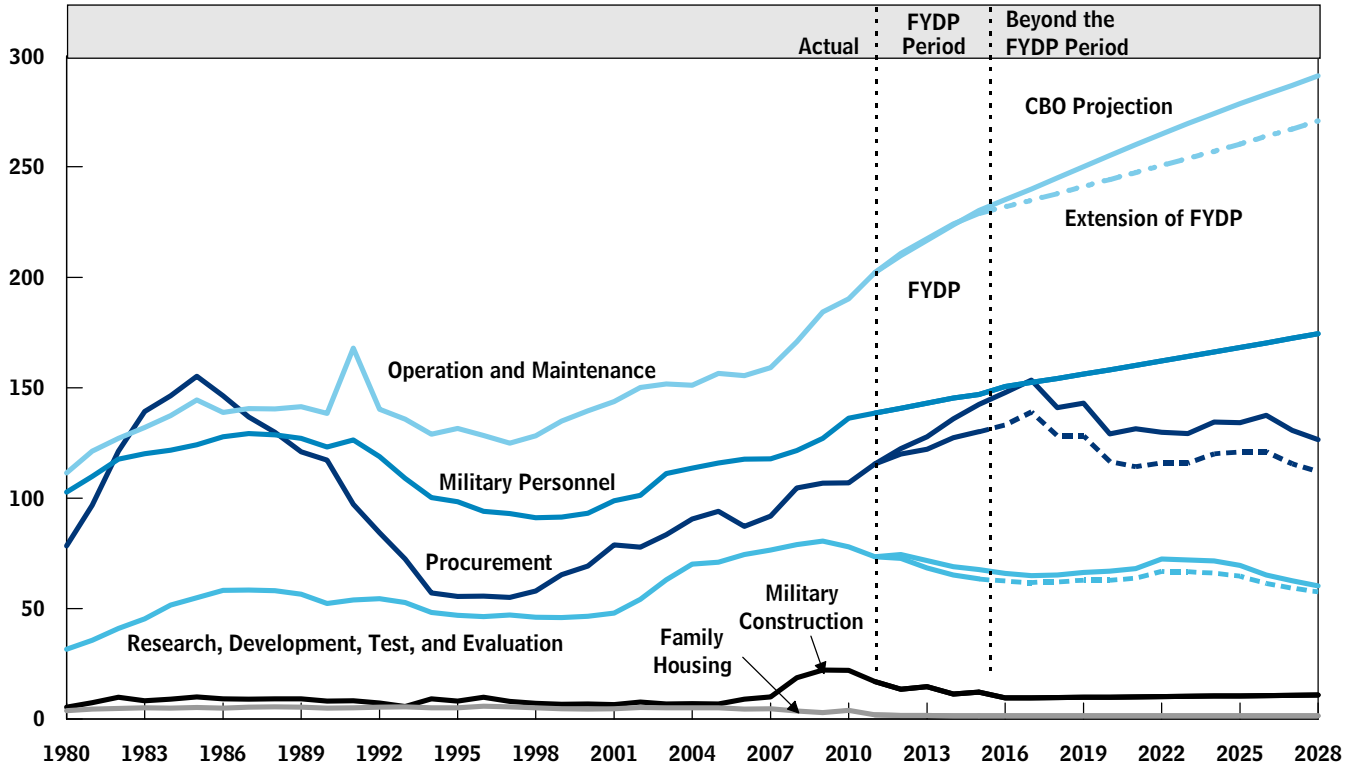
Under the CBO projection, costs would rise from $601 billion in 2015 to $631 billion in 2021, and, further, to $665 billion in 2028—reflecting an average increase of about 0.8 percent per year from 2015 through 2028 (see Table 1-1 on page 2). Most of the increase is attributable to projected real increases in the costs of operation and maintenance (particularly from growth in the costs of medical care, but also from increases in the costs of pay and benefits for civilian workers and growth in the costs to maintain both aging equipment in the current inventory and the more sophisticated equipment that will replace today's systems) and real increases in the costs of pay and benefits for military service members (see Figure 1-2). In particular:

- After rising by 3.3 percent per year between 2011 and 2015, the cost of O&M is projected to grow by 1.8 percent per year from 2015 to 2028.
- After growing by 1.5 percent per year during the FYDP period, the annual appropriation for military personnel would increase by 1.3 percent per year from 2015 to 2028.
- After a fairly rapid increase over the next six years, the costs of developing and purchasing new weapon

Figure 1-2.

Projected Base-Budget Costs for DoD's Plans, by Type of Spending

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: For 2011 to 2028, the upper line for each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience. The lower line represents DoD's Future Years Defense Program (FYDP) for 2011 to 2015 (the solid portion of the line), for which plans are fully specified, and an extension of the FYDP (the dashed portion of the line) that uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

For Military Personnel, Military Construction, and Family Housing, the solid and dashed lines coincide.

Base-budget data include supplemental funding prior to 2002.

systems (and upgrading older systems) under DoD's current plans would be fairly steady—albeit with annual variations—from 2016 through 2028 at a level that is about 10 percent higher than that in 2010. Beyond 2028, acquisition costs could rise again depending on the decisions that are made about how to equip forces in the distant future.

Under the extension of the FYDP, projected costs would rise more slowly than under the CBO projection—at an average rate of 0.6 percent a year from 2015 to 2028, reaching $628 billion at the end of that period, or about $37 billion less than the amount under the CBO projection (see the dashed line in Figure 1-1). That lower growth is attributable primarily to lower estimates of medical and procurement costs (see the dashed lines in Figure 1-2).

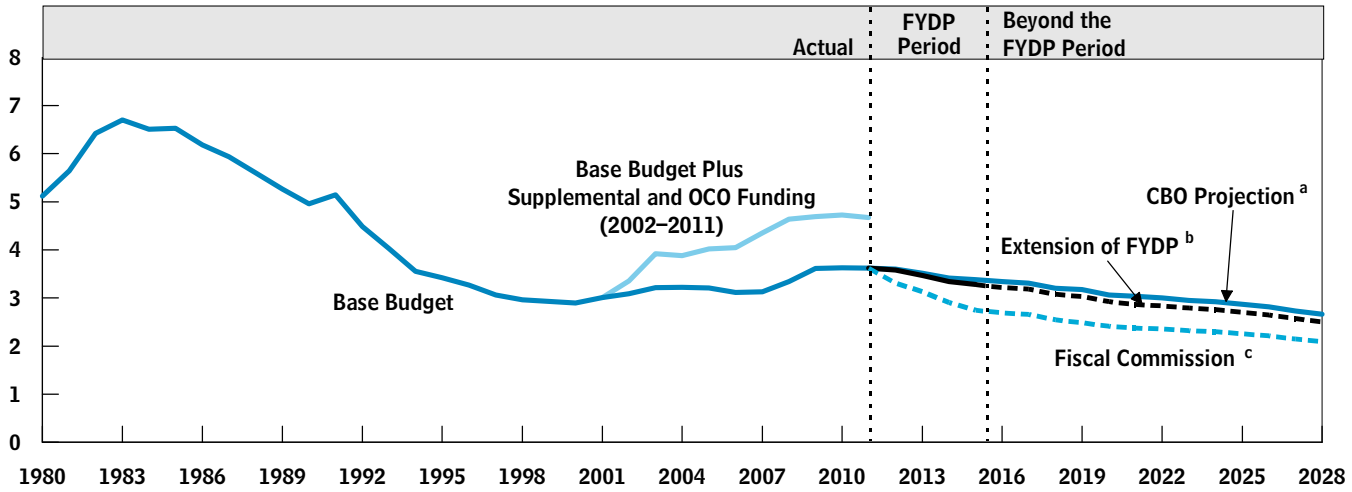
Costs for the Base Budget in a Broader Context

CBO's analysis is intended to highlight the budgetary implications of DoD's plans embodied in the 2011 FYDP, particularly after 2015. It is not an analysis of affordability. When assessing the affordability of the defense budget, some analysts consider the fiscal picture

Figure 1-3.

DoD's Costs as a Share of Economic Output

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

c. Proposal from the National Committee on Fiscal Responsibility and Reform, *The Moment of Truth* (December 2010).

overall, including the size of the deficit and the demands of other claims on the federal budget, such as Social Security, interest on the public debt, and Medicare. Others look at affordability in terms of the share of the U.S. economy (as measured by gross domestic product, or GDP) that is allocated to defense.

Although the costs of DoD's base budget would increase under the CBO projection, that increase would not be as rapid as CBO's current estimates of the future growth of the economy, so costs would decline as a share of GDP (see Figure 1-3). Historically, that share fell from an annual average of 6.0 percent in the 1980s to 3.8 percent in the 1990s. With supplemental and emergency funding included, DoD's costs as a share of GDP rose above 4 percent after 2004. Under the CBO projection, defense funding in the base budget would decline to 3.0 percent of GDP by 2021 and to 2.7 percent by 2028. All else being equal, any future funding for overseas contingency operations would increase the share of GDP spent on defense.

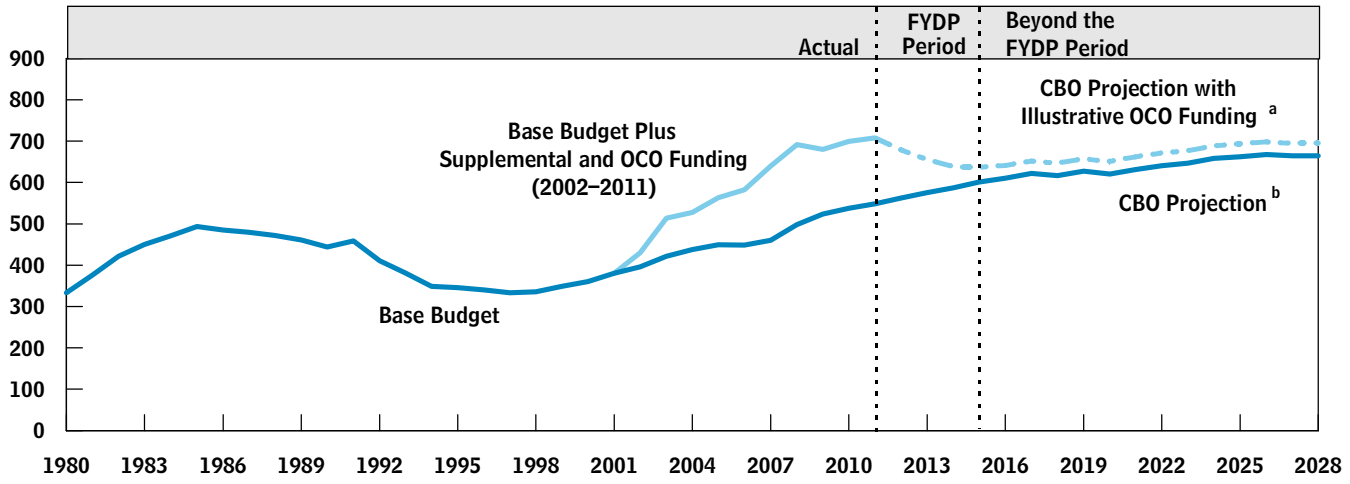
A number of groups have released plans in recent months that focus on reducing the deficit and have recommended reductions in defense spending over the next five years (with some suggesting that cuts continue for much longer). For example, a majority of the members of the National Commission on Fiscal Responsibility and Reform (the Fiscal Commission), a bipartisan group created by the President, endorsed a plan that would cut the base defense budget below its 2010 level (in inflation-adjusted terms) for each of the next 18 years. Under the Fiscal Commission's plan, defense funding would fall to 2.1 percent of GDP by 2028.

Another way to examine the costs of DoD's plans is to compare them with CBO's baseline, which shows what appropriations and spending would be if appropriations in future years were equal to the 2011 funding adjusted

Figure 1-4.

Costs of DoD's Plans Including Overseas Contingency Operations

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The line for the base budget plus OCO funding includes actual funding for the base budget plus emergency and supplemental funding for 2002 to 2010 (the solid portion of the line). For 2011 to 2028 (the dashed portion of the line), it includes CBO's projection of base-budget costs plus the OCO funding requested for 2011 and an illustrative example of OCO funding for 2012 to 2028 (under an assumption that the number of deployed troops decreases to 45,000 by 2015 and remains at that level thereafter).

b. The CBO projection of the base budget is based on costs that are consistent with DoD's past experience.

to reflect anticipated inflation and growth in the cost of labor. In nominal dollars, the CBO projection of DoD's plans is $614 billion (or 9 percent) above CBO's baseline (excluding overseas contingency operations) over the 2011–2021 period (see Appendix A).

Costs for Overseas Contingency Operations

Operations in Afghanistan and Iraq will continue beyond 2011: The question is for how long and at what level of effort. Those overseas operations, along with any others, will increase costs above CBO's projections for DoD's base budget. From 2002 through 2010, approximately $1.2 trillion (in 2011 dollars) had been appropriated to DoD for overseas contingency operations, an average of about $128 billion per year, or more than 20 percent of the department's total spending. Although $159 billion has been requested for those purposes for 2011 and the operations will continue after this year, the FYDP does not include estimates of the funding that might be needed to support overseas contingency operations beyond 2011. Moreover, DoD could ask for more funding for 2011 than it has already requested.

The amount of funding needed in the future for overseas contingency operations will depend upon how political and military conditions evolve in the coming years. As an illustrative example, if today's contingency force is drawn down to 45,000 troops by 2015 and is then maintained at that level through 2028, CBO estimates that contingency operations would add a total of $286 billion from 2012 through 2015 and an average of $31 billion per year thereafter to the base budget (see Figure 1-4).[3] That number of troops would be significantly lower than the number deployed today but about three to four times the average number deployed between 1991 and 2001.

3. That scenario for contingency operations is the same as one of the policy alternatives presented in Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2011 to 2021* (January 2011), Table 3-9. The force levels referred to exclude U.S. military personnel who are permanently based overseas (in locations such as South Korea or Okinawa, Japan) but are not engaged in contingency operations.

CHAPTER

2

Projections of Operation and Support Costs

For 2011, the Administration requested $341 billion for operation and support—the sum of the appropriations for military personnel, operation and maintenance, and the Department of Defense's revolving funds for such items as the National Defense Sealift Fund and the Defense Commissary Agency. That sum represents 62 percent of the total request (excluding funding for overseas contingency operations). Under the Congressional Budget Office's projections, costs would reach about $377 billion by 2015 (see Figure 2-1). After that, under an assumption that numbers of units and personnel remain at 2015 levels, costs for O&S would rise steadily, to more than $466 billion by 2028, representing annual real (inflation-adjusted) growth of about 1.6 percent. At that level, O&S costs in 2028 would be about 43 percent higher than those in 2010 (after an adjustment for inflation) and would account for about 70 percent of DoD's budget.[1]

According to DoD's estimates in the Future Years Defense Program, the total for O&S would rise to $376 billion in 2015. The small net difference between CBO's and DoD's projections results from two essentially offsetting effects: CBO projects higher growth rates than DoD assumes for the cost to provide medical care to military personnel and their families, but CBO also applies to DoD's civilian employees the two-year freeze on salaries that was enacted after the 2011 FYDP had been published. Under the extension of the FYDP, O&S costs would reach $445 billion in 2028, 5 percent less than CBO's estimate.

1. Secretary of Defense Gates announced in January 2011 plans to reduce the number of active-duty military personnel by 42,000 to 47,000 (or about 3 percent) between 2015 and 2016. If those reductions materialized, DoD's budget would be a few percent lower than the CBO projection based on the 2011 FYDP.

CBO's calculations of future O&S costs of DoD's plans consist of three components:

- Pay, cash benefits, and accrual payments for retirement benefits for military personnel and DoD's civilian employees,
- Medical care for active-duty and retired military personnel and their families, and
- All other categories of operation and maintenance costs.

Pay, cash benefits, and accrual payments for retirement benefits constituted the largest of those components in the 2011 budget request, reflecting more than half of the amount for O&S (see Table 2-1) That component includes funding from the appropriations for military personnel and for O&M.

Medical care for military personnel, military retirees, and their families, which also relies on funding from both the military personnel and O&M appropriation accounts, constitutes the smallest component of O&S spending. But, under the CBO projection, that component would experience the highest growth rate through 2028.

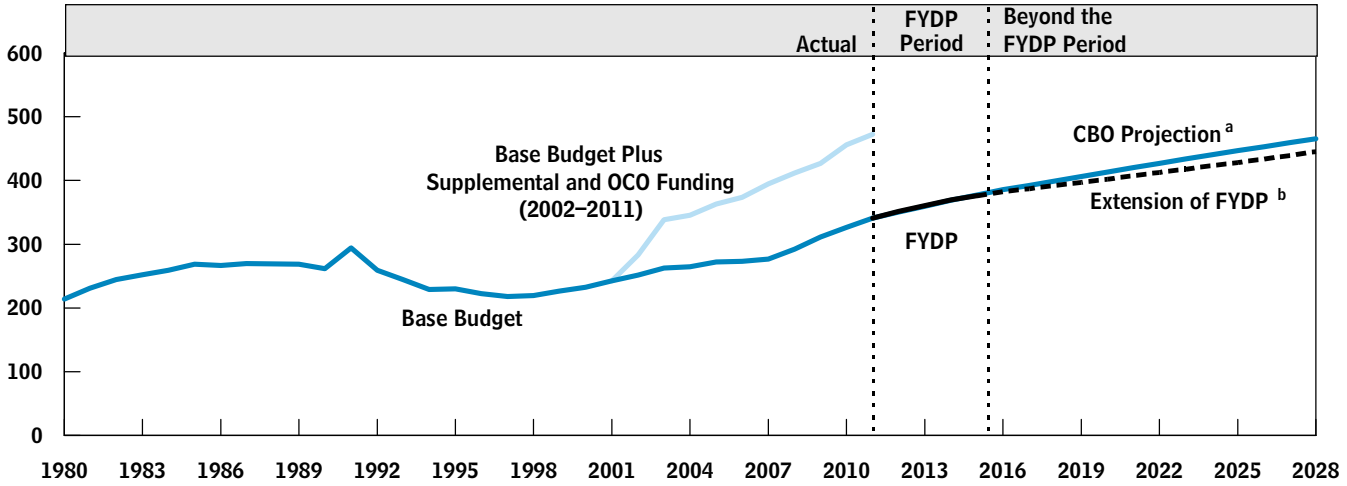
The third component contains the O&M costs to purchase myriad items ranging from office supplies to aircraft fuel (though it excludes major items such as ships, tanks, and aircraft, which are purchased from the procurement accounts) and services, including contracts to maintain facilities, prepare food, repair weapon systems, operate information systems, and conduct many other activities.

CBO estimated costs for the first two components in a "bottom-up" manner by combining estimates of underlying populations, physical quantities (such as numbers of prescriptions filled), and various cost and price factors.

Figure 2-1.

Costs of DoD's Operation and Support Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

Such estimates were not possible for the third component of O&S costs because of the wide array of items and services purchased with those funds. Consequently, CBO used DoD's estimates for other factors that affect O&M through 2015 as a starting point and projected costs from 2016 to 2028 on the basis of DoD's past experience. (See Box 2-1 for a discussion of how O&M—including the bulk of the costs of the military's health care program and the compensation for most of DoD's civilian employees—has grown over the years.)

Pay, Cash Benefits, and Accrual Payments for Retirement Benefits

Pay and cash benefits for military service members include compensation such as basic pay, reenlistment bonuses, and housing allowances. In addition, DoD's military personnel appropriation is charged for accrual payments to the Military Retirement Fund, calculated to provide a balance in the fund that is adequate to pay retirement benefits in the future to personnel who are currently service members. (Health care benefits available to service members and their families through the military medical system are considered separately in the next section.)

The Administration's 2011 budget request includes $203 billion in O&S funding for pay and cash benefits for DoD's military personnel and civilian employees.[2] About $139 billion of O&S funding is in the military personnel appropriation to support DoD's approximately 1.4 million active-duty service members (plus reserve and National Guard members as necessary), and an additional $64 billion is in the O&M appropriation to compensate most of the department's 785,000 full-time-equivalent

2. Additional compensation for civilian employees—about $13 billion in 2011—is paid from other appropriations: For instance, some civilians in military laboratories are paid from the appropriation for research, development, test, and evaluation, and some civilians are paid from the procurement appropriation. See the "Green Book," namely, Department of Defense, *National Defense Budget Estimates for FY 2011* (March 2010), Tables 6-1, 6-2, and 7-5, http://comptroller.defense.gov/defbudget/fy2011/FY11_Green_Book.pdf.

Table 2-1.

CBO Projection of Base-Budget Operation and Support Costs in Selected Years

(Billions of 2011 dollars)

	FYDP Period	
	2011	2015
Pay, Cash Benefits, and Accrual Payments		
Military personnel		
Military personnel in the MHS	8	9
TRICARE for Life accrual payments	11	14
Other military personnel	120	124
Subtotal	139	147
Civilian personnel (Paid from the O&M appropriation)[a]		
Civilian personnel in the MHS	5	6
Other civilian personnel	59	62
Subtotal	64	68
Other Operation and Maintenance Costs[b]		
Other O&M in the MHS	25	33
Other O&M outside the MHS	113	129
Subtotal	138	162
Total Operation and Support	**341**	**377**
Memorandum:		
Military Health System[c]		
Military personnel in the MHS	8	9
TRICARE for Life accrual payments	11	14
Civilian personnel in the MHS	5	6
Other O&M in the MHS	25	33
Total	**49**	**62**
Personnel Compensation		
Military personnel	139	147
Civilian personnel paid from the O&M appropriation	64	68
Subtotal (Paid from operation and support funds)	203	215
Civilian personnel paid from other appropriations	13	13
Total	**216**	**228**

Source: Congressional Budget Office.

Notes: The CBO projection incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified; MHS = Military Health System; O&M = operation and maintenance.

a. Civilian personnel excluding those who are paid through other appropriations, such as those for procurement or research, development, test, and evaluation.

b. Includes management and revolving funds for such items as the National Defense Sealift Fund and the Defense Commisary Agency..

c. Excludes appropriations for procurement and for research, development, test, and evaluation.

Box 2-1.

The Context for the Projected Growth of Spending for Operation and Maintenance

In the Congressional Budget Office (CBO) projection, how does growth of operation and maintenance (O&M) spending compare with past experience? After normalizing for the overall size of the armed forces (measured by the number of active-duty uniformed personnel), CBO analyzed actual O&M costs, including those for civilian personnel and military medical care, from 1980 to 2010. The result was a year-by-year measure of the Department of Defense's (DoD's) average cost to support each active-duty service member.

From 1980 to 2001, the last year before the onset of major operations in Afghanistan and Iraq, that cost grew steadily in real (inflation-adjusted) terms (see the figure). In 1980, it was $54,000 per active-duty service member. It grew at a rate of about $2,200 a year and deviated little from that trend during the period despite some significant changes, including the defense buildup of the 1980s and the reduction in forces at the end of the Cold War. By 2001, the O&M cost per capita had doubled, reaching $104,000 per active-duty service member.

The overseas operations that began after 2001 caused rapid growth in O&M costs, which was funded largely through supplemental and emergency appropriations and not the base budget. O&M per active-duty service member quickly departed from the historical trend as a result of the cost of conducting major operations on the other side of the world, the exceptional wear and tear on equipment in combat, and the large number of reserve and National Guard personnel deployed (in calculating costs per *active-duty* service member, those personnel are not included but their support nevertheless contributes costs). By 2010, the O&M cost per active-duty service member had doubled again, growing to $234,000, with costs for overseas contingency operations included.

The large growth in O&M spending to support operations in Afghanistan and Iraq obscures another significant trend that developed during the war years—O&M spending per active-duty service member has also grown rapidly in the base budget. That phenomenon is clearly illustrated in DoD's base-budget request for 2011 and its associated FYDP through 2015: At $144,000 per active-duty service member in 2011, the cost is $23,000 (or 19 percent) above what the historical trend would indicate. Furthermore, DoD expects that those costs in the base budget will grow at more than twice the historical rate through the FYDP period, reaching $164,000 in 2015. That projected growth of O&M spending in the base budget is in marked contrast to the rate DoD projected in the previous FYDP: In the 2009 FYDP, released in 2008, DoD anticipated that O&M costs and growth would remain close to the levels predicted by the historical trend.

In the CBO projection, with costs for overseas contingency operations excluded, costs per active-duty service member are very similar to those in the FYDP through 2015. Beyond 2015, O&M costs in the CBO projection grow more slowly than the rate DoD expects in the FYDP period. Reflecting recent experience, CBO projects cost growth per active-duty service member that is about 50 percent per year higher than the growth rate from 1980 to 2001. Furthermore, that growth is from a projected per capita cost that is $35,000 (or 27 percent) higher than would have been predicted by the historical trend. In CBO's projection, O&M costs reach $207,000 per active-duty service member by 2028.

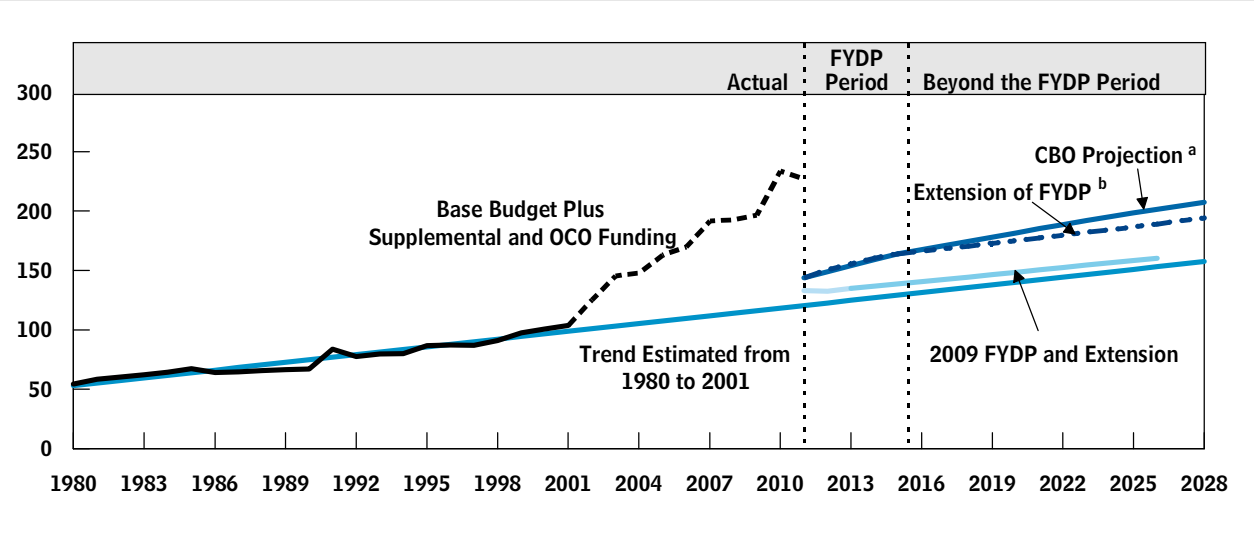
Continued

Box 2-1. Continued

The Context for the Projected Growth of Spending for Operation and Maintenance

Costs of Operation and Maintenance per Active-Duty Service Member

(Thousands of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

civilian workers (see Table 2-1 on page 11). Under the CBO projection, costs of pay and benefits in O&S would rise to $215 billion by 2015, representing a cumulative real increase of about 6 percent over the five-year period. By 2028, such costs would grow to $261 billion.

CBO's projections of real growth in military compensation start from arrangements under current law, which indexes the annual increase in basic military pay to the percentage increase in the Bureau of Labor Statistics' employment cost index (ECI) for wages and salaries in private industry. The ECI grew more rapidly than the gross domestic product deflator (a measure of the growth rate of the prices of all final goods and services produced in the economy) in all years but three from 1981 to 2010. CBO projects that the same pattern will continue between 2011 and 2015 and that growth of the ECI will exceed growth of the GDP deflator by an average of 1.3 percentage points per year.[3] After 2015, CBO projects, the ECI will continue to outpace the GDP deflator through 2028 by that same amount.

In addition to the real growth in the ECI, a further pay increase of half a percentage point was enacted each year from 2004 to 2010 as part of ongoing efforts to eliminate a perceived "pay gap" between military compensation and compensation in the private sector. (Whether such a gap

3. See Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2011 to 2021* (January 2011).

exists and how to measure its magnitude is a matter of some debate and is discussed in Appendix B.) The National Defense Authorization Act for Fiscal Year 2011 (P.L. 111-84) broke with recent practice and did not authorize a military pay raise in excess of the ECI.

CBO assumes in both the CBO projection and the extension of the FYDP, as does DoD in its plans, that military pay increases will keep pace with the ECI annually through 2015; CBO then extends that assumption through 2028. In its projection, CBO freezes civilian pay for calendar years 2011 and 2012 at 2010 levels, which is consistent with recently enacted legislation.[4] However, because the annual pay raise for federal civilian employees has generally equaled the percentage increase in basic military pay, CBO assumes that pay raises for DoD's civilian employees will keep pace with those for military personnel (and, therefore, the ECI) after 2012.[5] The two years for which civilian pay is frozen before resuming growth at the ECI rate make civilian pay lower for every year of the CBO projection than it is in the FYDP (which was constructed before the enactment of the pay freeze) and in CBO's extension of the FYDP.

Military Health System

The TRICARE program provides health care for the military's uniformed personnel and retirees and for their eligible family members and survivors. Altogether, more than 9 million people are eligible to seek care from military treatment facilities, from regional networks of civilian providers under contract with TRICARE, or from other civilian providers.[6] DoD's plans for 2011 included $49 billion for military health care, or about 9 percent of the requested budget for all DoD activities.[7] Under the CBO projection, the costs of DoD's plans for its military health system would reach $62 billion by 2015, reflecting an average real growth rate of 5.9 percent per year (see Figure 2-2). (In contrast, DoD projects that the average real growth rate would be about 4.2 percent over the FYDP period.) By 2028, the costs under the CBO projection would grow to $109 billion, more than double the amount requested in 2011.

The CBO projection of DoD's medical costs comprises five categories:

- *Accrual Payments for TRICARE for Life* covers funds deducted from DoD's appropriation and credited to the Medicare-Eligible Retiree Health Care Fund (MERHCF); outlays from that fund are used to reimburse military treatment facilities for care provided to military retirees and their family members who are also eligible for Medicare, and to cover most of the out-of-pocket costs that would otherwise be incurred by those beneficiaries when seeking care from private-sector providers.[8]
- *Pharmaceuticals* covers purchases of medicines dispensed at military medical facilities, at both network pharmacies and pharmacies outside of the network, and through DoD's mail-order pharmacy program.
- *Purchased Care and Contracts* covers medical care delivered to military beneficiaries by providers in the private sector, both ones in DoD's network and ones outside of it.

4. Continuing Appropriations and Surface Transportation Extensions Act, 2011, P.L. 111-322, Section 1.

5. CBO compared the annual pay raises that were granted between 1984 and 2010. In the case of the military pay raises, CBO included the across-the-board pay raises as well as the average increases across the force in those years for which pay raises contained additional amounts targeted to particular grades or seniority levels. In the case of the civil service pay raises, CBO included the across-the-board pay raises as well as the average increases in locality pay. In those 27 years, the military pay raises were larger in 9 instances, the civil service pay raises were larger in 2 instances, and the raises were equal in the remaining 16 instances.

6. Most care received at military treatment facilities is provided free of charge, though some patients are charged a small copayment for inpatient care. Some cost sharing is required of many beneficiaries seeking care from civilian providers under contract with TRICARE, although such costs vary by type of beneficiary. Care received outside the networks of civilian providers under contract is subject to higher cost-sharing requirements.

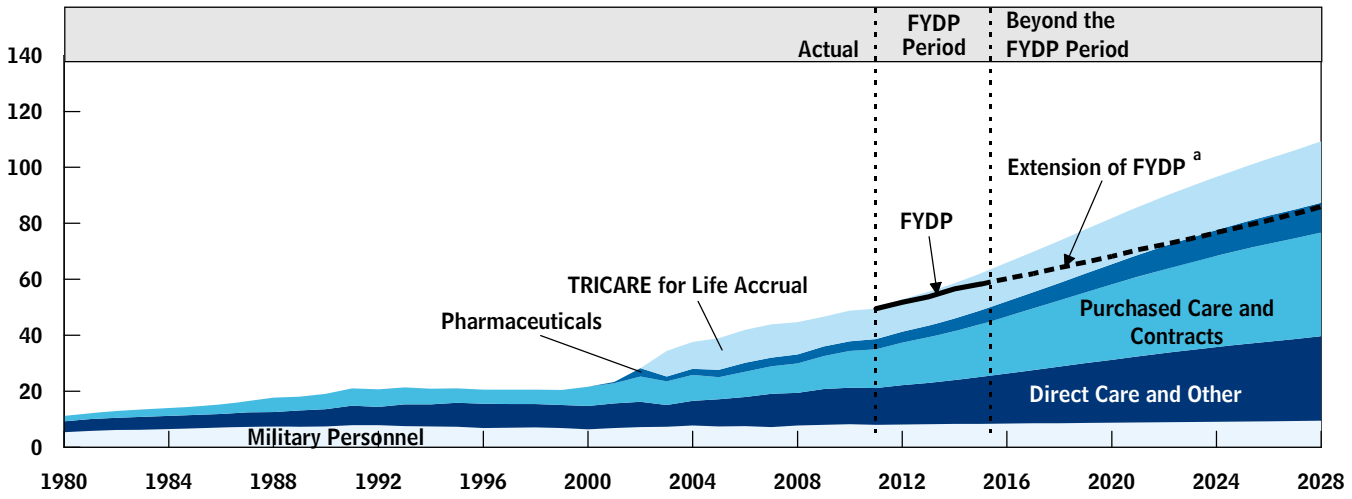
7. That total includes $8 billion for the pay and benefits of military personnel and $5 billion for DoD's civilian workers in the military health system, which have been included in the totals above for pay and benefits. An additional $11 billion covers accrual payments for TRICARE for Life. The cost of the military health care system excluding military and civilian pay and accrual payments for TRICARE for Life would be $25 billion in 2011 (see Table 2-1 on page 11).

8. DoD makes payments into the accrual fund for service members while they are on active duty. The benefits are not received, however, until a service member retires from the military and reaches the age at which he or she (or his or her qualified family member—typically a spouse, widow or widower) becomes eligible for Medicare.

Figure 2-2.

Cost of DoD's Plans for Its Military Health System

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience. Base-budget data include supplemental funding prior to 2002.

Before 2001, pharmaceutical costs were not separately identifiable but were embedded in the costs of two categories: "Purchased Care and Contracts" and "Direct Care and Other." Starting in 2001, most pharmaceutical costs are separately identifiable, but some of those costs may be embedded in the category "TRICARE for Life Accrual."

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all categories.

FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

- *Direct Care and Other* funds the operation of military medical facilities and other activities and includes the pay and benefits for civilian personnel assigned to those facilities and activities but excludes the pay and benefits of military personnel counted in the following category.[9]

- *Military Personnel* funds pay and benefits for uniformed personnel assigned to work in the military health care system.

Under the CBO projection, pay increases for uniformed medical personnel account for only a small portion—about 2 percent—of the overall growth in medical costs between 2011 and 2028; they follow the same trend as those for other military personnel. CBO projects the other categories of medical costs through 2028 on the basis of the growth rates observed in the military health system from 2006 through 2009.[10]

For most categories, historical growth rates in the military health system have been significantly higher than the

9. Other activities in this category include various administrative and training activities and military-specific requirements such as the aeromedical evacuation system.

10. CBO used the four most recent years of spending to ground its projections because they best reflect the TRICARE benefit as it is currently structured. Policy changes in the late 1990s and early 2000s enhanced the TRICARE benefit, and the very low out-of-pocket expenses in the program became increasingly attractive both to family members of active-duty personnel and to retirees and their families. The resulting influx of people making use of the benefit has slowed in recent years, although DoD projects continued (but smaller) increases throughout the FYDP period. In addition, changes in the way funding is tracked in the FYDP make it difficult to create fully comparable cost categories in earlier years.

corresponding rates in the national economy.[11] For example, from 2006 through 2009, pharmaceutical spending per eligible beneficiary in DoD's system grew at an average real rate of 2.8 percent per year, compared with the national average of 0.5 percent per year. Spending per beneficiary for purchased care and direct care grew by 8.4 percent and 6.5 percent per year, respectively, compared with national average growth of 1.9 percent per year for comparable categories in the broader economy.[12]

CBO used that recent experience in its projections. For 2011, CBO projected that DoD's medical expenditures would equal the amount requested by the Administration. Under the CBO projection, growth rates of DoD's spending per beneficiary for pharmaceuticals, direct care, and purchased care would exceed projected cost growth per beneficiary for similar services in the rest of the economy. Initially, in 2012, they would exceed the national rates by the same differential observed for 2006 through 2009. After 2012, by CBO's assumption, cost growth per beneficiary would gradually decrease in each category to the national rate over the next 15 years and continue to grow at that rate thereafter. For the 2011–2028 period, the average per-beneficiary growth rates would be 4.1 percent for pharmaceuticals, 4.5 percent for purchased care, and 3.1 percent for direct care.[13]

Low out-of-pocket expenses for TRICARE beneficiaries (many of whose copayments, deductibles, and maximum out-of-pocket payments have remained unchanged or have been lowered since the mid-1990s), combined with the increased costs of alternative sources of coverage for military retirees and their dependents, serve to make the TRICARE program relatively more attractive each year. Those factors increase the likelihood that military retirees and their dependents will choose to rely on the program rather than participate in health plans provided by civilian employers.[14] In addition, low out-of-pocket costs contribute to utilization rates for both inpatient and outpatient care that are higher for TRICARE beneficiaries than they are for their civilian counterparts.[15]

For the accrual payments for TRICARE for Life, CBO assumed that DoD's accrual fund contributions would grow at about 4.5 percent annually in real terms (derived from the DoD actuarial estimate of 6.25 percent in nominal terms) from 2016 through 2019. After that point, CBO assumed, the growth in those accrual charges would eventually slow, reaching a rate equal to 1 percentage point above the growth of GDP per capita by 2034. As a result, under the CBO projection, accrual payments for TRICARE for Life per active-duty service member would rise at an average real rate of 4.2 percent per year from 2011 to 2028.[16]

Other Operation and Maintenance Costs

The remainder of O&S spending is for the portions of operation and maintenance other than pay and cash compensation for civilian personnel and for the military medical system. Under the CBO projection, other O&M costs would increase from $113 billion in 2011 to $129 billion in 2015.

11. CBO derived its estimates for the growth of national spending for pharmaceuticals, direct care, and purchased care from 2012 through 2019 from the projections for pharmaceuticals, hospital care, and physician and clinical services in *National Health Expenditure Projections, 2009–2019*, published by the Centers for Medicare and Medicaid Services and available at www.cms.hhs.gov/NationalHealthExpendData/downloads/proj2009.pdf. CBO assumed that growth would slow after 2019, eventually reaching a rate in 2034 that was 1 percentage point higher than the growth of per capita GDP.

12. In nominal terms (including the effects of inflation), the average annual growth rates that DoD experienced between 2006 and 2009 were 5.1 percent for pharmaceuticals, 10.8 percent for purchased care, and 9.0 percent for direct care, compared with nominal national rates of 2.8 percent for pharmaceuticals and 4.2 percent for hospital care and physician and clinical services.

13. In nominal terms (including the effects of inflation), CBO projects average annual growth rates for the 2011–2028 period of 8.6 percent for pharmaceuticals, 8.0 percent for purchased care, and 6.8 percent for direct care.

14. In 2001, 49 percent of military retirees and their dependents had signed up for other health insurance, but by 2009, that figure had dropped to 29 percent. See Department of Defense, *Evaluation of the TRICARE Program: Fiscal Year 2010 Report to Congress* (February 28, 2010), p. 80.

15. DoD found that, among enrollees in TRICARE Prime (a managed care program that covers more than half of the people eligible for TRICARE and offers the lowest out-of-pocket costs) during 2009, the utilization of various services was higher than it was for comparable civilian enrollees in HMOs (health maintenance organizations): for inpatient services, 77 percent higher; outpatient services, 51 percent higher; and prescription drugs, 32 percent higher. (The comparison data on civilians were adjusted to mimic the age/sex distribution of the beneficiary population enrolled in TRICARE Prime.) See Department of Defense, *Evaluation of the TRICARE Program: Fiscal Year 2010 Report to Congress,* pp. 65, 71, and 75.

16. In nominal terms (including the effects of inflation), the average annual growth rate in accrual payments for TRICARE for Life would be 5.6 percent.

Because myriad different functions contribute to these remaining O&M costs, it was not practical for CBO to build an estimate from the "bottom up," that is, developing estimates for all of the various components involved and summing those estimates—as was the case for the estimates of pay and military medical care. Instead, CBO used a "top-down" methodology to project other O&M costs. Specifically, CBO used both historical information on cost growth in military O&M as well as details of DoD's estimates in the FYDP through 2015 as the general basis for CBO's projections. In addition, for years beyond the FYDP, CBO considered two other specific factors:

- New weapon systems tend to be more costly to operate because of their greater complexity and technical sophistication relative to the attributes of earlier generations, and
- Aging weapon systems tend to be more costly to operate and maintain, particularly as they approach the end of their service life or as they are upgraded to extend their service life.[17]

For the Navy and the Air Force, CBO projected the inventories of major weapon systems, such as ships and aircraft, and adjusted its projections of O&M costs to account for both the substantial increases in the complexity of new systems that are slated for fielding and the fact that the services plan to keep many of today's systems in service longer than has been the case in the past.[18] CBO based its projection of O&M costs for the Army's and the Marine Corps' ground forces on more general trends in O&M because the inventories of ground-based weapon systems—thousands of armored vehicles, trucks, artillery pieces, and other equipment in many variants and of widely different ages—made tracking specific systems impractical.

17. See Congressional Budget Office, *The Effects of Aging on the Costs of Operating and Maintaining Military Equipment* (August 2001).

18. For example, the Air Force plans to retain some of its F-15C fighters for nearly 50 years, more than double the 20-year service life typical of past generations of fighters.

CHAPTER

3

Projections of Acquisition Costs

Acquisition primarily covers the development and purchases of weapon systems and other major equipment and modifications to upgrade the capabilities or extend the service life of weapon systems. For 2011, the Administration requested $189 billion for acquisition, 34 percent of its total request for the Department of Defense (excluding funding for overseas contingency operations).

Under the Congressional Budget Office projection, the costs to implement DoD's plans for acquisitions over the next five years, as defined in the 2011 Future Years Defense Program, would rise to $210 billion by 2015 (see Figure 3-1). Subsequently, according to the CBO projection, with force structures remaining relatively unchanged and DoD continuing to develop new weapon systems that are more advanced than the systems they replace, acquisition costs would increase to $218 billion in 2017 as the department simultaneously modernizes many of the systems that were purchased during the 1980s but that are now reaching the end of their service life. As that wave of modernization activity is completed, the costs of DoD's acquisition plans would follow a generally decreasing trend after 2017, dropping to about the 2011 level by 2028. Beyond the projection period, acquisition costs could rise again depending on future decisions about how to equip the military.

In comparison, under the extension of the FYDP, acquisition costs would remain fairly steady, rising to $194 billion by 2015, 5 percent above the level in 2010. From 2016 to 2028, costs would be about 10 percent higher under the CBO projection than under the extension of the FYDP. The difference between the projections comes from different estimates of the costs of new weapon systems. Specifically, for weapon systems that are not yet in production at a full rate, costs under the CBO projection are typically higher than under the extension of the FYDP because the CBO projection incorporates DoD's past experience with cost growth during the development of weapon systems.[1]

The Administration may request some additional acquisition funding to continue supporting the overseas contingency operations in Afghanistan and Iraq. For 2002 to 2010, approximately $271 billion in OCO funds had been appropriated for acquisition. Those funds have been used for a variety of purposes, including replacing equipment destroyed in battle and purchasing new types of equipment—especially, mine-resistant vehicles. For 2011, $25.2 billion of the $159 billion requested for the Afghanistan and Iraq conflicts was for acquisition: $634 million for research, development, test, and evaluation and $24.6 billion for procurement. The acquisition funding requested for overseas contingency operations in the future (including a possible supplemental request for 2011) will depend on how those conflicts progress. This report does not address those costs.

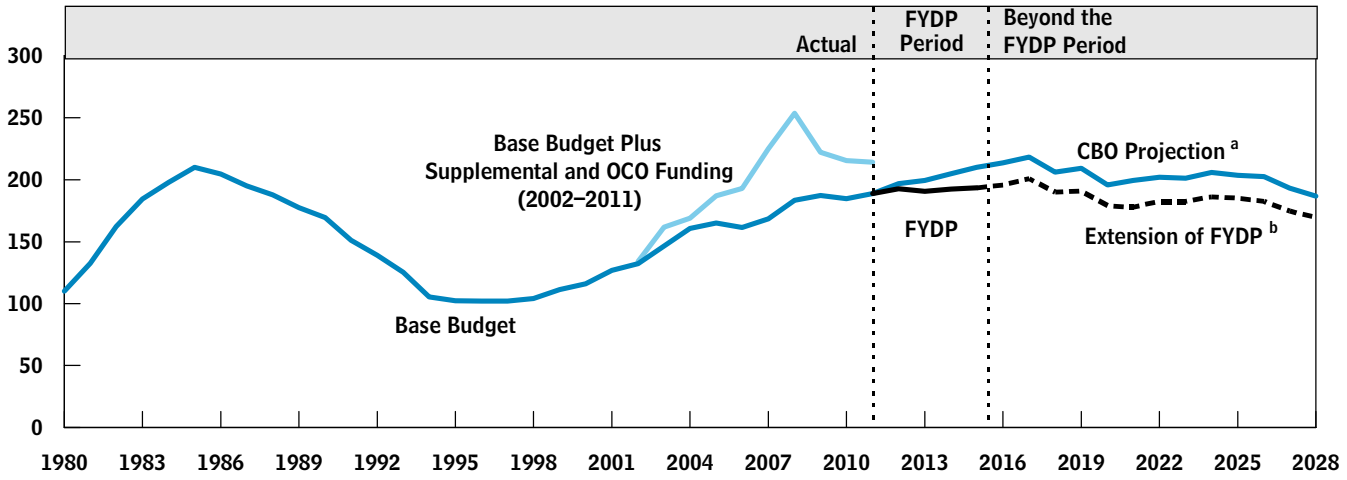
To project the costs of DoD's acquisition plans, CBO tracked the development and procurement of more than 190 weapon systems or major upgrades to existing systems. Some of those systems are in or nearing production (for example, the Navy's littoral combat ship [LCS]), some are in the early planning stages (for example, the new combat vehicle planned for the Army). Others (a new long-range bomber for the Air Force, for instance)

1. Historical analysis of DoD's acquisition programs indicates that costs have grown substantially relative to initial estimates. See Mark V. Arena and others, *Historical Cost Growth of Completed Weapon System Programs,* TR343-AF (prepared by RAND for the United States Air Force, 2006), www.rand.org/pubs/technical_reports/2006/RAND_TR343.pdf; and Obaid Younossi and others, *Is Weapon System Cost Growth Increasing? A Quantitative Assessment of Completed and Ongoing Programs,* MG-588-AF (prepared by RAND for the United States Air Force, 2007), www.rand.org/pubs/monographs/2007/RAND_MG588.pdf.

Figure 3-1.

Costs of DoD's Acquisition Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

are not based on specific plans but have been identified by CBO as either systems that would be required to maintain weapon inventories as existing systems reach the end of their service lives and need to be replaced or systems that would provide new capabilities to meet goals described in the services' policy statements.

The following sections describe details of the more significant systems in DoD's acquisition plans and CBO's estimates of the costs of those plans for each of the individual military departments—the Army, the Navy (including the Marine Corps), and the Air Force—and for the parts of DoD outside the military services, including the Missile Defense Agency (MDA) (see Figure 3-2).

The Army

The Administration's 2011 budget request for acquisition funding for the Department of the Army includes $32 billion for the base budget plus an additional $16 billion for overseas contingency operations. Under the CBO projection, acquisition costs for the Army's base budget would remain fairly steady, averaging about $33 billion per year from 2011 through 2028 (see Figure 3-3). Those costs are about 15 percent higher than the costs under the extension of the FYDP would be for that period. Compared with the Army's previous plans, which estimated a substantial increase in acquisition funding between 2013 and 2021 to carry out an ambitious modernization based on the remnants of the canceled Future Combat Systems program, this year's projection depicts a more consistent effort in that endeavor.

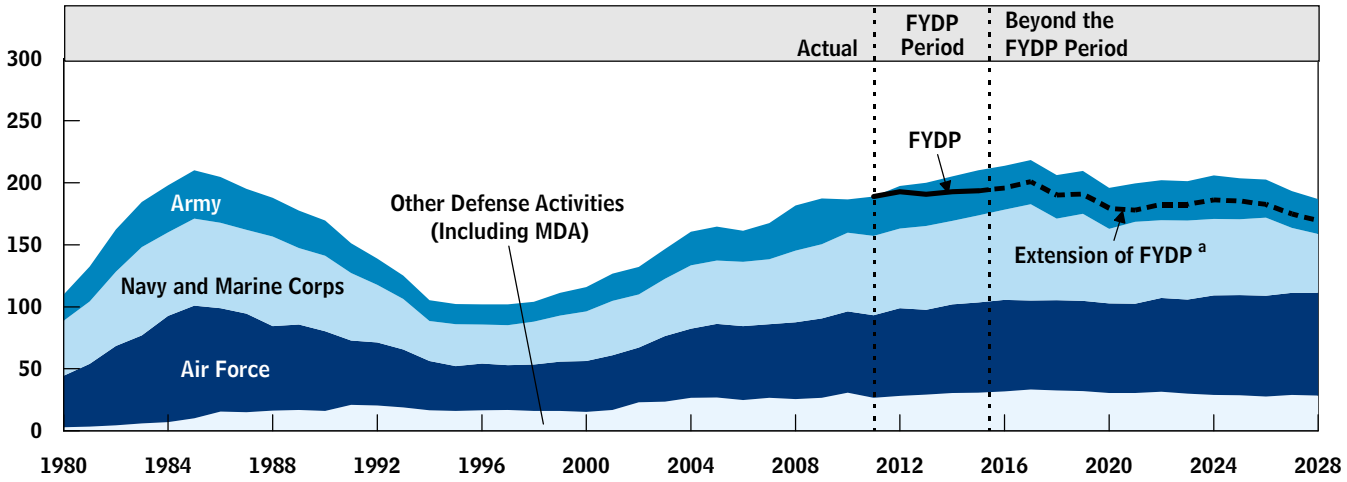
For its projections of acquisition costs for the Army, CBO tracked programs in five categories of major systems: ground combat vehicles and trucks; command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems; missiles and munitions; aircraft; and missile defense systems.[2]

2. CBO's estimates of acquisition costs for major weapon systems do not match those in the services' major procurement categories because CBO has focused on a subset of the programs contained in those budget categories. CBO has included the other programs in those categories under "Other Procurement."

Figure 3-2.

Costs of DoD's Base-Budget Acquisition Plans, by DoD Component

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience. Base-budget data include supplemental funding prior to 2002.

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all components.

FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified; MDA = Missile Defense Agency.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if DoD estimates are not available.

Ground Combat Vehicles and Trucks

The Army's plans include upgrades to many combat vehicles—including Stryker vehicles, Abrams tanks, Bradley fighting vehicles, and self-propelled 155-millimeter howitzers—throughout the entire projection period. The plans also include the purchase of an entirely new ground combat vehicle, which the Army intends to use to replace the infantry carrier version of the Bradley Fighting Vehicles in its combat brigades. Procurement funding for the new vehicles would begin in 2014, with purchases of at least 100 vehicles per year beginning in 2017.[3]

In addition, the plans include the purchase of the joint light tactical vehicle, a truck that the Army and the Marines are developing as a replacement for some of the roughly 50,000 high-mobility multipurpose wheeled vehicles (HMMWVs) in the Army's inventory. The newer vehicle is expected to be safer and more fuel-efficient. The Army is also planning to rebuild some of its existing HMMWVs rather than purchase new ones. Purchases of medium tactical vehicles and upgrades to extend the service life of the Army's heavy trucks are also planned.

C4ISR Systems

The Army's C4ISR systems include those designed to enable Army units to communicate and share data. Two of the larger programs in this category are for new advanced radios known as the Joint Tactical Radio System (JTRS) and the Warfighter Information Network (WIN-T) data networking system. The JTRS program is scheduled to buy almost 300,000 new radios by 2028; the three increments of the WIN-T program will provide increasingly sophisticated networking hardware and software between 2012 and 2028.

Missiles and Munitions

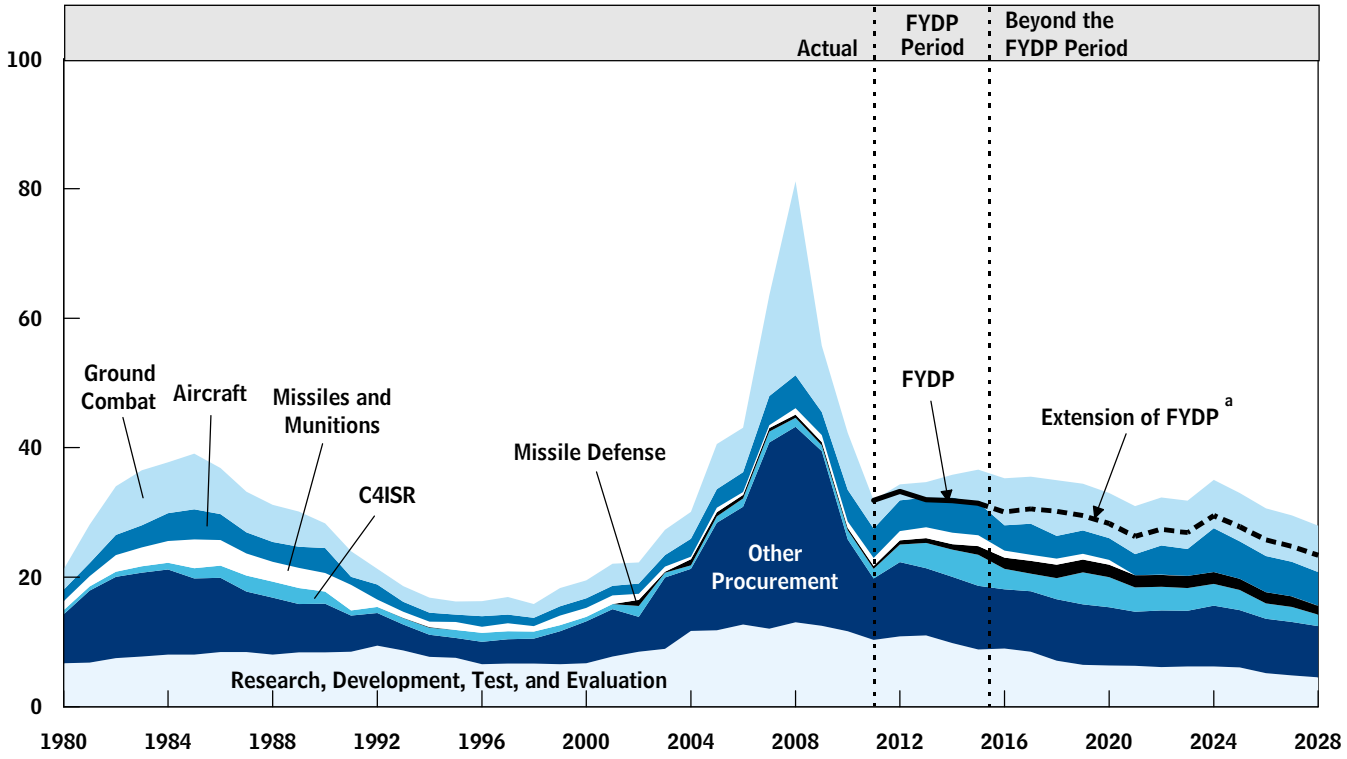
Intended purchases include missiles and rockets, such as the guided multiple launch rocket system, and munitions, such as the precision-guided Excalibur artillery

3. This program was restructured late in calendar year 2010, and as a result, its procurement schedule has been delayed one year. CBO's analysis does not reflect that new schedule.

Figure 3-3.

Costs of the Army's Acquisition Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

Supplemental and overseas contingency operations funding are included for 2010 and earlier but not included after 2010.

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all categories.

FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if DoD estimates are not available.

round. Plans for the non-line-of-sight launch system, a program that grew out of the Army's canceled Future Combat Systems program, are also in this category—although in May 2010 DoD announced its intention to cancel the system.

Aircraft

The Army's plans for aviation programs include both rotary-wing and unmanned aircraft. Those plans include completing purchases of UH-72A Lakota light-utility helicopters, which are replacing the remaining UH-1H Hueys and OH-58C Kiowas. The Army is also exploring options for procuring Armed Scout Helicopters to replace today's fleet of OH-58D Kiowa Warriors and the canceled Armed Reconnaissance Helicopter). In both of its projections, CBO assumed that procurement of this new helicopter would begin in 2016. In addition, the Army's plans include starting a new program to develop a heavy-lift rotorcraft and programs to upgrade and extend past 2028 the service life of the Army's Apache, Blackhawk, and Chinook helicopters. The projections also include plans to purchase several types of unmanned aircraft, including the MQ-1C Grey Eagle, which is similar to the Predator aircraft flown by the Air Force.

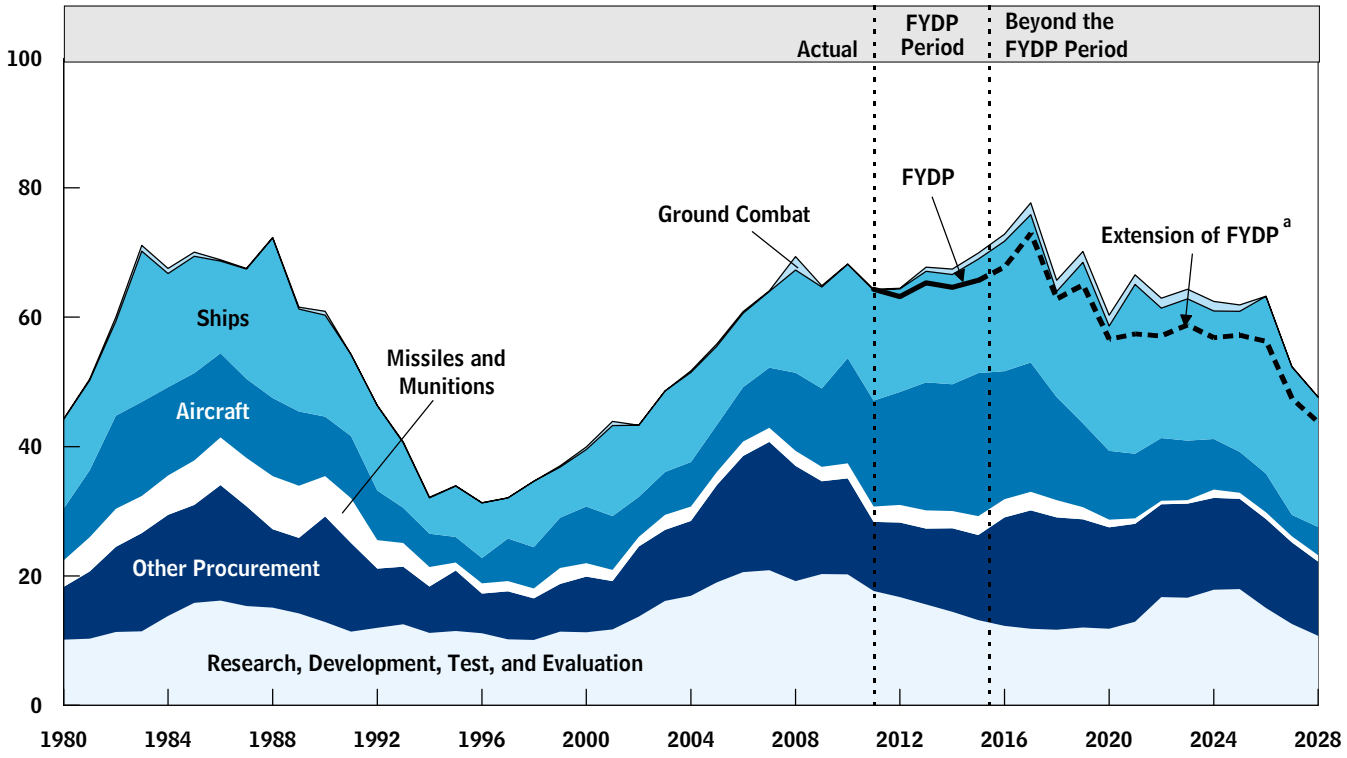
Missile Defense

The Army's plans include purchases of equipment to defend against ballistic missiles. Those purchases

Figure 3-4.

Costs of the Navy and the Marine Corps' Acquisition Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

Supplemental and overseas contingency operations funding are included for 2010 and earlier but not included after 2010.

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all categories.

FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

include the Patriot Advanced Capability-3 (PAC-3) system and the Patriot/Medium Extended Air Defense System Combined Aggregate Program, which will defend against tactical ballistic missiles. Previous projections included funds to purchase Terminal High Altitude Area Defense missiles, which will now be purchased by the Missile Defense Agency rather than the Army.

The Navy and the Marine Corps

The 2011 budget request contains $64 billion for acquisition by the Department of the Navy, which includes the Marine Corps. Additionally, the Navy and the Marine Corps requested $3.4 billion in OCO appropriations for RDT&E and procurement. Under the CBO projection, acquisition costs for the Navy and the Marine Corps would rise to $70 billion by 2015, primarily because of planned purchases of ships and aircraft (see Figure 3-4). In comparison, the FYPD calls for an increase to $66 billion in 2015.

Beyond the FYDP period, the Navy and the Marine Corps' acquisition plans would, under the CBO projection, cost an average of about $64 billion per year, about 9 percent higher than under the extension of the FYDP. Although that average is about the same as the amount requested in 2011, the phasing of purchases according to current plans would result in substantially higher costs in the years just beyond the FYDP period (an average of

$69 billion per year for 2016 through 2020), followed by lower costs thereafter.

In analyzing acquisition costs for the Navy and Marine Corps, CBO tracked programs in four categories of major systems: ships, aircraft, ground vehicles (trucks and armored vehicles for the Marine Corps), and missiles and munitions.

Ships

The Navy requested $17 billion for ship construction and major modifications and repairs in 2011. The Navy's current plans reflect the goal of expanding the fleet from today's 287 ships up to a fleet numbering 313 ships. Those plans would cost an average of $20 billion per year between 2011 and 2028 under the CBO projection, about $1.6 billion per year more than under the extension of the FYDP.

Surface Combatants. The planned increase in the Navy's fleet is primarily in the surface combatant force, which currently consists of 111 cruisers, destroyers, frigates, and littoral combat ships. By 2028, the surface combatant fleet would grow to 131 ships under the Navy's plans—including 46 LCSs, which are smaller and faster than any of today's other surface combatants.

The Navy's plans for the surface combatant force experienced some significant developments between submission of the 2010 budget and the promulgation of 2011 budget plans. The Navy is now planning to purchase new DDG-51 destroyers instead of continuing the program for DDG-1000 destroyers, only three of which will be built. Plans for the CG(X) future cruiser have been canceled and replaced with plans to purchase 24 upgraded DDG-51 destroyers from 2016 through 2031. In another change, annual purchases of LCSs were reduced, but production was extended beyond 2019, which would have been the final year of procuring those ships under the 2010 budget.[4]

4. In December 2010, the Navy changed plans for LCSs again, opting to purchase ships from both shipbuilders that had been competing for the contract. For more details, see Congressional Budget Office, letter to the Honorable John McCain about the cost implications of the Navy's plans for acquiring littoral combat ships (December 10, 2010). This recent change is not reflected in CBO's projections.

Submarines. The Navy's plans would lead to a smaller submarine force. Although the Navy's stated goal is to have 48 attack submarines (SSNs) through the projection period, its plans for procurement would meet that goal through 2023 but not thereafter. The Navy intends to replace the 14 ballistic missile submarines (SSBNs) of the Ohio class that are in service today with 12 new submarines starting in 2019. According to the Navy's plans, none of the four guided-missile submarines (SSGNs) that are scheduled for retirement will be replaced.

Amphibious and Maritime Prepositioning Ships. The Navy's plans call for an amphibious lift force of 33 ships, including 11 large-deck amphibious assault ships (LHAs or LHDs). Under these plans, the Navy's purchases would include four amphibious assault ships by 2028. The projections also incorporate plans to begin replacing the 12 dock landing ships in today's force, 6of which would be purchased by 2028.

In its 2011 plans, the Navy no longer proposes to undertake the Maritime Prepositioning Force (Future) program. Instead, the service intends to acquire some of the capabilities associated with the canceled program and incorporate them into the three existing maritime prepositioning squadrons. The resulting squadrons will have greater flexibility to selectively unload certain kinds of equipment.

Aircraft Carriers. The Navy's plans include a future carrier force of at least 11 large-deck ships, all of which would be nuclear-powered. The Navy ordered the first of its new class of aircraft carriers, the U.S.S. *Gerald R. Ford* (CVN-78), in 2008, and plans call for the Navy to order a new ship of that class every five years thereafter. In addition, plans would provide for the refueling and overhaul of six of today's Nimitz-class carriers (including continued funding for the ongoing refueling and overhaul of the U.S.S. *Theodore Roosevelt*) over the projection period. The plans would maintain a fleet of 11 aircraft carriers for all but two years of the projection period; the fleet would briefly drop to 10 aircraft carriers in 2013 and 2014, the time between when the U.S.S. *Enterprise* would be retired and when the U.S.S. *Gerald R. Ford* would enter the fleet.

Aircraft

The Department of the Navy's aviation programs include Navy and Marine Corps aircraft and aircraft-related

weapon systems. For 2011, the Administration requested over $16 billion to procure more than 200 new aircraft. Under the CBO projection, the Navy's plans for aircraft would cost an average of about $13 billion per year between 2011 and 2028. Average annual funding would be considerably higher in the earlier years of the projection period—nearly $19 billion per year for 2011 through 2018—because of simultaneous purchases of several types of both fixed- and rotary-wing aircraft. The completion of production for those aircraft would result in lower average funding of about $8 billion per year for 2019 through the end of the projection period. The decrease after 2018 contributes to the overall decrease in acquisition costs in the later years of the projection period.

Fighter Aircraft. Plans for naval fighter aircraft include three more years of procurement for the F/A-18E/F multirole fighter (48 more aircraft) and the EA-18G electronic warfare aircraft (36 more aircraft) and a total of 680 F-35 Joint Strike Fighters in two variants: the F-35B short takeoff/vertical landing aircraft for the Marine Corps and the F-35C carrier-based aircraft for the Navy. The projected costs for the Joint Strike Fighter are based on estimates reported by DoD in June 2010 as part of its review of excessive cost growth in that program. The costs in both the CBO projection and the extension of the FYDP reflect CBO's assumption that the Navy will begin developing a new fighter to replace F/A-18E/Fs that are expected to reach the end of their service life after 2025. Projected costs for that aircraft are primarily for research and development beginning in 2016; initial production would begin in 2026.[5]

Other Fixed-Wing Aircraft. In addition to fighters, plans for other types of carrier- and land-based fixed-wing aircraft include the following:

- Carrier-based unmanned combat air vehicles capable of conducting surveillance, reconnaissance, or strike missions;[6]
- A new version of the carrier-based E-2 Hawkeye airborne early-warning aircraft;
- A new land-based patrol aircraft, the P-8A Poseidon, which is based on a Boeing 737 airframe and will replace the P-3C Orion; and
- An unmanned broad-area maritime surveillance aircraft that will be a modified version of the Air Force's Global Hawk high-altitude unmanned aerial vehicle.

Tilt-Rotor and Rotary-Wing Aircraft. The Navy's plans include purchases of MH-60R/S helicopters and MQ-8A unmanned helicopters that are slated for deployment aboard LCSs. The Marine Corps' plans call for replacing or upgrading nearly every component of its tilt-rotor and rotary-wing forces. The Marine Corps is replacing its CH-46E medium-lift helicopters with MV-22 Osprey tilt-rotor aircraft, and is modernizing its fleets of UH-1N light-utility helicopters and AH-1W attack helicopters with a mix of new and remanufactured aircraft. In addition, the Marine Corps intends to modernize its fleet of heavy-lift CH-53E helicopters with an upgraded version, the CH-53K. Although plans for the VH-71 helicopter to replace the current "Marine One" Presidential transport helicopter were canceled in the 2010 budget request, options for a follow-on "VXX" aircraft are being evaluated. CBO's analysis reflects the assumption that this new program would begin delivering replacements for Marine One around 2014.

Ground Combat

The Marine Corps' plans in the 2011 FYDP did not change substantially from those in the 2010 budget. The current plan for procuring new expeditionary fighting vehicles, which are intended to replace today's amphibious assault vehicles, includes only minor changes from the plan underlying the 2010 budget. The number of those vehicles that the Marine Corps plans to buy was reduced by nearly half several years ago. Under the 2011 FYDP, procurement of the vehicles would start in 2012.[7] The Marines Corps also plans to buy joint light tactical vehicles beginning in 2014.

5. Instead of developing a new aircraft, the Navy might opt to purchase additional F-35Cs. That course of action would result in lower RDT&E costs than are reflected in CBO's analysis.

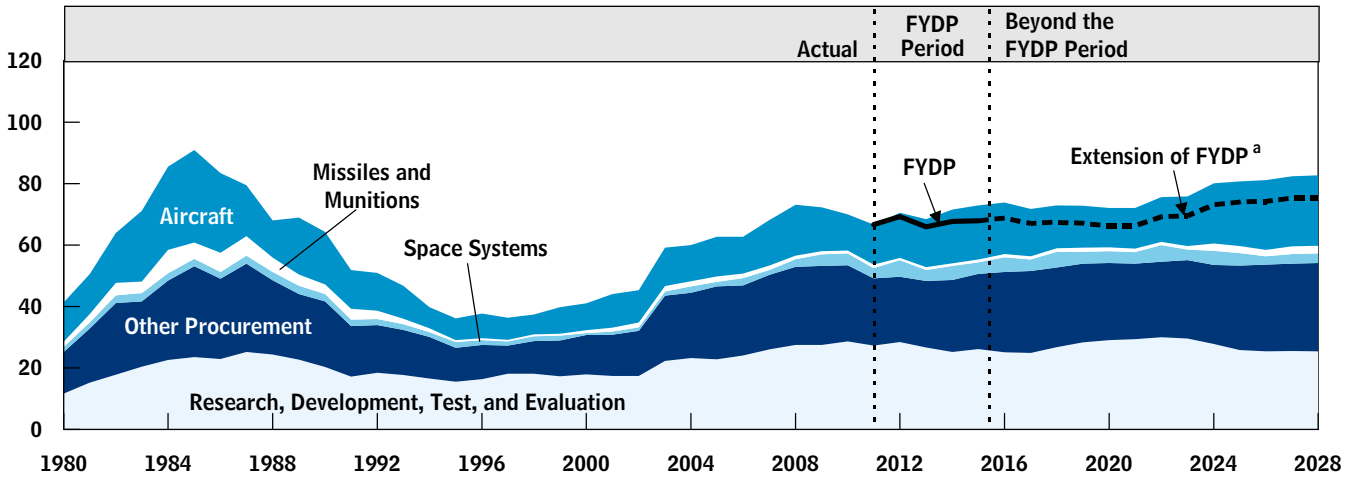
6. As part of the Unmanned Combat Air System Carrier Demonstration program, the Navy is developing the technologies necessary to field such aircraft. CBO's analysis reflects the assumption that that effort will be successful and that the Navy will opt to purchase a limited number of unmanned combat aircraft—about 100 by 2028—for its carrier air wings.

7. In January 2011, however, DoD announced its intention to cancel its program for expeditionary fighting vehicles. That potential change is not included in CBO's analysis.

Figure 3-5.

Costs of the Air Force's Acquisition Plans

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

Supplemental and overseas contingency operations funding are included for 2010 and earlier but not included after 2010.

The amounts shown for the Future Years Defense Program (FYDP) and the extension of the FYDP are the totals for all categories.

FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

Missiles and Munitions

The category of missiles and munitions comprises air-launched weapons (including air-to-air and air-to-ground missiles) and ship-launched weapons (including defensive surface-to-air missiles, land-attack missiles, and torpedoes). Notable among those weapons are a substantial number of Tactical Tomahawk cruise missiles for attacking land targets and the air-launched Joint Standoff Weapon, also for attacking ground targets.[8]

The Air Force

The 2011 budget request for acquisition by the Air Force was $67 billion. Under the CBO projection, those costs would average $70 billion per year during the FYDP period (through 2015), about $2.5 billion higher than the average indicated in the FYDP. Under the CBO projection, year-to-year funding would remain fairly steady at about that level through 2021 and then increase to more than $82 billion by 2028 (see Figure 3-5).

For its projections of acquisition costs for the Air Force, CBO tracked programs in three categories of major systems: aircraft, missiles and munitions, and space systems.[9]

Aircraft

The Air Force's plans include purchases of new aircraft and major modifications to existing aircraft. Under the CBO projection, the plans for acquiring aircraft would cost an average of about $17 billion per year from 2011

8. In CBO's analysis, missile-defense versions of the Standard Missile that were included in this category in previous projections have been moved to the category for the Missile Defense Agency because that agency has taken on a greater role in procurement than in past plans.

9. Two categories in previous projections by CBO—C4ISR systems and missile defense systems—have been eliminated, and their constituent programs have been incorporated into other parts of the projections. Specifically, the aircraft and satellites designed for C4ISR missions are now included in the aircraft and space systems categories, respectively, and DoD has shifted most procurement for missile defense systems to the Missile Defense Agency.

to 2028. About 60 percent of those costs would be for the F-35A Joint Strike Fighter and the KC-X replacement for the KC-135 airborne tanker. CBO's analysis for the F-35A is based on cost estimates developed by DoD's Cost Analysis and Program Evaluation group, which were reported in June 2010. Both the CBO projection and the extension of the FYDP reflect CBO's assumption that the first KC-X aircraft will be procured in 2013 and that procurement will increase to 15 aircraft per year. Other significant elements of DoD's acquisition plans for the Air Force's aircraft include these:

- A replacement combat search-and-rescue (CSAR) rotorcraft: Because DoD canceled the CSAR-X program in 2009, the Air Force is purchasing a limited number of modified H-60 Blackhawk helicopters to meet immediate needs, and DoD is exploring how to best provide CSAR capabilities in the future. CBO's analysis reflects the assumption that today's fleet of HH-60G helicopters that are used for combat search and rescue would be replaced with a like number of modern Blackhawks modified for CSAR operations.

- Increases in the number of medium- and high-altitude unmanned aerial vehicles: The 2011 FYDP and the Air Force's longer-term plans include funding for 288 more MQ-9 Reapers and 39 more of the larger RQ-4B Global Hawks. Those purchases are consistent with DoD's goal to increase the number of continuous orbits by unmanned aircraft that can be accomplished. CBO's analysis also reflects the assumption that, in 2019, the Air Force would begin procuring a next-generation reconnaissance and strike unmanned aircraft that would be better suited for operations in defended airspace than are the Reaper and Global Hawk.

- A new long-range bomber program: The Air Force is currently reviewing performance requirements and available technologies in anticipation of developing of a new bomber to be fielded sometime after 2020. CBO's analysis reflects the assumption that development efforts would continue and that procurement of a new long-range strike aircraft would begin in 2024.

- A new "Joint Heavy Lift" theater transport aircraft: The Air Force and Army are exploring performance requirements for a new aircraft that would be used to move troops and equipment within a theater of operations. Although the type of aircraft has not been determined, the capability to take off and land vertically or in short distances will probably be a desired characteristic. CBO's analysis reflects the assumption that significant development work for this aircraft would begin within the next five years and that initial procurement would begin in 2022.

The increase in costs in the final few years of the CBO projection is due in large part to the development and procurement of those latter two types of aircraft.

Missiles and Munitions

The category of missiles and munitions includes systems that range from air-to-air weapons to intercontinental ballistic missiles (ICBMs). Plans include upgrades to existing Minuteman III ICBMs and RDT&E for a new ICBM that would be fielded sometime after 2027. Air-to-surface weapons in this category include the Joint Air-to-Surface Standoff Missile, the Joint Direct Attack Munition, and the Small-Diameter Bomb. Plans also include the Joint Dual-Role Air Dominance Missile, the specific characteristics of which are being developed.

Space Systems

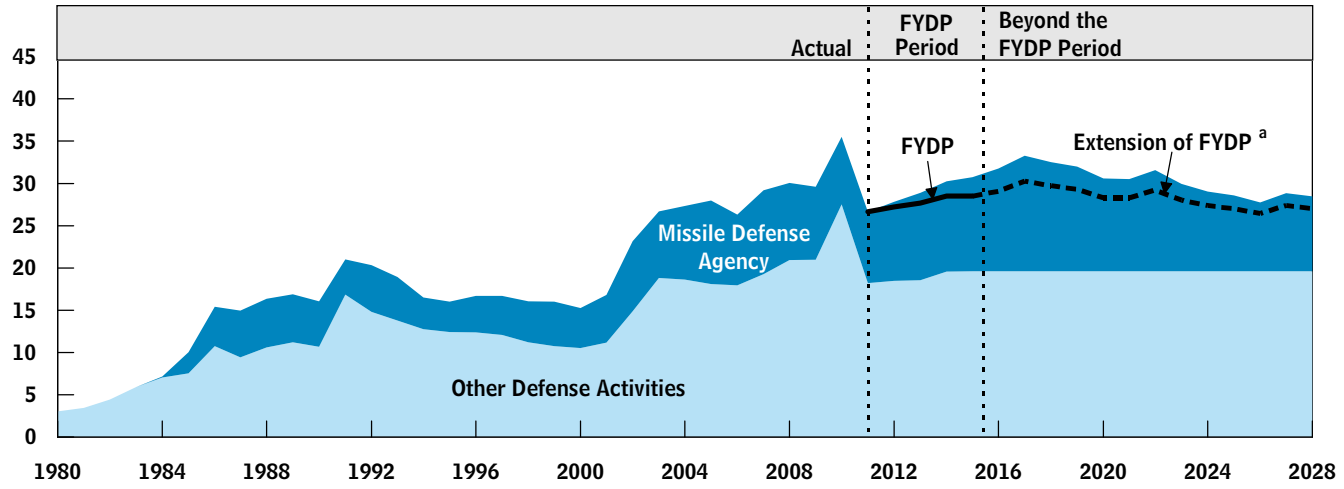
The category of space systems consists mainly of satellites and the space-launch systems used to put them into orbit. (In previous projections by CBO, satellites were included in the categories that best matched their intended function.) The largest satellite programs in CBO's analysis of the Air Force's plans are the ones producing the Global Positioning System III satellites and the Advanced Extremely High Frequency communications satellites. CBO's analysis also reflects the assumption that four new weather satellites would be purchased by the Air Force in lieu of ones that were to have come from the National Polar-orbiting Operational Environmental Satellite System (NPOESS) program. NPOESS, a collaborative effort between DoD and the Department of Commerce (with participation by the National Aeronautics and Space Administration), was canceled in early 2010 after repeated delays and cost overruns. Current plans call for the Commerce and Defense Departments to develop independent yet complementary weather satellites.

For space-launch systems, CBO's analysis reflects the assumption that the Air Force would purchase 70 Evolved Expendable Launch Vehicles through 2028. CBO's analysis also includes funding for boosters, satellites, and related services to support the Operationally Responsive Space Program. The details of those plans are still being developed.

Figure 3-6.

Costs of Defense Acquisition Plans Other Than Those of the Military Services

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Each category shows the CBO projection of the base budget, which incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

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FYDP period = 2011 to 2015, the years for which DoD's plans are fully specified.

a. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

Other Defense Activities, Including Those of the Missile Defense Agency

In addition to funding for the Departments of the Army, Navy, and Air Force, DoD's budget provides funding for organizations that oversee the department as well as specialized agencies that perform advanced research, develop missile defenses, oversee special operations, and manage financial and information systems. For those defense organizations other than the Missile Defense Agency, CBO projected that costs would remain constant (when adjusted for inflation) at about $20 billion, the 2015 level indicated in the FYDP (see Figure 3-6).

The 2011 budget request for the MDA was $7.5 billion for RDT&E and $953 million for procurement.[10] Under the CBO projection, MDA's acquisition costs would average $10.5 billion annually from 2011 through 2028. That increase would result from the procurement of several new systems that are currently in development.

CBO's analysis reflects the Administration's decision to replace plans for deploying to Europe a version of the missile-defense interceptors currently based in Alaska and California with a new plan, called the Phased Adaptive Approach (PAA), which would rely instead on the Aegis ballistic missile defense system and its Standard Missile-3 (SM-3) interceptor, which are currently based on Navy ships.

The plans for future missile defenses in CBO's analysis are derived from the Administration's policy statements and details provided by MDA and the military services.

10. Since its inception, MDA has managed research, development, and testing of DoD's missile defense programs as components in the Ballistic Missile Defense System (BMDS). In September 2009, MDA's responsibilities were broadened to include procurement and fielding of those systems in the context of the BMDS Life Cycle Management Process. The 2011 budget request reflects that new role.

Significant aspects of those plans affecting CBO's analysis of future costs included the following:

- Continued fielding of the Ground-Based Midcourse Defense system, including 26 operational interceptors at Fort Greely, Alaska, and four operational interceptors at Vandenberg Air Force Base in California.[11] CBO's analysis includes funding for additional interceptors to be used to support ongoing testing and for use as spares.

- Increased emphasis on the Aegis missile defense system to better support the PAA. Specifics include improving the performance and purchasing more SM-3 interceptors, improving the Aegis battle management system, and increasing the number of Navy ships capable of performing ballistic missile defense to 37 by 2015 (compared with 27 ships in earlier plans). In addition to improving and expanding sea-based ballistic missile defense, plans include a new effort to develop a ground-based version, designated "Aegis Ashore."

- Continued development and fielding of a space-based system for tracking ballistic missiles and their warheads. Current plans call for this Precision Tracking and Surveillance System (PTSS)—a restructuring of the Space Tracking and Surveillance System (STSS) that had been pursued in past years—to consist of 6 to 12 satellites. MDA plans to launch two or three prototype satellites in 2015 and begin launching an operational constellation several years later. CBO's analysis reflects the assumption that MDA would deploy nine operational satellites, with the initial launches occurring in 2017.

- Continued development of terminal-phase defenses. These systems include three mobile ground-based ones—the Patriot Advanced Capability-3 short-range system, the Patriot/Medium Extended Air Defense System Combined Aggregate Program, and the Terminal High-Altitude Area Defense system—as well as a new program to develop a sea-based terminal-defense capability that would initially be provided by upgrades to the Aegis battle management system and Standard Missile interceptors.[12]

- Development of an "early intercept" system designed to engage ballistic missiles before they have an opportunity to deploy decoys that make it more difficult to identify and destroy the missile's warhead.

MDA's 2011 budget request includes a program designated Airborne Infrared, which would develop and field forward-based airborne platforms to detect and track enemy missiles as part of an early intercept capability. That system would replace some of the capability that would have been provided by the Kinetic Energy Interceptor and plans to field a fleet of Airborne Laser (ABL) aircraft, both of which would have targeted ballistic missiles in their boost phase but have since been canceled.[13]

11. Ballistic missile defense programs are categorized by the portion of the incoming missile's trajectory that they target. Boost-phase defenses attempt to destroy hostile missiles before their warheads separate from their booster rockets. Midcourse-phase defenses attempt to destroy warheads after they separate from their boosters but before they reenter Earth's atmosphere. Terminal-phase defenses attempt to destroy warheads after they have reentered Earth's atmosphere and are relatively close to their intended targets.

12. The Army is responsible for producing and further developing the Patriot and MEADS systems, while MDA is responsible for integrating those systems into the overall missile defense architecture.

13. Although there are no plans at this time for fielding an operational ABL fleet, research using the existing ABL aircraft, now designated as the Airborne Laser Testbed, is continuing.

CHAPTER

4

Projections of Military Construction and Family Housing Costs

Together, the military construction and family housing budgets that support the infrastructure of military bases make up a small fraction of the Department of Defense's costs. In the 2011 budget, the request for military construction was $17 billion, and the request for family housing was about $2 billion.

Military Construction

Appropriations for military construction pay for the planning, design, construction, and major restoration of military facilities. Those appropriations also pay for the base realignment and closure (BRAC) process, including environmental assessments of sites designated for closure and construction projects needed to help consolidate personnel and units.

With funding for BRAC excluded, appropriations for military construction have averaged about $8 billion annually since 1980. DoD's plans dedicate enough funding to its facilities so that, on average, they will be fully replaced over 67 years.[1] Under both the Congressional Budget Office projection and the extension of the Future Years Defense Program, those plans are estimated to cost about $10 billion per year.

DoD's plans for 2011 through 2015 include expenditures to complete the round of base realignments and closures that began in 2005. Under both the CBO projection and the extension of the FYDP, those costs total $3 billion but generate recurring annual savings (resulting from that round of the BRAC process) that eventually reach more than $5 billion.[2] Unlike previous BRAC rounds, which were more likely to close facilities, the current round would achieve savings primarily by consolidating activities on existing military bases. Because few facilities would be completely closed, that round would have a minimal effect on future requirements for recapitalizing DoD's facilities. Under both projections, the savings from consolidating bases would not reduce DoD's funding requests for military construction. Instead, CBO's analysis reflects DoD's plans to reallocate any savings for unspecified purposes not necessarily related to maintaining facilities.

In addition to implementing the BRAC round that began in 2005, DoD plans in 2011 through 2015 to continue paying for environmental and caretaking costs associated with properties closed in previous rounds. Under both the CBO projection and the extension of the FYDP, those costs are estimated to be $300 million annually to cover ongoing maintenance and cleanup costs for properties before their transition to other uses. Beyond 2015, under both projections, ongoing environmental and caretaking costs associated with all rounds of base realignments and closures are estimated to be $600 million per year.

Family Housing

Appropriations for family housing—which pay for the construction, operation, maintenance, and leasing of military family housing—have averaged $5 billion per year since 1980. Those appropriations have fallen sharply

1. Specifically, the funding goal is to achieve a recapitalization rate of 67 years. That rate is calculated by dividing the replacement value of all military facilities by the average funding used to restore or replace a portion of them annually.

2. Defense Base Closure and Realignment Commission, *Defense Base Closure and Realignment Commission Report,* vol. 1 (May 2005), p. 4.

since 2007, however, because, under a DoD program to have private companies build and maintain that housing on bases, funding comes primarily from third-party financing that is not recorded in the federal budget. As a result, under both the CBO projection and the extension of the FYDP, appropriations for family housing are projected to drop from $1.8 billion in 2011 to $1.5 billion by 2013 and remain at that level throughout the projection period. Although such plans would reduce DoD's costs for building and operating family housing, they would increase costs for the basic allowance for housing that military personnel receive to rent those private housing units. Housing allowances appear in military personnel costs in the O&S budget. The CBO projection of military personnel costs beyond 2015 implicitly incorporates the migration of some housing costs from the family housing appropriation to the military personnel appropriation.

APPENDIX

A

Projections of the Department of Defense's Costs Compared with the Congressional Budget Office's January 2011 Baseline

The Congressional Budget Office's (CBO's) projections of defense costs in this study differ from the projections of discretionary appropriations for defense contained in CBO's January 2011 baseline.[1] The two sets of projections were made for different purposes and use different assumptions. The projections in this study are intended to illustrate the costs of the Department of Defense's (DoD's) plans, as contained in the department's Future Years Defense Program (FYDP) for 2011 through 2015 and related planning documents. By contrast, CBO's baseline is intended to serve as a neutral benchmark to show how Congressional actions would raise or lower federal spending relative to that under current laws and policies.

According to the rules for constructing the baseline for discretionary spending, CBO tabulates the total amount appropriated for the fiscal year at the time the baseline is prepared and assumes that appropriations will be adjusted only to reflect anticipated inflation (as measured by specified indexes) and certain other factors. For defense, the baseline includes both regular appropriations and any emergency and supplemental appropriations that the Congress has made to fund conflicts or for other purposes at the time the baseline is published.[2] That method of calculation makes the entire 10-year baseline projection sensitive to emergency and supplemental appropriations made in the most recent year.

For 2011, the Congress has appropriated $159 billion to fund the conflicts overseas, matching the Administration's request.[3] The resulting CBO baseline starts with budget authority of $685 billion for 2011 (including CBO's projection of $526 billion for regular defense appropriations in that year) and continues through 2021, rising only with estimates of real growth of wages (see the top panel of Table A-1).[4] That calculation has the effect of retaining the cost of two sizable U.S. overseas operations over the 10-year projection even though the United States has withdrawn most of its forces from Iraq and is contemplating similar actions in Afghanistan starting in 2011 or 2012.

1. Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2011 to 2021* (January 2011).

2. CBO constructs its baseline in accordance with the provisions set forth in the Balanced Budget and Emergency Deficit Control Act of 1985 and in the Congressional Budget and Impoundment Control Act of 1974. Although the provisions of the Deficit Control Act that pertain to the baseline expired at the end of September 2006, the agency generally continues to follow that law's specifications in preparing its baseline.

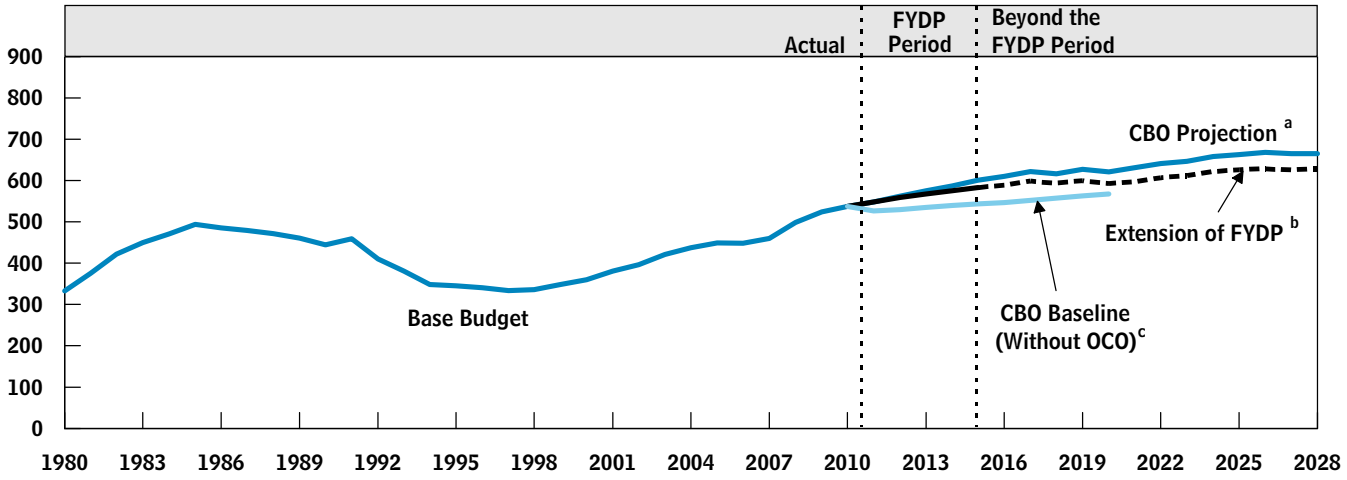
3. The amount provided to DoD for emergency war-related funding is referenced in section 114 of the Continuing Appropriations Act, 2011 (Public Law 111-242, 124 Stat. 2607, 2609.

4. The Congress has not passed a defense appropriations bill for 2011. Instead, it has provided appropriations for defense and other discretionary programs for part of the fiscal year through a series of continuing resolutions, the most recent of which (the Continuing Appropriations and Surface Transportation Extensions Act, 2011, P. L. 111-322) was enacted on December 22, 2010, and expires on March 4, 2011. Those laws also provided appropriations for operations in Afghanistan and Iraq through March 4, 2011, at an annual rate of $159 billion, which equaled the Administration's request. In the January 2011 baseline, CBO assumes full-year funding for 2011 at the levels provided in the continuing resolution, resulting in $526 billion for the base budget in 2011 (an amount less than the $549 billion requested by DoD for 2011) and a total defense budget of $685 billion (including the $159 billion for overseas contingency operations).

Figure A-1.

Costs of DoD's Plans Relative to CBO's Baseline

(Billions of 2011 dollars)



Source: Congressional Budget Office.

Notes: Base-budget data include supplemental funding prior to 2002. Additional funding for overseas contingency operations (OCO) may be requested in 2011.

FYDP = Future Years Defense Program; FYDP period = 2011 to 2015, the years for which the Department of Defense's (DoD's) plans are fully specified.

a. The CBO projection of the base budget incorporates costs that are consistent with DoD's past experience.

b. The extension of the FYDP extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

c. CBO's baseline is used to show the extent to which particular Congressional actions (changes to the laws determining mandatory spending or enactment of appropriation bills determining discretionary spending) will raise or lower federal spending over the next 10 years. For discretionary spending, CBO's baseline projections are based on the assumption that the most recent year's budget authority (in this case, that for fiscal year 2011), including any supplemental appropriations, is provided in each future year, with adjustments for projected inflation (as measured by specified indexes) and other factors (such as growth of the cost of labor). The line labeled "CBO Baseline (Without OCO)" shows CBO's baseline with the effects of OCO funding removed.

If the costs of overseas contingency operations are excluded from CBO's baseline, the result is a modified baseline for the normal peacetime activities of DoD (see the bottom line in Figure A-1). The modified baseline provides a point of reference against which to compare DoD's own cost estimates for its plans, as contained in its FYDP, and CBO's projection of the costs of DoD's plans. Under the CBO projection, the costs of DoD's plans would exceed the baseline by $58 billion in 2015 and $59 billion in 2021 (expressed in 2011 dollars; compare the first and third rows in the top panel of Table A-1). From 2011 through 2021, DoD's plans would require a total of $567 billion more than the baseline.

The amounts in CBO's baseline are reported in nominal dollars for each year and therefore differ from those presented in this study, which are expressed in 2011 dollars, thereby excluding the effects of inflation. Table A-1 shows the baseline and CBO's projection of DoD's plans, both in 2011 dollars (as in the rest of this study) and in nominal dollars (as used for the Congressional budget process).

Table A-1.

Costs of DoD's Plans Relative to Budget Authority in CBO's Baseline, in 2011 Dollars and Nominal Dollars

(Billions of dollars)

	FYDP										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
						Fiscal Year 2011 Dollars					
CBO Projection	548	562	575	587	601	610	622	616	627	621	631
FYDP and Extension	548	559	567	575	583	589	599	594	600	593	597
CBO Baseline (Without OCO)[a]	526	530	535	540	543	547	552	557	563	568	572
CBO Baseline (With OCO)	685	689	695	701	705	709	715	720	727	732	737
						Nominal Dollars					
CBO Projection	548	567	587	607	631	650	675	681	704	710	735
FYDP and Extension	548	565	578	594	611	628	649	657	673	678	694
CBO Baseline (Without OCO)[a]	526	535	546	558	570	583	599	616	632	649	666
CBO Baseline (With OCO)[b]	685	696	709	724	739	756	775	796	816	837	857

Source: Congressional Budget Office.

Notes: The CBO projection of the base budget incorporates costs that are consistent with the Department of Defense's (DoD's) past experience.

CBO's baseline is used to show the extent to which particular Congressional actions (changes to the laws determining mandatory spending or enactment of authorization bills determining discretionary spending) will raise of lower federal spending over the next 10 years. For discretionary spending, CBO's baseline projections assume that the most recent year's budget authority (in this case, fiscal year 2011), including any supplemental appropriations, is provided in each future year, with adjustments for projected inflation (as measured by specified indexes) and other factors (such as growth of the cost of labor).

The extension of the Future Years Defense Program (FYDP) extends DoD's plans and uses DoD's estimates of costs if they are available and cost factors based on the broader U.S. economy if estimates by DoD are not available.

a. At the time the CBO baseline was constructed, the Congress had not passed a defense appropriation bill for 2011. Instead, it had provided appropriations for defense and other discretionary programs for part of the fiscal year through a series of continuing resolutions, the most recent of which (the Continuing Appropriations and Surface Transportation Extensions Act, 2011, P. L. 111-322) was enacted on December 22, 2010, and expires on March 4, 2011. Those laws also provided appropriations for operations in Afghanistan and Iraq through March 4, 2011, at an annual rate of $159 billion, which equaled the Administration's request. In the January 2011 baseline, CBO assumes full-year funding for 2011 at the levels provided in the continuing resolution, resulting in $526 billion for the base budget in 2011 (an amount less than the $548 billion requested by DoD for 2011) and a total defense budget of $685 billion (including the $159 billion for overseas contingency operations [OCO]). As a result, the baseline excluding funding for those operations is lower through 2021 than either the CBO projection or the Department of Defense's 2011 FYDP and extension.

b. The amounts shown in this row are consistent with the estimates presented in Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2011 to 2021* (January 2011), Table 3-9. The budget numbers in that report are slightly larger than the numbers in this table because they also include budgets for the Department of Energy and other defense-related activites.

APPENDIX

B

Comparison of Service Members' and Private-Sector Workers' Pay

A primary objective of the Department of Defense's (DoD's) compensation system is to assist the military services in attracting and retaining high-quality personnel. Between 2005 and 2008, the services periodically had trouble reaching their goals for recruiting or retaining high-quality personnel. To address those problems, the Congress authorized increases in both cash compensation (such as pay raises and bonuses) and noncash compensation (such as expanded education benefits for veterans and their families). All of the services met their overall recruiting and retention goals in 2009 and 2010, although shortages persisted in some particular occupational specialties.[1]

Notwithstanding those recent successes, the relationships between specific changes in pay and benefits and measures of recruiting and retention are difficult to establish. Changes in recruiting and retention generally lag improvements in pay and benefits, and the relationships among those variables are affected by additional factors, including economic conditions and stresses on service members, such as frequent wartime deployments.

One important element of military compensation—the housing allowance—remains in place through permanent law and is adjusted each year on the basis of a national survey of housing prices, without requiring either an explicit policy decision by DoD or legislative action by the Congress. Basic pay is adjusted, by default, at the same rate as the most recent annual increase in the Bureau of Labor Statistics' employment cost index (ECI) for wages and salaries in private industry, unless the Congress explicitly authorizes a different set of adjustments.[2] The Congress must explicitly act to renew various authorities that expire at the end of each year, such as bonus pay for personnel trained in particular specialties and reenlistment bonuses for all personnel. Other allowances, such as the family separation allowance, remain in place at current benefit levels, but the Congress may adjust them.

In the early 1980s, several relatively large increases in military pay were enacted that, in the view of some observers, made the pay for military personnel roughly equal to that of private-sector workers. However, by one method of calculation, that equality has gradually eroded since 1982, and a gap has again developed between basic military pay and wages and salaries in the private sector. That "pay gap" is defined by some observers as the percentage by which the cumulative increase in military basic pay since 1982 has fallen short of the cumulative increase in the ECI for wages and salaries in private industry.[3] Defined in that way, the pay gap stood at 13.5 percent in 1998 and 1999, but annual pay raises at the rate of increase in the ECI plus 0.5 percent from 2004 through 2010 reduced the pay gap by 0.5 percent each year. With those and other changes in pay, the cumulative increase in the ECI exceeded the cumulative increase in military basic pay by just over 2 percent in 2010 (see the lower line in Figure B-1). That pay gap was unchanged after the January 2011 pay raise, which just equaled the increase of 1.4 percent in the ECI.

Using basic pay and the ECI to measure the pay gap may, however, lead to misleading assessments of the adequacy of military compensation for two reasons. First, the broad

1. Congressional Budget Office, *Recruiting, Retention, and Future Levels of Military Personnel* (October 2006). Data for later years come from DoD's Directorate for Accession Policy and Directorate for Officer and Enlisted Personnel Management.

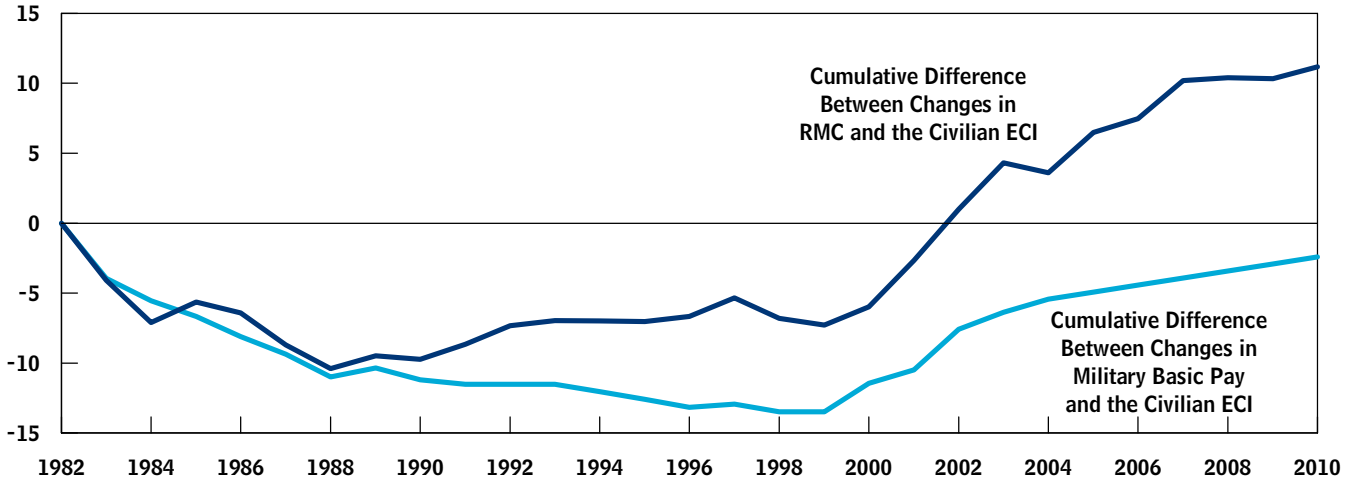
2. U.S.C. Title 37, Section 1009, Adjustments of Monthly Basic Pay.

3. For example, that view is expressed in Military Officers Association of America, "MOAA 'Storms' Capitol Hill," posted April 22, 2010, available at www.moaa.org/media/media_news/media_news_archive/media_news_2010archive/media_news_100422.htm (accessed January 21, 2011).

Figure B-1.

Difference Between Changes in Military and Civilian Compensation Since 1982

(Percent)



Source: Congressional Budget Office based on data from the Department of Defense and the Department of Labor.

Notes: These comparisons exclude noncash benefits and the military's various types of special pay and bonuses.

RMC = regular military compensation (basic pay, cash allowances for housing and subsistence, and the federal tax advantage that occurs because those allowances are not taxed); ECI = employment cost index for wages and salaries in private industry.

sample of civilian workers included in the survey that is used to produce the ECI consists of people who are, on average, older than military personnel and more likely to have a college degree. Since 1980, the pay of college-educated workers has risen faster than that of high school graduates in the civilian sector. Also, the pay of older civilian workers generally has grown faster than that of younger workers.

Second, focusing on only one component of military compensation—basic pay—ignores other components and gives an incomplete picture of both the magnitude and changes in military compensation. Regular military compensation (RMC) is a broader measure that, in addition to basic pay, includes the housing and food allowances; RMC also includes the "tax advantage" that DoD estimates to reflect the fact that those two allowances are not subject to the federal income tax. Recomputed using RMC, the pay gap reversed its sign in 2002, and by January 1, 2010, the cumulative increase since 1982 in RMC had exceeded the cumulative increase in the ECI by 11 percent (see the top line in Figure B-1). Including the value of noncash and deferred benefits (such as current and future benefits for health care) would probably make compensation for military personnel appear even more favorable relative to that for civilian workers.[4]

Another way to assess military compensation is to consider where it falls along the spectrum of wages earned by all civilian workers in the United States of roughly the same age and with the same level of education. Basic pay for enlisted personnel closely matches the median (50th percentile of) earnings among civilian workers of comparable age and education. With cash allowances added, military compensation for the average enlisted member in 2006 matched the 75th percentile of civilian earnings, exceeding DoD's stated goal of paying at the 70th percentile. Put another way, the average enlisted military service member earned more than did 75 percent of comparable civilian workers.[5]

4. CBO has estimated that the combination of noncash and deferred benefits is about equal to regular military compensation; DoD has reached the same conclusion. In other words, the value of noncash and deferred benefits adds 100 percent to the cash compensation of military personnel. See Congressional Budget Office, letter to the Honorable Steny H. Hoyer analyzing federal civilian and military compensation (January 20, 2011); and Department of Defense, *Report of the 10th Quadrennial Review of Military Compensation*, vol. 2 (February 2008), p. xi, www.militarytimes.com/static/projects/pages/10th_QRMC_Feb2008_VolI.pdf.

5. See Congressional Budget Office, *Evaluating Military Compensation* (June 2007). DoD's goal of paying at the 70th percentile was first stated in Department of Defense, *Report of the Ninth Quadrennial Review of Military Compensation* (2002), http://prhome.defense.gov/MPP/qrmc/index.htm.