

Introduction

For the first time in nearly two decades, the Department of Defense (DoD) has experienced sustained budget cuts in recent years: Annual appropriations (excluding additional appropriations for ongoing military operations) for 2013 through 2016 averaged about 5 percent less, in nominal terms, than the funding in 2012. The possible need to accommodate constraints on DoD's budget in the future—because of caps on discretionary spending through 2021 enacted in the Budget Control Act of 2011, as amended—raises the question of how best to prioritize the various tasks that the department performs and how best to assess any proposed changes to the force. At the same time, the enormous size and complexity of DoD, the many specialized organizations it includes, the wide array of weapon systems and platforms it operates, and the complexity of its budget documents make the task of understanding how the department operates—and how its budget could be changed—daunting to many observers.

To increase policymakers' understanding of the choices that the nation faces when considering DoD's budget, the Congressional Budget Office has prepared this primer on the structure of the armed forces. There are many different ways to approach DoD's budget; for the purposes of this analysis, CBO treats DoD as an organization that produces, sustains, and supports combat units. The number and type of combat units, as well as the personnel and equipment they contain, are referred to as the force structure. To produce this primer, CBO developed an analytic model of the military's force structure in which DoD's costs are viewed as inputs necessary to operate and sustain the force. The advantage of that treatment is that it provides a clear view of the trade-offs that would be involved if policymakers wanted to reduce DoD's budget through cuts in the force structure—each element of the force structure has a cost associated with it, the costs of different elements can be compared, and it is possible to say how much of the force structure would have to be cut to generate a given amount of savings.

This primer contains entries that describe all of the major elements of the military's force structure. Those elements include the major combat units that are the traditional backbone of the armed forces (such as armored brigades, aircraft carrier strike groups, and tactical aircraft squadrons). They also include specialized organizations that provide specific capabilities to DoD (such as special-operations forces and missile defense). Each entry for a major element of the force structure provides the following information about that element:

- CBO's estimates of the number of military personnel and the costs associated with manning, operating, and sustaining a single unit of that type—what DoD refers to as operation and support (O&S) costs;
- The number of such units that DoD has now and whether the department plans to change that number;
- Its intended function;
- Its relative strengths and limitations;
- Its use in past operations; and
- Common measures (when possible) of how many units of that type the United States might need.

The primer also discusses some special topics that are important for understanding how DoD organizes and employs its forces but that are not specific to a single type of unit or do not have direct cost implications. Those discussions, which generally have a different format than the entries for major elements of the force structure, appear in the same chapter as the military service or types of units to which they most closely relate. (For example, the special topic of forcible-entry capability is discussed in the same chapter as Navy amphibious ships and Marine Corps battalions, since those are the forces used for amphibious assaults, the best-known form of forcible-entry operation.)

The primer concludes with three appendixes. The first, which is intended to serve as a quick reference, summarizes the size, costs, and number of each major element of the force structure included in CBO's analysis. The second shows the relationship between DoD's total O&S budget, the costs to operate and maintain each major element of the force structure, and the number and types of force structure elements in DoD's current plans. The third is a brief summary of the military operations and DoD planning scenarios referred to in this report.

What Is Force Structure?

Although DoD has many responsibilities and functions, at the most basic level it is the organization responsible for manning, equipping, and training U.S. military forces.¹ The vast majority of DoD's funding and personnel are assigned to tasks that contribute in some way to producing military forces that are prepared for combat. As such, DoD can be viewed as an organization that converts "inputs" of funding and personnel into "outputs" of combat capability, which are then available to be used as the nation sees fit.² That combat capability is best described in terms of the number and types of combat units that DoD can generate and sustain—that is, in terms of force structure.

Decisions about force structure strongly affect DoD's costs, size, and capabilities, so force structure is generally central to any discussion of making large changes to DoD's budget. Although the department has the ability to make some relatively small changes that do not affect its force structure, such changes usually have much more limited effects than changes in the force structure do. For example, the decision to field 11 aircraft carriers and their associated air wings and escort ships requires DoD to have a large number of military personnel, a large support

1. The actual use of those forces is also DoD's responsibility. But DoD is organized in such a way that the administrative chain of command responsible for generating forces is largely separate from, and parallel to, the operational chain of command responsible for employing forces. In recent years, budgetary practices have maintained that separation: DoD's "base" budget largely funds the administrative system for manning, equipping, and training units, whereas additional appropriations have been provided separately to fund ongoing military operations.
2. That role is sometimes described as the "force provider" function, although DoD often uses that term in a more limited sense to refer to some of its subordinate organizations rather than to itself as a whole.

infrastructure, fairly specific plans for shipbuilding and aircraft procurement, and so forth. When large cuts in DoD's budget have been made in the past, they have almost always required reductions in the force structure.³

There is no generally agreed-upon way to measure combat capability directly and quantitatively. Force structure is the simplest and least subjective way to describe combat capability, although it has many limitations. The most significant drawback is that the concept of force structure inevitably invites "apples to oranges" comparisons, such as "how many aircraft carriers provide the same combat capability as an armored brigade?" More broadly, although having more combat units generally provides more combat capability, counts of the number of units available to the United States are not very useful if they do not consider the quality of those units. The same issue arises in any comparison of the force structures of different militaries: A U.S. armored brigade may have far more combat power (particularly when combined with its support units) than that of another country.

The full description of every element of the U.S. military's force structure can be overwhelming. The exact number of units in the military varies with counting methods. As an example, however, the DoD databases that contain units' reports about their readiness for combat include tens of thousands of units of thousands of different types. Thus, any widely useful description of the U.S. force structure requires some simplification.

For the purposes of this analysis, CBO divided all of DoD's activities into three broad categories:

- **Major Combat Units.** These are the best known, most visible, and generally most important combat units in DoD's inventory—such as Army brigade combat teams, Navy warships, and Air Force tactical fighter squadrons. In many instances, they are also the units of greatest interest to policymakers. For that reason, CBO organized this primer primarily as a discussion of major combat units. To show all important elements of the force structure, CBO presented some elements, such as special-operations forces, as if

3. For a discussion of ways in which DoD might need to reduce the force structure to meet the spending restrictions of the Budget Control Act of 2011, see Congressional Budget Office, *Approaches for Scaling Back the Defense Department's Budget Plans* (March 2013), www.cbo.gov/publication/43997.

they were a single, large major combat unit, although they differ from traditional major combat units in numerous ways.

- **Support Units.** In the U.S. military, major combat units are employed alongside a vast number of units that support their activities in many different ways. In the Army, for example, brigade combat teams generally make up about one-third of the military personnel deployed to a combat theater—the other two-thirds are personnel assigned to units that are responsible for aviation, engineering, intelligence, civil affairs, ordnance, maintenance, transport, or other support services. Those additional units are essential for major combat units to accomplish their missions, but they are generally not the focus of discussions about the U.S. force structure. In this primer, every deployable combat unit in the U.S. inventory that is not classified as a major combat unit is considered a support unit. Across DoD as a whole, as many personnel are assigned to support units as to major combat units. (For a discussion of differences in how DoD and CBO use the term “support unit,” see Box 1-1.)
- **Administrative/Overhead Organizations.** A large proportion of DoD’s military personnel, and almost all of the department’s 800,000 civilian personnel, are not assigned to deployable military units. Instead, they are part of various administrative or overhead organizations that perform key functions necessary for manning, equipping, and training combat and support units. Each military department has large administrative organizations devoted to such functions as recruiting, training, acquisition, maintenance, and medical care; in addition, there are various defensewide organizations that perform administrative or overhead functions for the entire military. In general, policymakers’ main concern with such functions is that they be performed efficiently, so as not to divert more resources than necessary from other activities. In this primer, all nondeployable portions of DoD (including those accounted for as “individuals,” such as trainees and other nondeployable personnel) are included in the administrative/overhead category.

That division into three types of activities allows CBO to further simplify its description of the U.S. force structure. Because some units support major combat units, and because DoD plans for such types of support in a

predictable and regular way, the costs of the relevant support units can be considered part of the total cost of a major combat unit. That approach results in a package that CBO refers to as a “fully supported unit”—a major combat unit plus its support units. Similarly, because administrative or overhead activities are designed to help man, equip, and train units, and because DoD also plans for those activities in a predictable and regular way, a prorated amount of administrative/overhead costs can be considered part of the total cost of a fully supported unit.

Dividing DoD’s activities into those three categories also allows for a simple visualization of the department’s structure. Combat units are often described as representing the “tip of the spear” or having a “tooth-to-tail” ratio. Those metaphors capture an important point: A relatively small fraction (about one-third) of DoD’s personnel and budget are dedicated directly to major combat units. Like the metaphorical spear, those major combat units (the spear point) are supported by a large mass of support units and administrative organizations (the shaft of the spear). And just as the shaft is essential to a spear’s function as a weapon, DoD’s support units and administrative organizations are vital to the ability of major combat units to perform their roles.

Another distinction in the U.S. military is between a service’s active component (regular units belonging to the Army, Navy, Marine Corps, or Air Force) and the service’s reserve component (units belonging to the Army Reserve, Army National Guard, Navy Reserve, Marine Corps Reserve, Air Force Reserve, or Air National Guard). The services rely heavily on reserve-component units, which differ from active-component units in various ways, most notably in costs. For those reasons, CBO tried to display active- and reserve-component units separately in this primer whenever it was feasible to do so. However, because of the different way that each service integrates its reserve-component units into its overall structure, CBO was able to provide a meaningful division between active- and reserve-component units only for the Army and the Marine Corps. (The Navy Reserve has almost no units that fit the definition of major combat units used for this analysis, and the Air Force integrates its active- and reserve-component units so tightly that CBO could not readily separate the costs of the two components.)

Box 1-1.**Defining Support Units**

The Department of Defense (DoD) uses the word “support” in a wide variety of ways, and the term can have very different meanings in different contexts. To develop a clear and consistent framework for describing the military’s force structure in this primer, the Congressional Budget Office used DoD’s budget documents to develop rules for categorizing some of the department’s units as support units. Those rules, however, do not necessarily align with all of the ways in which DoD uses the term.

Broadly, “support” refers to the assistance that one unit or activity provides to another to help the second unit or activity accomplish its mission. DoD uses the general term that way in many contexts—some defense agencies are described as “supporting agencies,” some categorization systems employ the term to distinguish between types of units (such as the Army’s use of the categories “combat support” and “combat service support”), and various operational missions (such as “general support” or “direct support”) are colloquially described as support.

CBO’s definition of “support units” is intended to encompass the set of deployable units that would typically be assigned missions to support major combat units during an operation. In practice, almost any type of unit could be assigned to support almost

any other type of unit. For example, during a U.S. deployment in Kosovo in 1999, plans called for ground units to support Army aircraft (by defending bases in Albania and using artillery to suppress Serbian air defenses), even though Army aircraft are typically assigned to support ground units. Thus, in actual operations, the line between a support unit and a unit being supported is dynamic—there are units that have been assigned support missions and units that receive support, but those designations are flexible, depending on the mission and the commander’s plans for accomplishing it.

For planning and budgeting purposes, however, military doctrine and administrative practice suggest that some types of units will typically be assigned to support other units. In most Army operations, for instance, brigade combat teams are the focus of ground combat operations, and most other units are assigned to support them, more or less directly. Similarly, in most Air Force operations, squadrons of combat aircraft are the focus of air operations, and most other units are assigned to support them in some fashion. In this primer, units such as brigade combat teams and combat aircraft squadrons are considered major combat units, and deployable units that provide support to them (however referred to by DoD) are considered support units.

How CBO Estimated the Costs of the Military’s Force Structure

The force structure model that CBO developed for this analysis is based on DoD’s fiscal year 2017 Future Years Defense Program (FYDP), which the department submitted to the Congress in April 2016 to provide detail for its 2017 budget request. The annual FYDP is a five-year plan that contains detailed information about DoD’s spending plans, distribution of personnel, and force structure for the budget year and the four subsequent years.

CBO’s analysis focuses on operation and support costs, which make up about two-thirds of DoD’s “base” budget—the budget excluding separate appropriations provided to fund ongoing military operations. (The other

one-third of that base budget is spent mainly on acquisition of weapon systems and on military construction and family housing.) O&S costs include compensation for military personnel, which is paid from the services’ military personnel accounts. O&S costs also include compensation for most civilian employees, health care costs for military and civilian personnel, and the expenses of running a unit (day-to-day operations, equipment maintenance, training, support contractors, and so on), all of which are paid from the services’ or defensewide operation and maintenance accounts. O&S costs are very closely related to the size of units—for instance, a unit with 10,000 military personnel will have military personnel costs commensurate with that size, and DoD has a limited ability to change those costs, particularly in the near term.

For this analysis, CBO divided O&S costs into three categories: direct, indirect, and overhead costs. Those groupings match the three categories that CBO used for DoD's units and activities: Direct costs are associated with major combat units, indirect costs with support units, and overhead costs with administrative or overhead organizations. CBO also used the direct, indirect, and overhead categories for the number of military personnel associated with a unit. That breakdown, for both costs and personnel, is shown in the table that accompanies each entry in this primer for a major element of the force structure.

Direct Costs

For most major combat units, the FYDP includes entries that show DoD's total costs for a unit of that type and the total number of military personnel assigned to that kind of unit. The numbers for direct costs (the costs of a major combat unit itself) and direct personnel (the personnel assigned to the unit itself) are annual averages of the five years of numbers shown in the FYDP. In the case of costs, those averages are in 2017 dollars.⁴ Direct costs also include a share of the costs of the Defense Health Program (DHP) that is based on the number and type of military personnel in the major combat unit.

Indirect Costs

To determine which units should be classified as providing support to major combat units for the purposes of this analysis, CBO used a variety of sources, including its past studies, DoD databases, and military doctrine. In general, ground forces (such as those of the Army and Marine Corps) have a fairly direct relationship between combat and support units that can be readily identified and described. With naval and air forces, however, those relationships are much less well defined and are more difficult to characterize. For example, naval and air forces require large numbers of higher-level maintenance units, which may support many different types of combat units. In the absence of details about the actual workload of such maintenance units, CBO made simplifying assumptions

about the likely distribution of that workload among different types of combat units. Ground forces are more likely to have maintenance shops assigned to specific units (such as the Marine logistics group that is assigned to each Marine expeditionary force), so fewer simplifying assumptions were necessary.

Once the process of ascribing support units to combat units was finished, each type of major combat unit had a set of associated support units that should reflect the additional units that DoD would probably create or disband if it created or disbanded a major combat unit of that type.⁵ With that set of units defined, CBO was able to use information from the FYDP to estimate indirect costs and personnel counts associated with that set of support units in the same way that it estimated direct costs and personnel numbers for major combat units. As with direct costs, CBO included a fraction of the DHP's costs based on the number and type of military personnel in the set of support units.

Overhead Costs

For administrative or overhead organizations, CBO determined that the majority of those organizations' workload is essentially dependent on the size of the force—for instance, a larger force requires more recruiters to find more recruits, more trainers to train those recruits, and more doctors to provide medical care. Some workload (such as that of maintenance depots) is driven by the amount of equipment in the force, but the amount of equipment is itself largely tied to the size of the force. Thus, for the majority of each service's administrative or overhead organizations, CBO assigned prorated fractions of those organizations' costs and personnel—referred to here as overhead—to the costs and personnel of each fully supported combat unit. For example, if a fully supported combat unit accounts for 2 percent of the personnel that a service devotes to major combat and support units, it is

4. Because the FYDP covers a five-year period and because, in many cases, the number of planned forces changes over that period, CBO calculates costs for a major combat unit by dividing the total five-year constant-dollar cost for that type of unit by the total five-year count of such units. That approach means that the estimate of costs is also an average over time. O&S costs generally rise over the years (because of pay raises, increases in health care costs, and other factors), so the costs that CBO estimates in this analysis are slightly higher than those in the FYDP earlier in the five-year period and slightly lower than those in the FYDP later in the period.

5. In some cases, the set of support units that CBO ascribed to a major combat unit would only approximate the changes that DoD would probably make if it added or eliminated a combat unit. For example, CBO considered an Army corps headquarters to be a type of support unit, but each corps headquarters would be expected to command a large number of brigade combat teams (BCTs). Thus, CBO assigned each BCT a fraction of a corps headquarters as a part of its support units. In practice, however, DoD would not eliminate a fraction of a corps headquarters if it disbanded a BCT; it would probably alter the number of corps headquarters only if it made large changes to the size of the Army.

assumed to require 2 percent of the service's administrative and overhead organizations to sustain it.

CBO also assigned to each type of fully supported combat unit a prorated fraction of the costs and personnel of defensewide agencies, such as the Defense Finance and Accounting Services agency, which provides payment services to DoD. Finally, as with direct and indirect costs, CBO included a share of the costs of the DHP based on the number and type of military personnel in an administrative or overhead organization.

Other Considerations

Some activities of the individual services or DoD as a whole do not fit easily into that analytic framework. Thus, for each military department, this primer includes an "Other Activities" component, which CBO treats like a major combat unit (because those activities cannot be considered support or overhead for another type of major combat unit). Such activities include a service's special-operations forces, some of its command-and-control activities, its construction engineers, and so forth.

In a similar fashion, CBO describes separately the costs of defensewide activities that cannot be categorized as support or overhead for major combat units, such as health care costs for military retirees—one of the few categories of O&S costs in this primer that CBO considered to be independent of decisions about the future size of the force. (For a discussion of CBO's approach to judging which costs depend on the size of the force and which are independent of that size, see Box 1-2 on page 14.) The end result accounts for the entirety of DoD's O&S budget—there are no activities, funding, or personnel that are not included in this analysis.

Because CBO's force structure model is based on the 2017 FYDP, its estimates of the costs of major combat units, support units, and administrative and overhead activities are the amounts that DoD estimated those units would cost over the five-year period covered by the 2017 FYDP, not what they should or could cost. As a result, if DoD underestimated or overestimated the costs of certain support activities in its five-year plan, CBO's estimates in this report will reflect that. Similarly, every FYDP reflects the implications of DoD's choices about how to direct its resources toward such goals as improving units' readiness for combat, compensating personnel, or manning units. CBO's analysis did not explore alternative scenarios for how to choose among those goals.⁶

How Changes in the Force Structure Would Affect Costs

Typically, DoD proposes changes in the force structure in its budget requests, and the Congress approves them or directs DoD to alter them. If the Congress wished to change the military's force structure in a manner independent of DoD's requests, it could use several available tools.

First, it could codify the force structure in law (as it did in section 5063 of the U.S. Code, which requires the Marine Corps to maintain at least three divisions and three air wings). Second, because the Congress is responsible for authorizing the total number of military personnel that each service maintains (the end-strength authorization), it could choose to authorize an end strength other than what DoD requests. Third, the Congress could bar DoD from using any funding to implement changes to the force structure of which it does not approve. (The Congress has used that power in recent years—for example, to prohibit the Air Force from retiring A-10 aircraft despite the service's repeated requests to do so.) Such Congressional actions would have a more rapid impact on the costs of U.S. forces than changes made through DoD's decisionmaking process would. For instance, if the defense authorization act for any fiscal year included a new end-strength authorization, DoD would be obligated to try to achieve that new end strength in the same fiscal year.

The effect on DoD's budget of cutting or adding forces would depend on how the changes were made. In the case of reducing the force structure, for example, eliminating a major combat unit would, at a minimum, eliminate within a few years the direct costs of operating that unit. If DoD was able to eliminate the unit's associated support units, it would also save the costs of operating those units within a few years of deciding to do so. In addition, if DoD was able to trim the share of administrative and overhead activities associated with the major combat unit and its support units, the department could remove those costs as well—thus eliminating the total costs that CBO attributes to the fully supported major combat unit. Historical evidence and other considerations suggest that DoD would make those associated cuts over several years.

6. Other CBO analyses have, for example, shown that DoD is planning to spend significantly more per service member to support its forces than it did before the conflicts in Iraq and Afghanistan or than historical trends would suggest. See Congressional Budget Office, *Long-Term Implications of the 2016 Future Years Defense Program* (January 2016), www.cbo.gov/publication/51050.

In the case of adding a major combat unit, direct, indirect, and overhead costs would change in the opposite direction, and the same considerations would apply.

In many instances, DoD's internal decisionmaking processes do not explicitly link major combat units with their support units and their administrative and overhead costs. Thus, DoD would have to make several separate decisions to bring about all of the changes that CBO projects could flow from the single decision to eliminate a major combat unit. Because of the great complexity of the force structure and the many roles that different types of units play, that sequential decisionmaking process gives ample opportunity for concerned parties within DoD to argue against a commensurate reduction in support units or administrative and overhead activities. For example, DoD frequently changes the mix of support units in the force, and a proposed reduction in a support activity often provokes discussion about whether that form of support has become more useful over time and thus should be protected from a planned cut.

In other cases, the size of a support or administrative activity may be based on several different missions, and cuts that reduce the need for one mission may not allow proportionate cuts in that activity because of the requirements of the other missions. For instance, the Air Force's fleet of bombers is intended to be able to conduct both conventional (nonnuclear) and nuclear bombing missions. If DoD wanted to keep its current conventional bombing capability but decrease the bomber portion of its nuclear deterrent, reductions in the bomber fleet based on nuclear bombing capability could be limited by the need to maintain the current amount of conventional bombing capability.

The range of costs that CBO attributes to each unit in this report can be thought of as representing the range of effects of making a change in the force structure. The direct cost alone should represent a lower bound for costs or savings, whereas the total costs should represent an upper bound for costs or savings that would be achievable if DoD and the Congress made the associated changes in indirect and overhead costs.

Once decided on, any large changes to the military's force structure would take a number of years to implement. In general, adding or eliminating major combat units appears to take DoD about three to five years, so savings from reducing forces would not appear immediately.

Moreover, the separate decisions that would be required to reduce support units or administrative and overhead activities might occur in subsequent rounds of decisionmaking, so the savings associated with reducing those activities might take even longer to materialize fully.⁷ During the military drawdown that occurred in the early 1990s, DoD's cuts in overhead activities lagged behind cuts in forces by several years, and savings took more than five years to be fully realized.

Other policy choices would also affect the costs or savings that would result from changes in the size of the force. Those choices include decisions about the pay and benefits of DoD's personnel, the degree to which units are kept at full strength, the type of units considered necessary to support major combat units, and the preferred balance to strike in relying on active- versus reserve-component units.⁸ For the purposes of this analysis, CBO examined only the effects of changes to the size and composition of the force structure, assuming that all other policy factors would remain unchanged. That simplifying assumption, although useful for isolating the effects of a single type of policy choice, would not necessarily be true for all proposals to change the military's forces—it is likely that several related policy decisions would be made at the same time. (For example, in its 2015 budget submission, the Army proposed both to reduce the size of its forces and to change how it assigns aviation units to its active and reserve components.)

7. Because DoD does not mechanically link decisions about all of the elements of the force structure together, the sheer number of different decisions, and the unique considerations relating to each type of unit, might make it difficult or impossible for DoD to make all of the relevant decisions during a single budget cycle. For example, in recent years, the Army's plans in the FYDP included a "negative wedge" of funding intended to represent the difference between DoD's plans for the Army's funding and the costs of the Army's planned structure. That wedge existed because the Army required several budget cycles to decide on the full details of how it would draw down its forces to a smaller size.
8. The cost of pay and benefits for military personnel is a key factor in the long-term affordability of the armed forces, accounting for about one-third of DoD's budget. Military compensation has been the focus of substantial public discussion and numerous policy proposals. See, for example, Congressional Budget Office, *Costs of Military Pay and Benefits in the Defense Budget* (November 2012), www.cbo.gov/publication/43574, and *Approaches to Reducing Federal Spending on Military Health Care* (January 2014), www.cbo.gov/publication/44993. This primer reflects DoD's plans as recorded in the 2017 FYDP, which do not include any changes to current compensation policies.

Box 1-2.

Why CBO Projects That Most of DoD's Operation and Support Costs Are Proportional to the Force Structure

One of the issues that the Congressional Budget Office faced in conducting this analysis was determining which of the Department of Defense's (DoD's) costs depend on the size of the force and which are independent of that size. In this analysis, CBO treats virtually all of DoD's operation and support (O&S) funding and personnel as costs of sustaining the military's force structure. In that view, costs that are unrelated to the size of the force (called independent costs, or fixed costs) make up a very small portion of the O&S budget; the only truly independent expense to DoD is health care costs for retired military personnel. Instead, the O&S budget is considered to consist almost entirely of costs that depend on the size of the force (sometimes called variable costs)—meaning that if the force structure was cut by 10 percent, for example, DoD's O&S costs would decline by almost 10 percent.

Several factors contributed to CBO's decision to treat nearly all of the O&S budget as dependent on the size of the force:

- Most of the activities funded by that budget could be affected by future policy choices;
- Few activities that might be considered independent costs are significant in size; and
- Historically, large changes in DoD's budget have eventually affected most of the department's activities.

Consequently, CBO projects that a large change in the force structure would, after several years, alter almost all of DoD's operation and support accounts, aside from health care costs for retirees.¹

CBO's approach is based on the view that some important DoD activities that might be considered fixed costs are actually the result of policy choices. For example, it is common to treat "maintaining the U.S. nuclear deterrent" as a fixed operating cost for DoD, for several reasons: That activity is fairly

straightforward and generally proceeds with stable funding year after year; it produces a valuable, if hard-to-measure, source of defense ("deterrence"); the need for such deterrence is essentially constant; and the activity can easily be treated as a flat charge to DoD in analytic frameworks. However, the size of the U.S. nuclear deterrent is not fixed; it can easily be changed by policymakers and has been many times in the past. Similarly, although such things as the size of special-operations forces or the amount of resources invested in command and intelligence activities are easy to treat as fixed costs, they represent separate and meaningful policy choices about the size of special-operations forces or about how many resources should be devoted to command and control or intelligence. By treating those activities as changeable, CBO greatly reduced the scope of costs that are considered fixed costs.

The DoD activities that are classic examples of fixed O&S costs tend to be small. The military departments' administrative and overhead costs are dominated by personnel commands, training commands, and medical commands, the size of which is largely determined by the overall number of personnel in the force, as well as by equipment commands, the size of which is indirectly determined by the number of personnel (since more personnel generally require more equipment). Similarly, the cost of defensewide activities stems mainly from providing current military personnel or their families with various services, such as health care, commissaries and exchanges, schools for dependent children, payroll services, and

1. Health care costs for current military retirees reflect the cost of fulfilling obligations that the United States has already incurred (when those service members were employed by DoD). As such, those costs do not depend on the size of future forces. Pensions and other payments to current military retirees are also independent of the size of future forces, but they do not appear in DoD's budget. Those payments are made from a mandatory account administered by the Treasury Department rather than from DoD's current appropriations.

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Box 1-2.

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Why CBO Projects That Most of DoD's Operation and Support Costs Are Proportional to the Force Structure

telecommunications services. The costs of all of those services depend on the total number of personnel. Defensewide activities whose size is largely independent of the number of personnel—such as cooperative security arrangements, the acquisition workforce, or the recovery of remains of personnel missing in action—make up a tiny proportion of the defensewide O&S budget.² According to DoD's budget documents, about 60 percent of O&S funding for administrative organizations goes for central logistics, medical care, personnel administration, personnel benefits, and training; another 20 percent represents costs for military installations. All of those activities scale with the size of the force structure, in CBO's view.

Finally, when the overall defense budget has been cut in the past, most parts of DoD's budget have declined. One reason is the practice of "top-down" budget management. For example, if fiscal pressures required DoD to reduce its budget by 5 percent, it might cut the budgets of most of its organizations by 5 percent. Such a step is feasible because many activities that are cited as classic examples of DoD's independent costs are not truly independent of DoD's

2. Most of DoD's acquisition workforce is funded through acquisition accounts, which increase or decrease largely on the basis of DoD's acquisition plans.

workload and can be trimmed with sufficient attention from management.

In the case of military bases, for instance, removing a small number of forces from a base will not cause the base to be closed, which can make the costs of operating bases appear largely independent of the number of military forces that DoD maintains. But many costs of operating a base can vary proportionally with the size of the force at smaller scales. For example, if a base loses half of its units, DoD can trim contracts for cafeteria services and maintenance, pay less for utilities, and so forth. At larger scales, major changes in the force structure have historically triggered base closures and consolidations, eliminating those operating costs. Thus, such costs are somewhat variable at small scales but are fully variable at larger scales over a number of years, if DoD or lawmakers decide to cut them.

Because DoD does not have the authority to close bases by itself, and the Congress has traditionally exercised a high degree of control over the base closure process, DoD tends to perceive the costs of operating bases as independent of its policy choices. For the Congress, however, such costs are indeed variable—lawmakers can change the number of bases just as they can alter any other aspect of DoD's size or funding, although the actual base closure process is time-consuming and potentially controversial.

Costs Not Included in This Analysis

CBO's analysis addresses operation and support costs for major combat units. Therefore, it does not include acquisition costs (for the development and purchase of major weapon systems, as well as upgrades to existing systems) or construction costs (for infrastructure such as buildings and housing at military installations). Those costs are significant, together making up almost one-third of DoD's total base budget (excluding appropriations to fund ongoing military operations).

Whereas O&S costs are tightly linked to the size of the force, DoD and lawmakers have substantial discretion over acquisition and construction costs. The size of the

force structure does not necessarily determine the appropriate size of the budgets for weapon systems or infrastructure. For example, regardless of how many fighter squadrons the Air Force maintains, it faces separate choices about whether to purchase new advanced fighter aircraft, upgrade existing aircraft, or keep the current fleet of aircraft.

In many cases, if DoD chose to add units to the force structure, there would be predictable effects on acquisition and infrastructure costs, because DoD would need to purchase additional equipment or construct additional facilities for the new units. If, however, DoD eliminated units in the near future, savings in acquisition and

infrastructure costs would be much harder to predict. One reason is that many of DoD's plans to acquire new weapon systems do not include enough purchases to replace all of the older models in the current force. A smaller force might allow DoD to scale back planned purchases of such weapon systems, or it could just as easily allow DoD to use the same funding to replace all of the older models with newer ones.

In some cases, the amount of detail in CBO's model is limited by the way in which DoD categorizes activities in discrete chunks, called program elements, for the Future Years Defense Program. For example, the FYDP does not distinguish between Navy squadrons that have different types of fighter aircraft, using the same program element for squadrons equipped with older F/A-18C/D aircraft and for those equipped with newer F/A-18E/F aircraft. Thus, the FYDP does not provide any direct information for separating the costs of F/A-18C/D squadrons from those of F/A-18E/F squadrons. When possible, CBO tried to work around those shortcomings by using supplementary information, such as databases maintained by the services that include operating costs for different weapon systems. But making such distinctions was not always possible (including in the case of the Navy's fighter squadrons). Limits on information were usually greatest in the case of weapon systems that have not yet been introduced (such as the F-35 Joint Strike Fighter), because the services often lack essential details about actual operating costs.

Guide to Reading This Report

This primer is designed to be a reference work with discrete entries, so it does not need to be read in a linear fashion. A reader who is interested in the structure of the Air Force or the costs of the Army's infantry brigade combat teams can flip to the relevant section.

The next three chapters focus on the Departments of the Army, the Navy (including the Marine Corps), and the Air Force. The last chapter focuses on defensewide organizations within DoD that are not part of those departments. Each of the chapters has the same basic structure:

- The chapter begins with an introduction to the military department in question (or to defensewide activities) that describes the size of the department; the types of major combat units it provides; the way it typically organizes those combat units with their

support units; the distribution of its personnel among direct, indirect, and overhead functions; and the relationship between units in the active and reserve components. The introduction also briefly discusses the strengths and limitations of the department's overall forces.

- The majority of the chapter consists of individual entries for each type of major combat unit (or defensewide organization). Those entries cover the costs and personnel (direct, indirect, and overhead) associated with a given type of unit, the number of such units in DoD's current and planned forces, the purpose and limitations of that type of unit, and the units' past and planned use in operations.
- The chapter concludes with entries about topics that are of special interest to a particular department or to DoD as a whole. Those special topics cover activities that do not represent separate costs but that are nonetheless important for understanding the military's force structure. For example, Chapter 4 includes separate entries that show the costs and personnel required for the Air Force's squadrons of tactical aircraft, bombers, and unmanned air systems as types of major combat units. The chapter also includes a special-topic entry about the military's strike capability (the ability to destroy a wide variety of enemy targets rather than a few specific types), which is provided in part by tactical aircraft, bombers, and unmanned air systems. In that example, strike capability is not a type of major combat unit or a separate cost, but DoD's desire to be able to carry out strike missions is crucial to understanding why the Air Force maintains the set of combat units that it does.

Following the chapters, Appendix A provides an overview of the total cost and personnel required for each type of major combat unit, as well as the number of those units that DoD plans to maintain in each year of the 2017–2021 period covered by the 2017 FYDP. Appendix B shows how the costs and personnel counts for each type of major combat unit, as estimated by CBO, sum to the totals for DoD's operation and support budget and military personnel reported in the 2017 FYDP. Finally, Appendix C summarizes the past military operations and current planning scenarios referred to in this report, with a focus on the types of forces used in each one.