

USAWC STRATEGY RESEARCH PROJECT

DEFENSE PROGRAMS AND BUDGET RISK

by

Colonel M. D. Troutman
United States Army

Dr. Clay Chun
Project Adviser

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US Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

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ABSTRACT

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The 2006 QDR calls for an investment in diverse capabilities to confront a broad range of national security in the twenty first century. US national security documents require the services to maintain a position of supremacy as they build these capabilities. Therefore, the Defense Department has set before itself a requirement to modernize a large conventional force structure engaged in ongoing combat operations while simultaneously developing deeper capabilities to counter non-conventional and asymmetric mission requirements. Defense is undertaking this requirement with the smallest share of GDP committed to national defense during any wartime period in United States history while mandatory spending required to support popular entitlement programs is increasing. With the continued aging of the US population, the demands for mandatory spending will continue to grow and will increasingly compete with defense programs for the scarce resources of the federal budget. These broad trends indicate an unsustainable course for the federal budget in general and the defense budget in particular. Absent significant changes to popular entitlement programs and a disciplined program of defense investment, DOD will find itself with insufficient resources to meet the demands outlined in the QDR and US national strategy.

DEFENSE PROGRAMS AND BUDGET RISK

The US National Security Strategy, published in 2002, represents "...the most sweeping redesign of US grand strategy since the presidency of Franklin D. Roosevelt..." in the view of historian John Lewis Gaddis.¹ The redesign has its basis in the recognition that "...deterrence against states affords insufficient protection from attacks by gangs, which can now inflict the kind of damage only states fighting wars used to be able to achieve..."² To guard against these threats, military specific policy contained in the National Defense Strategy, National Military Strategy and the Quadrennial Defense Review directs the services to invest in new capabilities to counter asymmetric threats while maintaining and modernizing a relatively large conventional structure to engage and deter future peer competitors. The 2006 National Security Strategy affirms these views and amplifies them based on four years' conflict experience.

Investment in capability requires resources, at the basic level, program funds. Therefore, it is appropriate to ask whether the current and future fiscal stance of the US Federal Government will support the development of defense capabilities required by current US strategy documents. This study concludes that competition from non-discretionary requirements, particularly popular entitlement programs, and the requirements of mandatory spending within the Defense Budget will combine to constrain and limit the resources available for programs required by the 2006 QDR. Absent significant changes to non-discretionary programs, the Federal Government will encounter fiscal overreach and be unable to meet both defense commitments and the requirements of the welfare state. It is probable that fewer defense resources will be available in the future.

This paper seeks to draw broad observations and is neither a critique of defense strategy nor budget policy. Rather, stated defense requirements and demonstrated national preferences for entitlement spending will be treated as given and analyzed for general trends. Inside these limitations, the study will identify trends and risks, but avoids the temptation to make specific predictions.

The Political-Economic Problem: Fiscal Overreach

Paul Kennedy illustrates in The Rise and Fall of the Great Powers the complex interaction between economics and strategy within modern western states. As states strive to provide security and prosperity to their populations, they must strike a careful balance between the level of resources committed to defense and those committed to commercial pursuits.³ Though mercantilist in its orientation and therefore incomplete in its portrayal of national power,

Kennedy's work nevertheless makes a compelling connection between economic and military power. As he states in the introduction:

...wealth is usually needed to underpin military power and military power is usually needed to acquire and protect wealth. If, however, too large a portion of a state's resources are diverted from wealth creation and allocated instead to military purposes, then that is likely to lead to a weakening of national power over the long term.⁴

Kennedy illustrates a broad tension between economic resources and military power. In order to generate military power, a state must divert some of its economic resources to military pursuits. Security is a necessary condition to enable economic activity. However, excessive military investment over time will create unsustainable burdens for the economic base.⁵ There is an important interrelationship between the economic capacity of a nation and its military structure, but a careful restraint required when making military investment.

Three valuable insights flow from Kennedy's survey. First, nations must avoid excessive military investment as it will be impossible to sustain in the long term. Second, nations with access to an advanced system of banking and credit with sufficient depth to handle emergencies possess an advantage over nations which lack such resources. Therefore, they must carefully manage and prevent the excessive accumulation of national debt. Finally, nations must maintain a broad, diverse and growing technological-industrial base to support their military establishments.⁶ Therefore, nations must ensure military investment does not come at the expense of commercial activity.

The US is not exempt from these conclusions. The competition between defense and domestic spending constrains resources committed to national defense and forces difficult choices. The nation may choose to favor domestic spending and limit the scope of its security strategy. Conversely, the nation may choose to impose hardship on its populace and pursue a relatively unconstrained security strategy. Or, it may select a middle course which apportions resources to fund most domestic and defense programs, prosecute its strategy and accept risk.

Within each budget cycle there is an intense competition between defense and domestic spending for the scarce resources of the Federal Budget. This "guns versus butter" competition has been the case through out American history. Over the long term, yearly incremental decisions can greatly affect the distribution of budget resources, often with unintended consequences.

The National Security Strategy, published in 2002, identified primacy as the fundamental US security orientation. Consistent with the 2002 strategy, the President's budget has increased defense spending by an average of 7.1% yearly since the beginning of the Bush

Administration.⁷ During the same period, budgeted amounts for domestic (non-defense) spending increased by an average 6% while US Gross Domestic Product (GDP) posted an average yearly increase of 2.6% in real terms.⁸ It seems the nation has chosen a middle course, and increased the size of the welfare state as it has increased its defense establishment. This is not a new phenomenon, as the nation adopted a similar course during the 1980s.

In budget years 2003 - 2006, DOD has requested supplemental appropriations to conduct wartime operations. These supplemental requests have contained requests for program funds to maintain investment in required defense capabilities.⁹ Normally, program requests would appear as part of the yearly budget request. The persistence of these requests implies the services perceive an environment of constrained resources as they prosecute National Security Strategy requirements.

Economics and Strategy – The Linkage of Ends-Ways-Means

Arthur Lykke identified the interaction between resources and strategic concepts as a relationship between ends, ways and means. Military Strategy consists of the ways to employ means to achieve strategic ends, or objectives.¹⁰ Stated in this context, the National Security Strategy (NSS) is the policy statement that defines the strategy selected to achieve US national security objectives. The National Defense Strategy (NDS) refines these broad ends into military specific objectives and identifies military ways the nation will employ to achieve the strategic ends of the NSS.

The Quadrennial Defense Review (QDR) provides a detailed explanation of these ways and identifies the necessary programs to provide hardware and procedures for prosecution of the ways laid out in the NDS. Finally, Future Year Defense Programs (FYDP) and yearly Defense Budgets request specific resources to fund specific programs. The relationship between budgets and strategy allows us to link economic resources to strategic ends. We can measure and compare resources allocated through dollar amounts as funds are the most basic resource a government procures and allocates. The fungible nature of funds allows governments to convert them through programs to specific items required to prosecute strategy.

Requirements: National Security, Defense and the Quadrennial Defense Review

As Mackubin Thomas Owens has observed:

No matter what presidents have declared the policy and strategy of the United States to be, US strategy in practice is best described as primacy, which is predicated on the idea that the key to future peace and prosperity is for the United States to maintain the power position it held at the end of the Cold War.

The twin objectives of primacy are to underwrite a liberal world order by providing security, while preventing the emergence of a potential new rival along the lines of the former Soviet Union. The basis of primacy is hegemonic stability theory. According to the theory of hegemonic stability, a decline in relative US power could create a more disorderly, less peaceful world.¹¹

The National Security Strategy follows this trend in its opening declaration that "...The United States possesses unprecedented – and unequalled – strength and influence in the world...the great strength of this nation must be used to promote a balance of power that favors freedom."¹² To promote freedom, democracy and free enterprise, the NSS states that "we must build and maintain our defenses beyond challenge."¹³ Accordingly, the basic strategic requirement for National Security Institutions is the maintenance of primacy – unequalled strength.

The National Defense Strategy clarifies the primacy requirement by identifying challenges that arise from key states (such as China and India), problem states (such as North Korea) and key non-state actors (such as Al Qaeda).¹⁴ Inherent in this broad and varied threat profile is the requirement to balance between a series of operating, force management and institutional risks.¹⁵ While primacy remains the overarching concept, the DOD strategy presents a fundamental and costly problem. The services must develop a diverse portfolio of capabilities to mitigate the risks of varied threats.

The 2006 Quadrennial Defense Review (QDR) presents the most complete articulation of defense priorities and represents an incremental clarification of Defense Department programs. It builds on the transformation agenda of the 2001 QDR and outlines a basic force planning construct of "4-2-1-4" as follows:

- Forward presence in four regions, using rotational means where necessary
- The ability to prosecute two major regional contingencies in separate theaters in a nearly overlapping timeframe
- The ability to win decisively in one of the regional contingencies
- Preserve the flexibility to conduct a lesser number of military or humanitarian contingencies in all other regions.¹⁶

Likewise, the QDR instructs that the services develop capabilities against asymmetric challenges and maintain superiority against the rise of a new peer competitor.¹⁷ This mission, observes Owens, requires "...a balanced force that can be employed across the spectrum of conflict and prevail under diverse circumstances against adversaries employing a variety of strategies including conventional, irregular, catastrophic and disruptive approaches."¹⁸

In practical terms, we should observe the services' execution of this requirement through a varied program of investment. The QDR is consistent in this regard, calling for investment in new weapons systems – next generation fighter aircraft (F22, F35), the Army Future Combat System and new classes of Navy destroyers and submarines. At the same time, the QDR directs the services to invest in capabilities for use against irregular and asymmetric threats. Among these are an expanded Special Forces and investments in language skills.¹⁹

The requirement for primacy therefore requires investment in two diverse mission sets. First, the nation must maintain and modernize a relatively large joint force structure that enables worldwide engagement and dominant conventional war fighting capability. This modernization must occur even as the services conduct and recover from ongoing operations.

Second, the nation must expand its capabilities in the asymmetric and non-conventional mission sets. The crucial question remains whether sufficient resources will be available to prosecute this strategy over the next twenty years, the QDR's identified time frame.

Are Excessive Resources Devoted To Defense?

The US security strategy requires and receives a large absolute level of resources. A reasonable first question would ask whether the US devotes a level of resources to defense that is harmful to the overall economy of the nation. This question represents the heart of the conundrum that exists at the strategic level. The development of a military capacity requires the diversion of resources into “unproductive” armaments. Yet the diversion of a large share of resources into military pursuits over the long term risks the erosion of economic growth.²⁰

We can test this condition through a brief survey of four common economic resource and use measures – GDP, labor force participation, industrial production and investment expenditures. In reality the level of resources consumed by the US for defense is relatively small by historical comparison and considered as a share of its national economy. It would be difficult to conclude that the US is a “military top heavy state” or that the magnitude of resources committed to defense is so large as to be harmful to the general economy.

The share of US GDP committed to defense has steadily declined since the Second World War and presently stands at a relative post-war low. The present commitment of 3.9% of GDP to defense is neither high in an aggregate historical nor wartime sense.²¹ Figure 1 traces the commitment of resources, expressed as a share of GDP, to defense since 1940.

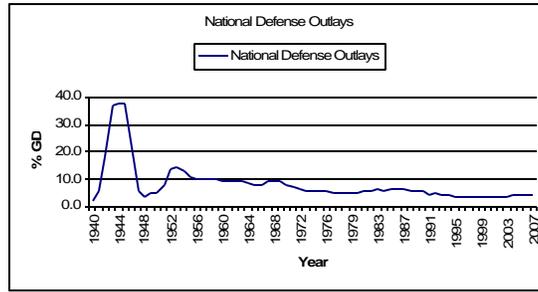


Figure 1: US Defense Outlays Since 1940
(As a share of GDP)

US defense expenditure ranks above most nations when expressed as a share of GDP.

Table 1 compares US defense expenditures with other major nations.

<i>Nation</i>	<i>Expenditure</i>	<i>% GDP</i>	<i>Nation</i>	<i>Expenditure</i>	<i>% GDP</i>
USA	455.3	3.9%	UK	46.2	2.5%
China	161.1	2.3%	Germany	36.9	1.6%
India	81.8	2.4%	Japan	35.2	0.9%
Russia	66.1	4.7%	Italy	34.5	2.1%
France	51.2	2.9%	S. Korea	23.1	2.4%

Table 1 Defense Expenditures of Major western Nations
(2004 Figures, Billions of Dollars)

In comparison to other US wartime periods, the present level of defense spending is relatively low. Table 2 provides US defense spending levels compared to those of other western democracies.

Conflict (Year)	Peak Expenditure (% of GDP)
Second World War (1944)	37.8
Korea (1953)	14.2
Vietnam (1968)	9.5
Cold War – 1980s Buildup (1986)	6.2
Iraq/Afghanistan (2006)	3.9

Table 2: Peak US Wartime Expenditures

By other measures of economic activity, the US commits a relatively small share of its economic base to defense. The Federal Reserve System estimates that two percent of industrial production is committed to defense specific manufacture. Defense specific research and development represents approximately 16% of the nation's investment funds. The armed

forces employ roughly 4% of the 48 million people in the 18 – 34 age groups, from which the military primarily draws its personnel.²²

In both an historical and a wartime context, the United States does not presently commit a high level of resources to defense. Indeed, the nation has seen much greater commitments of resources to defense in the past. While the nation possesses a highly capable and powerful military, it would be inappropriate to conclude that it is a military top heavy state. However, it is reasonable to conclude that DOD could find efficiencies that would allow it to reduce the level of GDP committed to defense programs. US defense expenditure levels will be greater than other industrialized nations given the global nature of its commitments and the investment requirements of the National Security Strategy, but there is room for efficiency in the DOD budget.

Equally important is the question of whether sufficient resources will be available to prosecute the nation's defense strategy in the future. Given a close examination of the Federal budget, we will see that present trends indicate less rather than additional resources will be available for defense in future years.

The Revenue Side – Trends

The US government raises revenue by two primary means – taxes and by issuing debt. Present and future trends imply that the US government's ability to increase its revenue from present levels will be constrained in the future. Historically, the United States collects between 17 – 20% of GDP in tax revenue at the national level. While the form of these taxes has varied, the general stream of revenue available to the government has remained relatively constant in the post-World War II period.

In 1950, direct taxes on individuals represented 51% of total Federal revenues. By 2005, this figure had risen to 80% of revenues, a clear shift of tax burdens onto individuals. However, this figure may understate the individual tax burden. Individuals own corporations either privately as proprietors or publicly as stockholders. Therefore the corporate income tax is an indirect tax on individuals. Seen in this context, individuals bear an even heavier tax burden. Clearly, individual tax burdens have risen in the post World War II period and exhibit an implicit maximum level at 20% of GDP.

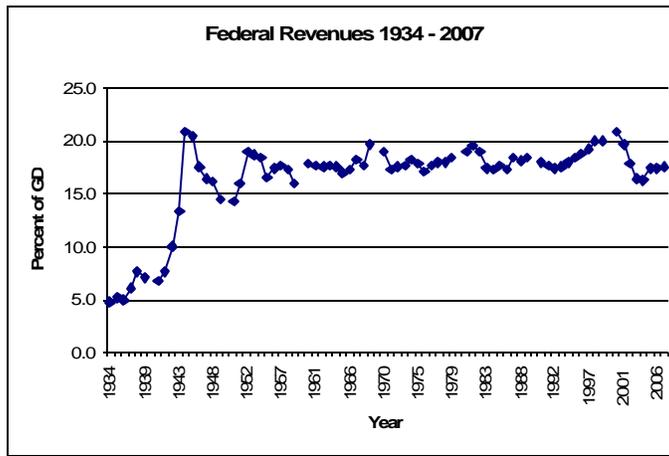


Figure 2: Federal Revenues (As Percent of GDP)

Year	Individual	Social Insurance	Corporate	Excise	Other
1950	39.9	11.0	26.5	19.1	3.4
1970	46.9	23.3	17.0	8.1	4.9
1990	45.2	36.8	9.1	3.4	5.5
2005	43.0	36.9	12.9	3.4	3.8

Table 3: Composition of Federal Tax Receipts (% of Aggregate Receipts)²³

As the government can set revenue levels in the form of tax policy, it is also able to disburse benefits through the tax code. In general, the trend of this so called “tax spending” has grown over time and tended to favor two broad categories, mortgage interest deductions and income security. Tax spending is a popular form of support to various causes and programs as it does not require an explicit outlay of funds and the scrutiny that accompanies spending. Therefore, it is reasonable to expect that the Federal Government will continue to use tax credits liberally, which will attenuate the magnitude of further tax revenues.²⁴

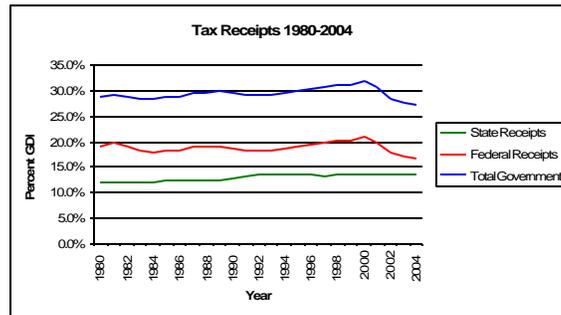


Figure 3: Tax Receipts (As Percent of GDP)

Moreover, Americans face tax liabilities at levels other than the Federal Government. State and local taxes represent significant burdens, a total of 13.4% of GDP (as of 2004). As the Federal Government reduced the share of GDP collected as revenue since 2001, states have responded by increasing the tax burdens of their residents. Policy changes to the Welfare and Medicaid systems in the 1990s combined with reduced Federal receipts have combined to shift costs to the states. With these shifting costs have come increasing individual state tax burdens.²⁵ As Figure 3 illustrates, state revenues are nearly equal in aggregate size to federal revenues.

It is beyond the scope of this study to determine maximum sustainable tax levels. However, two broad conclusions are germane. First, individual tax burdens have increased over time to levels which have led to repeated calls for tax reduction. Second, the Federal Government has historically collected revenues in the range of 17 - 20% of GDP. We can expect these two dynamics to limit the size of tax increases the Federal Government will be able to implement. Restoring Federal tax levels to their highest historic levels (20% of GDP) would require a 24% increase of the individual tax burden and add approximately \$510 billion of revenues at current GDP levels. Such measures would likely encounter significant resistance and only succeed in closing the present federal deficit.

Debt Finance - Trends

In selected periods, the Federal Government has chosen to fund its spending requirements through debt finance. Debt finance is not a new phenomenon to the nation. Conceived by Alexander Hamilton, the concept of national debt has provided the US with flexibility in its fiscal program to meet several national crises.

In general, the nation has relied on debt finance to meet its spending needs in wartime and reduced the magnitude of its debt relative to GDP in the years following conflicts. The period 1970 – 1995 was a peacetime exception to this trend, as the nation relied in part on debt finance to provide funds for a defense buildup while it continued to fund domestic program and entitlement increases. With the introduction of Medicare in the 1960s and the steady expansion of Social Security benefits, the US developed a pattern of persistent and large budget deficits.

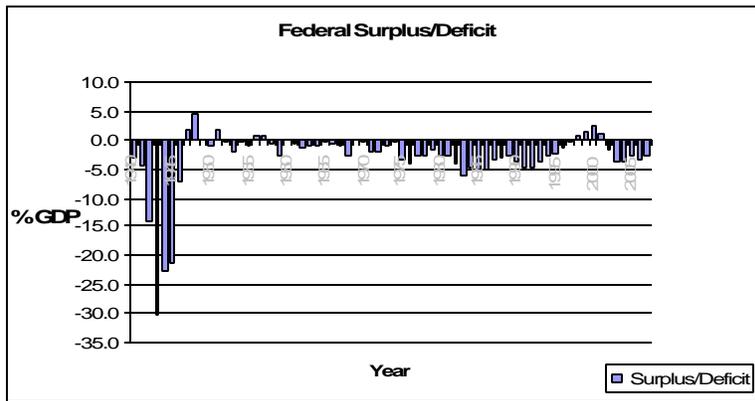


Figure 5: Federal Surplus/Deficits
(As Percentage of GDP, 1940 – Present)

In relation to other industrialized countries, the United States does not have an excessively high debt to GDP ratio. Of concern is that the nation has resumed the pattern of a rising debt to GDP ratio after several years in the 1990s which saw the debt to GDP ratio fall. While not an immediate cause for alarm, the increase in debt to GDP and the US pattern of running large and persistent Federal budget deficits will after time affect the ability of the nation to borrow funds to meet its spending needs. Simply stated, it is unreasonable to expect that lenders will indefinitely provide funds if debt continues to grow faster than the ability of GDP to service that debt.

A recent development has been the shift in the composition of debt holders from primarily domestic to overseas individuals and governments. The development of this trend is complex and beyond the scope of this study, but it is a source of potential risk. Debt holding behavior of foreign individuals will be different than domestic investors as that behavior is driven by a different set of economic and political conditions than those in the US. As witnessed in recent debt crises in Russia, Asia and Latin America, investors are likely to withhold their funds at times that are not advantageous to the US government.

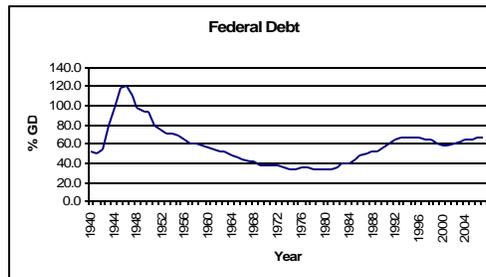


Figure 5: Federal Debt
(As Percentage of GDP, 1940 – Present)

The Expenditure side – Trends

While the Federal Budget comprises thousands of distinct programs, spending can be broadly classified as either mandatory or discretionary. Mandatory spending takes place according to broad parameters set in law which vary incrementally from year to year. Individuals receive federal payments once they meet certain entitlement criteria set by these broad parameters. Examples of mandatory spending include Social Security, Medicare and interest payments on Federal debt. The major determinant of mandatory spending levels is the size of the population which meets stated entitlement criteria. Net interest, while not an entitlement, must be paid to avoid default and allow for further borrowing.

Discretionary spending, by contrast, takes place only by explicit yearly budget authority. The president typically submits the budget in January of each year, which Congress revises and finalizes. Mandatory programs proceed largely by law, while discretionary spending is determined by the budget and appropriations process. The final form of discretionary spending depends on the strength of the political constituency behind a given issue.

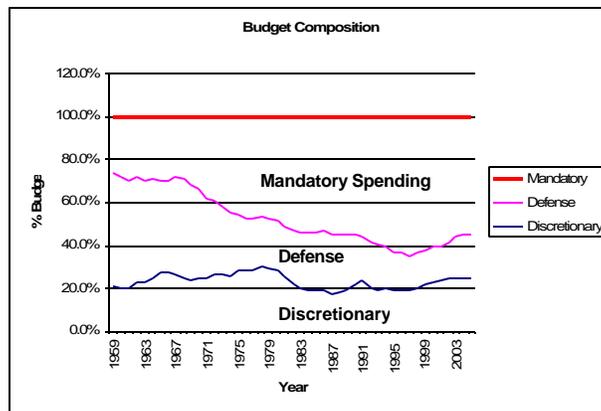


Figure 3: Spending Composition of the Federal Budget (As Percent of Overall Budget)

Figure 3 illustrates broad trends among these major expenditure groupings and the developing structure of the Federal budget. Though classified as discretionary spending, defense expenditures appear separately in the figure above to illustrate the effect of changing budget composition over time. In the post-World War II period, defense has moved from the dominant share of Federal spending (53%) to a minority share (20%). By contrast, mandatory expenditures have grown at a greater rate than other items in the federal budget and become the dominant share of Federal spending (43%). Social Security and Medicare expenditures comprise the largest block of entitlement expenditures at just over one third of the Federal

budget. With entitlement growth there has been an attendant reduction in defense and other discretionary expenditure.

As stated earlier, the Federal Government has shown a consistent pattern of revenue collection that ranges from 17 – 20% of total GDP. Viewed in concert with revenue trends, the growth of entitlement spending in an atmosphere of relatively constant revenue produces a zero sum tradeoff between mandatory and discretionary spending programs. Congress faces a choice between entitlement spending and discretionary spending, of which defense programs comprise the largest share.

The Problem of Unfinanced Liabilities

Mandatory spending is defined by law. As this spending and its benefit levels are predictable, future generations develop a sense of entitlement to specific payment streams.²⁶ There is a rich body of evidence that suggests these entitlement programs produce behavior changes in spending and saving patterns.²⁷ By contrast, a defense firm has no expectation the government will purchase a given quantity of equipment ten years in the future, unless the purchase is written in law or specified by contract. Often, the actual levels of discretionary expenditure are not known with certainty until the year before execution and may at times change within the year of execution.

The special character of entitlements, their consistent payment history and the considerable political constituencies that form around them confer a unique resilience to these programs. The sense of entitlement is even stronger because payroll taxes support both the Social Security and Medicare systems, producing an expectation of return for years of taxes paid into the system. As long time participation in a pension program creates a liability on the part of the employer offering the program, the Federal Government bears an implicit liability owing from long time maintenance of the entitlement program.²⁸ Recognizing this situation, the trustees of the Social Security Administration recently began to publish a report which outlines the magnitude and structure of this implicit liability.

However, there is a key distinction between the liability incurred in a pension plan and that implied through popular entitlement programs. Under a pension plan, the employer's liability derives from the program contract. Therefore, the magnitude of the liability is established by the terms of the contract and the requirement for funds to offset this liability set by pension regulations. By contrast, there is no requirement for the Federal Government to set aside funds to offset the liability which is implied by an expectation of future benefits.

In actual practice, the Federal Government pays for Social Security and Medicare benefits through the collection of payroll taxes. Revenues in excess of payroll tax collections are turned over to the US Treasury for which the Social Security Administration receives Treasury Bonds. Once benefit levels exceed payroll taxes collected, the Social Security Administration will present Treasury Bonds for payment in order to meet its benefit obligations. At this point, the Treasury will have to repay the principal of the bonds with new borrowing or funds from general revenue. Table 4 indicates the point in each program when the Administrators anticipate benefit levels will exceed payroll taxes and the interest on outstanding debt held in the trust funds of each agency.

	Social Security		Medicare	
	Social Security	Disability Insurance	Hospital Insurance	Supplementary Med Insurance
First year outgo exceeds income excluding interest	2018	2005	2017	2004
First year outgo exceeds income including interest	2028	2014	2027	2012
Year Trust Funds are exhausted	2043	2027	2041	2020

Table 4: Key Dates for Social Insurance Trust Funds

Absent significant changes in Social Security and Medicare benefit levels, the table above indicates that Medicare will begin to draw on general Treasury revenues as soon as 2012 and Social Security as soon as 2014.

Social Security Trustee Reports allow us to estimate the impact of these two entitlement programs on general Treasury revenues, which will begin early in the next decade. In 2004, economist Lawrence Kotlikof estimated the unfunded liabilities for Social Security and Medicare at \$45 trillion.²⁹ As a result of Congress passing the Medicare drug benefit, Kotlikof raised this estimate to \$51 trillion over the seventy five year evaluation horizon. In an article later that year, his estimate grew to \$53 trillion.³⁰

Kotlikof's estimate is based on and consistent with CBO and Social Security Administration estimates. More conservative estimates place the liability as high as \$72 trillion. Over the same seventy five year period, a reasonable estimate for the present value of GDP is approximately \$500 trillion.³¹ Given the Federal Government's historic trend of collecting one fifth of GDP as revenue, the unfunded liabilities figure implies that over half and up to three quarters of the Federal budget will be committed to pay entitlement commitments over the next seventy five years.

CBO calculations confirm the assessments presented above. In the table below, the three spending paths illustrate shares of GDP committed to various programs and tax levels required to support them. Social Security expenditures increase by nearly 50% and Medicare increases vary from double in the low spending path to a four fold increase in the high spending path.

Alternative Long-Term Paths for Primary Spending			
(Percentage of gross domestic product)			
	2010	2030 ^a	2050 ^a
Higher-Spending Path			
Defense	3.5	2.7	2.0
Social Security	4.2	6.0	6.6
Medicare and Medicaid	5.3	12.0	21.9
Other ^b	5.8	5.9	4.0
Total	18.9	26.6	34.4
Intermediate-Spending Path			
Defense	3.4	2.0	1.5
Social Security	4.2	6.0	6.4
Medicare and Medicaid	5.0	9.2	12.6
Other ^b	5.8	5.3	4.9
Total	18.4	22.5	25.3
Lower-Spending Path			
Defense	3.4	2.0	1.4
Social Security	4.2	5.9	5.3
Medicare and Medicaid	4.7	6.2	7.0
Other ^b	5.5	3.8	2.7
Total	17.9	17.9	17.3

Source: Congressional Budget Office.

Note: Primary spending is the sum of spending for defense, Social Security, Medicare, Medicaid, and other spending (except interest).

a. Minor differences in simulated gross domestic product (GDP) result in small differences among the paths in Social Security spending as a percentage of GDP and between the intermediate-spending path and the lower-spending path in defense spending.

b. Other spending is lower in 2030 and 2050 under the higher-spending path than under the intermediate-spending path because this category includes premiums paid by Medicare enrollees, which are treated as negative outlays. Those premiums are larger under the higher path's assumption that access cost growth is 2.5 percentage points.

Figure 4: Alternative Spending Patterns To 2050

CBO identifies both the intermediate and high spending paths as unsustainable based on an assumption that the Federal Government's revenues will total 18% of GDP.³² The intermediate and high spending paths require significant tax increases ranging from one third above present levels (Intermediate Path) to two thirds above present levels (High Spending Path). Both scenarios also acknowledge the requirement to increase Federal debt levels to unsustainable levels.³³

Each of these spending paths anticipates up to 50% reductions of defense expenditures. This brief review of existing CBO analysis confirms several key findings. As the United States begins to feel the impact of an aging population early in the next decade and the costs of a generous welfare state, budget pressures will drive defense expenditures sharply lower. This conclusion is not new, as it is consistent with budget trends observed in western European states.³⁴ As European governments have encountered aging populations with greater entitlement requirements, many of the resources necessary to sustain the welfare state have come from defense budgets. European defense budgets have historically been lower than US defense budgets and have trended smaller since 2001.³⁵

Second, the CBO projection of sharply lower defense expenditures is consistent with past US budget practice. Dennis Ippolito has documented through extensive study of federal budget patterns that defense has historically fared poorly against domestic programs in the face of budget constraints during non-conflict years.³⁶ CBO projections clearly anticipate the resolution of the Global War on Terror and the opportunity to realize a “peace dividend.” This anticipation will work against DOD plans to modernize its forces and expand capabilities in asymmetric warfare sets.

The pattern of unfunded liabilities is not limited to major entitlement programs. Federal and state governments face other challenges which will put pressure on already constrained finances. As a result, we should expect increased pressure to reduce defense budgets in the future. First, the Federal Government makes interest payments on the federal debt amounting to 1.5% of GDP. The late 1990s and early 2000s saw decreased interest payments owing to the reduction of federal debt levels. In addition, unusually low interest rates have further reduced debt service costs. However, the return to large and persistent deficits in the mid-2000s has caused interest payments to rise in order to service the greater debt stock. An unexpected increase in interest rates would cause debt service costs to rise yet further.

Second, the Federal Government faces large potential liabilities in the Pension Benefit Guarantee Corporation (or PBGC), an independent agency of the United States government created to encourage the continuation and maintenance of voluntary private pension plans. The PBGC is funded through corporate contributions, yet the PBGC’s liability ultimately falls on the US government. The recent failure of United Airlines to meet its pension fund commitments and subsequent seizure by PBGC highlights the growing problem of corporate plan underfunding.³⁷ In 2004, the PBGC reported a deficit of \$23.3 billion, double the liability of 2003 and roughly equal to 0.3% of GDP. The full magnitude of liability is unknown and expected to grow over time.³⁸ While not an immediate concern of the US Government, an aging population will place greater demands on the PBGC and cause the unfunded liability situation to grow over time.

Likewise, public sector pensions aside from the military retirement system are largely unfunded assets. No recent and comprehensive estimate of this liability exists, however, one 1986 study cited that this liability could run as high as 36% of payroll.³⁹ 2004 US census figures cite public sector State/Local payrolls of \$56 billion and Federal non-military payrolls of \$13 billion.⁴⁰ A rough examination of these figures indicates public sector pension liabilities amount to \$25 billion, or roughly 0.3% of GDP. It is reasonable to view the liabilities implicit in the PBGC and public sector pension cases as more binding, as their payments are part of an employment contract. The trend is clear – governments at all levels will face future demands on

their revenue streams that will place increased pressure on discretionary expenditures. As Ippolito has observed, defense programs tend to surrender resources to domestic program demands, particularly the demands of entitlement programs. As the brief survey above has demonstrated, the pressure from mandatory spending programs and unfunded liabilities is large and will increase in the future. We should in the future expect less, rather than more resources available for defense programs.

Defense Budget Trends

In a manner similar to the larger Federal budget, the defense budget exhibits a pattern of increasing domination by mandatory spending. Established yearly by the budget and appropriations process, defense spending retains more flexibility than the federal budget in its ability to change expenditure levels. Therefore a given amount of flexibility exists to absorb some of these mandated costs. However, given that fewer resources are likely to be available for defense programs in the future, the ability to absorb increased costs in the defense budget will be limited. A brief survey of some major cost impacts on the defense budget follows.

Iraq War Costs

With the fifth supplemental appropriation from Congress, direct costs of the operations in Iraq and Afghanistan are approaching \$400 billion.⁴¹ In a recent paper, economists Linda Bilmes and Joseph Stiglitz used CBO estimates of Operations Enduring Freedom and Iraqi Freedom to derive explicit and implicit wartime operations costs. Many of the implicit costs suggested by the Bilmes-Stiglitz analysis represent costs distributed across US society rather than directly borne by the US government. However, their lead summary table represents an accurate capture of direct costs the government is likely to face over the next twenty years.

Cost	Conservative	Moderate
Spent to date (Iraq)	251	251
Spent to date (Afghanistan)	82	82
Future operations spending (Iraq)	200	271
Future operations spending (Afghanistan)	20	20
VA costs	40	57
Cost for brain injuries	14	35
Veterans disability payments	37	122
Demobilization payments	6	8
Increased defense spending	104	139
Interest on debt	98	386
Total	852	1371

Table 5: Budget Costs of the Afghanistan and Iraq Wars
(Projected Twenty Year Period; Billions of Dollars)⁴²

A reasonable figure for analysis would be a point between the two estimates, considering that debt interest would appear on the general budget. A figure of \$1 trillion would be appropriate for total budget costs of the conflict. Given that \$400 billion has already been appropriated for direct war costs, we should expect up to \$600 billion in additional defense budget spending or \$30 billion per year over the twenty year period identified in the survey.

Each of the five supplemental requests presented to Congress has met with increasing opposition. The latest submission resulted in direct pressure on the Army to absorb into its own budget some costs identified in the request.⁴³ Given the softening support for operations in Afghanistan and Iraq, it is likely reasonable to assume that Congress will fund few additional funding requests. The Bilmes-Stiglitz estimate represents 6.8% of the FY 2007 defense budget request, which would be subsumed by future defense budgets. We can expect that most of these costs will be absorbed within the Army and Marine Corps budgets.

Health Care Spending

As in the civilian sector, DOD faces the challenge of delivering high quality health care to its population while controlling cost increases. Over the five years from 2001 to the present, DOD health care costs have doubled from \$19 to \$38 billion. This figure represents a 14.9% yearly cost increase and accounts for 9.1% of the 2006 DOD budget. Dr. William Winkenwerder indicates that without controls, costs could rise to \$64 billion by 2015, or 12% of the DOD budget.⁴⁴ This six percent increase is consistent with projected health care cost growth in the private sector.⁴⁵

Personnel Costs

Despite the new challenge of manning an all volunteer force during wartime operations, the services have managed to meet their recruiting and retention goals. However, the services have been forced to use ever more generous bonuses to meet these goals. Increases to in-kind benefits have also been strong inducements.

Simultaneously, Congress has mandated improvements to reserve, retired and DOD civilian benefits. Full concurrent receipt, age 55 reserve retirements, expansion of the Reserve Healthcare entitlement to all selected reserve members and elimination of Survivor Benefit Program offsets are all examples of this trend. These expansions to entitlements are costs which Congress requires DOD to absorb within its existing funding. Cumulative costs of these programs represents \$23.3 billion in FY 06 (5.6% of FY 06 funding request), with growth of \$2 billion yearly.⁴⁶ Cost increases of this nature are particularly problematic as the benefits flow

primarily toward non-active duty and reserve members with few resulting readiness and retention improvements.

Recapitalization Costs

Combat operations are costly in a variety of ways that exceed the normal increases of supply and commodity consumption. OIF and OEF supply and ammunition expenditures are largely covered in service and supplemental authorizations. Increased wear of capital assets and battle losses are not covered in budget authorizations. The Army estimates that up to 30% of its equipment stock is in Iraq at present and experiences operating tempos up to six times greater than peacetime levels.⁴⁷ Army estimates place the cost of resetting the force at \$9 billion.⁴⁸ The Marine Corps recently stated that it would require \$12 billion of additional funding to restore and repair equipment used in OIF/OEF operations.⁴⁹ The Army has identified requirements to replace more than 800 systems damaged beyond repair or lost at a total cost of \$600 million. The Bilmes-Stiglitz study estimates the total refit cost across DOD will be \$25 billion through 2015, or roughly \$5 billion per year (1.2% of FY 2006 funding request).⁵⁰

The brief survey above indicates that mandatory costs rising from combat operations, personnel programs, health care costs and equipment recapitalization costs will potentially require increased funding up to 16.6% of FY 2006 levels. The preceding survey does not represent an exhaustive list, but does indicate a future trend. This requirement will manifest itself at the same time the Federal budget feels the effects of rapidly increasing entitlement payments and less resources are made available for defense. The likely outcome will be absorption of these costs within the DOD budget.

Risk Analysis

From the broad survey presented in this paper, it is appropriate to conclude that the United States faces a fiscal crisis absent significant reform of its entitlement system. Generous entitlement programs will consume an ever greater share of budget resources as the population ages, constraining discretionary spending, including defense. The most explosive growth will take place in Medicare spending, followed by Social Security spending later in the century. Unless benefit levels are reduced, by 2030 the demands of these two programs will require the Federal Government to raise taxes to one third to two thirds above their historic high levels, run large and unsustainable budget deficits, or some combination of both. Under such conditions, the United States will not be able to provide the resources required by the QDR. Resource shortages will place in jeopardy the investment required to create a broad portfolio of advanced

technology while also maintaining a large conventional force fully modernized to meet a near peer competitor.

The critics of this view correctly point out that changes of analytic assumptions can greatly change analytic conclusions. A faster GDP growth rate driven by rapid productivity improvements will provide a greater pool of resources for government to pursue higher social spending and robust defense spending.⁵¹ However, the productivity improvements required for this solution are put at risk by the government's continued fiscal stance.

First, a high tax, high debt environment puts macroeconomic growth rates at risk. Critics point to the European experience and link tax rates required to sustain large social insurance programs with labor market rigidity and lowered economic growth. Government spending in European Union nations is an average 48% of GDP with tax rates averaging 41% and high government borrowing levels making up the funding difference. Compared to the United States, per capita income is 30 percent lower in the EU-15, economic growth rates are 34 percent lower, [and] unemployment is substantially higher.⁵² While other factors contribute to economic growth, sustained high tax rates and high debt levels serve to dampen economic growth.

The US government is regarded as more credit worthy than even the largest and most reputable borrowers. Therefore, the US government borrowing in private markets will find its needs filled over those of other borrowers and risk diverting investment capital from investment in private research and new capital to produce goods. If borrowed funds are in turn given to the retired population and military forces which consume them without producing new goods and technologies, the nation is left in the future with a smaller pool of productive resources. This "crowding out" of productive investment in research and new capital will lead to slower economic growth and a smaller pool of resources to commit to defense.

Second, high debt levels raise the risk in the eyes of private lenders that a borrower will be unable to repay the debt and will default on its loans. The high debt to GDP ratio combined with a Federal budget increasingly dominated by entitlement payments exacerbates the problem of reducing deficits and reducing the debt to GDP ratio. This in turn will raise the risk of default. Increased default risk raises the cost of borrowing through higher interest rates, requiring greater shares of the Federal budget for debt service.⁵³ This in turn leads to the choice of the Federal Government to reduce defense in order to reduce spending and control debt growth.

Third, high spending levels fueled by debt risks increased inflation. The US experience of the 1960s-70s and late 1980s are examples of this phenomenon. The Johnson Administration chose to increase domestic spending and military spending simultaneously without also raising taxes. This fiscal stance opened large and persistent budget deficits into the 1970s. Though

delayed, the mid to late 1970s were an environment of high and persistent inflation. Again in the early 1980s, the Reagan administration adopted a fiscal stance of high military and social spending combined with large and persistent budget deficits. By the end of the 1980s, inflation rates were significantly higher and persisted into the next decade. Inflation increases the nominal value of GDP while the value of previously issued debt remains unchanged. Therefore, national governments face the temptation to adopt a benign stance toward inflation to improve their debt position relative to GDP.

Finally, slower growth, excessive debt and inflation reduce the value of currency in overseas markets. These lasting and unfavorable effects render US imports more expensive and reduce the ability of US corporations to invest overseas. While US exports would be cheaper, the net effect is to make US citizens poorer as foreign purchased goods are on balance more expensive.

High budget deficits which result in the increase of the debt to GDP ratio have historically led to a desire to remedy improve the nation's finances through a return to austerity. As Ippolito has pointed out, defense and other discretionary programs have been more readily and sharply reduced than popular entitlements.⁵⁴ Unrestrained budget trends suggest a near term reduction in resources as the nation is attempting to prosecute the "Long War" against asymmetric threats. Further, a sharp reduction of defense resources is likely to occur in the next decade at precisely the time a near peer competitor would be likely to arise. The Federal Government's current and projected fiscal stance present large and sustained resource risks to defense.

Recommendations

The Social Security Administration indicates that Social Security unfunded liabilities could be eliminated through a 15% payroll tax increase, 13% reduction in benefits or some combination of both measures.⁵⁵ Either measure is broadly unpopular and will be politically difficult to enact. However, a compromise solution of the proposed measures must be implemented as soon as possible to relieve pressure on the Federal budget and give program recipients maximum time to adjust.

Medicare requires more stringent measures and the rapid escalation of costs in this program require immediate action. SSA identifies that a payroll tax increase of 107%, 48% reduction in program outlays or some combination of the two measures is necessary to bring the program in balance.⁵⁶ As Medicare taxes are 2.9% of payroll, revenue increases necessary to provide relief to the program will be large but not quite as extreme in magnitude as the SSA

figure would first suggest. Again, a compromise solution of the two measures must be urgently adopted if taxpayers and recipients are to adjust to the changes.

The revenue raising measures proposed above will serve to return Federal receipts closer to their upper limit (20% of GDP). This must be matched by reductions in benefit levels to prevent a return to fiscal challenges later. The SSA can achieve gradual benefit reductions by lowering the yearly inflation adjustment figures used to raise benefits, and means testing benefit levels for more affluent recipients. The SSA has already increased the age of eligibility to a level more reflective of Americans greater longevity. This practice should continue as Americans live longer.

The defense budget will likewise require adjustments to cushion the impact of external and internal budget pressures. First, Congress must grant the services broad latitude to develop efficient compensation schemes and eschew the temptation to impose external solutions such as SBP Offset provisions and current receipt changes. The services have already moved to shift some health care costs to individuals in order to curb cost growth in these programs.⁵⁷ While appropriate, the services must proceed with care to ensure they realize cost savings without damaging the recruiting and retention value of medical benefits.

Finally, the services should adopt a policy of development investment in major weapons systems, particularly those in which the US enjoys a clear technological advantage. Expensive programs such as the F22 and F35, next generation ship classes and armored vehicles should develop small numbers of prototypes to mature technology and proof concepts. Ballistic missile defense programs should be reviewed and adjusted to levels reflective of the true BMD threat to the continental US. The US nuclear arsenal should likewise be reviewed and reduced to levels sufficient for deterrence. Equipment programs would take on the character of options to be purchased once the presence of a peer competitor becomes clear. Likewise, such an approach will require a capable and well funded intelligence structure to give adequate notice of the development of a peer competitor.

As Adam Smith observed, the nation's ability to provide fiscal resources to its defense is among its most basic requirements. The US faces significant challenges in the coming decades that will challenge its ability to maintain the welfare state and provide resources for a strategy of supremacy. The challenges ahead will require fiscal adjustment now to ensure that adequate resources are available in the future through the funds provided to defense and the ability to draw upon deep and diverse capital markets in the event of an emergency.

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