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# An Undisciplined Defense

## Understanding the $2 Trillion Surge in US Defense Spending

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# An Undisciplined Defense: Understanding the $2 Trillion Surge in US Defense Spending

# EXECUTIVE SUMMARY

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## 1. Contours of the surge

The rise in US defense spending since 1998 has no precedent in all the years since the Korean war. It most readily compares with two earlier, but lesser spending surges: the 1958-1968 surge of 43% and the 1975-1985 surge of 57%. The post-Cold War retrenchment of the US military reached its limit in 1998 with DoD's budget settling at an ebb point of $361.5 billion (2010 USD). If we treat the 1998 budget level as a "baseline" and project it forward to 2010 (adjusting for inflation), we find that the total amount of funds that have been given to DoD *above* this level during the years 1999-2010 is $2.15 trillion (in 2010 dollars). This figure constitutes what we call the post-1998 spending surge. (All told, DoD budget authority for the period was $6.5 trillion in 2010 dollars).

The rebound in annual defense spending reached its recent peak in 2008: $696.5 billion (2010 USD) – which is 92.7% above the 1998 level. The portion unrelated to contingency operations (the so-called "base" budget) was $503 billion that year – which is 41% higher in real terms than in 1998. Total DoD budget authority receded slightly in 2009 and 2010. But it now seems likely that 2011 will set a new high – somewhat over $700 billion in DoD's authority to spend.

Looking forward, the Obama administration's 2010 budget plan allocates an average of $545 billion (2010 USD) per year to the DoD base budget for 2011-2017. In addition, it set aside a "place keeper" sum of $50 billion per year for military operations, recognizing that actual war costs will vary. (And , indeed, the Pentagon already is expected to request at least $163 billion for contingency operations in 2011.)

Whether one looks at the total DoD budget, or just that portion not attributable to today's wars, US defense spending is now stabilizing at levels significantly above Cold War *peaks* (adjusted for inflation) and far above the Cold War average, in real terms. Measured in 2010 dollars, average DoD budget authority was:

- $423 billion for the period 1954-2001;
- $517 billion for the Reagan years; and,
- $495 billion for the Vietnam War "high tide" years 1966-1970.

All told, the Obama administration plans to spend at least $5 trillion (2010 USD) on defense during 2010-2017, which is 5% more in real terms than the Bush administration authorized for 2002-2009. As this is occurring, the United States is also entering a period of economic

uncertainty marked by increasing demands and constraints on federal resources. By 2011, gross federal debt will surpass 100% of GDP. And it will remain above that threshold for the foreseeable future.

The most ready explanation for the post-1998 spending surge is that it is due largely to post-9/11 military operations. In fact, however, these operations account for just 52% of the surge (and only 17% of total spending during this period). Moreover, the wars have themselves been exceptionally expensive by historical standards. Measured in 2010 dollars, the Korean conflict cost $393,000 per person/year invested; the Vietnam conflict cost $256,000; and the Iraq and Afghanistan commitments, $792,000 so far. Rather than adequately explain the post-1998 spending surge, the high cost of recent military operations only adds to the explanatory burden.

## 2. The reallocation of DoD funds

Related to the rise in spending, the allocation of DoD funds among appropriation categories also has changed, and this provides some important clues about cost drivers. The four major appropriation categories are Personnel, Procurement, Research and Development (R&D), and Operations and Maintenance (O&M). Looking at spending patterns in the 1990s and during the first decade of the new century we find:

*Overall spending:* When divided by the number of full-time military personnel, DoD budget authority appears remarkably stable throughout the 25-year period 1983-1998. It begins to rise in 1998, accelerating sharply with the onset of the Iraq War. For 2007-2010, it averaged $459,000 per full-time person in uniform. This is 78% higher than the Reagan peak, 95% higher than in 1989, and nearly three times the inflation-adjusted peak during the Vietnam era.

*O&M spending:* The proportion of defense spending allotted to Operations & Maintenance has risen from 31% in 1989 to 41% today. Calculated on a *per person* basis, O&M spending began to climb *in the early 1990s*. It further accelerated in two bursts beginning 1999 and 2003. In real terms, it is today 2.5 times as much *per person* as it was at the peak of the Reagan surge.

About 85% of DoD's civilian payroll is counted as an O&M expense. Over the years, the civilian payroll portion of O&M spending has mostly varied between 30% and 50%. Much of the remainder of O&M costs involve DoD purchases of goods and services. Since 1989, the "goods and services" portion has grown significantly, however. Today, it claims around 80% of the O&M budget. And, within this trend, the portion that is contractor services has grown.

*Military personnel spending:* During the 20-year period 1981-2000, budget authority for personnel varied by only a few percent around an average of $73,200 (2010 USD) *per person*. It then rose by 46% between 2000 and 2010. The increase was enough to bring total personnel expenditures back up to Cold War levels – for a military only 69% as large.

*Modernization spending:* This category combines R&D and procurement spending. Over the thirty-year period 1980-2010, modernization spending has moved in a boom-bust cycle, which is historically typical for this category. Of course, what is *atypical* about the 1980-2010 period

is that it straddles the end of the Cold War. Reviewing the pattern in modernization spending, however, this event seems to register as little more than a routine dip.

Total modernization spending was 32% lower in the 1990s than in the 1980s. After 1998, however, it began to rebound. For the 2000-2009 period, it was near the 1980s level in real terms. In per person terms, however, modernization spending for 2000-2009 surpassed the 1980s level by 47%.

Comparing just the past four years (2007-2010) with the four peak Reagan years (1983-1986) shows current procurement spending to be 40% higher in real per person terms. In similar terms, R&D spending is 135% higher.

*Shifts in spending priorities:* Looking at how the four main "accounts" have fared relative to each other shows O&M spending to have advanced most significantly. Its relative importance began to increase in the early 1990s. Research & Development funding followed a similar trajectory. Procurement, by contrast, has become more important relative only to military personnel spending, which has slipped in importance.

The greater emphasis on modernization spending relative to personnel spending does not mean that US military power has become much more capital intensive than it was in 1989, however. This is because the principle budget shift, which has been toward a greater emphasis on O&M spending, actually involves a significant expansion of DoD's workforce – by means of contract labor.

## 3. Explaining the spending surge

Three distinct, but related processes contributed to the exceptional rise in defense spending after 1998 and to its present stabilization above Cold War levels. These processes also shaped the reallocation of funding among appropriation categories.

### 3.1 Peace *versus* power dividend

First, in the wake of Soviet collapse, both Republican and Democratic administrations sought to realize a "dividend" in the currencies of both peace and power. The first entailed military force reductions and DoD budget cuts. The second involved adopting more ambitious security goals and requiring America's armed forces to sustain a substantial continuous global presence, increase peacetime engagement activities, and prepare to conduct more types of missions, faster, across a broader swath of the earth. While smaller, the US military was to be better supported and more ready, more deployable, and more active. In addition, all the facets of US military power – the many different types of capabilities and the multiple regional commands – were to be retained, if not enhanced.

The efforts to achieve a peace dividend and a power dividend pulled the budget in opposite directions. But the two imperatives were supposed to be reconciled by DoD reform and transformation initiatives that would putatively allow the armed forces to do more for less. An

additional challenge was that, in becoming smaller, the US military lost some economy of scale in both support and acquisition functions. So the challenge for reformers was considerable.

Reform efforts were to focus principally on trimming infrastructure, streamlining support, renovating business practices, and privatizing various activities. A prospective "revolution in military affairs," driven by new information technology, also was supposed to help the armed forces achieve "new efficiencies".

In implementation, however, both the reform and the transformation agendas fell well short of their promise. In both cases, institutional resistance and bureaucratic inertia proved stronger than the impetus for change. Squeezed between this shortfall and the ambitions of post-Cold War military strategy, the peace dividend soon vanished.

*Effects on the DoD budget and workforce*

Increased operational tempo, increased support, and the loss of economies of scale were evident in the relative rise in O&M spending beginning in the early 1990s. Among other aims, the prospective reforms were meant to allow a transfer of funds from O&M and infrastructure accounts to procurement. Although some reform efforts – such as base closures – achieved some savings, these have not amounted to more than 4% of the DoD budget. This has not been sufficient to cover the costs of increased operational tempo, much less a rebound in procurement.

These developments also have reshaped the DoD workforce. As noted above, the increase in O&M spending correlated with an increased reliance on contract labor, which is generally less expensive than either military or civilian DoD labor. (In 2004, the life-cycle cost of a US military officer amortized over a 20-year career was approximately $88,000 per year; for enlisted personnel, $43,400 per year.)

Despite increased operational tempo, DoD has been reluctant to permanently increase military end strength because of all the follow-on costs involved. Thus, most of the recent additions to the Army and Marine Corp have been either temporary positions or have been matched by reductions in the Navy and Air Force. The total number of full-time US military personnel by the end of 2010 will be barely 50,000 more than the post-Cold War low point – and 22,000 of these will be temporaries.

Rather than add end strength, DoD has focused on squeezing more effort out of the existing pool of military personnel and migrating more of these personnel from the non-deployable to the deployable portion of the force, and from non-combat to combat positions. Civilian DoD and (especially) contract labor have filled the support gaps left behind. Beyond this, the increased support required by increased operational tempo has been increasingly provided by contract labor. Indeed, the role of contractors now extends to some basic security and intelligence functions.

The result is that DoD's total workforce is probably as large today as it was in 1989 (or even larger), but less of the total is in uniform. This accords with the rise in O&M spending and also with studies by Paul C. Light of the Brookings Institution, which suggest that the contractor

workforce may have grown by as much as 40% since 1989. By comparison, the full-time military and DoD civilian workforces are both about 32% smaller today than in 1989.

### 3.2 Discordant modernization

The second process contributing to the exceptional surge in defense spending concerns post-Cold War force modernization efforts. The DoD acquisition process has been the subject of frequent criticism by congressional research agencies, the Defense Science Board, and others for routinely delivering products late, over cost, and not as capable as promised. But these problems cannot fully explain the exceptional circumstance that DoD is facing today.

Since reaching a low-point in the late-1990s, procurement spending has rebounded substantially, rising by more than 160% in real terms. Not since the nation undertook crash rearmament for the Korean war has as much been spent in a single year as in 2008, when the procurement account was allotted $170 billion (2010 USD). As noted above, recent modernization spending is comparable to Reagan levels. And, in real *per person* terms, it surpasses them substantially.

And yet, while the earlier period is remembered as one of robust modernization, today's efforts are viewed as "troubled" from all sides.

What distinguishes recent practice is a dysfunction that we call "discordant modernization". Beginning in the early 1990s, acquisition practice has been riven by several, contending trends or visions. More important, DoD has failed to adequately prioritize among them or to compel integration. So these have all lurched forward together, layered one atop the other.

Looking at recent practice, we can distinguish three modernization trends: Legacy, Transformational, and Adaptive.

- Legacy efforts carry forward and seek to enhance the pivotal platforms and capabilities of the recent past;
- Transformational efforts seek to achieve dramatic increases in effectiveness or efficiency by employing new technology, techniques, and forms of organization;
- Adaptive efforts correspond to the perceived requirements of new security missions and circumstances – such as stability operations, counter-insurgency, and counter-terrorism.

Given strong strategic guidance and prioritization from the center, these efforts can be fully integrated. Otherwise, they will proceed in a discordant way, competing for funds – a circumstance that, like inter-service rivalry, exerts unrelenting upward pressure on the budget. The Army's recent modernization agenda provides a particularly acute example. But the problem is evident as well in, for instance, the Navy's program which, apart from the decision to retire battleships, has sought to modernize virtually every type of surface, subsurface, and aircraft capability, while adding cruise-missile subs, littoral combatants, remotely piloted vehicles, and tilt-rotor aircraft. And, of course, like every service, the Navy is attempting to build its own encompassing C4I network.

When strategic discipline is lax, legacy modernization tends to predominate, due to its institutional momentum. Eventually, external circumstances may compel a rush of *ad hoc* adaptive measures – as is the case today with regard to procurement to meet counter-insurgency needs. These may then come to predominate, prematurely. The only remedy is to strongly discipline force modernization in accord with a sustainable, adaptive, and cost-effective national security strategy. The various scenarios and missions that define military requirements must be strongly prioritized, and these priorities must be enforced from the center.

In a broader perspective, discordant modernization risks detaching the nation's finite defense resources from its actual security needs. In the decade before the 9/11 attacks, the United States spent over $1 trillion on military modernization. But most of this expenditure proved irrelevant to defending against the most serious attack on America in 60 years. Subsequently, three more years of funding added another $450 billion dollars to modernization accounts, but still the nation found itself ill-equipped to execute the new tasks it had undertaken: counter-insurgency in Iraq and Afghanistan.

### 3.3 Going to war (with the military you have)

The third process contributing to the post-1998 spending surge was America's protracted commitment to two wars of a type for which its armed forces were ill-prepared. As noted above, fully 52% of the spending surge (and 17% of total spending since 1998) can be attributed to contingency operations – principally to the Iraq and Afghanistan wars. Although war costs explain a significant portion of the surge, they also beg the question: Why have these wars proved so much more expensive in real terms than their predecessors?

Part of the reason is that the United States found itself inadvertently fighting "Mr. Johnson's war" using a reduced version of "Mr. Reagan's military." Unlike during the Vietnam War era, the United States today employs an all-volunteer (that is, professional) force. The logic of this policy ensures that long, exhausting, labor-intensive wars will drive personnel costs sharply higher, as DoD must bid higher to recruit and retain personnel. And they have: after remaining virtually flat in real terms for 22 years, military personnel spending measured on a *per person* basis rose 46% between 2000 and 2010. Slightly more than half of this was war-related.

In one obvious respect – size – today's uniformed military is not Mr. Reagan's or Mr. Johnson's. In this respect, too, America's military was ill-suited to undertake occupation and counter-insurgency tasks in two challenging locales with a combined population of approximately 50 million. Principally, DoD sought to compensate by employing a uniquely high proportion of contractors. The Congressional Research Services estimates that 240,000 are employed in the CENTCOM area today – and more are on the way. In budgetary terms, this registers as above-average O&M costs – and the wars are responsible for 73% of the surge in O&M spending.

The wars are also responsible for nearly 43% of the post-1998 surge in modernization spending. The challenge has been not simply to replace the equipment consumed in war, but also to purchase entirely new fleets of equipment suited to these wars (such as Mine Resistant Ambush Protected vehicles) and to significantly adapt existing fleets. As noted above, despite nearly $1.45 trillion in modernization spending during 1991-2004 – including much invested in ground

combat vehicles – the United States found itself ill-equipped for the major types of operations it chose to conduct. More than three years of fighting passed before DoD *began* to seriously re-orient its procurement programs.

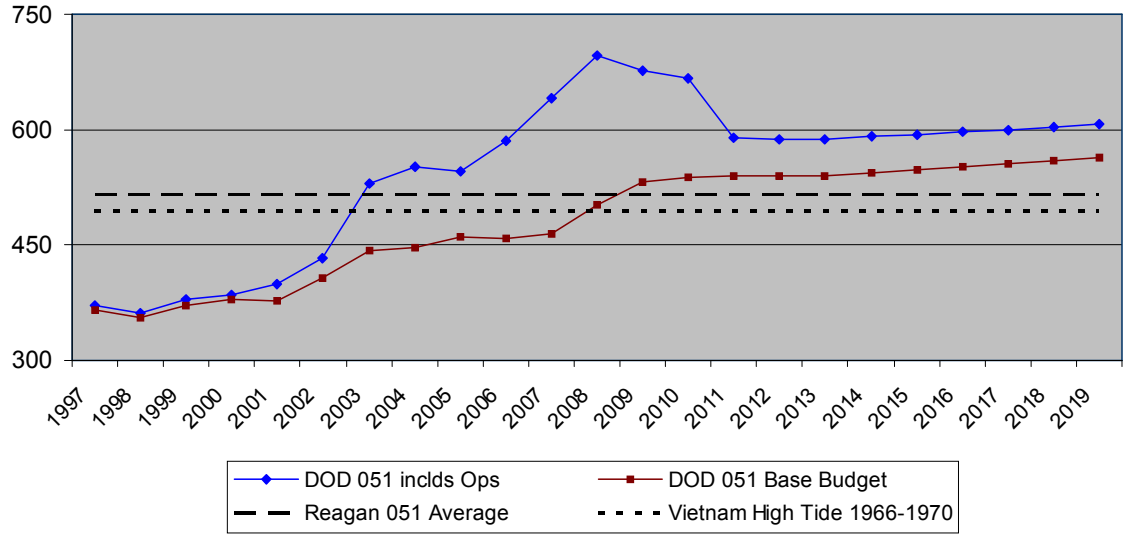
## 4. Enabling conditions

The three policy paths outlined above have converged to give America a historically unique global edge in military spending. This has not purchased clear and sure progress toward a more secure and stable world, however. Nor has it produced an especially efficient military, closely adapted to the current security environment.

The road not taken – at a cost of some trillions of dollars – would have involved some combination of (i) a more forceful and thorough-going approach to Pentagon reform, (ii) an integrated or "joint" approach to force modernization and transformation, tailoring these closely to new era conditions, and (iii) greater restraint in setting post-Cold War military goals and missions. That this has not occurred suggests a lapse in attention to the strategic costs and benefits associated with our chosen defense posture. It is as though the nation has trillions to burn.

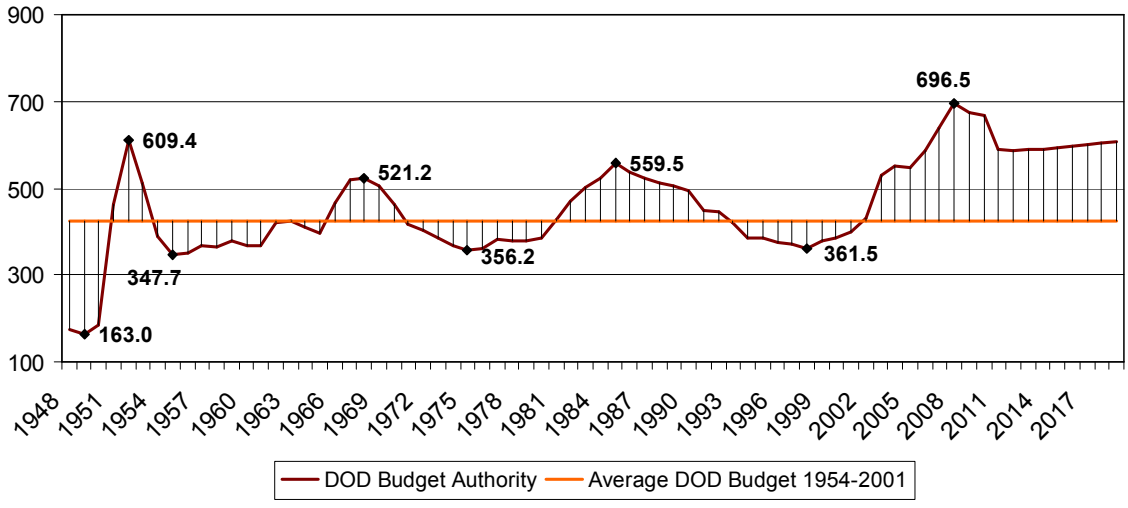
A permissive spending environment is the precondition for the types of problems identified in this report. It is easy enough to point to the 11 September 2001 attacks as the progenitor of this condition. However, as we note, the surge in spending began before 2001. Moreover, Gallup polls show that public support for increased spending was higher in the two years prior to the attacks than in the two years after. And it has receded significantly since then. This points to a more fundamental enabling condition: presently there seems to be little political gain (and much risk) in pressing for the type of tight DoD budget constraints that might prompt through-going reform and transformation. Nonetheless, emerging fiscal realities may soon compel increased attention to how the nation allocates scarce resources among competing national goals -- foreign and domestic, military and non-military. And this might put the nation on the road to a disciplined defense.

**Figure 1. DoD Budget Authority 1997-2019**
**with and without Contingency Operations**
(billions 2010 USD)




**Source:** See *Data Sources* appendix

**Figure 2. DOD Budget Authority 1948-2019**
(Billions of 2010 USD)




**Sources:** see *Data Sources appendix* .

# An Undisciplined Defense: Understanding the $2 Trillion Surge in US Defense Spending

## 1. Introduction: Why more than the Cold War?

The year 1998 was the beginning of the end for what had been heralded as the post-Cold War "peace dividend". That year, US budget authority for the Department of Defense (DoD) reached its post-Cold War low point: $361.5 billion (calculated in 2010 USD). Over the next decade, Pentagon spending would rise by more than 90% in real terms before declining marginally in 2009.

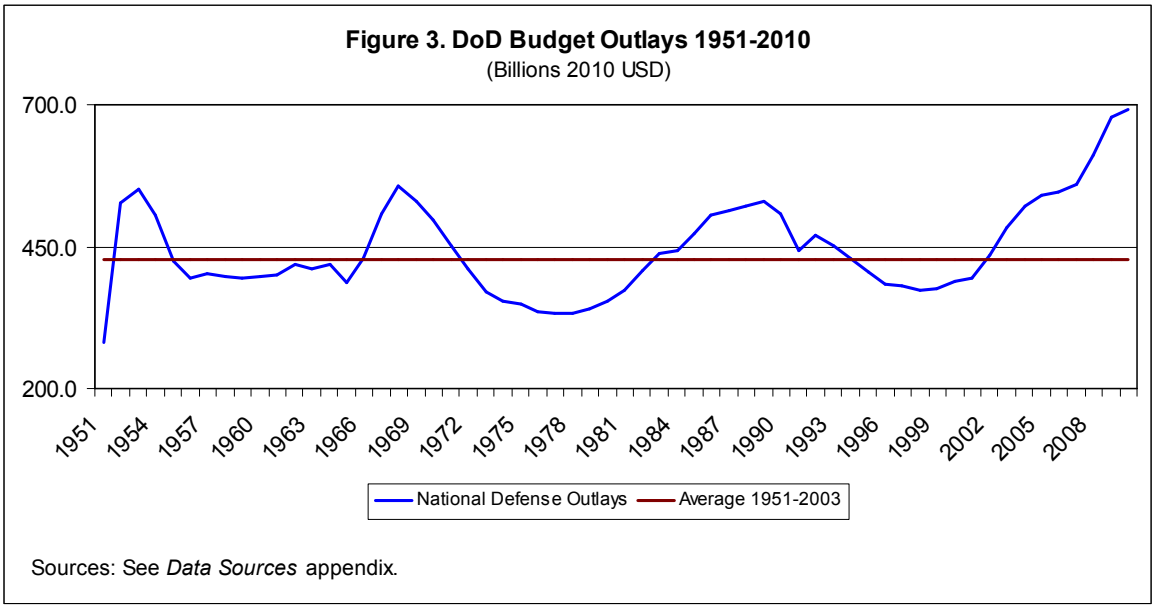
All told, the Pentagon was authorized to spend nearly $6.5 trillion during the period 1999-2010. Of this, $2.15 trillion was above the level set in 1998. In other words: $2.15 trillion more was spent during 1999-2010 than would have been the case had 1998 budget levels been sustained, rising only at the rate of inflation for the military "basket of goods". *This $2.15 trillion constitutes what we call the post-1998 "surge" in Pentagon spending.* And only about half of these added funds are attributable to America's recent wars and counter-terrorism operations abroad.

These are significant sums – dwarfing the cost of the recent US bank bailout, stimulus package, and health care reform effort. And they mark only the beginning. Looking forward, the Obama administration plans to spend at least $5 trillion (2010 USD) on defense during 2010-2017, which is 5% more in real terms than the Bush administration authorized for 2002-2009.{1} And, notably, the portion of the Obama budget so far set aside for today's wars is only a "place marker" figure for years after FY 2010. It has already risen higher than was planned in mid-2009.

The bedrock reality is this: Whether one looks at the planned total DoD budget, or just that portion not attributable to today's wars, US defense spending is stabilizing at levels significantly above Cold War *peaks* (adjusted for inflation) – and far above the Cold War average in real terms. As this is occurring, the United States is also entering a period of economic uncertainty marked by increasing demands and constraints on federal resources.

Do the exigencies of war and security explain and require these unprecedented levels of defense expenditure? Are today's military security challenges actually greater than those of the Cold War era? What other factors might be driving US defense expenditures to unprecedented heights?

In this report we examine the recent dynamics of US defense spending, focusing on the Defense Department budget (federal budget function 051), which constitutes about 95% of the encompassing National Defense budget function (050).{2} After summarizing the evolution of DoD spending in various accounts across a period of 30 years, the report identifies several "drivers" of the recent spending surge and relates these to distinct changes in US defense policy. We are especially careful to distinguish between that part of post-1998 spending related to current wars (about 17%) and that part having to do with how DoD more broadly provisions for national defense.




Apart from DoD, the report does not assess national security spending by other agencies. As noted, the DoD budget constitutes approximately 95% of the National Defense budget function (050), with most of the rest going to the Department of Energy. Other agencies and programs whose budgets should also be considered part of America's national security costs include the Department of Homeland Security ($42.7 b), Veteran's Affairs ($55.9 b), and portions of the International Affairs program ($51.7 b).

## 2. The post-1998 surge in US defense spending

In 1998, the DoD budget reached its post-Cold War low point: $361.5 billion (2010 USD). Between then and 2008, US defense spending rose 92.7% to $696.5 billion in 2008. That portion of the budget supposedly unrelated to operations abroad – the peacetime or "base budget" – rose 41%. The surge occurred in three distinct bursts: pre-9/11 (1998-2001), post-9/11 (2001-2003), and post-Iraq invasion (2003-2008).

**Table 1. The DoD Spending Surge, 1998-2008**
($ amounts in billions 2010 USD)

| | 1998 | 2001 | 98 > 01 | 2003 | 01 > 03 | 2008 | 03 > 08 | 98 > 08 |
|---|---|---|---|---|---|---|---|---|
| DoD including operations | 361.5 | 398.8 | 10.3 % | 529.8 | 32.8 % | 696.5 | 31.5 % | 92.7 % |
| DoD base budget | 356.5 | 376.9 | 5.7 % | 442.7 | 17.5 % | 503.1 | 13.6 % | 41.1 % |

**Sources:** see *Data Sources* appendix

As noted previously, aggregate DoD authorization during the period 1998-2010 was nearly $6.5 trillion, which is $2.15 trillion more than would have been spent had annual DoD budgets been capped at the level prevailing in 1998 (adjusted for inflation). Of the $6.5 trillion authorized since 1998, about 17% (or $1.1 trillion) was allocated for "Global War on Terrorism" (GWOT) initiatives, including operations in Iraq and Afghanistan. This allotment for war constitutes approximately 52% of the funds added above 1998 levels. (See Figure 1.)

*An unprecedented surge*

As evident in Figure 2, the post-1998 surge has no precedent in all the years since the Korean war (when the US military had been compelled to rapidly reconstitute after undergoing a precipitous 88% post-WWII budget cut).

This recent surge most readily compares with two earlier, but lesser ones: the 1958-1968 Kennedy-Johnson surge of 43% and the 1975-1985 "Reagan surge" of 57%. The first of these involved the conduct of the Vietnam War as well as an effort to expand, recapitalize, and transform the force. The second emphasized recapitalization and a modest increase in force size (8.8 %).

**Table 2. Allocation of DoD Budget Authority – Total and "Surged" 1999-2010**
(Billions 2010 USD)

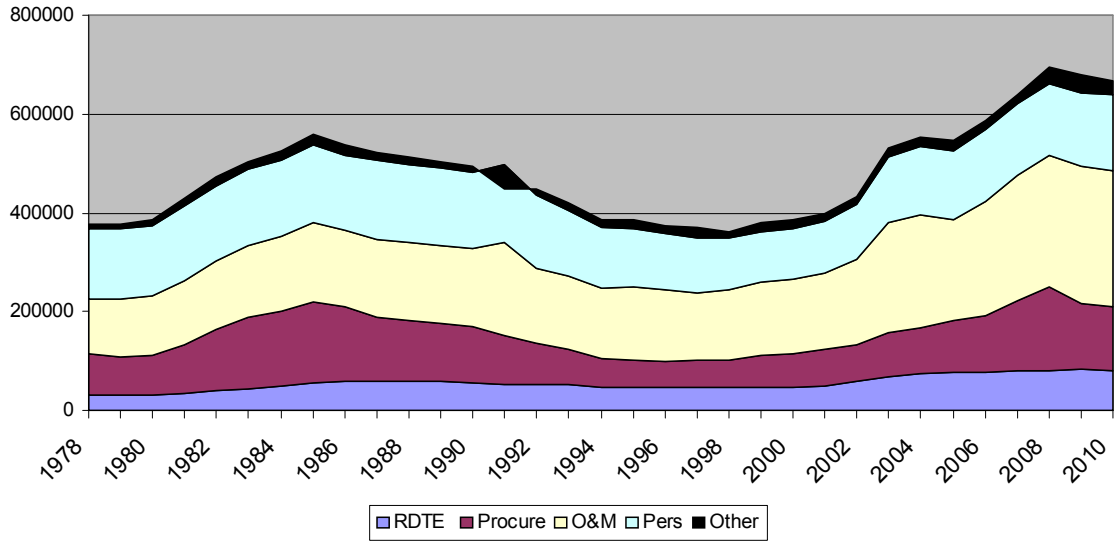
| | Total DoD $ 1999-2010 | % Wars | $ above 1998 Baseline | Allocation of post-1998 Spending "Surge" | | | |
|---|---|---|---|---|---|---|---|
| | | | | Base Budget | Wars | % for Base Budget | % for War |
| RDTE | 823.13 | 1.63% | 261.15 | 247.72 | 13.43 | 94.9% | 5.1% |
| Procure | 1252.14 | 20.03% | 583.07 | 332.30 | 250.77 | 57.0% | 43.0% |
| O&M | 2582.86 | 25.29% | 892.24 | 239.12 | 653.11 | 26.8% | 73.2% |
| Pers | 1570.50 | 10.29% | 302.72 | 141.09 | 161.63 | 46.6% | 53.4% |
| Other | 253.43 | 13.55% | 104.71 | 70.37 | 34.33 | 67.2% | 32.8% |
| Total | 6482.06 | 17.17% | 2143.88 | 1030.6 | 1113.28 | 48.1% | 51.9% |

**Sources:** see *Data Sources* appendix

The 1998-present surge not only surpasses the two previous ones in terms of magnitude of growth, but also in terms of the new spending ceiling it sets. The Kennedy-Johnson surge topped-off at about $520 billion in 2010 dollars; The Reagan surge, $560 billion. The recent surge peaked in 2008 at $697 billion (2010 USD).

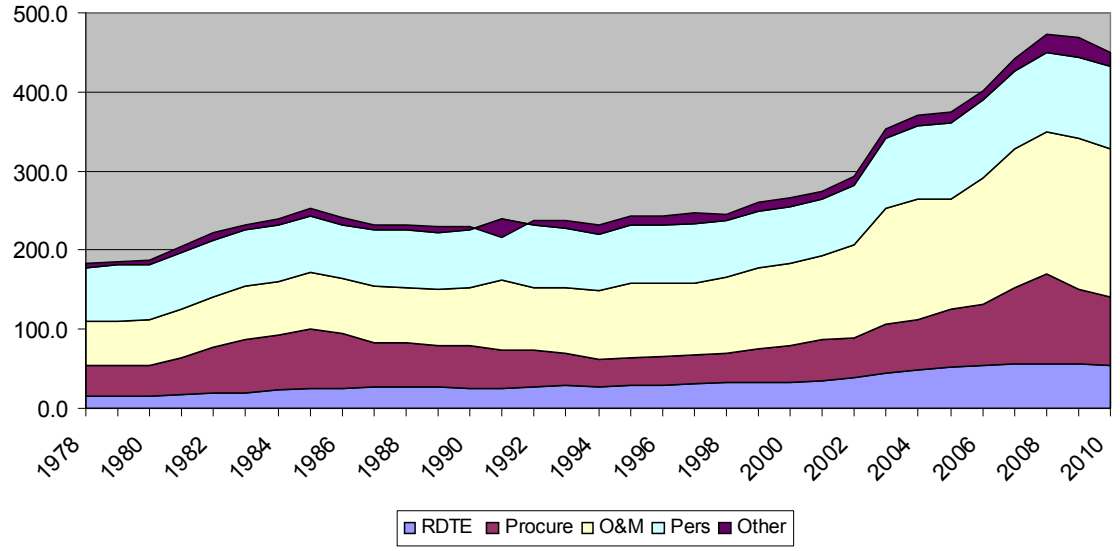
Looking at defense outlays – that is, the money actually spent each year and not just authorized – there is a remarkable consistency apparent throughout the period 1951-2002. (See figure 3.)

**Figure 4. DoD Budget Authority by Appropriation Title 1978-2010**
(Millions 2010 USD)




**Sources:** see *Data Sources* appendix.

**Figure 5. DoD Per Person BA by Appropriation Title 1978-2010**
(000's 2010 USD)




**Sources:** see *Data Sources* appendix.

The average annual outlay for the entire period is $425.4 billion. Across 50 years, there are occasional surges and recessions, but these remain almost entirely within a band of plus or minus 25%. The recent surge breaks out of this 50-year pattern, however, with outlays rising more than 30% above the average after 2006 and *peaking at nearly 63% higher in 2010.*

According to Obama administration plans for the years after 2015, the new anchor line for annual outlays will be some value over $560 billion – a solid one-third higher than the long-term Cold War average in real terms.

## 3. Summary of empirical findings

Analyzing how the Pentagon allocates its funds among different functions, and how this allocation has changed over time, provides important clues about the dynamics driving the surge in spending. We examine allocation trends in detail in the *Data Review* appendix. Our principal findings, however, are presented below.

Figures 4 and 5 cover the period 1978-2010, giving different views of the allocation of DoD funds among key congressional appropriation categories: Military Personnel, Operations and Maintenance (O&M), Procurement, and Research, Development, Testing, and Evaluation (RDT&E – henceforth R&D).

Both charts are based on budget amounts converted to 2010 dollars (that is, adjusted for inflation). Figure 4 shows the change in total budget authority for each "account". Figure 5 shows the same, but on a *per person* basis, which is a way of filtering out those changes that are due to fluctuations in the size of the US military. By controlling for force size, we bring to the fore those changes in spending and in allocation that reflect other factors. ("Per person" means per full-time person in uniform).

Notably, although not shown in these charts, the O&M category divides further into two subcategories: "pay" (which covers approximately 85% of DoD civilian employees) and "non-pay" (which covers purchases of goods and services, including contractor labor).

### Summary of Key Trends

*Overall spending*

When measured on a *per person* basis, DoD budget authority appears remarkably stable during the 25-year period 1983-1998. It began to rise in 1998, however, accelerating sharply with the onset of the Iraq War, before settling at an average of $459,000 *per person* for the years 2007-2010. This is 78% higher than the Reagan peak, 95% higher than on the eve of the first Gulf War, and nearly three times the inflation-adjusted peak during the Vietnam era. Setting aside war costs, the Obama administration plans to stabilize *per person* expenditures at about $377,000 *per person* in today's dollars, which is 57% higher than the average for 1983-1998.

*O&M spending*

An important contributing factor to the general rise in spending has been the Operations and Maintenance (O&M) account. Calculated on a *per person* basis, O&M spending began to climb sharply upward in the early 1990s. Its climb accelerated further with the onset of the post-9/11 wars, before settling at a level in 2010 that is 160% higher than the 1989 level in real *per person* terms. Today, DoD is allocating more than 2.5 times as much *per person* to O&M as it was at the peak of the Reagan surge.

The proportion of the DoD budget allocated to O&M has been rising steadily since 1979. Most of the growth in O&M as a portion of the budget occurred between 1989 (31%) and 1999 (39%). Today, it claims about 41% of the total DoD budget.

*Civilian & contractor labor*

An important factor in the O&M rise during the mid-1990s was the balance between DoD civilian and military payroll. The civilian payroll – which is largely paid out of O&M – went from being 49% as large as the military payroll during the 1980s to being 57% as large during the 1990s. Subsequently, it receded back to 44% during 2000-2008. Complementing this trend (and eventually overtaking it) was increased reliance on "outsourcing" or contracting. This registers as part of "non-pay" O&M expenditures. Beginning in the 1990s and accelerating sharply after 1998, DoD has allocated much more of its resources to non-pay O&M, including contracts.

*R&D and procurement spending*

Over the thirty-year period 1980-2010, "modernization spending" (that is, procurement and R&D spending taken together) has moved in a typical boom-bust cycle, *as though the end of the Cold War was a routine event.* Total modernization spending was 32% lower in the 1990s than in the 1980s. However, in 2000-2009, total modernization spending rebounded to near the 1980s level in real terms. Measured in *per person* terms, 1990s modernizaton spending was only 14% lower than 1980s spending, while spending during 2000-2009 was fully 47% higher in real terms than during the 1980s. During the past four years, *per person* modernization spending has averaged 53% higher than the highest year of Reagan modernization spending.

*Personnel spending*

During the 20-year period 1981-2001, budget authority for personnel varied by only a few percent around an average of $73,200 (2010 USD) *per person*. However, between 2001 and 2010, it rose 40%. The increase was sufficient to bring total personnel expenditures back up to Cold War levels – for a military only 69% as large. Slightly more than half of the post-1998 boom in personnel spending was due to the wars.

## 4. What drives the DoD spending surge?

With an eye on the trends summarized in the previous section, we can turn our attention to our central question: Why should today's total DoD budget be higher in real terms than during the Cold War, when the United States faced a peer adversary alliance in a contest spanning the globe and encompassing multiple small wars and insurgencies?

The most ready answer – "the current wars are to blame" – clearly falls short. These, and the broader "global war on terrorism," account for only 52% of the post-1998 surge and only 17.2% of total DoD spending authority for the period 1999-2010. The remainder of spending is devoted to the peacetime or "base" portion of the budget, which jumps 55% during the period. Why such a surge?

For that matter, we might ask: *Why should America's current wars be so much more expensive in real terms than those of the past*?

- America's Korean commitment involved 1.4 million personnel-years and cost $550 billion (2010 USD) or $393,000 *per person* year.
- The US involvement in Vietnam comprised 2.7 million personnel-years and cost $690 billion (2010 USD) or $256,000 *per person* year.
- By comparison, the Iraq and Afghanistan commitments have so far consumed 1.2 million personnel years and cost more than $950 billion (2010 USD) or $792,000 *per person* year.

Certainly, the 9/11 attacks opened the door to a spending boost, politically. But they did not dictate its character or magnitude. At any rate, by 2001 the US defense budget had already entered an expansion phase, leaving behind hopes for an enduring peace dividend.

In the next sections, we examine some of the factors shaping the character and extent of the post-1998 boost in defense spending with an eye toward discerning matters of "policy choice".

> What policy aspirations and imperatives have helped drive the DoD budget above Cold War heights?
>
> Is there something about our way of producing military power and sustaining it that raises putative budget requirements?

*Elements of an answer*

Beginning early in the post-Cold War era, a set of long-standing problems and trends in US defense policy intersected with new ones to produce unrelenting upward pressure on the DoD budget. This intersection also primed the budget to balloon under the pressure of wars of the type that consume America today in Iraq and Afghanistan.

As we shall see, the explosive growth in US defense spending involves the confluence of a set of factors – some as causes, others as consequences:

- America's long-term strategy of emphasizing "quantity over quality" in developing its armed forces;
- The 1970s transition to a military based on high-priced volunteer labor;
- The growing complexity of US military power;
- The adoption after 1989 of more ambitious, yet less focused defense goals and missions in the context of force reductions;
- The loss of economies of scale in both support and acquisition activities that accompanied the post-Cold War reductions in force size;
- The failure of efforts at Defense Reform and Military Transformation to sufficiently fulfill their promise of allowing the armed forces to do "more for less";
- The onset of unplanned, protracted, labor-intensive counter-insurgency campaigns;
- The fragmenting of US modernization efforts into several discordant strains; and,
- A surge in DoD's dependency on contract labor.

## 4.1 *Peace* versus *power* dividend

The nation's national security leadership – Republican and Democratic alike – entered the post-Soviet era hoping to realize both a fiscal "peace dividend" and a strategic "power dividend".

The "power dividend" involved adopting more ambitious security goals and tasking a smaller military to maintain global presence, increase peacetime engagement activities, and conduct more types of missions, faster, across a broader swath of the earth. This entailed retaining all the facets and the full reach of US military power, despite retrenchment. But how could this be accomplished given force and budget reductions?

Reconciling the pursuit of both a peace and a power dividend depended on achieving new DoD efficiencies in two ways: first, by means of a program of institutional reform and, second, by means of a technology-based "revolution in military affairs"(RMA). Related to both of these initiatives was additional pressure on the armed services to become more "joint" in all their activities and, thus, more effective and efficient.

As it turned out, the dual program of DoD reform and transformation failed to deliver sufficiently on the promise of enabling the services to do "more for less". (Indeed, rather than lowering overall modernization costs, the RMA initiative simply added a new layer to putative requirements.) Essentially, the shortcomings in reform and transformation meant that "doing more" would cost more. Indeed, it would cost *much more* due, in part, to the loss of economies of scale in support and acquisition activities, which was the price of size reductions when not complemented by sufficient re-engineering of the armed forces.

Further adding to these costs would be the post-9/11 advent of wars of a type for which America's armed forces were ill-prepared and wrongly-equipped (despite their having invested $1.2 trillion in modernization during the 1990s).

The pursuit of a power dividend is explored in more detail in *Appendix B: Goal inflation in post-Cold War US defense strategy*. The shortfall in efforts to reform and transform DoD is explored in *Appendix C: More for less? The limits of defense reform and military transformation*.

The next section examines the specific pressures and initiatives that channeled US military development down an avenue of increasing cost during the 1990s and the first decade of the new century. Not only have costs surged, but the allocation of Pentagon funds has changed dramatically. With this, the foundation of American military power has altered in at least one significant way: private defense contractors have come to play a more important role than ever before.

## 4.2 Dilemmas of the drawdown

*Long-term development trends*

The post-Cold War changes in America's armed forces occurred in the context of already ongoing efforts at force transformation. One began in the 1970s with the transition from a conscript to a volunteer or professional military. Another began in the 1980s with the effort to recapitalize the post-Vietnam military and improve its readiness. Both of these fit into an even longer-term force development strategy that emphasized quality over quantity. This strategy aimed to build on America's presumed competitive advantages over likely opponents: greater technological competency and a more skilled and motivated workforce.

The switch to a professional military produced a more reliable and ready cadre.{3} It also significantly increased personnel costs, which averaged 23% higher in real *per person* terms during the 1980s than during the 1960s. Although initially motivated by the Vietnam experience, the switch was consonant with the longer-term "quality over quantity" strategy.{4} And, indeed, the transition has seemed cost-effective in terms of value per unit of cost, as long as compensation is competitive and sufficient funds are invested in recruitment.{5}

The "quality over quantity" strategy, and the dependence on high-cost personnel, also implied increased *per person* allocations for research, development, and procurement – an objective that came more into reach once America had exited its consumptive commitment in southeast Asia. But the resultant posture carries with it an inherent constraint: there is a size threshold beyond which the cost of competing for and adding quality personnel becomes prohibitive.{6} Where that threshold sits depends on both intrinsic and extrinsic factors. The intrinsic factors include the amount of pressure the Pentagon puts on its personnel and the general state of military morale; the extrinsic include general economic conditions and population demographics.

*Into the new era: a more "ready" and deployable force*

Both the George H.W. Bush and Clinton administrations began to implement force reductions in ways generally consonant with the "quality over quantity" strategy, aiming to match cuts with an increase in the readiness and deployability of the resultant, smaller force. This implied higher operations and maintenance (O&M) expenditures *per person.*

Operations and maintenance spending already had increased dramatically and across the board during the 1980s, rising about 22% *per person* in real terms. This, too, was consonant with the "quality over quantity" strategy. Nonetheless, throughout the 1980s, parts of the US military remained heavily dependent on overseas host nations for support functions, which crimped their capacity for flexible, rapid deployment.

The post-Cold War reductions were supposed to leave in place a more ready and better-supported force. Force structure – numbers of divisions, air wings, and ships – was reduced more than personnel, so that the residual units could be better filled. Moreover, the ratio changed between "shooters" and all those people, activities, and assets who supported them – in favor of support. This boost in support was partly a "forced choice" and partly a free one. It is simply easier to slice away combat units than it is to appropriately downsize the complex web of supporting structures (and infrastructure). An optimistic perspective was that "right-sizing" support would take more time and effort.

The repercussion for O&M spending during the 1990s was clear: it rose 30% *on a per person basis* in real terms. (*Total* O&M expenditures did decline by 12%, but the decline in total personnel numbers was greater.) Especially benefitting were mobility capabilities, logistics, and central support and administration.{7} Not all of this was real "benefit" to the armed forces, of course. As just noted (and addressed in more detail below), the rise in *per person* O&M expenditures also reflected the retention of considerable *excess* support functions and infrastructure. But this gave hope that additional savings might be achieved by carefully identifying and trimming the excess. More than a hope, this was a *necessity* if the peace dividend were to be maintained. It was a necessity because, with O&M expenditures claiming a greater share of the budget, there was little or no room within "peace dividend" constraints for modernization spending to rebound. Something had to give.

*A procurement holiday?*

Procurement spending underwent the greatest post-Cold War decline: average budget authority for procurement in the 1990s was 44% lower in real terms than in the 1980s. The decline in average *per person* expenditure was somewhat less: 31% – still, a considerable cut. But two factors helped mitigate it:

> *First,* the Reagan-era DoD had capitalized a larger arsenal, which it then bequeathed to the 1990s. This was Reagan's gift to Clinton. When reductions took hold, the retirement of older equipment effectively lowered the average age of equipment pools, thus achieving what might be called "virtual modernization." For a while, the post-Cold War Pentagon could live off of the 1980s – if it were willing.

*Second,* total spending on Research and Development (R&D) was sustained during the 1990s in real terms. Thus, comparing the two decades, it actually rose on a *per person* basis by 32%. Looking at procurement and R&D spending together shows a combined, real decline of only 14% per person.

Budget authority for procurement reached its post-Cold War nadir in 1997: $54 billion (2010 USD). The above caveats notwithstanding, no one at the time doubted that procurement spending would soon have to rise again. Barring further cuts in force structure, even a moderate program of recapitalization might aim to achieve an annual average of $75 billion in procurement spending, once the Reagan cascade had been fully absorbed. Of course, the services were seeking much more. But – be it more or less -- from where would these funds come, if the peace dividend were to be preserved? The target for savings was excess O&M and infrastructure spending.

### *Vacating the peace dividend*

The aim of the prospective institutional reforms was to cover as much of future modernization costs as possible, while also absorbing the costs of increased operational tempo. In this way, the peace dividend would be preserved. As explained in *Appendix C,* institutional reforms aimed to accomplish this feat by means of improved business practices, organizational streamlining, consolidations, and outsourcing.

In fact, in the years since 1995, some annually recurring savings *have* been realized – although probably not an amount equal to more than 4% of today's base budget, which is not enough. Such a modest level cannot even fund the growth in *peacetime* operational activity – to say nothing of war and full-bore modernization.{8}

In summary: the shortcomings in reform and transformation efforts guaranteed that there would be a three-way zero-sum contest between:

- Higher readiness and operational tempo (even before the wars);
- Modernization, and the
- Peace dividend.

In this contest, the peace dividend lost badly. And the advent of the post-9/11 wars has only made matters worse. Adding to the pressure has been an unexpected surge in personnel costs, which we examine in the next section, and an undisciplined approach to force modernization, which is examined in *Section 4.4.*

The road not taken – at a cost of some trillions of dollars – would have involved some combination of (i) a more forceful and thorough-going approach to Pentagon reform, (ii) an integrated or "joint" approach to force modernization and transformation, adapting these closely to new era conditions, and (iii) greater restraint in setting post-Cold War military goals and missions.

## 4.3 More hands to the task: DoD workforce dynamics

From 1978 through 2002, the budget for military personnel showed little real (ie. inflation-adjusted) growth when measured on a *per person* basis. Thus, when the post-Cold War cuts in personnel numbers began, the personnel account became a true bill-payer (second only to modernization in this regard). This circumstance abruptly ended in 2002, due mostly to pay and benefit hikes as well as war-related bonuses and incentives.

Today, the personnel account is comparable in real terms to that during the Reagan era, although the US military is only 69% as large. Figured on a *per person* basis, personnel costs are 84% higher in real terms than in 1967, when last we were engaged in a large counter-insurgency effort. The logic of the present personnel policy ensures that long, exhausting wars will drive personnel costs sharply higher. This is because the policy was not designed with labor-intensive slogs in mind. Indeed, it evolved specifically as part of our recoiling from such an effort – the Vietnam war – and its effects.

### *The high-cost of military labor and its effects*

In 2004, the life-cycle cost of a US military officer amortized over a 20-year career was approximately $88,000 per year (current dollars); for enlisted personnel, $43,400 per year. This is considerably more expensive than comparable civilian labor.{9} The high cost of US military personnel undergirds DoD's reluctance to increase end strength. Thus, most of the recent additions to the Army and Marine Corps have been matched by reductions in the Navy and Air Force. The total number of full-time US military personnel by the end of 2010 will be barely 50,000 more than the post-Cold War low point – and 22,000 of these will be temporaries. Rather than add substantially to military end strength, DoD tries to squeeze substantially more out of the high-priced labor on hand (or substitute civilian labor for it where it can).

The cost of military labor is not the only limiting factor on end strength. The Pentagon's prevalent force development strategy seeks to build on the high quality of US military personnel by supporting and equipping them to a peerless standard. In this approach, it makes no sense to pit personnel, O&M, and modernization spending against each other – although our fractious budgeting process often does just that. A degree of control is imposed on the process by strictly setting the key independent variable: the number of military personnel.

The high cost of military personnel also creates substantial pressure to restrict their use to roles that closely correspond to their unique skills and skill level – the rule being: use them where their use is most cost-effective and not elsewhere. Greatly amplifying this pressure has been (i) the post-Cold War imperative to "do more for less" and (ii) the demands of the post-9/11 wars.

### *Adding and cascading labor*

Looking at the evolution of the Pentagon's workforce overall, we see several types of initiatives in play since 1989:

*First* (and obviously), the post-Cold War cuts in the number of miliary personnel and DoD "in-house" civilians (with a small percentage of military positions recently restored).

*Second,* some migration of military personnel from the "non-deployable" to the "deployable" segment of the forces. All told, the annual *Defense Manpower Requirements Reports* show a migration of 59,000 military positions from the infrastructure category to the "operating forces" category during the period 2000-2009. {10}

*Third,* the replacement of military personnel in some roles by civilians (either DoD employees or contracted labor). Similarly, DoD civilian employees have been increasingly subject to replacement by cheaper, contract labor. And,

*Fourth,* a general growth in the proportion of the Pentagon workforce that is private contract labor. This growth far exceeds the replacement of DoD military and civilian personnel just cited.

There is more to this program than just the desire to optimize the use of military personnel or to achieve "savings" by having government and private entities compete for jobs. Principally, there is a drive to bring more hands to the task.

Between 1994 and 2004 as many as 15,000 military personnel were transferred (or due to be transferred) to new positions as a result of competitive outsourcing efforts. (As noted by the GAO, "when work performed by uniformed personnel is outsourced, the personnel generally are assigned to other duties.")\{11\} Between 2004 and 2010, another 48,000+ military positions were slated to be soon filled by DoD civilians or contract personnel. Of these 48,000 personnel, 19,000 (all Army and Marine Corp) are being transferred to other duties – many in support of the Army's new modular brigades.

Competitive outsourcing has effected DoD civilian personnel more than uniform personnel. But, in this case too, many of those displaced simply moved to other jobs. According to a 2004 study, between 1995 and 2003, more than 65,000 DoD civilian positions were subject to public-private competition under the stringent guidelines set out in OMB Circular A-76.\{12\} As a result, nearly 25,000 DoD civilian positions were cut. However, 11,000 of the displaced employees simply moved to other positions.

It is clear that the A-76 public-private competitions result in lower costs to DoD, regardless of whether the winner is a public or private entity.\{13\} Competition brings lower costs. This does not mean that the savings escape the Pentagon's orbit, however. Nor does it mean that additional funds are available for modernization. To the extent that displaced DoD personnel are *retained and transferred,* while new (and less expensive workers) fill their former jobs, both the workforce and the budget have grown.

### *DoD contracting trends*

By far, most DoD contracting is not governed by the A-76 process, which dictates strong competition. Reviewing contracting practices outside the A-76 process during the period 1998-

2003, a study conducted by the Center for Public Integrity has found that only 36% of DoD contracts were awarded with both "full and open" competition and more than one bidder in play.{14} So the extent of savings to DoD from most outsourcing is unclear.{15} Another persistent problem is DoD's failure to closely manage contracts and to carefully collect and collate the data necessary to their assessment.{16} What is clear, however, is that (i) private contracts are claiming a larger share of the DoD budget in recent years and (ii) the role of contract labor in the Pentagon's workforce is growing.

Between 1989 and 1999, DoD purchases of outside goods and services grew as a part of the budget from 45% to 47.5%. Between 1999 and 2009 it grew further to approximately 57% of the budget.{17} GAO estimates that DoD's total contract obligations were over $387 billion in 2008, having doubled since 2001.{18} This growth has occurred in the context of a longer-term trend: the proportion of purchases that are "services" has been steadily growing, while the proportion that is "goods", falling. According to one study of DoD contracts, "services" constituted more than one-third of purchases in 1984, but 56% by 2003.{19} Together, these trends underline DoD's increasing reliance on contract labor – the so-called "shadow workforce".

*The growth of DoD contract labor*

In tandem with the increasing role of service contracts, contract labor is growing as a proportion of the DoD total workforce. Indeed, DoD's shadow workforce may have grown by as much as 40% since 1989 (while the pool of military and DoD civilian personnel each declined by 32%). The growth rate of contract labor is suggested by a series of studies conducted by Paul C. Light of the Brookings Institution and NYU's Wagner Graduate School of Public Service.{20} These use the US Bureau of Economic Analysis' input-output model of the US economy to resolve every dollar of federal contracting, whether for goods or services, into a labor value. The estimate is rough and surely overstates the size of the DoD contractor force (partly because it also captures secondary workers, such as contractors' own accountant services). But it remains valuable as an indicator of scale and, especially, as a foundation for trend analysis. Light's 2006 study, *The New True Size of Government,* indicates that DoD contracts employed as many as 5.2 million workers in 2005, either directly or indirectly.

Other indicators of the size of the shadow workforce tend to be partial or subject to *undercounting.* These include a finding that the Army alone had 228,000 contract employees in 1996, when contract expenditures were less than half of what they are today (in real terms). In 2009, the Congressional Research Service reported that the Central Command area alone hosts over 240,000 DoD contractors.{21}

Even if one substantially discounts Light's absolute numbers, his trend analysis provides an important insight into DoD workforce dynamics: *between 1989 and 2005, the pool of DoD contract labor has grown more than the pool of uniform and civilian employees has declined.* If we cautiously discount the study's absolute numbers by 30%, it would still suggest that DoD's total workforce – military, civilian, and contractor – was *as large in 2005 as it was in 1989,* at the close of the Cold War. And this would certainly entail that it is today *larger* than in 1989.

The prospect that the total DoD workforce is today as large or larger than it was in 1989 comports well with the observed changes in the DoD budget authority, which for 2010 exceeds

the Reagan-era average in real terms (even when war spending is discounted). Similarly, a sharp rise in the proportion of the budget devoted to contracting, and in the proportion of the workforce that is contract labor, comports with the observed dynamics of O&M, R&D, and military construction spending since 1990.

### *O&M spending and workforce dynamics*

O&M spending mostly divides between the DoD civilian payroll and the purchase of goods and services. During the 1990s, the civilian payroll declined much less than the military pay account as budget cuts initially exempted many support and infrastructure activities. The ratio between the civilian and military payrolls did not return to its earlier balance until 2003, and this happened largely due to the war-related surge in military personnel spending. *Non-pay O&M expenditures*, which cover many contract activities, held steady during the 1990s despite overall budget cuts. It then began to rise sharply in 1998 – as did R&D and procurement spending. Together these trends indicate that:

> *First,* the reduction in military personnel after 1989 was mitigated, first, by reducing civilian DoD workers more slowly and, later, by adding large numbers of contract workers.
>
> *Second,* a fair portion of this mitigation had to do with retaining and then expanding support personnel. This reflected (i) the effects of losing economies of scale in support activities as the force grew smaller, (ii) the difficulty of trimming excess support and infrastructure, (iii) the desire to retain all facets of US military power even as the number of military personnel declined, and (iv) the adoption of policies that compelled higher readiness levels and more operational tempo.

### *Reinflating the Pentagon*

In sum: America's military workforce has been fully re-inflated with most of the regrowth displaced to the defense contractor segment. Military end strength has recovered only marginally. However, there has been some migration of military personnel toward the "sharp end" – that is: from the non-deployable to the deployable segment of the forces. But this migration probably does not and will not exceed 100,000 troops, including those recently added, both permanent and temporary.

An interesting implication of these changes is that, although much of the growth in the contractor segment has to do with support functions, it will not register in the ongoing discussion about the "tooth-to-tail" ratio. Never before has the US defense budget been as weighted toward support activities as it is today. But if we focus solely on that most visible part of the Pentagon workforce – uniform personal – it appears as though the teeth have been growing at the expense of the tail. Also interesting: the specific character of the Pentagon's re-inflation greatly expands the constituency of beneficiaries in the private sector.

## 4.4 Discordant modernization

Since reaching a low-point in the late-1990s, procurement spending has rebounded with a vengeance, rising by more than 160% in real terms. Not since the nation undertook crash rearmament for the Korean war has as much been spent in a single year as in 2008, when the procurement account was allotted $170 billion.

Comparing recent spending with that during the last recapitalization surge (1979-1990) provides some perspective:

- Total budget authority for procurement during the period 1999-2010 has been approximately $1.25 trillion (2010 USD) – which compares well with the 1979-1990 recapitalization, when $1.48 trillion (2010 USD) was authorized.

- Calculated on a *per person* basis, procurement spending during 1999-2010 was 25% higher in real terms than during the period 1979-1990.

- Only about 20% of procurement spending since 1998 has been related to the wars in Iraq and Afghanistan.

- Research and Development spending during 1999-2010 was much higher than in 1979-1990: $822 billion *versus* $571 billion.

Taken together, procurement and R&D constitute the "modernization" category. (See Figure 6.) And, from the above, we can see that total modernization spending was marginally higher in 1999-2010 than in 1979-1990. Viewed on a *per person* basis, however, recent budget authority for modernization is 50% higher in real terms than during the 1979-1990 period, which is quite significant. (Figure 7.)

And yet, while the Reagan period is remembered as one of robust modernization, today's modernization efforts are viewed as "troubled" from all sides – as insufficient by some and as too costly or irrelevant by others.

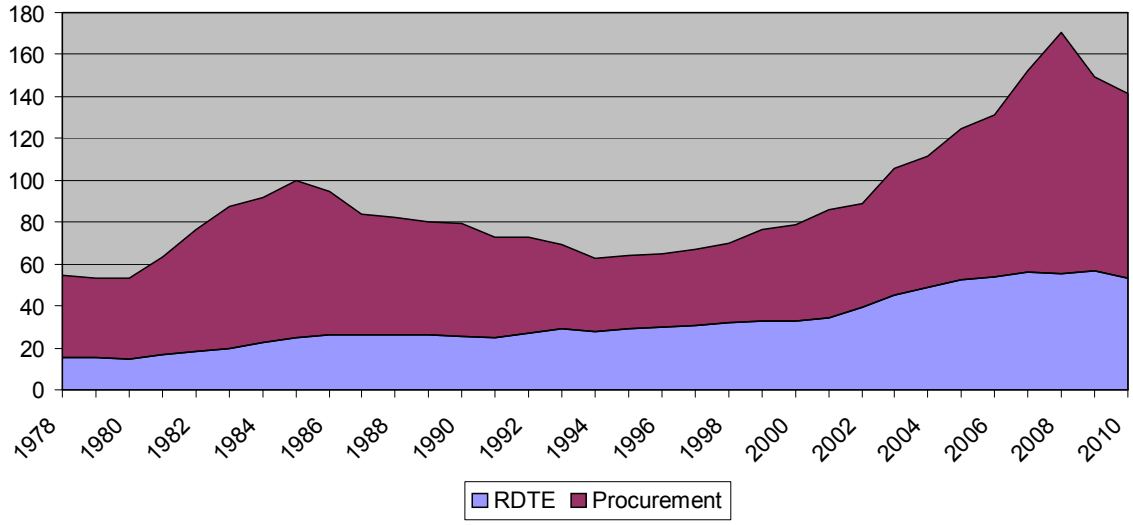
### *A period of troubled modernization*

DoD's current modernization problems stem partly from an acquisition process that routinely delivers products late, over cost, and not as capable as promised. Of course, this is not a recent development. (Acquisition reform is addressed in more detail in *Appendix C*.)

Another contributing factor to current problems has been the services' tendency to favor big-ticket "legacy" platforms, like the F-22, that still seem geared toward meeting and over-matching peer opponents, long gone. This latter problem is only a species of a larger one, however:

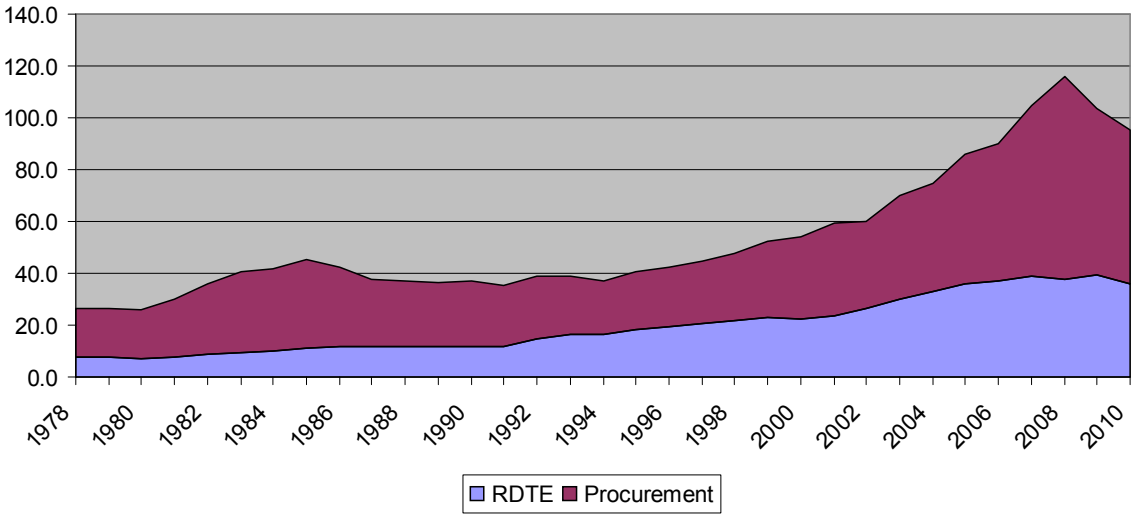
> Beginning in the early 1990s, DoD acquisition practice has evinced several, contending "modernization imperatives" or visions. And DoD has failed to adequately prioritize among them or compel choices. So these have all lurched

**Figure 6. DoD Budget Authority for Modernization 1978-2010**
(Billions 2010 USD)




**Sources:** see *Data Sources* appendix.

**Figure 7. DoD Per Person Budget Authority for Modernization 1978-2010**
(000's 2010 USD)




**Sources:** see *Data Sources* appendix

forward together, poorly integrated and layered one atop the other. Given resource constraints, few have developed in a satisfactory way, and this generates unrelenting upward pressure on the budget.

We might call this phenomenon *discordant modernization*.

Looking back over the post-Cold War period, we can discern a variety of disparate procurement imperatives, and each has grown its own constituency. These variously sought to:

- Modernize legacy platforms and platform-types, and size their fleets to ensure overwhelming force in multiple overlapping contingencies;
- Dramatically increase the capacity of legacy platforms to deliver guided-weapons of various sorts;{22}
- Dramatically enhance the information collection, communication, and processing capacity of individual platforms and units at all levels;
- Complement the modernized legacy fleets with select "new technology" platforms as well as other capabilities designed to meet specific asymmetric threats or to provide new tactical advantages;
- Develop operational networks – systems of systems – within and across services to facilitate highly-flexible and responsive "net-centric" operations on a global scale. The putative network would comprise three levels – information collection, strike, and support. The various levels and components would be fused by joint communications and information processing capabilities;{23}
- Develop new "avenues" or "spheres" of warfare: space, cyber, and global conventional strike;
- Increase capacities for rapid, flexible large-scale global deployment. This imperative encompassed enhancements to mobility assets, foreign basing, and prepositioned/afloat material stocks as well as unit modularization initiatives. And,
- Field units and equipment specially adapted for stability, humanitarian, and counter-insurgency missions.

These imperatives can be usefully grouped into four types of modernization practice: Legacy, Transformational, Adaptive, and *Ad Hoc.*

*Legacy efforts* ideally reflect past adaptations that may nonetheless offer an insurance policy in the present as the force adapts to new circumstances, goals, and opportunities;

*Transformational efforts* pursues new opportunities for more effective action based on new technology, techniques, and forms of organization;

*Adaptive efforts* correspond to new security missions and circumstances; and

*Ad hoc efforts* respond to unforeseen developments as they unfold – the exigencies of the moment.

That all four might co-exist and exert influence is not itself troubling. What is indispensable, however, is that the modernization program overall be disciplined in accord with a sustainable, adaptive, and cost-effective national security strategy. Otherwise what is likely to happen is what has happened: All four impulses will proceed in a discordant way – competitively at odds with each other.

If strategic discipline is lax, legacy modernization will predominate -- at least for a while. This is because legacy efforts enjoy considerable institutional momentum. Countervailing pressures must mount to overcome this momentum. Once they do, external circumstances may compel a rush of *ad hoc* measures. Subsequently , these may come to redefine the main thrust of modernization – although their long-term relevance could be more limited than realized in the moment. This is the circumstance DoD finds itself in today with regard to procurement for counter-insurgency.

### *The tracks of discordant modernization*

The tensions between the modernization trends, and the failure to adequately integrate them, can be found defense-wide and within individual services as well.

- The Army provides an acute example with its efforts to (i) modernize or replace with similar systems its equipment stocks from the 1980s, (ii) digitalize and modularize its units, (iii) field UAVs, tactical robots, and various directed energy weapons, (iv) pursue the Future Combat System, and (v) add Stryker armored vehicles, MRAPs, and up-armored HMMWVs for stability and counter-insurgency operations.

- In the Air Force, high-end modernization of platforms for stealthy, penetrating strike have predominated even as capacities to use standoff weapons, simpler platforms, and UAVs have advanced.

- In the Navy, emphasis remains on numerous big-deck aircraft carriers even as (i) the missile attack capability of the fleet has grown exponentially (including the introduction of cruise-missile Tridents and the land-attack DDG-1000 destroyer), (ii) intercontinental USAF bombers have dramatically improved their conventional attack capability, and (iii) UAVs – which can be launched in large numbers from the Navy's Amphibious Assault Ships – are playing an ever larger role as attack platforms. Utterly irrelevant to current needs, two new classes of attack submarines have entered service since 1997. And, despite a much smaller fleet, the Navy intends to maintain four classes of surface combatants (with the planned Littoral Combat Ship entering service as Frigates exit.)

- Despite significant investment, the effort to build force networks is lagging, especially between services, facing both technical and integration problems. The USAF has made the most progress; the ground forces, the least. But one fundamental problem is evident everywhere: A principal conceit of networking is that it lessens the need to load

individual platforms and units with capabilities. There is only limited evidence of progress in exploiting this putative benefit of networking.

In a broader perspective, discordant modernization risks detaching DoD's investment of modernization dollars from the nation's actual security needs.

In the decade before the 9/11 attacks, the United States spent over $1 trillion on military modernization. But most of this expenditure proved irrelevant to defending against the most serious attack on America in 60 years, and also irrelevant to conducting counter-terrorism operations afterward. Subsequently, three more years of funding added another $450 billion dollars to modernization accounts, but still the nation found itself ill-equipped to execute the new tasks it had undertaken: counter-insurgency in Iraq and Afghanistan. So a new, overlapping wave of modernization commenced.

## 5. Conclusion: Trillions to burn?

In the decade between 1998 and 2008, US defense spending underwent a rise unprecedented since the Korean war, adding more than $2 trillion in real terms to the DoD budget. Today, even the "peacetime" portion of the defense budget significantly exceeds Cold War levels, adjusted for inflation. And the Obama administration's budget plan foresees sustaining this level of expenditure indefinitely.

In this report we set out to identify the factors that have propelled the exceptional rise in defense spending since 1998. Importantly, the post-9/11 wars are not more than half the cause. Moreover, these wars have themselves proved to be far more expensive in real terms than their immediate predecessors, which only adds to the explanatory burden.

We have found that the spending boom is the product of a unique confluence of choice and circumstance:

- The exceptional cost of today's wars derive partly from DoD's having prepared "wrongly" during the years 1992-2003. Much of DoD's considerable modernization investment during that period proved irrelevant to counter-terrorism and counter-insurgency tasks. More fundamental, however, is the fact that the United States is today fighting labor-intensive Vietnam-style conflicts with a military workforce that has a more exorbitant cost dynamic than the conscript military of the 1960s. Recognizing this, DoD has increased its dependence on private, contract labor.

- More generally, as the Soviet threat receded, US national leadership adopted military-security goals that were, at once, more ambitious *and* more diffuse than those of the Cold War period. The new goals and strategies entailed preserving and extending both the reach and the complexity of America's armed forces, despite force reductions. In this context, the armed forces suffered a decrement in economies of scale, affecting both equipment procurement costs and support costs. And efforts to achieve new efficiencies *via* defense reform and military transformation fell short. Thus, while successive post-Cold War administrations have hoped to do "more for less" in the military realm, they have had to settle for doing "more for more".

- A key part of "re-inflating" the Pentagon – for purposes of both war fighting and peacetime engagement – has been a much increased dependence on private, contract labor. This is one of the surest outcomes of military transformation since the Cold War ended.

- A final contributor to the spending surge has been the emergence of overlapping, discordant strains of military modernization. Partly, this development reflects the decentralized nature of the armed service's acquisition process in which, as a former US Comptroller General puts it, "[c]apabilities and requirements are based primarily on individual service wants versus collective defense needs".{24} Central DoD authorities and joint structures have proved unable or unwilling to override the services' individual momentum and compel a more integrated and adaptive approach. What has enabled this problem to grow much worse in the post-Cold War era is a planning method that eschews strong prioritization and, instead, looks to hedge in all directions.

These factors have converged to give America a historically unique predominance in military spending. The United States today is responsible for nearly half of all military expenditure worldwide, which is a much bigger share than was the case during the Cold War. What this investment has not purchased, however, is clear and sure progress toward a more secure and stable world. Nor has it even purchased an especially efficient military – one closely adapted to the current security environment. Indeed, in some respects, the current defense posture lacks coherence. That America should persist down this road for more than a decade suggests a lapse in attention to the strategic costs and benefits associated with our chosen defense posture. It is as though the nation had trillions to burn – a view which, if widely held, would undercut efforts at reform and prioritization, thus guaranteeing considerable waste.

A permissive spending environment is the necessary precondition for the types of problems we have identified in this report. And there are several political realities that have helped generate and sustain it. First, and obviously, the 11 September 2001 attacks overrode any tendencies to suggest economizing on defense. As Richard Betts observed in a 2007 article in *Foreign Affairs,*

> Washington opened the sluice gates of military spending after the 9/11 attacks primarily not because it was the appropriate thing to do strategically but because it was something the country could do when something had to be done.{25}

Curiously, though, public support for increased spending was higher in the two years prior to the attacks than in the two years after. And it has receded significantly since then.{26} But this has not spurred a serious re-evaluation of defense spending. This points to a more deeply-seated enabling condition for the present profligacy: Both the Republican and Democratic parties are politically disinclined to press for tight DoD budget constraints – although their reasons differ. What is important here is not the balance of raw public opinion so much as the capacity of the contending parties to mobilize it.

In his *Foreign Affairs* article, Betts suggests that America's strategic solvency may depend on political change:

> Democrats will have to get over their long battle against the wimp image. Republicans will have to rediscover the virtues of fiscal responsibility.{27}

Clearly, we are not there yet, but there is reason to believe that fiscal realities may soon favor focusing more critical attention on the balance of costs and benefits associated with our current defense posture. If so, the dynamics explored in this report offer ample opportunities for remedial action.

## Notes

1. This figure includes an estimated $100 billion addition to the funding announced in the Administration's 2010 budget. Vago Muradian, "DoD to add $100B to 2011-15 spending," *Army Times,* 14 December 2009.

2. The administration initially planned to authorize $692.8 billion for 050 (National Defense) for FY 2010 (in 2010 USD). Of this, $667.7 billion was slated for the Pentagon (051). The rest was allotted mostly to the Department of Energy to fund its national defense functions. Looking back to 1998, when post-Cold War defense expenditures were lowest, the National Defense function absorbed $379 billion, while the Pentagon's portion of this allotment was $361.5 billion.

3. Among the positive trends were an increase in aptitude scores and in both age and average time in service. Trends in the quality of military personnel are presented yearly in the *Population Representation in the Military Services* report, produced by the office of the Deputy Under Secretary for Military Personnel Policy and is currently (2010) available at: available at http://prhome.defense.gov/mpp.html

4. Bernard Rostker and Curtis Gilroy, "The Transition to an All-Volunteer Force: The US Experience" in Gilroy and Cindy Williams, eds, *Service to Country: Personnel Policy and the Transformation of Western Militaries* (Cambridge MA: Belfer Center for Science and International Affairs, 2006).

5. Gilroy and Williams, "The Way Ahead: Transformation of Personnel Policies" in Gilroy and Williams, pp. 462-463.

6. John Warner and S. Negrusa, "The Economic Case for All-Volunteer Forces" in Gilroy and Williams.

7. Amy Belasco, *Paying for Military Readiness and Upkeep: Trends in Operation and Maintenance Spending* (Washington DC: Congressional Budget Office, September 1997), pp. 25-47.

8. Testifying before the Senate Armed Services Committee in 2000, JCS Chairman General Hugh Shelton reported that 75% of the increased funding for Operations and Maintenance during the fiscal years 1998-2001 went to support operations overseas and to military base support. "US Senator John Warner (R-VA) Holds Hearing on Status of US Forces," *FDCH Political Transcripts,* 27 September 2000.

9. Carl J. Dahlman, *The cost of a military person-year: a method for computing savings from force reductions* (Santa Monica: RAND, 2007), p. 108.

10. *Defense Manpower Requirements Report FY-2009, FY-2008, FY-2007, FY-2006, FY-2005, FY-2003, FY-2001* (Washington DC: Office of the Under Secretary of Defense for Personnel and Readiness, 2000-2009); http://prhome.defense.gov/pi.html

11. *Defense Budget: Trends in Operation and Maintenance Costs and Support Services Contracting* (Washington DC: US Government Accountability Office, May 2007).

12. Jacques S. Gansler and William Lucyshyn, *Competitive Sourcing: What Happens to Federal Employees?* (Washington DC: IBM Center for the Business of Government, October 2004).

13. *Defense Budget: Trends in Operation and Maintenance Costs and Support Services Contracting* (Washington DC: US GAO, May 2007); *Defense Outsourcing: The OMB Circular A-76 Policy* (Washington DC: CRS, 23 January 2001); and, Susan Gates and Albert Robbert, *Personnel Savings in Competitively Sourced DoD Activities: Are they real? Will they last?* (Santa Monica: RAND, 2000).

14. Larry Makinson, *Outsourcing the Pentagon: Who benefits from the Politics and Economics of National Security?* (Washington DC: Center for Public Integrity, 29 September 2004), http://projects.publicintegrity.org/pns/report.aspx?aid=385

15. *Defense Budget: Trends in Operation and Maintenance Costs and Support Services Contracting* (Washington DC: US Government Accountability Office, May 2007).

16. David M. Walker, Comptroller of the United States, "DoD's Increased Reliance on Service Contractors Exacerbates Long-standing Challenges," testimony before the Subcommittee on Defense, Committee on Appropriations, House of Representatives, 23 January 2008.

17. Derived from *Federal Procurement Report* (Washington DC: Federal Procurement Data Center, 1989) and *Consolidated Federal Funds Report for FY 2008* (Washington DC: Census Bureau, July 2009).

18. *DoD's High-risk Areas: Actions Needed to Reduce Vulnerabilities* (Washington DC: US Government Accountability Office, March 2009).

19. Makinson, *Outsourcing the Pentagon: Who benefits from the Politics and Economics of National Security?* (Washington DC: Center for Public Integrity, 29 September 2004), http://projects.publicintegrity.org/pns/report.aspx?aid=385

20. Paul C. Light, *The New True Size of Government, Organizational Performance Initiative, Research Brief #2* (New York City: NYU Wagner Graduate School of Public Service, August 2006); Light, *Fact Sheet on the New True Size of Government* (Washington DC: Brookings Institution, September 2003); and, Light, *The True Size of Government* (Washington DC: The Brookings Institution, 1999).

21. Moshe Schwartz, *Department of Defense Contractors in Iraq and Afghanistan: Background and Analysis* (Washington DC: Congressional Research Service, 13 August 2009); and, Katherine McIntire Peters, "Down to the Core," *Government Executive,* 1 May 1999.

22. *Precision-guided Munitions in Inventory, Production, and Development* (Washington DC: Government Accounting Office, June 1996).

23. Clay Wilson, *Network Centric Warfare: Background and Oversight Issues for Congress* (Washington DC: Congressional Research Service, June 2004).

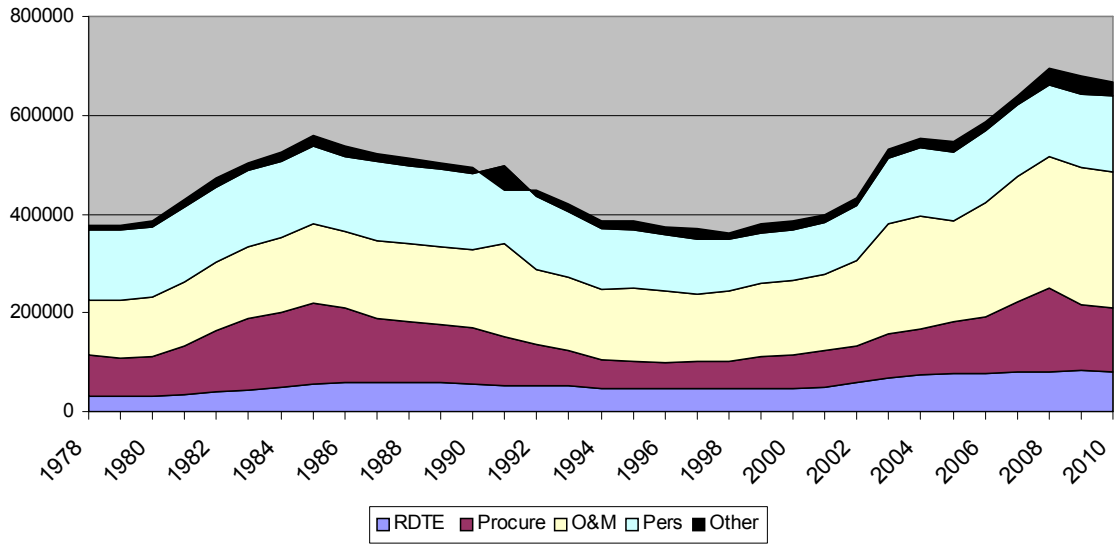
24. The Honorable David M. Walker, Comptroller General of the United States, "DOD Transformation Challenges and Opportunities," testimony before the House Armed Services Committee, 24 Jan 2007.

25. Richard K. Betts, "A Disciplined Defense: How to Regain Strategic Solvency," *Foreign Affairs* (November/December 2007).

26. Lydia Saad, "Americans More Upbeat About US Defense Readiness," *Gallup,* 26 March 2009, available: www.gallup.com/poll/117100/Americans-Upbeat-Defense-Readiness.aspx. All Gallup polling on defense spending: www.gallup.com/poll/1666/Military-National-Defense.aspx.

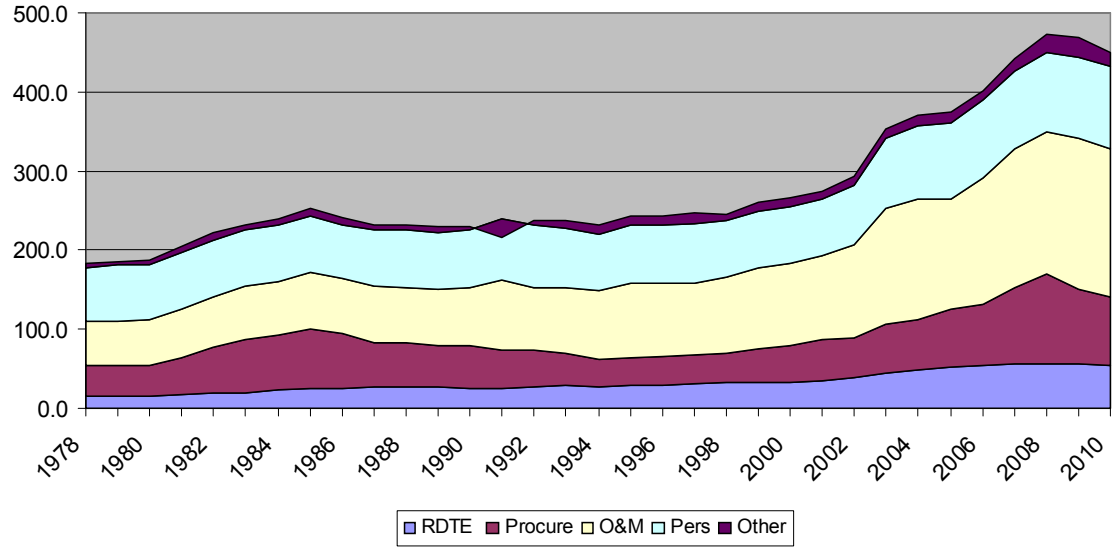
27. Betts, "A Disciplined Defense."

**Figure A-1. DoD Budget Authority by Appropriation Title 1978-2010**
(Millions 2010 USD)




**Sources:** see *Data Sources* appendix.

**Figure A-2. DoD Per Person BA by Appropriation Title 1978-2010**
(000's 2010 USD)




**Sources:** see *Data Sources* appendix.

# Appendix A: Data Review

## A1. Disaggregating the post-1998 Spending Surge

Since 1998, Pentagon budget authority has grown by approximately 90%. All told, in the period 1999-2010, more than $2 trillion has been added to Pentagon accounts above the levels prevailing in 1998. Approximately 52% of this added amount has been devoted to GWOT efforts abroad, including the wars in Iraq and Afghanistan. If the conduct of the Afghanistan and Iraq wars cannot sufficiently explain the unprecedented growth in US defense expenditures, what can? A closer look at changes in the allotment of funds among appropriation categories provides some relevant clues.

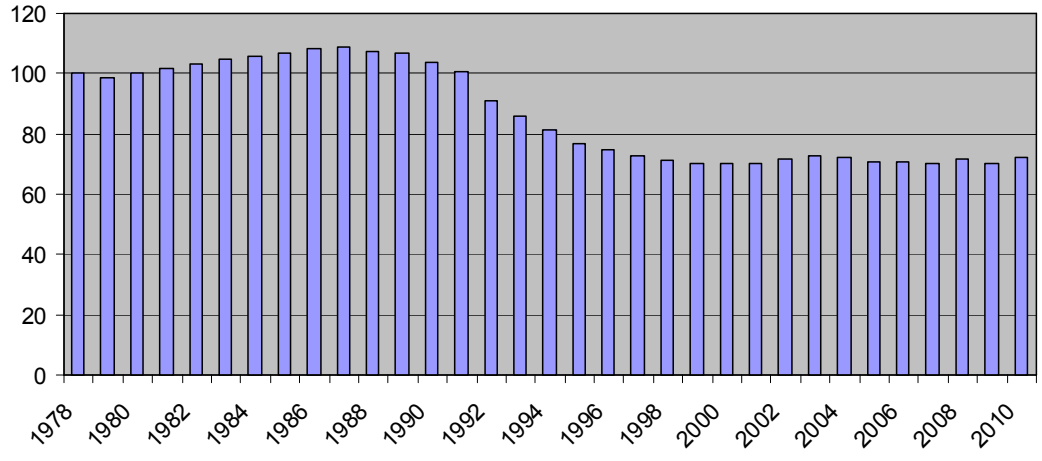
It also is instructive to view the evolution of funding in *per person* terms – that is: per full-time US uniformed personnel. This controls for changes in the numbers of armed forces personnel – a prevalent feature of the post-Cold War period – and enables a clearer focus on other types of change.

- Figure A-1 shows for 1978-2010 the total budget authority (in 2010 USD) allotted to the personnel, operations and maintenance (O&M), procurement, Research, Development, Testing, and Evaluation (RDT&E), and other smaller accounts.

- Figure A-2 shows in *per person* terms the budget authority (in 2010 USD) allotted to the various appropriation categories.

- Figure A-3 shows the fluctuation in full-time strength during 1978-2010 in percentage terms (with the 1978 total of 2.062 million full-time personnel set equal to 100).

**Figure A-3. US Full-time Military Personnel 1978-2010**
(1978 = 100 = 2.062 million)*




**Note:** * Personnel include full-time Guard & Reserve
**Sources:** see *Data Sources* appendix

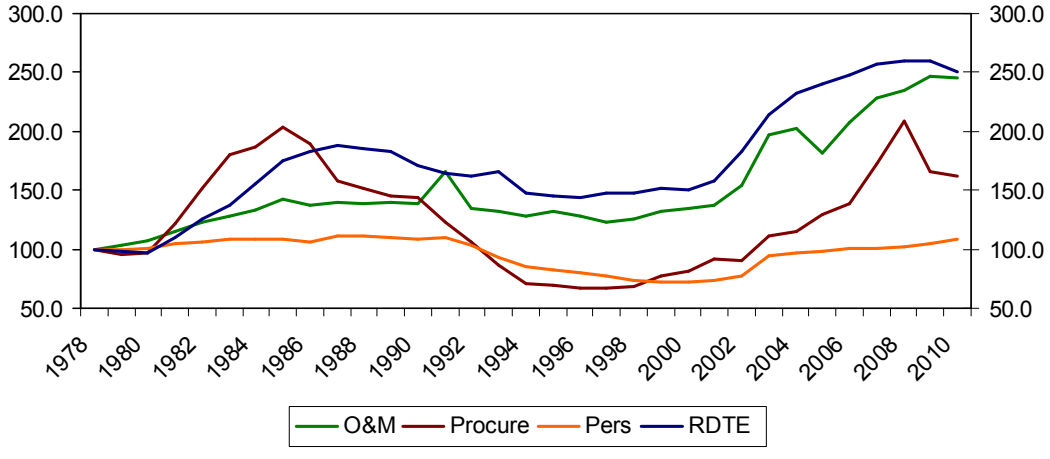
Looking at DoD budget authority for the period 1978-2010 shows that overall funding per full-time person in uniform was remarkably stable from 1983 through 1998 – a period encompassing all of G.H.W. Bush's presidency as well as most of Ronald Reagan's and Bill Clinton's – averaging $240,000 *per person*. In only three out of 16 years does it vary from this mean by more than 3%. However, after 1998, it begins to rise above $250,000, until accelerating sharply with the onset of the Iraq War and then settling at an average of $459,000 *per person* for the years 2007-2010. Today spending exceeds $450,000 *per person* – which is 78% higher than the Reagan peak, 95% higher than on the eve of the first Gulf War, and nearly three times the inflation-adjusted peak during the Vietnam era (which was approximately $154,000 per full-time military personnel).

## A1.1 Tracing the change in spending priorities

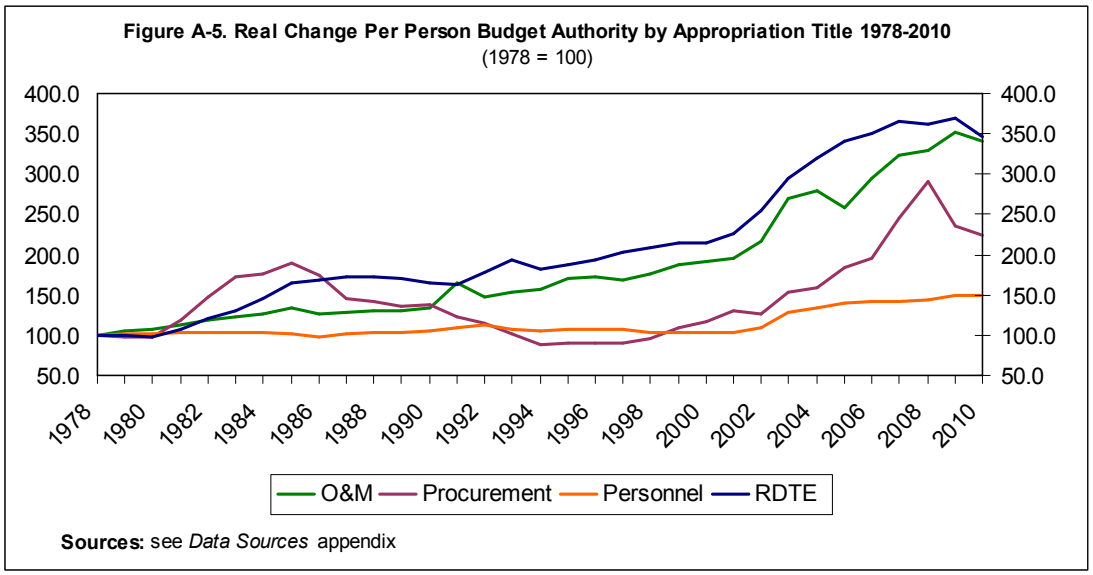
Figures A-4 and A-5 give a better sense of how the spending trends in the major appropriation accounts changed relative to each other. All underlying dollar figures have been converted to USD 2010. In order to highlight relative change, the figures take 1978 as a baseline year, setting expenditures in each account for that year as equal to 100. For subsequent years, the allocations to each account are recorded in terms of the 1978 baseline as being more or less than 100. Had the four accounts retained the ratios they had had in 1978, their trend lines would not have diverged from each other, but would instead have moved as a single line up, down, or horizontally. Instead, the divergence is pronounced, which indicates a significant shift in force development strategy.

Figure A-4 shows change in terms of dollar allocations to the various DoD accounts. Figure A-5 shows change in terms of "per person" expenditures with the relevant population pool being full-time military personnel. Doing this takes into account the prevalent fact of force structure

**Figure A-4. Real Change Budget Authority by Appropriation Title 1978-2010**
(1978 = 100)




**Sources:** see *Data Sources* appendix.




and personnel increases and reductions during the period. Thus, Figure A-5 asks: Given the reduction in force size, how has the allocation of funds among appropriation categories changed?

In absolute terms, all accounts decline during the 1990s – but especially personnel and procurement. The first of these obviously reflects the effect of force reductions, while the latter reflects both decreased demand for equipment and the fact that a surge in procurement had just been completed. By comparison, O&M and RDT&E spending does not decline proportionately during the 1990s and, when viewed in *per person* terms, actually begin a distinct upward climb in 1993. All accounts are rising in real absolute terms after 2000 or 2001, however. And when viewed in *per person* terms, this rise is quite precipitous for most.

Broadly speaking, post-Cold War policy evinces a substantial rebalancing of spending priorities in favor of O&M and RDT&E. By comparison, the personnel account just barely rebounds to Cold War levels (although in *per person* terms it shows a 50% rise).

## A1.2 The effect of the post-9/11 wars on DoD budget allocation

Table A-1 allocates total DoD budget authority (in 2010 dollars) for the period 1999-2010 among appropriation categories. It also denotes that portion of spending that was above the levels set in 1998. Finally, it distinguishes between those portions devoted to the "base" DoD budget and those portions devoted to operations abroad. As noted previously, America's recent wars will have cost more than $1.1 trillion through 2010 – about 17% of the total $6.5 trillion authorized since 1998. Also as stated before, this amounts to approximately 52% of the $2.15 trillion added over the levels set in 1998.

Reviewing the distribution of the surged funds among appropriation accounts:

- The operations and maintenance account is the biggest beneficiary of the post-1998 boom. Nearly three-quarters of this O&M surge was due to the wars.
- Since 1998, nearly $2.1 trillion has been spent on force modernization – that is, procurement and R&D. Of this, $844 billion is above the levels set in 1998. The wars are responsible for approximately $264 billion of post-1998 modernization funding.
- Increased personnel spending since 1998 is divided almost evenly between war-related requirements and the base budget.

**Table A-1. Allocation of DoD Budget Authority – Total and "Surged" 1999-2010**
(Billions 2010 USD)

| | Total DoD $ 1999-2010 | % Wars | $ above 1998 Baseline | Allocation of post-1998 Spending "Surge" | | | |
|---|---|---|---|---|---|---|---|
| | | | | Base Budget | Wars | % for Base Budget | % for War |
| RDTE | 823.13 | 1.63% | 261.15 | 247.72 | 13.43 | 94.9% | 5.1% |
| Procure | 1252.14 | 20.03% | 583.07 | 332.30 | 250.77 | 57.0% | 43.0% |
| O&M | 2582.86 | 25.29% | 892.24 | 239.12 | 653.11 | 26.8% | 73.2% |
| Pers | 1570.50 | 10.29% | 302.72 | 141.09 | 161.63 | 46.6% | 53.4% |
| Other | 253.43 | 13.55% | 104.71 | 70.37 | 34.33 | 67.2% | 32.8% |
| Total | 6482.06 | 17.17% | 2143.88 | 1030.60 | 1113.28 | 48.1% | 51.9% |

**Sources:** see *Data Sources* appendix

## A1.3 Trends in spending on personnel, operations, and maintenance

### *Personnel*

During the 1990s, total inflation-adjusted expenditures for personnel declined substantially from previous Cold War peaks, as the number of full-time military personnel dropped from 2.24 million in 1987 to 1.451 million in 2000. Modest numbers of troops were added after 2000 – an additional 21,000 active-component and 14,000 full-time reservists – amounting to a 2.4% increase. (The 94,000 added to the Army and Marine Corps were counter-balanced by 75,000 lost to the Navy and Air Force.) Overall, US military end strength after 1990 was only briefly one-third lower than the level prevailing in the 1980s, however. Average end strength during the period 1992-2010 has been 70% of the level prevailing in the 1980s. Today, there are 69% as many full-time personnel as there were in 1990.

In 2002, total spending on personnel began to climb upward again, soon reaching levels not seen since the 1980s, when spending had reached $159.5 billion (2010 USD). In 2010, personnel spending stood at $154.7 billion – up nearly 50% from the year 2000, when it was $103.4 billion (2010 USD). Given an only modest increase in the number of full-time personnel, the rise in expenditures is due mostly to increased *per person* costs.

Throughout 1981-2001, average personnel expenditures measured in *per person* terms stayed remarkably constant, varying by no more than a few percent around an average of $73,200 *per person* (in 2010 USD). Between 2000 and 2010, however, per capita personnel costs rose 46% in real terms and today stand at $104,000.

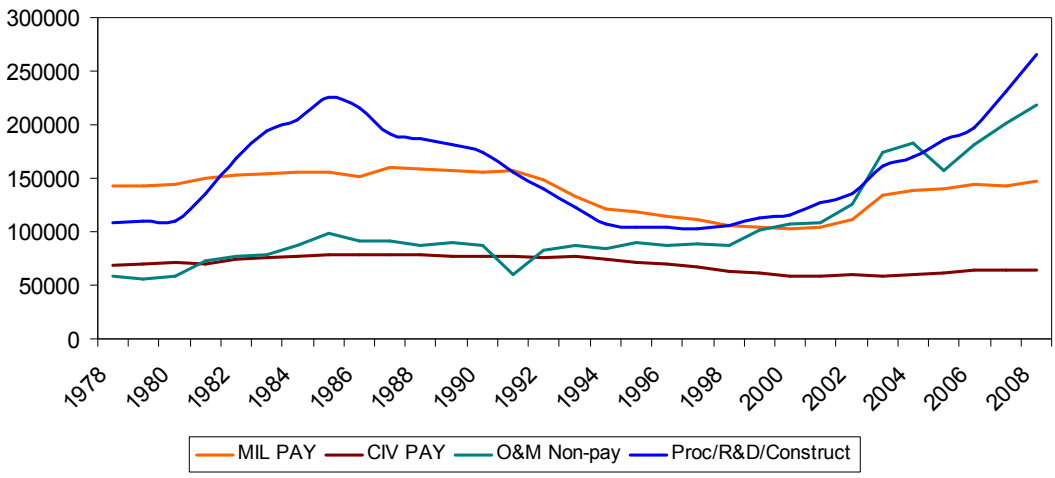
### *Operations and Maintenance*

In the course of the 1990s, as the US military underwent force reductions, DoD expenditures for Operations and Maintenance per full-time person in uniform rose about 46% in real terms. Between 2000 and 2003, it rose another 13%. From 2002 to 2010 – a period coinciding with the Iraq war – it jumped another 59%. All told, the increase between 1989 and 2010 has been 160%. Thus, today, DoD is allocating more than 2.5 times as much *per person* to O&M as it was at the peak of the Reagan surge.

Looking at the proportion of the DoD budget allocated to O&M in 1979, 1989, 1999, and 2009 shows it to rise in ten-year intervals from 30.6% of the total budget to 31% to 39% to 41%. The key shift occurs in the decade between 1989 and 1999, not after.

One factor relevant to increasing O&M costs during the 1990s was the increasing ratio of the civilian payroll to the military one during that decade. The civilian payroll, largely paid out of

**Figure A-6. Budget Authority by Category 1978-2008**
(Millions 2010 USD)




**Sources:** see *Data Sources* appendix

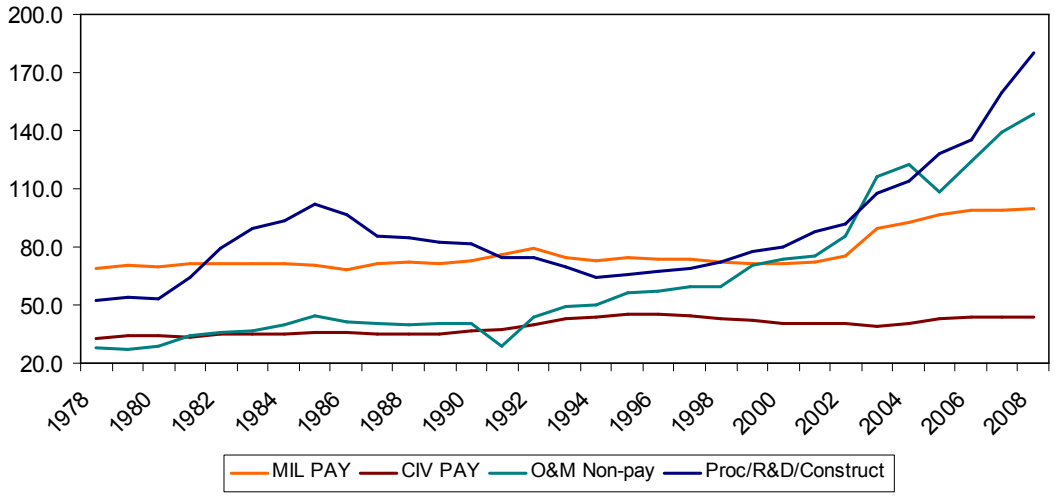
O&M, went from being 49% as large as the military payroll during the 1980s to being 57% as large during the 1990s. Partly, this reflects pay dynamics. Partly it reflects the fact that, as the number of uniformed personnel declined, the force became somewhat more dependent on direct hire civilian employees. Complementing this trend (and eventually overtaking it) was increased reliance on "outsourcing" or contracting. During the period 2000-2008, the proportion of civilian to military personnel receded again, averaging 44% for these years.

### *Another perspective on civilian pay and O&M*

Figures A-6 and A-7 provide a different perspective on the change in the allocation of defense dollars across the period 1978-2008. The charts are based on annual spending expressed in 2010 dollars and they present allocations in both absolute (Figure A-6) and *per person* terms (Figure A-7). The categories differ from those in previous charts, however. Civilian pay is extracted from the other categories and represented independently. The greatest impact is on the Operations and Maintenance account, which normally incorporates most civilian pay. What remains of O&M in Figures A-6 and A-7 are purchases of goods and services – including contractor services.

The increased reliance on DoD civilian labor (relative to military personnel) during the 1990s is apparent in the convergence of the two trend lines in Figure A-6, beginning in 1991 and ending in 2002. Also notable is the rise in non-pay O&M expenditures (including contracts), which is clear in the total expenditures chart beginning in 1998 and, in the *per person* chart, beginning in 1992. Beginning in the 1990s and accelerating sharply after 1998, DoD has allocated much more of its resources to non-pay O&M, including contracts.

**Figure A-7. Budget Authority Per Person by Category 1978-2008**
(000's 2010 USD)




**Sources:** see *Data Sources* appendix

*How much did the post-9/11 wars add to O&M?*

As noted above, O&M costs per full-time person rose another 59% between 2002 and 2010 (in 2010 dollars). But a 50% rise during wartime is not unusual. O&M costs during the Korean and Vietnam wars were comparably higher than in the years between the two conflicts. What makes the recent O&M surge especially noteworthy is that it comes *on top of* a cumulative 65% *per person* increase for the period 1989-2002.

It is also worth noting that the 58% O&M boost that accompanied the recent wars is somewhat greater than that experienced in Korea and Vietnam. One factor contributing to a higher than typical O&M multiplier in recent wars is the significantly greater emphasis today on contractor support. The Congressional Research Service reports that the Central Command area today hosts over 240,000 DoD contractors (compared to 280,000 military personnel supporting war operations there).{1} This ratio of nearly one-to-one contrasts with a 5:1 ratio in Vietnam and 2.5 : 1 ratio in Korea.

## A1.4 Trends in modernization spending

The procurement account evinces the greatest degree of variation during the period under review (1978-2010). (Figures A-8 and A-9 show the 1978-2010 trends in modernization spending – procurement and R&D – corrected for inflation.) Having risen to $165 billion (2010 USD) in 1985 – by far the highest level since the Korean war rearmament – procurement budget authority then receded to a post-Cold War low of $54 billion in 1997 before rebounding in several bursts: first to $74 billion in FY 2001, then to $105 billion in FY 2005, and then peaking at $170 billion in 2008.

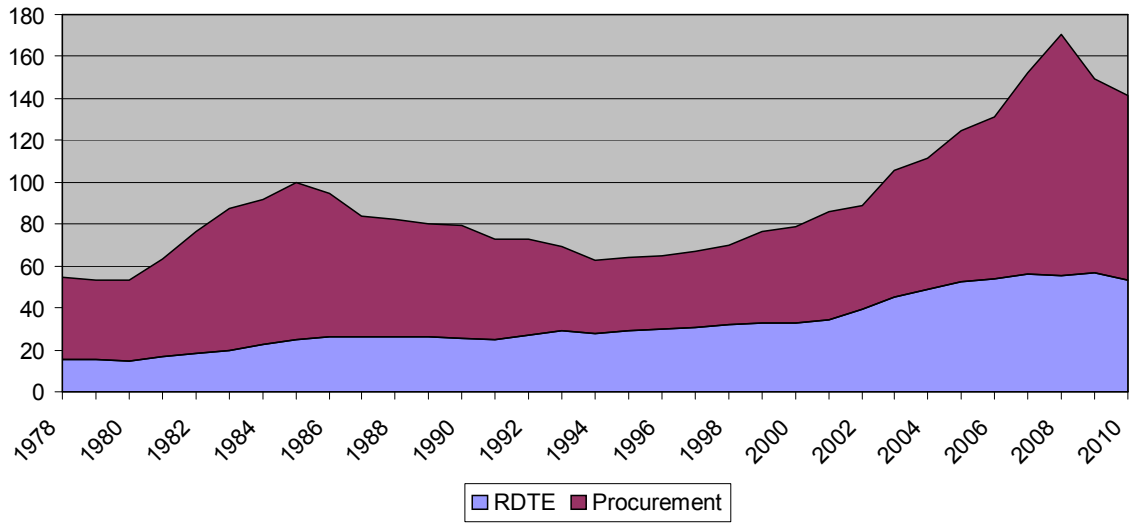
Taking into account changes in force size clarifies the picture in important ways, however:

- The Reagan-era peak allotted to procurement $75,000 per full-time military personnel.
- The post-Cold War ebb, $35,000 *per person*.
- The recent, post-9/11 peak is $115,000 *per person* – more than 50% higher than the previous peak.

In a broader view, comparing average procurement spending *per person* for the period 1983-1986 with that for 2007-2010 shows the latter to be only 40% higher in real terms. When the size of the military is taken into account, the funds allotted to procurement over the years takes on the appearance of a typical procurement "wave" with peaks in 1984 and 2007. This mitigates the impression of atypical retrenchment during the Clinton years.

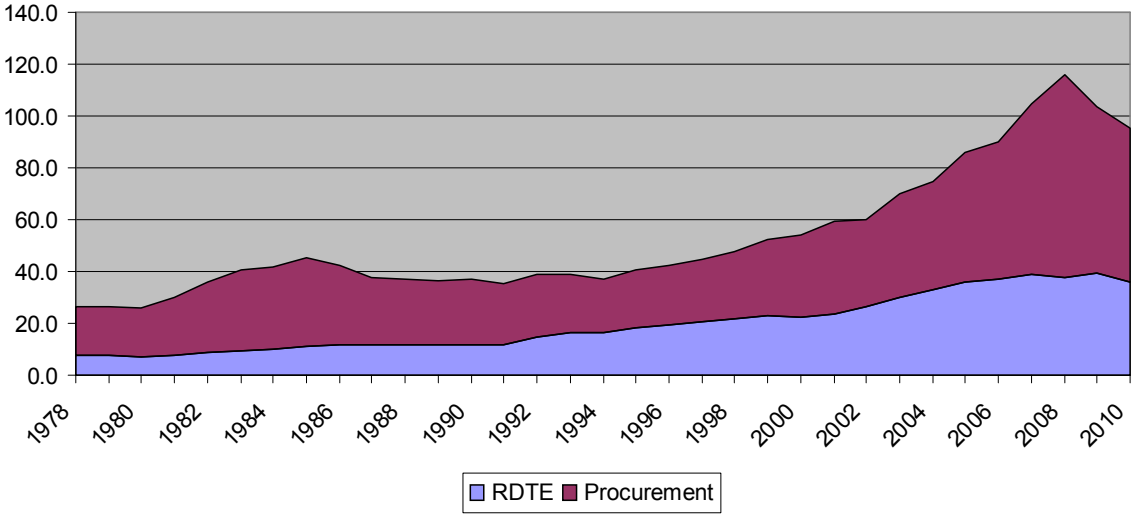
While absolute funding fell peak-to-ebb by two-thirds, *per person* funding declined by half. Part of the reason procurement spending dipped so low during these years was that Reagan-era spending had capitalized a larger force. Subsequently, when the force shrank, retirement of older equipment effectively lowered the average age of equipment pools, achieving virtual modernization. The *per capita* view does not alter the impression of a great leap after Clinton, however. This, because the pool of full-time military personnel grew only marginally between 1999 and 2008 (by 21,000 persons).

**Figure A-8. DoD Budget Authority for Modernization 1978-2010**
(Billions 2010 USD)




**Sources:** see *Data Sources* appendix.

**Figure A-9. DoD Per Person Budget Authority for Modernization 1978-2010**
(000's 2010 USD)




**Sources:** see *Data Sources* appendix

### *Research & Development*

Partially counterbalancing the 1990s decline in procurement was sustained funding for Research, Development, Evaluation, and Testing (RDT&E – henceforth R&D). Funding in this area during the 1990s equaled that during the 1980s in real terms. Thus, given a reduction in force size, R&D authority actually increased on a *per person* basis – from about $26,000 in the late 1980s to $47,000 ten years later.

The real change in the total R&D budget 1978-2010 exhibits a modified "sine wave" form, much like the procurement budget. However, the R&D curve is much flatter. This reflects the interaction of two dynamics. First, a portion of R&D spending closely parallels procurement spending as new items under procurement are tested and tweaked or modified.{2} The rise and fall of R&D spending is less pronounced, however, because – independent of current procurement – ongoing R&D serves to constantly test technological horizons, which is an especially important function for a military establishment as heavily dependent on its technological edge as is the US military. In this respect, putative R&D requirements correspond more to the complexity of the force and its technical composition than they do to its size.

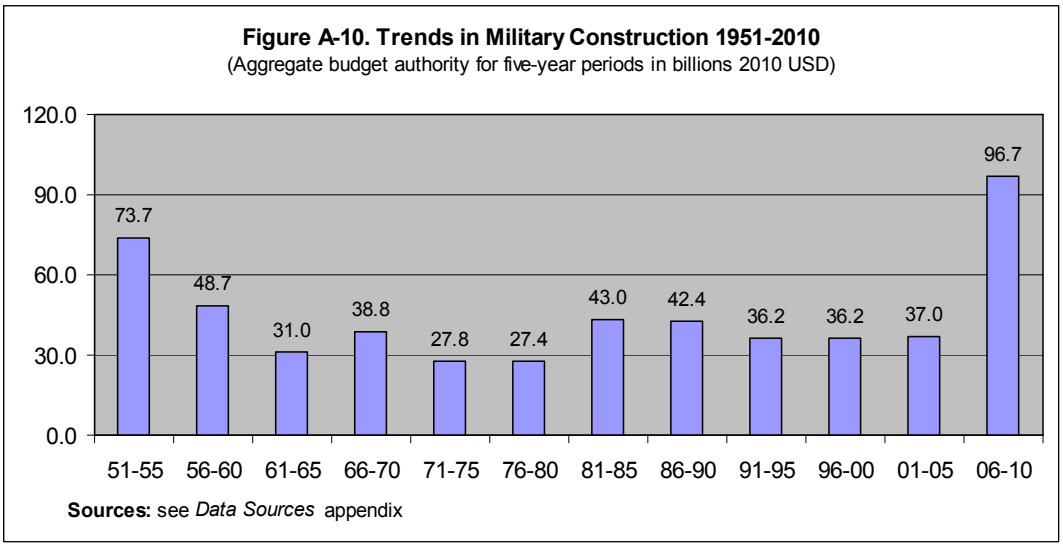
In one notable respect the recent trend in R&D spending does resemble that in procurement: It too surges distinctively upward following the start of the Iraq war. Average R&D spending for the years 2007-2009 was more than 60% higher in real terms than in 2001 – and 37% higher than the Reagan-era peak.

### *How much of the rebound in procurement is attributable to war?*

The low-point in recent procurement spending came in 1997, when about $54 billion (2010 USD) was allotted to that account. In the subsequent 12-year period, 1998-2009, Congress authorized approximately $1.25 trillion for procurement. If we take the 1997 level as a baseline then procurement spending during 1998-2009 was $538 billion above it, in aggregate. Total procurement funding in war supplementals 2001-2010 was approximately $250 billion (2010 USD) – although congressional research agencies and the DoD Inspector General have challenged whether all this funding was actually devoted to war requirements.{3} It is probably the case that not more than 20% of post-1997 budget authority for procurement was due to operations abroad. And not much more than 40% of the post-1997 procurement surge can be attributed to the war.

## A2. The Surge in military construction

Military construction is one of the lesser appropriation categories, although formally comparable to Procurement and Operations and Maintenance. During the past 60 years, military construction expenditures have seldom accounted for more than 2% of DoD expenditures. The period 2006-2010 deviates from the pattern, however, as shown in Figure A-10. Nearly $100 billion has been set aside for military construction during the past 5 years. The yearly average for this period is 2.5 times as great as the average annual budget for the preceding 15 years.




As in the case of several other DoD accounts, the remarkable growth in this one is due to a sudden convergence of initiatives and little apparent imperative to choose among them:

- The *Global Defense Posture* initiatives seek to relocate US troops within a number of allied host countries, expand US presence and facilities in others, stand up the new Africa Command (including new forward operating sites and cooperative security locations), and return as many as 70,000 troops to the United States. DoD has estimated the total cost of these actions as between $9 billion and $12 billion, but with less than $4 billion falling within the period under review.{4}

- Efforts to "grow the force" through the addition of 65,000 Army, 27,000 Marine, and 9,200 Guard and Reserve personnel will require considerable new construction and renovation. The Congressional Budget Office has estimated the construction costs associated with this initiative as $15.7 billion.{5}

- Substantial construction costs are associated with the Army's effort to transform to a modular structure because the effort would reallocate personnel among additional locations and require more training, support, and headquarters facilities. In 2005, the GAO estimated the associated construction costs as $5.8 billion in current dollars. However, some of these costs are probably covered in the estimates for the Global Defense Posture and "Grow the Force" initiatives.{6}

- The current round of the Base Realignment and Closure (BRAC) process involves action at nearly 800 locations and the movement of more than 100,000 domestic-based personnel. Most recently, DoD has reported the cost of implementing this round of BRAC as $34.9 billion (although this figure may incorporate some, if not all, of the *Global Defense Posture* initiative costs.){7}

- DoD is seeking to generally accelerate the renovation of military facilities, especially housing, so that the building replacement rate declines from over 100 years to 67 years. This alone might imply increasing typical renovation and building costs by as much as 50% although, again, some of this requirement might be met through other initiatives.

- Considerable construction costs have been associated with ongoing operations in Iraq and Afghanistan. These consumed more than $10 billion during the 2005-2010 period.

## A3. The surge by service, spending category, and time period

The post-1998 boost in US defense spending is the result of a convergence of disparate policy trends – some planned, some not. The putative requirements of the wars in Iraq and Afghanistan are only part of the picture. This becomes apparent when the spending boost is disaggregated into service and appropriation accounts and then further divided into time periods. The policy imperatives that have driven the budget to unparalleled heights might be divided into a "war-related" set and a "standard" or "peacetime" set. Alternatively, they might be divided into "operational" and "preparedness" imperatives. Either way, the surge suggests that the pressure to set priorities among these contending "requirements" or "imperatives" have been weak. Instead, the demands for funding have been layered one on top of the other.

Tables A-2, A-3, and A-4 disaggregate the spending surge in several ways: by appropriation category, by service, and by period. The principal conclusion of this analysis is that the surge proceeded in overlapping phases, each with distinct foci. As indicated in the tables, our analysis takes spending levels in 1997 and 1998 as constituting an annual "baseline". We then measure average variation from this putative "baseline" in the years that follow. The aim is to illustrate where and when the DoD spending surge was allocated – what ends did it serve?

- Table A-2. shows how much individual services and appropriation accounts gained in the course of the surge years 1999-2006.

- Table A-3. shows average expenditures by service and appropriation account for three periods (of unequal length): 1997-1998, 1999-2002, 2003-2006, and 2007-2008. (The breakpoints were chosen to accentuate differences in funding levels and allocation).

- Table A-4. shows how the allocation of funds changed from one period to the next, each step constituting a "phase" in the surge of funds.

Beginning with a view of the surge as a whole shows that, on average, annual budgets during the period 1999-2008 were $155 billion higher than the 1998 budget. Thus, in aggregate, approximately $1.55 trillion was added during this period to the level set in 1998. (And, of course, more is surged in 2009 and 2010.)

The accounts consuming the most were:

- Defense-wide: 16%
- Individual Services:
  - Modernization: 35.8%
  - Operations & Maintenance: 35.4%
  - Personnel: 13.1%

The substantial increases in O&M spending is not surprising, given large-scale operations in Iraq and Afghanistan – although spending in this category did begin to rise before the on set of the wars. Neither is it surprising that personnel costs would rise. More surprising is that

**Table A-2. Allocation of post-1998 DoD Spending Surge Among Services and Appropriation Accounts**
(Dollar amounts in billions 2010 USD)

| | 1998 | Allocation | 1999-2008 Average | Delta $ | % Share of Surge |
|---|---|---|---|---|---|
| Defense Wide | 55.3 | 15.5% | 80.0 | 24.7 | 16.0% |
| USA Personnel | 39.6 | 11.1% | 51.9 | **12.3** | 7.9% |
| USA O&M | 32.0 | 8.9% | 62.7 | **30.7** | **19.8%** |
| USA Procurement | 9.2 | 2.6% | 26.4 | **17.2** | **11.1%** |
| USA RDTE | 6.6 | 1.8% | 9.9 | 3.3 | 2.1% |
| USA MILCON | 1.8 | 0.5% | 4.0 | 2.2 | 1.4% |
| USA Housing | 1.6 | 0.4% | 1.5 | -0.2 | -0.1% |
| USAF Personnel | 29.0 | 8.0% | 32.7 | 3.7 | 2.4% |
| USAF O&M | 35.8 | 10.0% | 45.5 | **9.7** | 6.3% |
| USAF Procurement | 19.0 | 5.3% | 33.5 | **14.6** | 9.4% |
| USAF RDTE | 17.9 | 5.0% | 21.4 | 3.5 | 2.2% |
| USAF MILCON | 1.9 | 0.5% | 2.0 | 0.1 | 0.0% |
| USAF Housing | 1.4 | 0.4% | 1.6 | 0.2 | 0.1% |
| USMC Personnel | 9.8 | 2.7% | 12.1 | 2.3 | 1.5% |
| USMC O&M | 3.7 | 1.0% | 6.3 | 2.6 | 1.7% |
| USMC Ground Force Procurement | 0.6 | 0.2% | 2.3 | 1.7 | 1.1% |
| Navy Personnel | 27.4 | 7.7% | 29.5 | 2.1 | 1.3% |
| Navy O&M | 27.0 | 0.5% | 38.9 | **12.0** | **7.7%** |
| Navy & other USMC Procurement | 23.6 | 6.6% | 30.9 | 7.3 | 4.7% |
| Navy & USMC RDTE | 9.9 | 2.8% | 15.9 | 6.0 | 3.9% |
| Navy & USMC MILCON | 2.2 | 0.6% | 1.8 | -0.3 | -0.2% |
| Navy & USMC Housing | 1.7 | 0.5% | 1.2 | -0.6 | -0.4% |

**Sources:** see *Data Sources* appendix

**Table A-3. DoD Budgeting by Service and Appropriation Accounts Divided into Four Periods Covering 1997-2008**
(Dollar amounts in billions 2010 USD)

| | Period 1 1997-1998 Average | Period 2 1999-2002 Average | Period 3 2003-2006 Average | Period 4 2007-2008 Average |
|---|---|---|---|---|
| Defense Wide | 57.9 | 66.6 | 84.0 | 98.8 |
| USA Personnel | 40.5 | 39.7 | 58.3 | 63.3 |
| USA O&M | 32.4 | 34.9 | 72.5 | 98.7 |
| USA Procurement | 9.6 | 13.1 | 23.3 | 59.1 |
| USA RDTE | 6.6 | 7.4 | 11.2 | 12.4 |
| USA MILCON | 1.7 | 2.1 | 3.2 | 9.2 |
| USA Housing | 1.7 | 1.5 | 1.5 | 1.2 |
| USAF Personnel | 29.7 | 29.2 | 35.3 | 34.3 |
| USAF O&M | 34.9 | 39.1 | 49.0 | 51.4 |
| USAF Procurement | 18.4 | 24.7 | 37.4 | 43.2 |
| USAF RDTE | 17.8 | 17.3 | 22.9 | 26.5 |
| USAF MILCON | 1.9 | 1.6 | 2.0 | 2.8 |
| USAF Housing | 1.4 | 1.4 | 1.9 | 1.5 |
| USMC Personnel | 10.0 | 9.9 | 13.1 | 14.2 |
| USMC O&M | 3.7 | 4.0 | 7.2 | 9.1 |
| USMC Ground Force Procurement | 0.7 | 1.3 | 3.6 | 1.6 |
| Navy Personnel | 28.3 | 26.8 | 31.5 | 30.6 |
| Navy O&M | 30.0 | 35.4 | 40.9 | 42.1 |
| Navy & other USMC Procurement | 22.2 | 26.6 | 31.2 | 38.7 |
| Navy & USMC RDTE | 10.0 | 11.9 | 18.0 | 19.8 |
| Navy & USMC MILCON | 2.3 | 1.4 | 1.7 | 2.9 |
| Navy & USMC Housing | 1.8 | 1.5 | 1.1 | 0.7 |
| Total | 363.5 | 397.5 | 550.9 | 662.1 |

**Sources:** see *Data Sources* appendix

modernization – that is, procurement and R&D – should register as the largest single recipient of the spending boost. Although a fair portion of this goes to US ground forces during the war period, most does not. Taken together, the Air Force and the Navy (excluding the Marine Corps) claim more. Reviewing the spending surge in phases shows that:

- The first phase (culminating in the 1999-2001 period) emphasized modernization across the services, but especially benefitting the Air Force. O&M accounts show real but lesser

**Table A-4. Change in DoD Budgeting by Service and Appropriation Accounts 1997-2008**
(Dollar amounts in billions 2010 USD)

| | Period 1 > 2 | | Period 2 > 3 | | Period 3 > 4 | |
|---|---|---|---|---|---|---|
| | $ Delta | % Delta | $ Delta | % Delta | $ Delta | % Delta |
| Defense Wide | **8.7** | **15.1%** | **17.4** | 26.2% | **14.8** | 17.6% |
| USA Personnel | -0.8 | -2.0% | **18.6** | **46.8%** | 4.9 | 8.4% |
| USA O&M | 2.6 | 7.9% | **37.5** | **107.4%** | **26.3** | **36.3%** |
| USA Procurement | **3.4** | **35.5%** | **10.3** | **78.6%** | **35.8** | **153.3%** |
| USA RDTE | 0.7 | 11.0% | 3.8 | **52.3%** | 1.2 | 10.5% |
| USA MILCON | 0.4 | **26.6%** | 1.1 | **53.0%** | 6.0 | **184.9%** |
| USA Housing | -0.2 | -10.3% | 0.0 | 1.2% | -0.3 | -21.7% |
| USAF Personnel | -0.5 | -1.7% | 6.1 | 20.9% | -1.0 | -2.8% |
| USAF O&M | 4.3 | 12.3% | **9.9** | 25.2% | 2.4 | 4.9% |
| USAF Procurement | **6.3** | **34.3%** | **12.7** | **51.4%** | 5.7 | 15.3% |
| USAF RDTE | -0.6 | -3.2% | 5.6 | 32.6% | 3.7 | 16.0% |
| USAF MILCON | -0.4 | -18.9% | 0.4 | 25.5% | 0.8 | **42.1%** |
| USAF Housing | 0.0 | 0.2% | 0.5 | 31.9% | -0.4 | -20.0% |
| USMC Personnel | 0.0 | -0.2% | 3.2 | 31.7% | 1.2 | 8.8% |
| USMC O&M | 0.3 | 8.2% | 3.2 | **79.2%** | 1.9 | **26.7%** |
| USMC Ground Force Procurement | 0.6 | **95.7%** | 2.4 | **183.8%** | -2.1 | -57.2% |
| Navy Personnel | -1.4 | -5.1% | 4.7 | 17.4% | -0.9 | -2.7% |
| Navy O&M | **5.4** | **17.9%** | 5.5 | 15.6% | 1.1 | 2.8% |
| Navy & other USMC Procurement | **4.4** | **20.0%** | 4.6 | 17.3% | **7.5** | **23.9%** |
| Navy & USMC RDTE | 1.9 | **19.0%** | 6.0 | **50.7%** | 1.9 | 10.3% |
| Navy & USMC MILCON | -1.0 | -41.7% | 0.4 | 29.0% | 1.2 | **67.6%** |
| Navy & USMC Housing | -0.3 | -18.0% | -0.4 | -29.5% | -0.4 | -34.9% |
| | 33.9 | 9.3% | 153.4 | 38.6% | 111.2 | 20.2% |

**Sources:** see *Data Sources* appendix

growth, reflecting responses to readiness concerns during the late 1990s and the demands of operations in Iraq (Desert Fox) and the Kosovo war.

- The second phase (culminating 2003-2006) brought O&M spending to the fore – especially for the ground forces. But it also involved considerable procurement expenditures for ground and air forces.

- The third (culminating 2007-2008) was characterized by an even greater emphasis on ground forces – and especially on Army procurement. Nonetheless, Navy procurement also advanced in the third phase. (The analysis treats USMC ground equipment

procurement as a category separate from Navy procurement). Additionally, the third phase saw a surge in military construction funding for all the services.

- Across all three phases, the "defense-wide" spending category showed significant gains.

This overview of the surge suggests that it comprised several overlapping trends or imperatives. Throughout the period, there is an effort to ramp up standard peacetime modernization – the rebound from the post-Cold War ebb. However, beginning in 2003, this imperative is gradually overtaken (although not entirely stalled) by an *ad hoc* surge of funding to meet Iraq and Afghanistan war requirements. Initially, the focus of *ad hoc* measures is O&M, but this eventually gives way to greater emphasis on war-driven procurement, either to "reset" the ground forces or provide them with specialized equipment (notably, Mine Resistant Ambush Protected vehicles).

While war requirements may have curbed peacetime modernization plans, they did not derail them. Indeed, under Donald Rumsfeld, DoD was late to recognize the likely costs of the Afghanistan and Iraq interventions. (Average annual funding for the wars during 2001-2008 was $103 billion in 2010 USD – but not until 2006 were incrementals consistently above $100 billion.) So, a significant portion of planned peacetime modernization goes forward parallel to war demands.

Consistent growth in the "defense wide" category points to another war imperative: special operations and intelligence capabilities. While relevant to the conduct of occupation and counter-insurgency campaigns in Iraq and Afghanistan, these also pertain to more generalized counter-terrorism activities worldwide. The broader "Global War on Terrorism" constitutes an overlapping, but separable "front" of US military activity helping to drive the surge in "defense wide" spending.

The next section provides a closer look at the "Defense Wide" spending category and what it encompasses.

## A4. Defense-wide spending

The "defense-wide" account also saw substantial growth across the periods – 53.7 % -- but with most of this occurring between Period 2 (1999-2002) and Period 3 (2003-2008).

This account funds 18 defense agencies, 10 field activities, and a variety of other programs, including the Joint Staff and the Office of the Secretary of Defense. In the 2010 budget, the largest recipients were the Defense Health Program (DHP - $27.9 billion) and a cluster of intelligence agencies and activities. These two together probably account for nearly half of the $90 billion defense-wide base budget. Other substantial components of this account are the Missile Defense Agency, the Special Operations Command (USSOCOM), the Office of the Secretary of Defense , and the Defense Advanced Research Projects Agency. These additional programs absorb more than another 20% of the defense-wide budget.

**Table A-5. Defense-wide Agency & Program Funding 2010**
(Billions USD 2010)

| | |
|---|---|
| Defense Health Program (DHP) | 27.9 |
| Missile Defense Agency (MDA) | 7.8 |
| Special Operations Command (SOCOM) | 5.9 |
| Office of the Secretary of Defense (OSD) | 4.7 |
| Defense Advanced Research Projects Agency (DARPA) | 3.2 |
| Defense Advanced Research Projects Agency (DARPA) | 3.2 |
| DoD Dependents Education (DoDDE) | 2.5 |
| Defense Information Systems Agency (DISA) | 2.2 |
| Defense Information Systems Agency (DISA) | 2.2 |
| Chemical and Biological Defense Program (CBDP) | 1.7 |
| Washington Headquarters Services (WHS) | 1.6 |
| Defense Threat Reduction Agency (DTRA) | 1.3 |
| Defense Commissary Agency (DeCA) | 1.3 |
| Defense Threat Reduction Agency (DTRA) | 1.3 |
| Counternarcotics (CN) | 1.1 |
| Defense Contract Management Agency (DCMA) | 1.1 |
| Military Medical Construction | 1 |
| Defense Logistics Agency (DLA) | 0.9 |
| Defense Security Cooperation Agency (DSCA) | 0.7 |
| Defense Human Resources Activity (DHRA) | 0.7 |
| Joint Staff (JS) | 0.6 |
| Defense Security Service (DSS) | 0.5 |
| Defense Contract Audit Agency (DCAA) | 0.5 |
| Business Transformation Agency (BTA) | 0.4 |
| Defense Media Activity (DMA) | 0.3 |
| Office of the Inspector General (OIG) | 0.3 |
| Test Resource Management Center (TRMC) | 0.3 |
| Defense Acquisition University (DAU) | 0.1 |
| National Defense University (NDU) | 0.1 |
| Defense Prisoner of War/Mission Personnel Office (DPMO) | < 0.1 |
| US Court of Appeals for the Armed Forces | < 0.1 |
| Office of Economic Adjustment (OEA) | < 0.1 |
| Defense Legal Services Agency (DLSA) | < 0.1 |
| Defense Technical Information Center (DTIC) | < 0.1 |
| Defense Technology Security Administration (DTSA) | < 0.1 |
| Intelligence Agencies & Activities | *classified* |
| | |
| Subtotal -- sum of the above | 75.4 |
| Total Reported Defense-wide Budget | 90.8 |
| *Undistributed Remainder* | 24.8 |

**Sources:** see *Data Sources* appendix.

The Defense Health Program is the principal driver of growth in defense-wide spending due both to its size and cost dynamics. The program had a budget of $9.9 billion in 1999, which equates to between $13 billion and $14 billion in 2010 USD (depending on the deflator employed). Given a 2010 DHP budget of $27.9 billion, the program budget has grown by more than 100% in real terms since 1999. Partly this reflects the trend in medical care generally, which has especially affected the cost of those services the DHP purchases from civilian providers. Also, the fees charged to participants have not kept pace with national trends, while eligibility for the program has expanded. Finally, the mobilization of reservists for the wars in Iraq and Afghanistan has brought more families into the "direct care" portion of the program, which is the least expensive, and this has driven other eligible recipients into the higher-cost "privatized" portion.{8}

Also a major factor in the growth of the defense-wide account is the budgeting for intelligence agencies and accounts. How much this component has grown is hard to say because the various intelligence elements included in the defense-wide folder are classified. However, budget growth for a significant portion of the US intelligence community can be measured, and this can give some indication of growth in the intelligence component of DoD's defense-wide accounts.

In 2008, the then Director of National Intelligence, Adm. Michael McConnell, reported the US National Intelligence Program (NIP) budget to be $47.5 billion.{9} In 1998, George Tenet had reported it as $26.7 billion. Adjusting for inflation, these figures imply a 32% increase in real terms between 1998 and 2008. (The NIP is only one of three components of a US intelligence system that, in total, presently costs about $75 billion annually. Most of the intelligence community is funded through DoD accounts, but only a portion of this is covered in the "defense-wide" category.) {10}

Finally, the US Special Operations Command (SOCOM) and the US Missile Defense Agency (MDA) have significantly contributed to the rise in defense-wide spending. In 1999 the MDA received a budget of $4.8 billion (2010 USD); in the 2010 budget request, it was allotted $7.8 billion. In FY 2000, SOCOM's budget was $4.77 billion (2010 USD). In FY 2008, it received a total of $9.72 (2010 USD), which represents a greater than 100% increase in real terms.

## Notes

1. Moshe Schwartz, *Department of Defense Contractors in Iraq and Afghanistan: Background and Analysis* (Washington DC: Congressional Research Service, 13 August 2009); also see: *DoD, State, and USAID Continue to Face Challenges in Tracking Contractor Personnel and Contracts in Iraq and Afghanistan* (Washington DC: Government Accountability Office, October 2009); and, *Contractors' Support of US Operations in Iraq* (Washington DC: Congressional Budget Office, August 2008).

2. *The Department of Defense's Research, Development, Test and Evaluation Program: A Primer* (Washington DC: Congressional Research Service, 1996).

3. Stephen Daggett, et. al., *FY2009 Spring Supplemental Appropriations for Overseas Contingency Operations* (Washington DC, Congressional Research Agency, July 2009); Amy Belasco, *The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11* (Washington DC, Congressional Research Agency, May 2009); *DoD Components' Use of Global War on Terror Supplemental Funding Provided for Procurement and Research, Development, Test, and Evaluation* (Arlington VA: Inspector General, Department of Defense, April 2009); and, *Analysis of the Growth in Funding for Operations in Iraq, Afghanistan, and Elsewhere in the War on Terrorism* (Congressional Budget Office, February 2008).

4. *Force Structure: Actions Needed to Improve DoD's Ability to Manage, Assess, and Report on Global Defense Posture Initiatives* (Washington DC: Government Accountability Office, 2 July 2009).

5. *Estimated Cost of the Administration's Proposal to Increase the Army's and the Marine Corps's Personnel Levels* (Washington DC: Congressional Budget Office, 16 April 2007).

6. *Force Structure: Actions Needed to Improve Estimates and Oversight of Costs for Transforming Army to a Modular Force* (Government Accountability Office, 29 September 2005).

7. *Military Base Realignments and Closures: Estimated Costs Have Increased While Savings Estimates Have Decreased Since Fiscal Year 2009* (Washington DC: Government Accountability Office, 13 November 2009).

8. Philip Lurie, "Analysis and Forecasts of TRICARE Costs," *IDA Research Notes* (Fall 2008).

9. The 1998 NIP budget was $37.27 billion (2010 USD), while the 2008 NIP budget was 49.2 billion. Jim Wolf, "US says 2008 intelligence budget was $47.5 billion," *Reuters.com,* 28 October 2008; Stephen Daggett, *The US Intelligence Budget: A Basic Overview* (Washington DC: CRS, 24 September 2004).

10. "2009 National Intelligence Strategy," Media conference Call with Mr. Dennis C. Blair, Office of the Director of National Intelligence, Washington DC, 15 September 2009.

# Appendix B: Goal Inflation in post-Cold War US Defense Strategy

Interpreting the rebound in defense spending requires putting it into strategic perspective. And the period under review straddles a pivotal strategic divide: the end of the Cold War.

During the Cold War, the United States faced a multifaceted, global challenge of unparalleled magnitude – a peer challenge. At that time, the cluster of Western adversaries worldwide included what are today 42 independent states – nearly one quarter of the world's total. And this group invested as heavily in military power as did the United States and its allies.

Looking only at Cold War Europe, two million Soviet bloc troops stood ready within a few days striking distance of the Western heartland. Behind these stood perhaps 5 million more troops. The Soviet arsenal grew to include 9000 tactical aircraft, 65,000 tanks, a global navy, thousands of advanced missiles, more than 45,000 nuclear warheads, approximately 40,000 metric tons of chemical agents, and tens of thousands of tons of biological agents.

The East-West contest also intersected and redefined the North-South divide. Together, the superpower blocs provisioned more than 60 garrison states in the South and involved themselves in more than 30 significant civil conflicts there -- including, most notably, the Korean and Vietnam wars.{1} And the entire configuration was linked to the prospect of a global nuclear war which, had it commenced, might have claimed 40 million lives within one week and many more in subsequent months.{2}

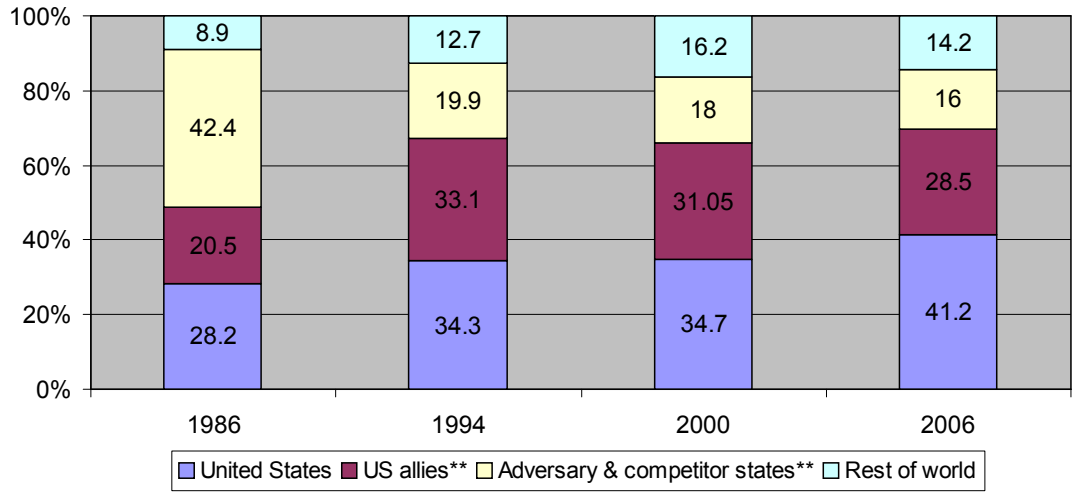
With the eclipse of the Cold War threat, one might have expected a relatively deep retrenchment in US defense spending. And, indeed, there was a short-lived ebb during the 1990s. However, looking back from the vantage point of 2010, the 1990s dip is virtually indistinguishable from earlier cyclical dips in defense spending.

Taking a longer view, DoD budgets during the first two decades of the "new era" run about 7% *higher* on average (in real terms) than they did during the last two decades of the Cold War (which encompass several high-tide years of Vietnam war spending). Take the current US wars out of the calculation and the first two decades of the post-Cold War era cost about 97% as much as during the last two decade of the Cold War.

Looking at trends in world military expenditure, the 1990s decline in US spending never matched the world decline. (See Figure B-1.) And the growth in US spending since the 1990s has America claiming a much larger share today.

- The United States went from accounting for only 28% of world spending during the Cold War to 41% in 2006.
- The Western group as a whole went from a 49% share to a 70% share.
- By contrast, the group of potential adversary and competitor states went from claiming a 42% share to just 16% in 2006.

**Figure B-1. World Military Spending Shares 1986-2006**
(% Total Based on PPP*)




* PPP = Purchasing Power Parity ** See Data Sources appendix for country lists

**Sources:** see *Data Sources* appendix

America's present predominance in military expenditure is not solely a product of post-9/11 initiatives. Throughout most of the 1990s, the United States claimed between 31% and 33% of world military expenditures, while potential adversary states in aggregate claimed 18% to 20%.

## B1. The post-Cold War shift in strategy and goals

It is one thing to argue that the complexity, instability, and uncertainty of today's world poses a special challenge to military strategists and planners striving to devise a sustainable security policy. It is quite another to contend that these circumstances in themselves require America to spend more on defense today than during the Cold War. But, then, the formulation of defense "requirements" always has involved more than net assessment – that is, more than a comparison of "our" capabilities and "theirs". Goals and strategy also figure centrally in the setting of "requirements". And there is no doubt that, with the end of the Cold War, the United States adopted more challenging goals for itself and its armed forces. Appreciating this strategic choice *as a choice* brings us a step closer to understanding the phenomenal growth in defense expenditure since 1998.

As the Cold War threat receded, successive US administrations indulged in what is most accurately described as "goal inflation."

- The Cold War emphasis in Pentagon planning on achieving simple defense and deterrence gave way to increased emphasis on various forms of preventative action – not only preventative war and regime change, but also greater reliance on the military to

"shape the strategic environment" and prevent the emergence of threats. Increasingly, military power substituted for diplomacy and other instruments of national power.

- The emphasis on preparing against real and present or emerging military threats gave way to an increased emphasis on preparing against a broad range of lower probability and future possible or "unseen" threats.{3}

- Military-strategic and operational goals also grew more ambitious, as explicated below.

Military-strategic and operational goals determine how America fights its wars and handles multiple contingencies. What types of contingencies must we prepare for? How much force must we be able to deploy, how fast, and how far? How quickly must we "finish up" and prepare to redeploy? How much risk and uncertainty can we tolerate? "Requirements" vary depending on how these questions are answered – with profound implications for force size, modernization, and readiness standards.

The Pentagon may ambitiously seek the capacity to deploy significant force to distant theaters in 10 days, defeat an enemy in 30, and be ready to fight again within another 30.{4} Or, the US Army may seek, unrealistically, to deploy a brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days.{5} In devising a double war scenario, planners may assume that the wars come just 45 days apart.{6} If such goals and assumptions become the standards for assessing preparedness, then "readiness crises" easily ensue. Such was the case in 1999 when two Army divisions were found to be not sufficiently ready to deploy on schedule for an ambitious double-war scenario.{7} What is lost in this is a balanced assessment of the likely risks entailed by reverting to more modest deployment schedules.

Most of the new strategic imperatives were first codified in the 1997 and 2001 *Quadrennial Defense Reviews* (although they resonate with ideas first ventilated in the 1992 *Defense Policy Guidance* document).{8} With regard to defense programming and budgeting, they had the effect of capping the cuts in force structure while providing reasons to:

- Sustain and enhance US global military presence and reach,
- Attain and maintain higher-levels of operational readiness, and
- Restore a higher pace of equipment modernization.

Additionally, the new guidance required that the US military, although reduced in size, nonetheless retain nearly all the facets of power that it had evolved over 50 years: the commands, services, service "arms", and enabling capabilities. In a sense, the "house" was to be smaller, but it was to have just as many wings, rooms, and windows as before. And, as we explore in *Appendix C,* this was to pose a serious challenge throughout the new era as Pentagon managers struggled to streamline the services and their supporting structures.

## B2. The Pentagon's full plate

As the new guidance took hold, the Pentagon's list of essential tasks grew in length, complexity, and ambition. The *2006 Quadrennial Defense Review* usefully divides the essential tasks into two broad categories: *steady-state* and *surge*.

*Steady-state activities* include:

- Maintaining a generalized US global military presence on land and sea, including new reaches into eastern Europe, central Asia, and sub-Saharan Africa. Today, global presence involves a network of over 850 foreign bases and installations, 130,000 personnel on foreign soil (*excluding* those in Iraq, Kuwait, and Afghanistan), and 30,000 sailors afloat on more than 100 deployed ships and submarines.

- Maintaining significant deterrent strength with regard to potential aggression on the Korean peninsula, in the Taiwan straights, in the Persian Gulf, and in Europe.

- Conducting multiple, complex missions of varying duration – including counter-terrorist operations and smaller-scale counterinsurgency, stability, and nation-building missions.

- Conducting a broad variety of engagement and partnerships activities involving training, exercises, exchanges, and security cooperation with allied and friendly nations. The scope of these activities has expanded substantially since the end of the Cold War and presently include significant activities involving nearly 60 nations. On the eve of the 9/11 attacks, America's armed services were already engaging in more than 170 multinational exercises per year.{9}

- Ongoing counter-proliferation and counter-terrorism campaigns. Apart from Iraq and Afghanistan, the latter includes significant efforts in about 20 countries outside NATO, involving approximately 5,000 troops; and,

- Homeland protection duties.

*Surge missions* might include:

- Helping to manage the consequences of domestic WMD attacks and other catastrophic events. And,

- The conduct of two overlapping large-scale operations. One of these might include the aim of "regime change". And one might be a protracted counterinsurgency, stability, and/or nation-building operation.

In a marginal concession to reality, the forthcoming 2010 *QDR* may modify the two-war standard and task the military to be ready to *either* handle two major conflicts *or* (i) fight and win one major war, while simultaneously (ii) maintaining deterrent strength in several theaters and (iii) conducting several less intensive operations of varying size.{10}

With or without an explicit "two-war" standard, the US military today prepares to conduct four types of major combat operations:

- Operations like *Allied Force* in Serbia/Kosovo and the initial phase of *Enduring Freedom,* in which air power plays the primary role.

- Conflicts like the conventional phase of the 2003 Iraq war, which involve large numbers of mechanized units as well as air power in a traditional form of air-land battle.

- A major navy-centric conflict— such as defense of Taiwan—which also would draw heavily on air force assets.

- Operations like the current counterinsurgency and nation-building effort in Iraq and Afghanistan, which are heavily dependent on dismounted troops and Special Operations Forces.

## B3. Stressing the force

It is commonplace to focus on contingency operations as a source of stress for the armed forces. But these are hardly the sole source. A comprehensive assessment of the demands placed on America's armed forces might parse activities into four broad categories:

- Training and related exercises – which will vary in accord with the degree of desired readiness and the task list that units must be prepared to execute;

- Routine overseas presence and rotations;

- Peacetime overseas engagement activities, including multinational exercises; and

- Contingency operations of various sorts, sizes, and durations.

Each of these admit considerable latitude to "dial up" or "dial down" the tempo of activity in accord with chosen goals and strategies. And the choices made in this regard will significantly impact the definition of "requirements".

With regard to routine overseas presence and the conduct of contingency operations, Table B-1 shows how the demands on the US military have evolved since the 1980s. After declining during the mid- and late-1990s, the total percentage of US forces abroad is today comparable to the level during the 1980s. But the subset of these involved in contingency operations is much higher.

**Table B-1. Percent Full-time US Military Overseas & in Contingency Operations**

| | 1980s | 1990-1991 | 1992-1999 | 2005-2009 |
|---|---|---|---|---|
| Full-time Military Personnel (000's) | 2174 | 2110 | 1609 | 1466 |
| % Overseas (excluding contingency operations) | 23% | 16% | 14+% | 8.5% |
| % in Contingency Operations* | 0.3% | 8% | 2+% | 16% |

* Based on # of personnel deployed multiplied by days deployed, averaged over time period.

**Sources:** see *Data Sources* appendix.

Still, even today, contingency operations may constitute only half of the aggregate demand placed on the US armed forces. Certainly, during the 1990s – when military readiness concerns reached a fever pitch – they constituted much less than half. At the time, a study by Rand Corporation found that three stressed Air Force wings probably devoted only 7% of their time to contingency operations. The rest was consumed by routine peacetime activities, training, inspections, and various types of exercises – command, joint, and multinational.{11} A more comprehensive RAND study found that contingency operations consumed about 6% of USAF flying hours during the mid-1990s.{12}

Historically, the employment of the armed forces in activities other than contingency operations and routine training has been considerable. Reflecting again on the readiness crisis of the late 1990s:

- The 1999 USAF posture statement asserted that in a single year service members "participated in over 1,600 exercises in 35 countries, and conducted almost 300 military-to-military contact visits in Europe and the Pacific."{13}

- A GAO study of the 1,405 JCS exercises conducted or planned for the period 1995-2002 found that 44% were primarily directed toward engagement activities with foreign military forces.{14}

- In testimony before the US House Subcommittee on Military Readiness, General Richard Myers, then commander of Pacific Air Forces, noted that in 1998 the Pacific Command was conducting an intensive exercise program involving 23 Pacific nations.{15}

- Admiral Paul Reason, when commander of the US Atlantic Fleet, argued before the House Readiness Subcommittee that "too many (regional) CinCs are placing demands on too few assets," leading to duplicative training, among other problems.{16}

## B4. From missions to "requirements": Capability-based planning

Commensurate with the adoption of goals that were both more diffuse and more ambitious, the "threat-based planning" common to the Cold War period gave way to "capability-based planning" (CBP). The earlier "threat-based" approach set out a handful of key scenarios to guide force planning (with everything else relegated to "lesser included" status). By contrast, CBP seeks to build armed forces optimized to address a much broader array of missions and scenarios more equally – as best they can, at any given level of funding.{17} This can generate unrelenting upward pressure on the budget for several reasons:

*First,* because the supply of "scenarios" is unlimited and there can never be certainty about how much capability is needed to achieve any particular objective.

*Second,* because a force optimized to do the best it can across a broad range of scenarios will often prove sub-optimal for those contingencies that actually occur.

The galaxy of security threats and challenges becomes something of a "soft blur" in CBP. Thus, the linkage between specific assets and specific threats is attenuated, making it hard to

determine the true cost-benefit value of any particular asset. Instead, "assets" are weighed in terms of their putative contribution to the whole – a "whole" that melds essential missions and less essential ones, likely scenarios and unlikely ones.

CBP is supposed to provide a hedge against uncertainty. But, paradoxically, the approach did not prepare America well for the contingencies it faced beginning on 11 September 2001. In the context of DoD's virtually feudalistic approach to defining "requirements", CBP instead gave a new lease-on-life to *legacy* systems and capabilities. In the soft blur of CBP, almost any asset can find a place – although only some come forward with the benefit of institutionalized momentum.

There are several prerequisites to a more disciplined practice of CPB, and these help illuminate the problems with the approach as currently practiced:

- First, as David Walker, former US Comptroller General, has observed: DoD "capabilities and requirements are based primarily on individual service wants *versus* collective defense needs."{18} What is needed instead, especially under a CBP regime, is a unified "bottom up" approach to defining requirements and fashioning forces. Such an approach would not privilege legacy systems or the traditional allocation of roles and missions among services.

- Second, the threats and scenarios employed in planning must be strictly prioritized. Those with high and moderate probabilities should lead the way and, in these cases only, the investment in counter-capabilities should correspond to the value of what is at stake.

- Finally, national authorities must institute and enforce strong budget limits so as to compel planners to set clear priorities and make hard choices about force development.

It is often argued that "budgets should conform to defense strategy – and not the other way around."{19} This is reasonable enough when, for instance, a nation is defending against immediate threats to its survival. In such cases, the stakes are clear and unlimited. It is less reasonable when objectives are much less urgent or much less necessary. What really is required is for defense budgeting to be strictly bound by a *higher-order national strategy* that balances the allocation of scarce resources among competing national goals -- foreign and domestic, military and non-military.

## Notes

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# Appendix C: More for Less? The Limits of Defense Reform and Military Transformation

The problem set that reform and transformation efforts were meant to address comprises both long-standing issues and some new ones introduced by the process of force reduction itself.

Among the long-standing and broadly recognized problems are:

- Difficulties in integrating the efforts of the individual services and removing unnecessary redundancies in both combat and support functions;
- Streamlining the armed services support and maintenance systems, generally, and "right-sizing" the defense infrastructure, including the military base system;
- DoD's chaotic financial management and accounting system, which renders audits virtually impossible and, thus, opens the door to waste (or worse), while impairing accurate cost analysis and good planning; and
- DoD's dysfunctional equipment acquisition process, which GAO scores as routinely delivering systems that "involve higher costs, later fielding than planned, and less performance than expected."{1}

In addition to these long-standing problems, the process of reducing the size of America's military itself introduced new efficiency problems.

- With the reduction in force size, acquisition and support systems that had evolved to serve a larger military lost some economy of scale, making everything more expensive *per unit*. Recovering (or improving on) that economy requires extensive restructuring.
- A similar problem concerns the complexity of the US armed forces, generally. If the full complexity of the military were retained, while its size reduced, "field units" (such as combat battalions, air squadrons, and naval combatants) would suffer disproportionate cuts.

## C1. A costly complexity

The US military is an organization of incomparable complexity, larger in size than IBM, GM, Ford, GE, and Bank of America combined. Apart from the four services – five including the Coast Guard – and six reserve components, it maintains 50 major commands either one step above or below the service level. Each service maintains a variety of combat arms in addition to support units. For instance, the US Navy's "arms" include surface combatants of several types, aircraft carriers, carrier aviation, amphibious warfare capabilities, mine warfare aircraft and ships, special operations units, and nuclear attack, hunter-killer, and conventional land-attack submarines.

A thorough accounting of the US military's complexity might measure it in terms of the number and variety of its:

- Functions or "mission portfolios",
- Constituent arms, and
- "Command spheres" – some geographical (CENTCOM), some functional (STRATCOM), but all serving to define the military's scope of action.

All of these represent facets of power. And each requires some specialized fixed investment (staff, infrastructure, support). The fact of this fixed investment means that cuts weigh disproportionately on the most variable elements of the force structure: field units and combatants, which can be easily sliced away or hollowed out.

A "bottom up" reform might seek to re-engineer the whole enterprise, adapting its way of doing business to a smaller size. However, as it turns out, the path of change actually chosen was to retain complexity, implement personnel reductions, and increase the level of outsourced activities. This partly compensated for lost efficiency and made it possible to keep more personnel in the deployable and combat components of the force than would have otherwise been the case. This is tantamount to retaining or increasing the military's *de facto* size, but with more of the support functions sitting outside DoD in private hands.

This option trades a reduction in personnel expenditures for an increase in contract expenditures (which would manifest mostly as a rise in O&M costs). There is a potential for financial savings by this path insofar as the cost to DoD for non-DoD labor is usually less than the cost of in-house labor, whether military or civilian. But much depends on how carefully contracts are negotiated and managed -- and on how much is demanded of the services. The higher the level of expected readiness, overseas engagement, and operational activities, the more likely it is that O&M costs will rise to vacate any hoped for peace dividend.

## C2. The prospects for reform

The end of the Cold War created an opportunity for the deep structural reform of America's military – potentially comparable to that achieved after the Second World War. Restructuring was necessary due to planned force reductions and the desire to extract a "peace dividend". However, achieving these ends depended on national leadership exercising sufficient political will to overcome considerable inertia within America's most respected institution: its military.

It is not that the DoD and armed forces lack in-house reformers and visionaries.{2} They are present, often celebrated, but also often either marginalized or "niched" in reform vestibules, such as the Office of Force Transformation (which was closed in August 2006, after nearly five years of operation).{3} Even when reformers rise to the top, reform itself faces a hard slog. The US military's quasi-feudalistic structure can dissipate reform impulses as easily as a good shock absorber dissipates bumps. More effective at prompting the institution to reform itself are the exigencies of war or the shock of defeat. But the Pentagon emerged from the Cold War (and from the Gulf War soon after) as a victor.

Certainly, options for change were not lacking at the Cold War's end. In addition to broad and persistent concerns about the acquisition process, financial management, and the logistics system, reformers outside and inside the military variously proposed:

- Trimming the redundancy in US Army and Marine Corps missions, Navy and Coast Guard missions, and in the fixed-wing capabilities of the Air Force, Navy, Marine Corps, and Army;
- Dramatically reducing the role of naval aircraft carriers and attack submarines;
- Retiring one or even two of the legs of the nuclear triad;
- Investing more authority in the Joint Staff, Chairman of the Joint Chiefs, and joint structures generally;
- Integrating planning, acquisition and budgeting efforts at the joint level;
- Adopting "flatter" information-age organizational structures and reducing staff at all levels;
- Consolidating the individual services' maintenance depots and systems, basic and flight training programs, commissary and family services, and medical, legal, and chaplain services, as well as some bases and service schools;
- Reducing excess capacity in depots (50%), labs (35%), and testing facilities (50%);
- Reducing excess base infrastructure (~40%);
- Streamlining the intelligence establishment;
- Outsourcing a wide variety of support activities; and
- Privatizing military housing and utilities.

## C3. Downsizing reform

The end of hope for deep structural reform came near the beginning of the process, however, when the 1994-1995 Commission on the Roles and Missions of the Armed Forces (CORM) chose a path of low resistance, declaring inter-service rivalry and redundancy to be mostly "non-issues".{4} Col. Richard Lacquement, Director of Military Strategy at the US Army War College, summarizes the impact of the CORM report in rather blunt terms:

> The services successfully resisted changes to their roles and missions. The commission produced no major recommendations for changes in the military services but did present a shotgun blast of minor recommendations..."{5}

The Commission suggested some changes to the military's command structure, endorsed efforts to improve jointness, and otherwise pointed to infrastructure cuts as a source of savings. Several reports from Defense Science Board task forces subsequently suggested that outsourcing and privatization might be the source of considerable savings. But here, too, progress was slow and modest. As Cindy Williams, a research scientist at MIT's Security Studies Program and a former Assistant Director of the Congressional Budget Office, has observed,

> The 1990s opened with impressive measures to downsize and streamline military infrastructure ..... But, inside the Pentagon, the vision for achieving infrastructure savings became increasingly limited: seek Congressional support for closing more bases; reduce the number of personnel at service and command headquarters and in organizations that report directly to the Secretary of Defense; pursue more public-private competitions, conduct limited internal consolidations; and eke out whatever savings are possible from adopting business practices that have become common outside government.{6}

The Government Accountability Office points to competitive (out)sourcing efforts and military base reductions as the initiatives that probably have saved the most money. Although DoD has sought to open 240,000 existing military and DoD civilian positions to outside competition, the actual number of positions competed so far is much less. At any rate, once completed, the process is not likely to produce annual savings exceeding $3 billion (2010), if that.{7}

As for base closures: The first four BRAC rounds – 1988, 1991, 1993, and 1995 – reduced infrastructure by about 20% and have produced annual savings of about $7 billion. The fifth round, now underway, may close as much again, but produce savings of only $3.9 billion according to the GAO.{8}

In sum, the two most fruitful of current reform efforts will probably not produce reliable annual savings exceeding $14 billion (2010) – once enactment costs have been fully paid.

## C4. Acquisition, logistics, and financial management reform

In the 13 years since the Clinton administration first launched a coordinated defense reform effort, the GAO has routinely noted the slow pace of progress in the pivotal areas of financial management, acquisition reform, and logistics.{9} Regarding shortfalls in DoD's management of its finances, the acting US Comptroller General, Gene Dodaro, recently noted that:

> While DoD represents a big share of the federal budget, it is one of the few federal entities that cannot accurately account for its spending or assets. It is one of only 3 entities in the entire government that cannot pass the test of an independent audit.{10}

The implications of this failure for planning and budgeting are clear in the assessment of Kwai Chan, a former lead analysts with the GAO: "DoD does not know what it owns, where its inventory is located, and how its annual budget is being spent."{11}

Regarding logistics problems, there recently has been some notable progress in speeding the delivery of critical items to theaters of war, but the larger problems of excess inventory, poor inventory control, and weak coordination among DoD's multiple logistics systems persists.{12} This implies little progress since the Defense Science Board reported in 2006 on "the failure of DoD improvement strategies to date, which have been primarily focused on incremental improvement within traditionally-defined logistics structures and organizations."{13}

Turning to the equipment acquisition process: The number of programs showing one or more of the characteristic problems – over budget, late in delivery, less capability than expected – has

steadily risen through 2007, showing only marginal improvement in 2008.{14} GAO points to multiple flaws in the acquisition process: cost and performance estimates are unrealistic from the start; programs depend on immature technologies; programs proceed on the basis of inadequate standards and testing; and program risks are inappropriately allocated between manufacturers and taxpayers. Nonetheless, the process persists – in part, because it resonates with a deep faith in technological fixes and, in part, because it serves a variety of parochial interests. Of course, this does not absolve failures of leadership, as Anthony Cordesman points out:

> The Department of Defense has been locked into a "liar's contest" at the level of defense contractors, program managers, every military service, and the Office of the Secretary of Defense where no one is really held accountable.... There are many ways in which the US might create better procurement experts, better program managers, and more efficient procedures. The level of failure in today's programs, however, represents a basic failure to make hard choices at the level of the Secretary of Defense, Deputy Secretary, Service Secretaries, Chairman of the Joint Chiefs, and Service Chiefs of Staff. None of these problems could arise without a broad abdication of leadership responsibility throughout the Department.{15}

Defense Secretary Gates and the Obama administration have promised to vigorously renew reform efforts in this area and Congress has responded with the Levin-McCain Weapons Systems Acquisition Reform Act of 2009. Of course, this is not the first renewal of the reform impulse since 1997; former Secretary Rumsfeld also had vowed to take on the dysfunctional acquisition process, lopping off the Army's Crusader artillery system and Comanche helicopter program along the way.{16} The relevant question is: Will this latest renaissance accomplish more than swapping out a few disfavored systems for a few favored ones? "Reprogramming" efforts often employ the banner of reform.

The difficulty of reform reflects the fact that the problems at issue go to the heart of governance dynamics in the defense area. In some respects, the system is a quasi-feudalistic one governed by a relatively weak center, and there is an imbalance between civilian and military authority, between joint and service authority, and between public and special interests. The functioning of the system normally depends on largesse and on a fair amount of deference to "subordinate" offices. Political authorities might challenge and alter this configuration, but that would require a broad and risky political mobilization.

In the defense establishment as presently constituted, "hard choices" are not just "hard", they are disruptive to the functioning of the system. All the players know it and usually act accordingly. In a penetrating analysis, the US Commission on National Security (Hart-Rudman Commission) observed in 2001 that DoD had no idea of the real costs associated with its various core missions and activities, which would seem to make good planning and rational choice impossible. In most enterprises, this might precipitate reform, but not here:

> Every business wants to know what it costs to accomplish a task, produce a product, or provide a service—but DoD deliberately chooses not to know. {17}

## C5. The thermidor in military affairs

Although not part of the defense reform agenda, *per se,* the prospect of achieving a technology-based "revolution in military affairs" (RMA) contributed to hopes that the post-Cold War US military might be able to do "more for less." The central conceit of RMA thinkers was that – given the employment of appropriate technology, organization, and methods – *information* might serve to partially substitute for *mass* in the functioning of military forces.{18} By reducing uncertainty, information would lessen the need for redundancy. Greater precision in the delivery of firepower, in the movement and coordination of assets, and in the provisioning of units would allow less to do more – or, a similar sized force to do *much more*.

The fullest realization of the RMA vision would be a military with assets and units fully "networked" within and across services.{19} In this way, the vision complements and depends on advances in "jointness". As noted in the main section of this report, the putative network would comprise three levels – information collection, strike, and support – and these would be fused by joint communications and information processing capabilities. Ideally, this would serve efficiency by reducing the resort to redundant capabilities:

- Capabilities would be distributed among cooperating platforms, alleviating the tendency to overload individual platforms with capabilities (and costs).

- Capabilities would be shared (or fused) across services. Thus, for instance, various sources of firepower – fixed-wing aircraft, helicopters, artillery, UAVs, cruise-missile submarines, missile-bearing surface ships – would become fungible. All would become available to all. And,

- The tendency for logistics stores to accumulate at multiple (and often opaque) sites stretching from the continental United States to forward operating areas would be relieved.

These promises have gone substantially unfulfilled, however. Partly, this reflects the uneven and slow progress in creating the foundation for the envisioned "network-centric" force. Here, the problems are of both the engineering and bureaucratic variety. The limits were evident in the first phase of *Operation Iraqi Freedom,* which some had hailed as marking the advent of network-centric warfare. Admiral Cebrowski, then head of the Office of Force Transformation, gave a more modest appraisal, however, concluding that the operation evinced "network-centric warfare for the joint task force commander" only.{20}

Linkages had been established among higher-level headquarters that could support much better data-sharing and real-time interaction among staff. But the "network" had substantial problems getting useful information and support to tactical units in a timely fashion, leading field commanders to complain of a "digital divide" and Cebrowski to cite a "pronounced weakness in connectivity at the tactical level."{21} In fact, tactical commanders found themselves overburdened with disparate communications gear and -- when available bandwidth would allow data to flow -- glutted with data (which, importantly, is not the same as "information").

In testimony before Congress, the Army forces commander, Lt. General William Wallace, complained of incompatible communications systems, insufficient bandwidth, network

unreliability, and poor dissemination of intelligence.{22} Blockages in joint support systems of various types -- intelligence, logistics -- led the services to mostly rely on their own stovepipes and led tactical units to depend on organic assets.{23}

Moving and tracking material to the theater went much better than it had in Desert Storm, making it possible to send less. However, efforts to then move the material forward to tactical units often came up short -- especially when those units were on-the-move. This prompted numerous and frequent complaints from battalion- and company-level commanders. Structurally, logistics systems remain fragmented.

One area of operations that has shown greater progress is aerial reconnaissance and strike, mostly involving Air Force assets. Capacities for standoff attack with guided weapons have increased dramatically since 1990 and reaction times have been shortened. Also noteworthy is the integration of special forces in the targeting cycle and the much increased use of UAVs in reconnaissance and strike roles. Advances of this sort have inspired "net-centric" thinking since the first Gulf War. But they hardly represent what has been accomplished overall. Indeed, they suggest a much narrower type of network: what the Soviets used to call a "reconnaissance-fire complex."

*At heart, network-centric warfare depends on the emergence of a common nervous system among the services.* What presently exists, however, is a wide variety of service-centric and often incompatible command, control, communications, computation, and intelligence (C4I) systems – some of which are cludged together on the eve of war to enable better joint staff work. Certainly, at all levels, war compels greater inter-service cooperation. But when that comes up short – as it often does – the services are quick to fall back on their individual devices. The larger reality is that the simplest, most essential thing -- getting the services to buy and use compatible radios and communication protocols -- remains deeply conflicted.{24}

In a 1997 article, Kenneth Allard reflected on the structural impediments to transforming C4I along joint lines, suggesting that "separately organized military services always put their own needs first and joint concerns second – especially when building command and control systems."{25} At issue is not simply cooperation in the field, but cooperation in designing and building a common nervous system (or, at least, compatible nervous systems), within and between services. Strong leadership and resourcing from the center are essential, but as the 2004 Joint Defense Capabilities Study found: In the development of joint warfighting capabilities, the individual services are still in the lead and "'jointness' is forced into the program late in the process."{26}

Looking specifically at the development of joint command and control capabilities, a 2005 Defense Science Board study concluded that DoD "and its subordinate entities have not articulated a general way forward... especially to address tactical needs."{27} Of particular concern, the Board found that:{28}

- Command and control advances made in recent operations had not been institutionalized.
- Systems engineering for the developing, fielding, and integrating a "network-enabled operations information infrastructure" was inadequate.

- DoD lacked a systematic process for setting priorities among competing information infrastructure programs. And, indeed,

- The authorities for developing a "network-enabled operations information infrastructure" were not fully established.

What the above suggests is that the weakness of joint endeavors is reproducing itself by undermining the development of common C4I systems. In this light, it is not surprising that inter-service networks have not developed to the point where DoD might consider (and the services might accept) more substantial tradeoffs between individual service capabilities. Put simply: it is far from the case that "all is available all". Moreover, it is not clear that such can be achieved if policy proceeds along its current path.

Even if the services accepted and achieved the type of deep structural cooperation that network centric visions entail, there is no guarantee that this would translate into "savings". National leadership and DoD might choose instead seek to retain a power dividend. This already has been the case with regard to the most substantial technology-driven advance of the past 20 years: the great increase in the number of targets the US armed forces can engage from a standoff distance and in all weather conditions, day or night.

Air Force combat aircraft presently possess twenty times the ground target interdiction capability of their 1990 counterparts (on average, plane for plane).{29} And the introduction of the small diameter bomb will make for another qualitative leap. The Navy claims that the target attack capacity of its carrier air wings has grown from about 200 a day in 1997 to more than 700 today.{30} The number of missile launch systems on surface ships also has increased substantially – from about 1900 in 1990 to 8000 today.{31} Implicit in this is the opportunity for a significant reduction in strike assets – so far not forthcoming.

## Notes

1. *Major Management Challenges and Program Risks Department of Defense* (Washington DC: US Government Accountability Office, January 2003). Also see: Gene L. Dodaro, Acting Comptroller General of the United States, "Maximizing DoD's Untapped Potential to Improve Business Performance," *DoD Performance Breakthrough Convention,* Lansdowne VA, 14 October 2009; and, The Honorable David Walker, Comptroller General of the United States, "DoD Transformation Challenges and Opportunities," testimony before the House Armed Services Committee, 24 Jan 2007.

2. Among others, these include Vice Admiral Arthur K. Cebrowski, who served as Director of the Office of Force Transformation from 2001 to 2005; Col. Douglas Macgregor (US Army), author of *Breaking the Phalanx* (Westport CT: Praeger, 1997); Andrew Marshall, director of the Office of Net Assessment; Adm. William C. Owens, author of *Lifting the Fog of War* (Baltimore MD: John Hopkins University Press, 2001), who served as Vice Chairman of the Joint Chiefs of Staff from 1994-1996; and, Franklin C. Spinney, who served in the Office of Program Analysis and Evaluation from 1977 to 2003.

3. A Defense Science Board task force concluded in 2005 that "the extent of influence that the Office of Force Transformation has had on the rest of the Department is debatable, and many view the office as merely an appliqué." *DSB 2005 Summer Study on Transformation, Vols. I & II* (Washington DC: Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, April 2006), *Volume 11,* p. 209. On the risks

involved for "maverick" thinkers inside the services, see Tom Ricks, "Colonel's Transfer Said To Test Bush's Military Reform Pledge," *Washington Post,* 20 February 2002.

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8. *Military Base Realignments and Closures: Estimated Costs Have Increased While Savings Estimates Have Decreased Since Fiscal Year 2009* (Washington DC: US Government Accountability Office, November 2009); *Military Base Realignments and Closures: DoD Faces Challenges in Implementing Recommendations on Time and Is Not Consistently Updating Savings Estimates* (Washington DC: US Government Accountability Office, January 2009); and *Military Base Closures: Observations of Prior and Current BRAC Rounds* (Washington DC: US Government Accountability Office, May 2005).

9. Gene L. Dodaro, Acting Comptroller General of the United States, "Maximizing DoD's Untapped Potential to Improve Business Performance," *DoD Performance Breakthrough Convention,* Lansdowne VA, 14 October 2009; *Defense Business Transformation: Sustaining Progress Requires Continuity of Leadership and an Integrated Approach* (Washington DC: US Government Accountability Office, March 2008); and, David M. Walker, Comptroller General of the United States, "DoD Transformation Challenges and Opportunities," testimony before the House Armed Services Committee, 24 Jan 2007.

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11. Kwai Chan, *Financial Management in the Department of Defense: No One is Accountable* (New York: Business Leaders for Sensible Priorities, May 2006).

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13. *Defense Science Board 2005 Summer Study on Transformation: A Progress Assessment* (Washington DC: Under Secretary of Defense For Acquisition, Technology, and Logistics, April 2006), *Volume II,* p. 19.

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28. *DSB Summer Study on Transformation, Volume II,* pp. 214 and 217-218.

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30. Admiral Vernon Clark, Chief of Naval Operations, statement before the Senate Armed Services Committee, 10 February 2005, p. 18.

31. *Transforming the Navy's Surface Combatant Force* (Washington DC: CBO, March 2003).

# Appendix D: Data Sources

## Tables

**Table 1. DoD Spending Surge 1998-2008**.

US Department of Defense (DoD), *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-8 DoD BA by Appropriation Title, FY 1948 to FY 2010; US DoD, *FY 2010 Budget Request Summary Justification* (Washington DC: US Department of Defense, May 2009), Figure 1.1 Historical DoD Funding, p. 1-6; US Office of Management and Budget (OMB), *Analytical Perspectives, Budget of the United States Government: Fiscal Year 2010* (Washington: GPO, May 2009), Table 26-1 Budget Authority and Outlays by Function, Category, and Program; Nina M. Serafino, *Peacekeeping and Related Stability Operations: Issues of U.S. Military Involvement* (Washington DC: Congressional Research Service, 4 October 2004).

**Table 2. Allocation of DoD Budget Authority – Total and "Surged" 1999-2010**.

For data through 2008 see, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-8 Budget Authority by Appropriation Title FY 1948-FY 2010, p. 91. For 2009 and 2010 data see: US DoD, *Budget Amendment to the FY 2010 President's Budget Request for Overseas Contingency Operations* (OCO), *Summary and Explanation of Changes* (Washington DC: Office of the Undersecretary of Defense Comptroller, August 2009), pp. 6-9; US DoD, *FY 2010 Budget Request Summary Justification* (Washington DC: US DoD, May 2009), p. 1-9; US OMB, *Analytical Perspectives, Budget of the United States Government Fiscal Year 2010* (Washington: GPO, May 2009), Table 26-1 Budget Authority and Outlays by Function, Category, and Program.

**Table A-1. Allocation of DoD Budget Authority – Total and "Surged" 1999-2010**. See sources for Table 2.

**Table A-2. Allocation of Spending Surge Among Services and Appropriation Accounts**.

*National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-19 Army BA by Appropriation Title FY 1948 to FY 2010; Table 6-20 Navy BA by Appropriation Title FY 1948 to FY 2010; Table 6-21 Air Force BA by Appropriation Title FY 1948 to FY 2010; Department of the Navy (DoN), *Office of Budget, FY-2001, -2003, -2004, -2005, -2006, -2007, -2008, -2009 Budget Estimates* (Washington DC, March 2000, 2002, 2003, 2004, 2005, February 2006, 2007, 2008); DoN, *Highlights of the Department of the Navy FY 2002 Budget, – FY 2010 Budget* (Washington DC, June 2001, June 2010); DoN, *FY 2000/2001 Biennial Budget Estimates* (Washington DC, March 1999); and, DoN, *FY 1999 Amended Budget Estimates* (Washington DC, March 1998).

**Table A-3. DoD Budgeting by Service and Appropriation Accounts Divided into Four Periods Covering 1997-2008.** See sources for Table A-2.

**Table A-4. Change in DoD Budgeting by Service and Appropriation Accounts 1997-2008.** See sources for Table A-2.

**Table A-5. Defense-wide Agency & Program Funding 2010.** US DoD, *FY 2010 Budget Request Summary Justification* (Washington DC: US DoD, May 2009), "Defense Wide Agencies," p. 1-52-1-65.

**Table B-1. Percent US Military Overseas and in Contingency Operations**

Estimates are derived principally from the quarterly and yearly DoD report, *Active Duty Military Personnel Strengths by Regional Area and by Country,* produced by the Statistical Information Analysis Division of the Defense Manpower Data Center, US DoD: http://siadapp.dmdc.osd.mil/ For contingency operations see: Amy Belasco, *Troop Levels in the Afghan and Iraq Wars, FY2001-FY2012: Cost and Other Potential Issues* (Washington DC: CRS, 2 July 2009); Richard F. Grimmett, *Instances of Use of United States Armed Forces Abroad 1798-2007* (Washington DC: CRS, 14 January 2008); Michael Waterhouse and JoAnne O'Bryant *National Guard Personnel and Deployments: Fact Sheet* (Washington DC: CRS, 17 January 2008); W. Eugene Cobble, et. al., *For the Record: All US Forces Responses to Situations, 1970-2000 (with additions covering 2000-2003)* (Alexandria VA: Center for Strategic Studies, Center for Naval Analysis, May 2005); and Nina M. Serafino, *Peacekeeping and Related Stability Operations: Issues of U.S. Military Involvement* (Washington DC: CRS, 4 October 2004). An also useful source on the evolution of US overseas military presence is Tim Kane, *Global US Troop Deployment 1950-2003,* Center for Data Analysis Report #04-11 (Washington DC: Heritage Foundation, 27 October 2004).

## Figures

**Figure 1. DoD Budget Authority with and without contingency operations**. See sources for Table 1.

**Figure 2. DoD Budget Authority 1948-2019.** See sources for Table 1.

**Figure 3. DoD Budget Outlays 1951-2010.**

For years before 2009: US DoD, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-11 DoD Outlays by Appropriation Title FY 1948 to FY 2010. For 2009 and 2010: US OMB, *Analytical Perspectives, Budget of the United States Government: Fiscal Year 2010* (Washington: GPO, May 2009), Table 26-1: Budget Authority and Outlays by Function, Category, and Program.

**Figure 4. DoD Budget Authority by Appropriation Title 1978-2010.** See sources for Table 1.

**Figure 5. DoD Per Person BA by Appropriation Title 1978-2010.** See sources for Table 1 and also: US DoD, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 7-5 DoD Manpower – FY 1940 to FY 2010.

**Figure 6. DoD Budget Authority for Modernization 1978-2010.** See sources for Table 2.

**Figure 7. DoD Per Person Budget Authority for Modernization 1978-2010.** See sources for Table 2 and also: US DoD, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 7-5 DoD Manpower FY 1940 to FY 2010.

**Figure A-1. DoD Budget Authority by Appropriation Title 1978-2010.** See sources Table 2.

**Figure A-2. DoD Per Person BA by Appropriation Title 1978-2010.** See sources for Table 2 and Figure A-3.

**Figure A-3. US Military Full-Time Personnel 1978-2010.** US DoD, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 7-5 DoD Manpower FY 1940 to FY 2010.

**Figure A-4. Real Change Budget Authority by Appropriation Title 1978-2010.** See sources for Table 2.

**Figure A-5. Real Change Per Person Budget Authority by Appropriation Title 1978-2010.** See sources for Table A-1 and Figure A-3.

**Figure A-6. Budget Authority by Category 1978-2008.** *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-9 DoD BA by Category FY 1948 to FY 2010, p. 97.

**Figure A-7. Budget Authority Per Person by Category 1978-2008.** See sources for Figure A-6 and Figure A-3.

**Figure A-8. DoD Budget Authority for Modernization 1978-2010.** See sources for Table 2.

**Figure A-9. DoD Per Person Budget Authority for Modernization 1978-2010.** See sources for Table 2 and Figure A-3.

**Figure A-10. Trends in Military Construction 1951-2010.**

US DoD, *National Defense Budget Estimates for FY 2010* (Washington DC: US DoD, June 2009), Table 6-8 DoD BA by Appropriation Title FY 1948 to FY 2010; OMB, *Historical Tables, Budget of the US Government, Fiscal Year 2010* (Washington DC: US Government Printing Office, 2009), Table 5.1 Budget Authority by Function and Subfunction 1976-2014; and, Daniel Else, et. al., *Military Construction, Veterans Affairs, and Related Agencies: FY 2009 Appropriations; –FY 2008 Appropriations* (Washington DC: CRS, February 2009, February 2008).

**Figure B-1. World Military Spending Shares 1986-2006**

Figure B-1 counts as US allies all NATO states plus Israel, Australia, New Zealand, Japan, Taiwan, and South Korea. The category of "potential adversary and competitor states" includes, for 1986: the Soviet Union and other Warsaw Treaty states, China, Cuba, Iran, Iraq, North Korea, Libya, Syria, and Vietnam. For 1994, it includes the former Soviet Union and Warsaw Treaty states are replaced by Russia and Belarus. In 2000, Vietnam is removed from this category. In 2006, Libya is also removed, but Venezuela is added.

Sources: US ACDA, *World Military Expenditures and Arms Transfers 1995, 1999-2000* (Washington DC: US Government Printing Office, 1996; 2001); and, International Institute for Strategic Studies, *The Military Balance 1996/97, 1995/96, 1994/95, 1993/94, 1992/93, 2002-2003, 2008* (Oxfordshire: Routledge, 2008; London: Oxford University Press, 2002, 1996-1995; London: Brassey's, 1992-1994).

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