

Strategic Communication of Future U.S. Department of Defense Budgets

by

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Abstract

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Senior leaders can significantly enhance the impact of the Department of Defense budget communication strategy by adding macroeconomic context via reference to: defense as a percent of Gross Domestic Product, historical defense expenditures, international defense level-of-effort comparisons, and the relative size of major federal outlays. To enhance the “austerity drives increased risk” message resonance, macroeconomic context should complement, not replace, the threat-informed, strategy-based budget communication paradigm. Budget number magnitudes are often incomprehensible, but tangible level-of-effort comparisons are insightful. The federal budget informs a fiscal environmental assessment, including political risk, as part of a disciplined update to defense budget communication strategy. The ultimate objective of the strategy should be to communicate defense resource requirements using ways meaningful to the U.S. Congress and the American public, thus significantly mitigating fiscal risk to national security.

Strategic Communication of Future U.S. Department of Defense Budgets

This U.S. Army War College Strategy Research Project (SRP) aims to provide a thought-provoking answer to the question, “How can Department of Defense (DoD) senior leaders better strategically communicate the U.S. National Defense budget?”

Effective DoD senior leader strategic communication warning of “tough times” and “more risk due to fiscal austerity” is vital to the future defense of the United States. Contemporary DoD senior leader speeches and testimony often include references to austere current and future fiscal environments, but most are void of contextual refinement of the austerity assertion.¹ Budget numbers are often used without historical, international, total government outlay, and national level-of-effort references or comparisons.² This paper targets the contextual communication gap by providing complementary facets to the prevailing threat and national strategy based budget support paradigm. Precisely augmenting the “austerity will hurt” claim with complementary historical, international, total government outlay, and national level-of-effort context and granularity should increase message resonance with target audiences. This paper does not recommend that historical, international, total government outlay, and/or national level-of-effort references replace the prevailing threat and strategy based paradigm, merely that DoD budget communication strategy in support of the existing paradigm would be significantly improved through the complementary inclusion of these items in strategic communication of future DoD budgets in specific and U.S. National Defense expenditures in general. Accordingly, incorporating these additional contextual items coherently into the DoD budget communication strategy can help significantly mitigate fiscally-driven risk to the National Security Strategy (NSS).

Background

The following themes appear frequently in the strategic communication of the President and his Secretary of Defense (SecDef): “risk to our national defense”, “sequestration”, and “period of fiscal austerity.” In his 2015 NSS cover letter, the President proclaims, “I will continue to insist on budgets that safeguard our strength and work with the Congress to end sequestration, which undercuts our national security.”³ In his initial message as SecDef, Dr. Ashton B. Carter described the DoD fiscal environment as the, “turmoil of sequestration, which imposes wasteful uncertainty and risk to our nation’s defense.”⁴ Secretary Carter continued, “To win support from our fellow citizens for the resources we need, we must show we can make better use of every taxpayer dollar.”⁵ In his first speech to the DoD, the SecDef described the fiscal environment as a, “budget and resource challenge, sequestration, and so forth. And that is unsafe. It’s dangerous. It’s wasteful. It’s unwise.” He pledged to, “get us out of the wilderness of sequester.”⁶ Secretary Carter asserted, “If we’re going to convincingly make the case to our people that they need to spend more on their defense – which I believe they do – we need to, at the same time, show them that we know we can do better at spending that money. And that we won’t be able to do unless we are open, and unless we are embracing the future.”⁷ On page one of the 2014 Quadrennial Defense Review (QDR), former Secretary of Defense Charles T. “Chuck” Hagel stated, “The QDR describes the tough choices we are making in a period of fiscal austerity to maintain the world’s finest fighting forces.”⁸

A survey of statements from the Joint Chiefs of Staff (JCS) reveals an extension of the defense budget communications themes used by the President and the SecDef.

For example, General Martin E. Dempsey, the Chairman of the Joint Chiefs of Staff (CJCS), stated during FY2015 Congressional testimony, “If sequester-level cuts return in 2016, the risks will grow, and the options we can provide the Nation will shrink.”⁹ Other domestic fiscal environment descriptions in the CJCS statement included: “decreasing defense budgets”, “resource-constrained environment”, “declining resources”, “our military’s more limited resources”, and “as our resources become more constrained.”¹⁰ In his March 2014 statement to the House Armed Services Committee, the Chief of Naval Operations (CNO), Admiral Jonathan W. Greenert, framed his testimony around the ten primary DoD missions from the 2012 Defense Strategic Guidance (DSG).¹¹ Admiral Greenert highlighted the impact on the U.S. Navy’s ability to execute those missions in the current fiscal environment, which he described as, “a time of increased fiscal constraint.”¹² The CNO described the changes to risk as: “insufficient capability and capacity”, “higher risk”, “high risk”, “less margin for error”, “greater risk”, and “increases risk to ashore readiness.”¹³ In April 2014, the Secretary of the Army (SecArmy), John M. McHugh, and the Chief of Staff of the Army (CSA), General Raymond T. Odierno, began their joint posture statement with a 2-page “Budgetary Restrictions” section.¹⁴ The SecArmy and CSA described the current budgetary environment as: “domestic fiscal challenges”, “budget stringency”, “impact of the Budget Control Act”, “uncertain fiscal environment”, “fiscal uncertainty”, and “sequestration-level spending caps.”¹⁵

Combatant Commanders’ testimony used the same contextual themes expressed by the President and SecDef, but with increased granularity. The U.S. Southern Command (USSOUTHCOM) Commander, General John F. Kelly, testified in

February 2014 to the House Armed Services Committee that, “I remain concerned, however, by the impact of budget cuts on our ability to support national security interests and contribute to regional security.”¹⁶ General Kelly’s additional descriptions of risk and the fiscal environment included: “tightening fiscal constraints”, “sequestration only exacerbated these challenges”, “severe budget constraints”, “budget cuts are having a direct and detrimental effect”, “resource-constrained environment”, “budget limitations imperil our ability”, and “diminishing asset allocation.”¹⁷

The statements of the President, SecDef, JCS, and Combatant Commanders all resonated around the need to end sequestration. Besides sequestration, many senior leaders also directly or indirectly asserted that the level of funding for U.S. National Defense drives increased risk to the DoD missions required by the NSS, DSG, and QDR. No assertion on the level for U.S. National Defense spending was discussed with reference to historical, international, total government outlay, or national level-of-effort context. This paper provides multiple options to add such context beginning with a discussion of the size of the economy.

Gross Domestic Product

From macroeconomic theory, the Gross Domestic Product (GDP) of a country is the sum of consumption, investment, government spending, plus net exports.¹⁸ GDP is widely accepted as the size of an economy.¹⁹ The 2014 U.S. GDP was a \$17.7 Trillion.²⁰ Estimates made by the International Monetary Fund (IMF) of the 2000-2014 GDPs of the United States (USA), European Union (EU), Peoples’ Republic of China (China), Russian Federation (Russia), and Israel are plotted in Figure 1.

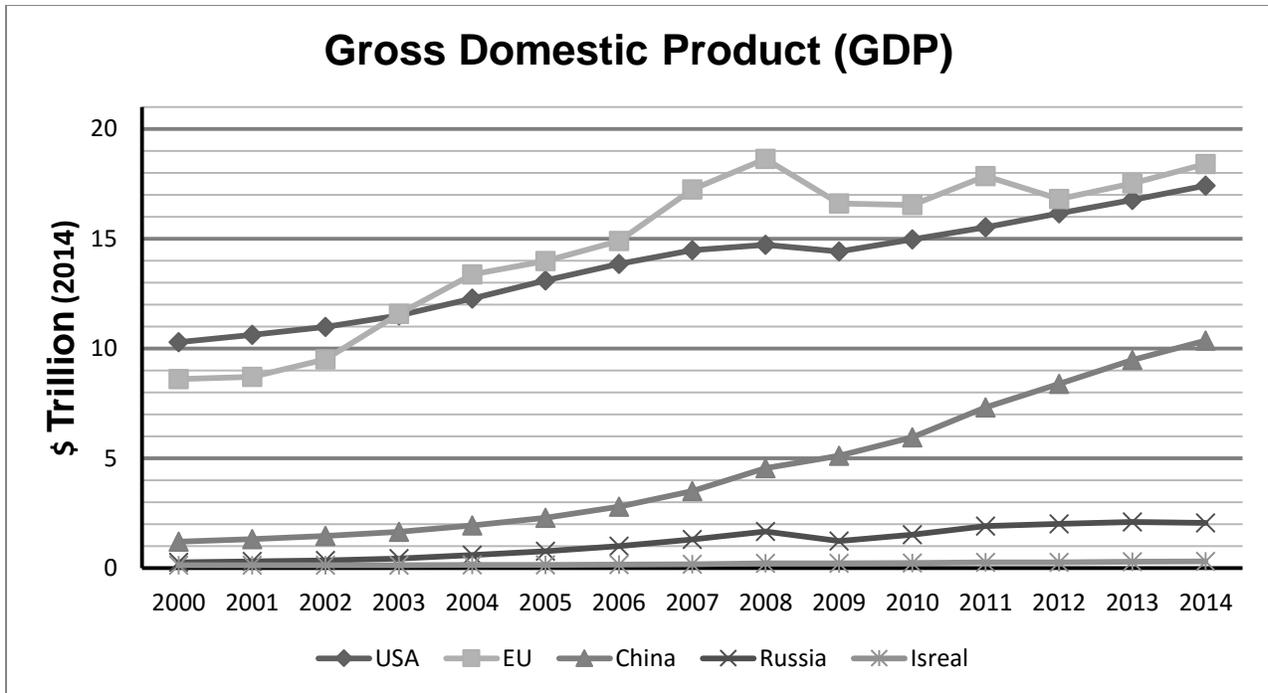


Figure 1. Gross Domestic Product (GDP) in \$ Trillion (2014)²¹

GDP is extremely useful as a denominator when comparing economic or budgetary numbers as a percentage. For example, total U.S. federal, state, and local government spending in 2014 of \$3.2 Trillion was 18.0% of 2014 U.S. GDP.²² Stated another way, fully 18.0 cents of every dollar spent in the U.S. economy in 2014 was spent by a federal, state, or local government entity. As reported by the Congressional Budget Office (CBO), U.S. National Defense expenditures were \$596 billion (\$0.6 Trillion) in 2014, 3.5% of U.S. GDP.²³ Said another way, in 2014 U.S. National Defense expenditures accounted for about 3.5 cents of each dollar in the U.S. economy.

One-tenth of a percent (0.1%) of 2014 GDP was approximately \$17.7 billion. Accordingly, changes to U.S. National Defense spending of 0.1% of U.S. GDP are significant. How significant? The entire U.S. Army Procurement plus Research, Development, Test and Evaluation (RDT&E) FY2015 budget request was \$20.1 billion.²⁴

Additionally, the entire U.S. Air Force (USAF) FY2015 procurement budget request was \$16.0 billion.²⁵ The Department of the Navy's RDT&E FY2015 budget request was \$16.3 billion and, finally, the entire U.S. Marine Corps (USMC) FY2015 budget request was \$22.8 billion.²⁶

Therefore, using the percent of U.S. GDP as a precise budget control mechanism would be wholly inappropriate.²⁷ The percent of GDP reference is only beneficial as a level-of-effort performance measure of the economy as a whole. While the four FY2015 budget examples in the previous paragraph all round to 0.1% of U.S. GDP, they differ by up to \$6.8 billion. Attempting to use the percent of U.S. GDP as a budgeting tool would be the equivalent of attempting to control an aircraft by "setting" airspeed.²⁸ The percent of U.S. GDP devoted to U.S. National Defense provides significant value as a "performance" parameter when viewed over an appropriate historical context providing level-of-effort comparisons of a nation's economy to provide for defense.

A significant handicap of limiting DoD strategic leader communication strategy to absolute monetary values is the sheer magnitude of the numbers and their associated loss of context to most non-budgetary fluent stakeholders. Here again the tangible value of national economic level-of-effort communications are of significant value. For example, as reported by the CBO, the nominal value of \$596 billion spent in 2014 on U.S. National Defense has limited meaningful context, while the same data, expressed in a relative macroeconomic level-of-effort (3.5% of U.S. GDP) has the opportunity to resonate with target audiences, especially when used to compare historical spending.²⁹

Historical References

During his FY2015 testimony, General Kelly (Commander, USSOUTHCOM) used a partial historical reference: “When better resourced several years ago, we were able to disrupt a significant amount – more than 240 metric tons – of cocaine heading toward the United States.”³⁰ The “several years ago” phrase was not clarified further in his statement. Specifying the historical timeframe would have provided increased context, strengthening the message’s impact with the audience. Was General Kelly referring to the 1980s or the mid-to-late 1990s or another period? As shown in Figure 2, the 1980s were a significantly different U.S. National Defense resourcing environment than the mid-to-late 1990s. DoD senior leader references to specific historical timeframes can be of significant contextual value when communicating with stakeholders such as subordinates, Congress, and the American public.

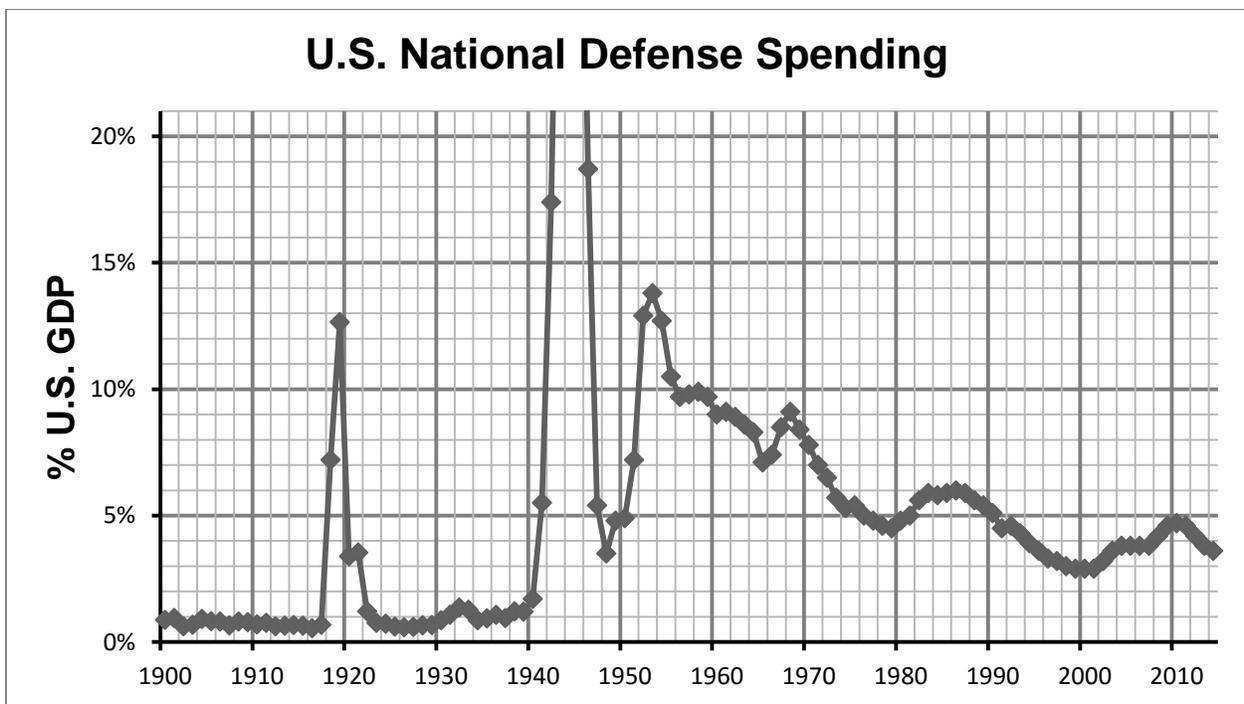


Figure 2. National Defense Spending (% U.S. GDP)³¹

Using the historic macroeconomic data plotted in Figure 2 averaged over specific periods can be highly insightful, but expanding these averages to include dissimilar periods of history can be misleading. For example, from 1900-2014, average U.S. National Defense spending was 5.4% of U.S. GDP. Over the last 100 years (1915-2014), average U.S. National Defense spending rises to 6.1% of U.S. GDP. Yet over the last 50 years (1965-2014), average U.S. National Defense spending drops to 5.0% of U.S. GDP. Such broad averages are often misleading as they typically combine periods of significant demobilization (e.g. the interwar years 1920-1941) with periods of major war (e.g. the “total war” effort of World War II 1942-1946), and other levels of conflict between those two extremes.

An example of segmenting the data into relevant and useful averages is displayed in Table 1. Note that during World War II U.S. National Defense spending was roughly 30% of U.S. GDP. The significant World War II economic level-of-effort was indicative of a U.S. economy devoted to defense under an existential threat. Also noteworthy is the interwar period, including the Great Depression, (1920 - 1941) as it saw an average of 1.4% of U.S. GDP devoted to U.S. National Defense – more than a full order of magnitude less than was required during World War II.

Table 1. Average U.S. National Defense Expenditures (% U.S. GDP)³²

Fiscal Years	Period Description	Average U.S. National Defense Expenditures (% U.S. GDP)
1900-1917	Pre-WWI	0.7%
1918-1919	WWI	9.9%
1920-1941	Interwar Years	1.4%
1942-1946	WWII	29.2%
1947-1950	Post-WWII	4.7%
1951-1954	Korean War	11.7%
1955-1963	Cold War pre-Vietnam	9.5%
1964-1972	Vietnam	7.8%
1973-1980	Cold War post-Vietnam	5.0%
1981-1989	Cold War Reagan Build-	5.7%
1990-1991	Desert Storm	4.8%
1992-2001	Post-Cold War	3.5%
2002-2014	ONE, OEF/OIF	4.0%

Historic comparisons like World War II vis-à-vis the interwar period can be highly insightful when integrated into DoD senior leader communication. A few words or a simple phrase inserted into senior DoD senior leader public statements or Congressional testimony using the “percent of GDP” yardstick as a level-of-effort comparison to relevant historical periods would significantly strengthen DoD senior leader “austerity hurts” assertions. For example, significant further decreases in U.S. National Defense spending would be unprecedented in the period since 1941 if they reduce U.S. National Defense spending below 2.9% of U.S. GDP. For reference, the CBO forecasts U.S. National Defense spending to dip below this threshold in 2018 and continue its relative decline to 2.6% of U.S. GDP in 2025.³³ History provides an insightful response to the “so what?” question. U.S. National Defense spending in the post-Vietnam era (1973-1980) – generally recognized as a period of inadequate military

means – was 5.0% of U.S. GDP, almost double the relative U.S. National Defense spending forecast in 2025.

Anchoring U.S. National Defense expenditure discussions to GDP implies that the real change in defense spending should mirror economic growth and, during a recession, economic contraction. Advocating for increased U.S. National Defense expenditures during an expansionary phase of the macroeconomic cycle, as the U.S. has experienced since July of 2009 through at least 2014, is a simple argument.³⁴

However, when the economy enters a recession, especially a severe recession such as 2007-2008, the percent of GDP argument implies a real reduction in U.S. National Defense spending. While not the subject of this paper, exploration of the use of U.S. National Defense spending as a Keynesian macroeconomic stimulus has the potential for significant value to both defense of the U.S. and the recovery of the economy.³⁵ In future recessions, DoD senior leaders may be able to legitimately tie U.S. National Defense spending to its macroeconomic stimulative or stabilizing effects.

The level-of-effort message can also be critical for internal DoD senior leader message consumption within the ranks of DoD active duty, civilians, and contractors. Senior leaders at all levels within DoD can use historical comparisons to similar scenarios and strategically communicate why and – most importantly – how much the DoD is being tasked to reduce its budget. As a hypothetical example, following the culmination of a future major conflict where U.S. National Defense expenditures were on-par with the Korean War at 11.7% of U.S. GDP, it would be important for lower echelons of command within DoD to avoid the un-anchored “peace dividend” message and instead anchor the message to the average U.S. National Defense expenditures

during an historically relevant conflict-free period. For example, average U.S. National Defense expenditures in 1900-1917 and 1920-1941 were 1.1% of U.S. GDP, while average 1947-1950 U.S. National Defense expenditures were 4.7% of U.S. GDP. The U.S. devoted an average 3.5% of its 1992-2001 GDP to U.S. National Defense. Combining these three historical periods into a broad average would be highly misleading, as the pre-World War II period has little in common with the last decade of the 20th century.

In this hypothetical scenario, resetting U.S. National Defense spending from a wartime level equivalent to 11.7% of U.S. GDP to a peacetime level of 4.7% of U.S. GDP results in a 60% reduction in the U.S. National Defense budget. Communicating the enormous magnitude of the contraction of capacity and reduction in future capability required in this scenario is a starkly different message within the ranks than the “peace dividend” message. This information also gives DoD senior leaders factual items to use when addressing installation realignment or closure decisions to the public.

While this discussion of historical defense spending is entirely focused on the U.S., there is value to be gained in researching the correlation of the level-of-effort a nation devotes to defense as measured by economic level-of-effort and subsequent conflict. Does low relative defense spending encourage aggressor nation states? Does relatively high defense spending deter aggression? Is there a level-of-effort that instigates a classic security dilemma? Such a detailed correlation research activity is beyond the scope of this paper, but is another excellent example of the value of macroeconomic analysis applied to national strategy.

Defense as a Public Good

Before developing the international reference for U.S. National Defense expenditures, a conceptual explanation of a public good is needed. National (collective) security, radio broadcasts, street lighting, and massive fireworks displays are all examples of public goods.³⁶ Because public goods are both non-excludable and non-rivalrous, a rational person or group of people will not voluntarily pay for the public good, because they need not contribute to benefit. This is termed the “free-rider problem.”³⁷

As an example of the free-rider problem, an individual’s choice not to join the ranks of an all-volunteer force (police, fire, military) does not affect the value of the protection provided to the community. However, if a military is unable to recruit a sufficient number of appropriately capable volunteers it must either reduce the size of the force, negatively affecting capacity of the force, or lower the minimum standards to recruit the required number of volunteers, negatively affecting the capability of the force.

Defense of the global commons is, ironically, often overlooked as another scenario where a similar free-rider problem occurs. The use of space, international airspace, and sea lines of communication for the free flow of trade and information benefits all nations of the world.³⁸ If one nation chooses to devote less to the protection of the global commons, there is likely excess global security capacity to offset the reduction of the nation moving toward a free-rider strategy. However, a few nations deciding to abstain from contributing to the defense of the global commons would require the remaining contributor nations to increase their contribution substantially or the security of the global commons will necessarily diminish. In his cover letter to the 2015 NSS, the President says plainly, “America must lead. Strong and sustained

American leadership is essential to a rules-based international order that promotes global security and prosperity.”³⁹ As the largest economy in the world, the U.S. has much to gain when the international order promotes security of the global commons. In their communication strategies, DoD senior leaders can, and should, use the “Tragedy of the Commons” economic parable combined with appropriate historical references like U-Boats in the North Atlantic during World War II or pirates off the Horn of Africa in the early 21st century.⁴⁰ The DoD budget communication strategy should address American leadership and the free-rider problem as it applies to the global commons and collective security by international treaty such as the North Atlantic Treaty Organization (NATO).

International Reference

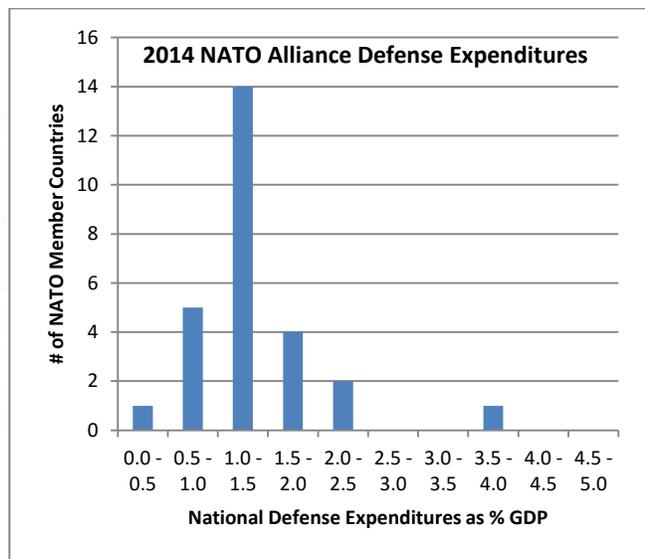
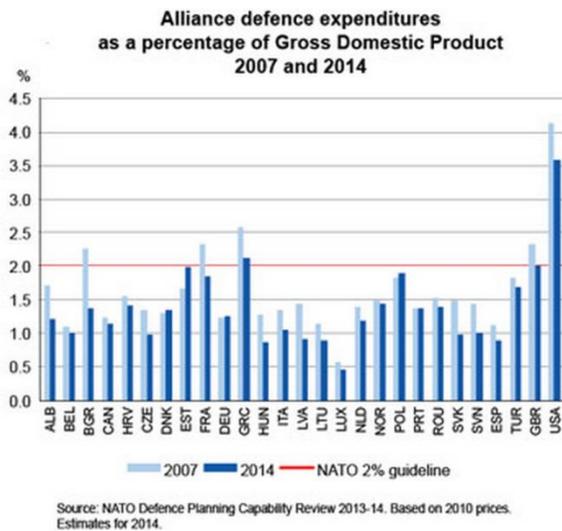
The absolute amount of defense spending by nation is important, but it is also instructive to compare relative national level-of-effort devoted to defense. Analysis begins with the NATO member nations, as The 1949 North Atlantic Treaty requires all members of NATO to act in the collective defense of each NATO member country.⁴¹

In 2006, NATO member countries agreed to fund defense to at least 2.0% of national GDP.⁴² As shown in Figure 3, in 2007 five of the 27 NATO member countries met the 2.0% of national GDP threshold.⁴³ In 2014, the number fell to three.⁴⁴ In 2007, U.S. National Defense spending was 3.8% of U.S. GDP; in 2014 it was 3.6%.⁴⁵ Recent Ukrainian territorial integrity losses highlight the threat to NATO’s collective defense while 24 of 27 countries drift toward a national defense free-rider funding strategy.

The NATO threshold of 2.0% of national GDP for defense spending provides an internationally recognized minimum to use in the DoD budget communication strategy, for if U.S. National Defense expenditures drop below the NATO threshold, the U.S.

would lose the moral authority to demand NATO member countries support defense as agreed in 2006. In this NATO context, historical U.S. National Defense spending as a percent of U.S. GDP adds significantly to the DoD budget communication strategy. Since 1941, U.S. National Defense spending was less than 4.0% of U.S. GDP in fourteen years: 1948, 1994-2007, 2013, and 2014.⁴⁶ U.S. National Defense spending was below 3.0% (at 2.9%) of U.S. GDP three times since 1941: 1999, 2000, and 2001.

At 3.6% of U.S. GDP in 2014, the U.S. was the only NATO member country devoting more than 2.1% of national GDP to defense. Figure 3, from the NATO Secretary General’s 2014 Annual Report, is an example of the value inherent in comparing the level-of-effort of a nation’s economy devoted to a specific objective, in this case defense. Figure 4 groups NATO member country defense expenditures into 0.5% domestic GDP bins. In 2014, 52% (14 of 27) of NATO member countries fell into the 1.0-1.5% bin, while 85% (23 of 27) of NATO member countries spent between 0.5% and 2.0% of national GDP on defense, and by extension, NATO’s collective defense.



Figures 3 & 4. NATO Members’ National Defense Spending (% of GDP)⁴⁷

National strategic level questions surface based on this analysis of NATO defense spending. Should the non-U.S. NATO countries increase defense spending to the level of the U.S.? Will they and under what conditions? Can the U.S. decrease its level of defense spending to join the rest of the NATO countries? Is there an optimum point in between these two endpoints? Answering those questions with any detail are beyond the scope of this paper, but the macroeconomic concept of percentage of GDP aids senior leader framing of the question(s), defining the problem statement(s), and uncovering potential solutions for this national and collective security strategic issue.

As additional points of international comparison, in 2012 Russia spent approximately 4.5% of national GDP on defense while China spent approximately 2.0% of its national GDP on defense.⁴⁸ Table 2 summarizes CIA World Factbook 2012 “military expenditures” as a percentage of national GDP for the permanent members of the United Nations’ Security Council, plus Germany, and six other countries. The defense spending of Israel is an example of the powerful strategic communication options available to DoD senior leaders based on this relative level-of-effort data. Israel is a first-world country with legitimate existential threats in close geographic proximity. According to The World Bank, in 2012 Israel’s GDP per capita was \$31,600 while U.S. GDP per capita was \$51,500.⁴⁹ In 2012, the democratically elected government of Israel chose to spend approximately 5.7 cents of every dollar in the domestic economy toward defense. This data informs the dialog on a U.S. National Defense expenditure ceiling in the DoD budget communication strategy.

As an example, on the topic of the lower limit of U.S. National Defense spending, the DoD budget communication strategy could reference (in addition to NATO)

Australia, which in 2012 devoted 1.7% of national GDP to defense. U.S. National Defense expenditures were 4.2% of U.S. GDP in 2012.⁵⁰ What explains the 2.5% of domestic GDP difference in 2012 defense spending? Is that the price of American leadership? Or is the difference due to other factors like the U.S. nuclear triad and ten carrier strike groups? A detailed analysis of U.S. and Australian National Defense expenditures using national GDP references would help answer those and related national strategic questions, thus informing the DoD budget communication strategy.

Table 2. 2012 Military Expenditures by Country (% national GDP)⁵¹

United States	4.4%	Australia	1.7%
France	1.9%	Israel	5.7%
United Kingdom	2.5%	India	2.4%
Russia	4.5%	Indonesia	0.8%
China	2.0%	Brazil	1.5%
Germany	1.4%	Switzerland	0.8%
S. Korea	2.8%	Nigeria	0.9%

While U.S. real national defense spending is forecast to remain static through at least 2019, GlobalSecurity.org reports China will spend \$145 billion in 2015 on defense and will increase those expenditures by at least 10% each year this decade.⁵² In 2015 China will spend less than 30% of the U.S. expenditures for defense; however, at current growth rates and using a simple linear projection, it will be approximately 13 years until China and the U.S. have equivalent real defense spending.⁵³

Further analysis of international defense expenditures by defense budget category will provide significant additional DoD budget communication strategy insights. The CBO divides the DoD budget into three broad categories: operations and support (O&S), acquisition, and infrastructure.⁵⁴ In 2012 the U.S. spent 4.2% of GDP on U.S.

National Defense, more than twice China's level-of-effort devoted to defense in the same year. The O&S category consisted of 63% of the FY2012 DoD base budget submission. Infrastructure was 3% of the FY2012 DoD base budget request. The remaining 34% of the FY2012 DoD base budget (or 1.4% of U.S. GDP) was acquisition.

How much should the U.S. devote to defense acquisition? The USAF Chief of Staff (CSAF), General Mark A. Welch III, stated bluntly, "We must modernize our Air Force. Air Forces that fall behind technology, fail."⁵⁵ The modernization argument made by the CSAF has application beyond the technology-centric domains of air, space and cyberspace. NATO concurs. In 2006, NATO began targeting 20% of national defense spending to "research, development and acquisition of major defence equipment."⁵⁶ In 2014, the U.S. spent roughly 26% of national defense expenditures on defense acquisition. Seven of 27 NATO countries met or exceeded the 20% "major equipment expenditure" target in 2014. To add significant support for increased modernization expenditures, the DoD budget communication strategy should use the results of research directed at building a picture of the world's spending on defense modernization. Such a study is beyond the scope of this paper, but a rapid survey of open-source information reveals interesting insights into the defense modernization, and future military capability, of a rising world power. GlobalSecurity.org indicates China recently spent 31% of defense expenditures for the "research and experimentation, procurement, maintenance, transportation and storage" of equipment.⁵⁷ Estimates for Chinese expenditures on "acquisition" in the later part of the 20th century range up to 65% of total military expenditures.⁵⁸

Additional useful DoD budget communication strategy insights can be gained by looking deeper than top-line national defense expenditures across nations. One example is the category of the personnel costs, specifically the cost of an all-volunteer military force - basic pay, health care, and housing expenditures. All else being equal, the top-line national defense budget of a nation with an all-volunteer force will be significantly higher than that of a nation with conscripts due to the upward pressure on wages prompted by competition of the military in the national labor market. The growth of uniformed DoD personnel costs is the consequence, in part, of a U.S. national strategic decision to end the draft in the 1970s. The CJCS, in one of his FY2015 posture statements, calls for a “rebalancing of our military compensation” or we will be forced to make continuing cuts to modernization and readiness.⁵⁹ If DoD senior leader messages supporting U.S. military compensation reform are informed by comparisons of basic pay, retirement, health care costs, and housing costs across multiple nations, those communications will reduce criticism to U.S. military compensation reform.

Major U.S. Federal Outlays

Total federal outlays are the sum of net interest on the national debt (interest), direct spending, and discretionary spending.⁶⁰ The main take-away from the CBO’s 2015 to 2025 economic and budget outlook can be summarized by the following excerpt, “All of the projected growth for 2015 is attributable to mandatory spending, which makes up about 60 percent of the federal budget.”⁶¹ Mandatory spending is direct spending.⁶² In the same period, discretionary spending and interest payments both declined slightly in real dollars.

U.S. National Defense expenditures as published by the Office of the Undersecretary of Defense (Comptroller) (USD(C)) are the summation of DoD expenditures and other federal outlays titled “Non-DoD” defense expenditures. Where realistic in this paper, all U.S. National Defense expenditures data are the broader U.S. National Defense numbers.⁶³ The Non-DoD sub-category of the U.S. National Defense budget item is comprised of “defense-related activities” of other federal agencies, including the budget for Atomic Energy Defense Activities.⁶⁴ Additionally, significant portions of the U.S. Departments of State, Justice, Treasury, Health and Human Services, Commerce, plus the entire U.S. Department of Homeland Security all make major contributions – and require significant fiscal resources – to U.S. National Defense. Whole-of-government U.S. National Defense spending accounts for much of the fiscal means given to the diplomatic, informational, and economic instruments of national power. Whole-of-government defense spending is also the least distorted way to compare U.S. national level-of-effort spending to other nation-states directly (i.e. China, Brazil, Russia, India, Germany) or collectively (i.e. NATO).

The fiscal environment occupied by DoD senior leaders discussing national strategic decisions includes major budget categories not only outside of DoD, such as Non-DoD U.S. National Defense, but also major budget categories outside of U.S. National Defense, including net interest on the national debt and direct spending. In 2011, Admiral Michael G. Mullen, then the CJCS, provided an example where a DoD senior leader made a strong statement on federal outlays outside of defense when he stated, “I’ve said many times that I believe the single, biggest threat to our national security is our debt.”⁶⁵ While debt by itself has no intent to harm the U.S., it is projected

to place significant budgetary pressure on the non-interest payment portions, including U.S. National Defense, of the federal budget. The CBO estimates 2015 interest payments on the national debt to be the equivalent of 1.3% of U.S. GDP and increasing at approximately 9% annually to reach the equivalent of 3.0% of U.S. GDP in 2025. Interest payments on the national debt are, literally, mandatory spending and are highly sensitive to changes in interest rates. The CBO projects interest rates to climb significantly from their unprecedented historically low values (and duration of the low values). For example, the interest rate on 3-month Treasury bills is projected to rise from 0.1% in 2015 to 3.4% in 2018 and subsequent years.⁶⁶

The largest federal program is Social Security with projected 2015 outlays of 4.9% of U.S. GDP, forecast by the CBO to increase to 5.7% of U.S. GDP in 2025.⁶⁷ The combined 2015 total projected outlays of Medicare, Medicaid, and other major health care programs are the equivalent of 5.6% of U.S. GDP and are projected by the CBO to grow at 7% annually reaching the equivalent of 6.8% of U.S. GDP in 2025.⁶⁸

For reference, U.S. National Defense spending has projected 2015 outlays of 3.5% of U.S. GDP. In 2025, the CBO projects U.S. National Defense spending to be the equivalent of 2.6% of U.S. GDP, lower in national level-of-effort terms than at any point in history since 1940.⁶⁹ Net interest on the national debt, Social Security, Medicare, Medicaid, and other major health care programs are not within the sphere of control or influence by DoD senior leaders. Data on these large federal programs are presented in this paper for fiscal environmental context, exactly as they should inform a fiscal environmental assessment (and political risks) of an updated DoD budget communication strategy.

DoD Budget Communication Strategy

Achieving the maximum effect possible from points of reference discussed in this paper requires the continuation of a disciplined process for updating the DoD budget communication strategy. Incorporation of the material in this paper into DoD senior leader messages scattered in a pseudo-random manner across time and speakers is likely to be significantly less effective than their potential. The material would still be of positive value, but it would more resemble a diffuse light from a simple lightbulb – illuminating, yes – but not nearly as powerful as the same energy focused and aligned like a laser beam through the coherence possible via an updated DoD budget communication strategy executed simultaneously by dozens of DoD senior leaders. The ultimate objective of the DoD budget communication strategy should be to effectively communicate defense resource demands in ways civilians understand.

A continuous and recursive detailed scanning of the strategic communication environment for key stakeholders and audiences, both domestically and internationally, should inform an ends, ways, and means analysis of the DoD budget communication strategy supporting the ultimate objective. Joint Doctrine Note (JDN) 2-13, *Commander's Communication Synchronization*, contains communication synchronization best practices applicable to the formulation of DoD budget communication strategy.⁷⁰ JDN 2-13 contains food for thought for the required environmental scanning and determination of DoD budget communication strategy objectives (ends). Additionally, JDN 2-13 gives summary details of the means available for communication and ways of using these communication means in pursuit of the ends of the communication strategy. Another doctrinal source of ways and means for

strategic communication is Joint Publication 3-13, *Information Operations*.⁷¹ Joint Publication 3-61, *Public Affairs*, will also provide value to the ways and means of DoD budget communication strategy.⁷² As all three of these joint documents are written assuming their use outside the U.S., their application must be scrutinized for use with domestic target audiences, especially the U.S. Congress.

The recursive analysis of the updated DoD budget communication strategy ends, ways, and means must emphasize its feasibility, acceptability, and suitability. The analysis must also define specific and implied risk from the execution of the DoD budget communication strategy and identify the appropriate leadership level to accept the residual risk. The recursive analysis should answer these questions:

- Can the DoD budget communication strategy be executed? (Is it feasible?)
- Does the DoD budget communication strategy comply with all explicit and implicit constraints and restraints? Is it legal and ethical? (Is it acceptable?)
- Will the DoD budget communication strategy achieve the desired communication objectives? (Is it suitable?)
- What risks cannot be mitigated by the strategy? Who must accept those risks?

After each implementation of an updated DoD budget communication strategy, the environment must continue to be monitored for changes requiring an update to the strategy. The effects of the communications strategy must also be continuously monitored for success or failure with this information used as feedback into the next strategy update. Updates to the strategy should be the expectation as the complex strategic fiscal communication environment will continuously evolve and adapt.

Conclusion

This U.S. Army War College paper answered the question, “How can DoD senior leaders better strategically communicate the U.S. National Defense budget?” The answer began with a survey of DoD senior leader communications. Then, the following complementary macroeconomic level-of-effort context was presented in detail: U.S. National Defense expenditures as a percent of U.S. GDP, historical U.S. National Defense expenditures, international defense level-of-effort comparisons by country and collectively, plus the relative size of the major U.S. federal outlays.

Constraining budget communications to absolute budget values severely limits its effect as the sheer magnitudes are incomprehensible to non-budgetary fluent stakeholders. Therefore, the tangible value of national economic level-of-effort comparisons is significant, especially when used to compare historical spending. However, using the percent of U.S. GDP as a precise budget control parameter would be inappropriate. The percent of U.S. GDP devoted to U.S. National Defense only provides significant value as a performance parameter; and only when viewed over an appropriate historical timeframe. For example, significant further decreases in U.S. National Defense spending would be unprecedented in the period since 1941 if they reduce U.S. National Defense spending below 2.9% of U.S. GDP.

Using historic macroeconomic data averaged over specific periods can be highly insightful. However, broad averages, like the last 75 years, are often misleading as they typically combine periods of significant demobilization with periods of major war and other levels of conflict between those two extremes.

Internationally, collective defense regimes and defense of the global commons are both scenarios with free-rider defense funding strategy issues. If enough nations devote less to defense, the remaining contributor nations must significantly increase their defense expenditures or security will necessarily diminish. The DoD budget communication strategy must address American leadership and the free-rider problem as it applies to the global commons and collective defense.

The fiscal environment occupied by DoD senior leaders discussing national strategic decisions includes major budget categories outside of U.S. National Defense. Net interest on the national debt, Social Security, and major health care programs are not within the sphere of control or influence by DoD senior leaders. Data on these large federal programs should inform a fiscal environmental assessment (and political risks) of an updated DoD budget communication strategy.

Historical, international, total government outlay, and/or national level-of-effort references should not replace the prevailing threat and strategy based paradigm of the DoD budget communication strategy; their complementary inclusion should significantly improve strategic communication of future U.S. National Defense expenditures.

The continuation of a disciplined process for updating the DoD budget communication strategy should begin with a broad scan of the strategic communication environment. Communication strategy updates should center on existing commander's communication synchronization best practices and Public Affairs doctrine aligning means and ways to achieve the strategic communication objectives. Analysis during the strategy update process must define residual risk and the appropriate level to accept this risk, while ensuring the strategy is feasible, acceptable, and suitable. The

impact of the DoD budget communication strategy on stakeholders, including target audiences, must be continuously assessed for indications of success or failure providing input to the recursive update of the strategy.

The ultimate objective of the DoD budget communication strategy must be to effectively communicate defense resource demands in ways civilians understand. Clearly and coherently executing an updated DoD budget communication strategy can help significantly mitigate fiscally-driven risk to the national security of the United States.

Endnotes

¹ The research focus for DoD senior leader communication centered around cover letters to strategic documents and Congressional statements. The search for an outlier document was not exhaustive. All senior leader documents used are listed in these endnotes.

² As a partial example to the contrary, in the FY 2016 Budget Brief from the Office of the Undersecretary of Defense (Comptroller) (USD(C)), three historical charts were included for the first time since at least FY 2009. These historical plots start in 1950 and present: 1) Total (including supplemental and OCO funding) U.S. National Defense expenditures in constant FY 2016 dollars, 2) DoD outlays as a percent of U.S. GDP, and 3) DoD outlays as a percentage of federal spending. See Office of the Undersecretary of Defense (Comptroller), "Fiscal Year 2016 Budget Request," (Washington, DC: U.S. Department of Defense, February 2015), 25-27, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2016/FY2016_Budget_Request.pdf (accessed March 29, 2015).

³ Barack H. Obama, *National Security Strategy* (Washington, DC: The White House, February 2015).

⁴ Ashton Carter, "Message from Secretary Ashton Carter to all Department of Defense Personnel," February 17, 2015, <http://www.defense.gov/utility/printitem.aspx?print=http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1913> (accessed February 23, 2015).

⁵ Ashton Carter, "Message from Secretary Ashton Carter to all Department of Defense Personnel," February 17, 2015, <http://www.defense.gov/utility/printitem.aspx?print=http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1913> (accessed February 23, 2015).

⁶ Ashton Carter, "Pentagon All-Hands Meeting," February 19, 2015, <http://www.defense.gov/utility/printitem.aspx?print=http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1914> (accessed February 23, 2015).

⁷ Ashton Carter, "Pentagon All-Hands Meeting," February 19, 2015, <http://www.defense.gov/utility/printitem.aspx?print=http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1914> (accessed February 23, 2015).

⁸ Charles T. Hagel, *Quadrennial Defense Review 2014* (Washington, DC: U.S. Department of Defense, March 4, 2014), i.

⁹ Martin E. Dempsey, *FY15 Posture Statement*, Posture Statement presented to the Senate Appropriations Committee – Defense, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, June 18, 2014), <http://www.appropriations.senate.gov/sites/default/files/hearings/2014%20CJCS%20Written%20Posture%20Statement%20SAC-D%20FINAL.PDF> (accessed March 23, 2015).

¹⁰ Martin E. Dempsey, *FY15 Posture Statement*, Posture Statement presented to the Senate Appropriations Committee – Defense, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, June 18, 2014), <http://www.appropriations.senate.gov/sites/default/files/hearings/2014%20CJCS%20Written%20Posture%20Statement%20SAC-D%20FINAL.PDF> (accessed March 23, 2015).

¹¹ Jonathan Greenert, *FY 2015 Department of the Navy Posture*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, March 12, 2014), http://www.navy.mil/cno/12MAR14_DON_Posutre_CNO_Final_HASC.pdf (accessed March 23, 2015).

¹² Jonathan Greenert, *FY 2015 Department of the Navy Posture*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, March 12, 2014), http://www.navy.mil/cno/12MAR14_DON_Posutre_CNO_Final_HASC.pdf (accessed March 23, 2015).

¹³ Jonathan Greenert, *FY 2015 Department of the Navy Posture*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, March 12, 2014), http://www.navy.mil/cno/12MAR14_DON_Posutre_CNO_Final_HASC.pdf (accessed March 23, 2015).

¹⁴ John M. McHugh and Raymond T. Odierno, *2014 Army Posture*, Posture Statement presented to the 113th Congress, 2nd Session (Washington, DC: U.S. Department of the Army, April 2014), http://usarmy.vo.llnwd.net/e2/rv5_downloads/info/institution/posturestatement/aps_2014.pdf (accessed March 10, 2015).

¹⁵ John M. McHugh and Raymond T. Odierno, *2014 Army Posture*, Posture Statement presented to the 113th Congress, 2nd Session (Washington, DC: U.S. Department of the Army, April 2014), http://usarmy.vo.llnwd.net/e2/rv5_downloads/info/institution/posturestatement/aps_2014.pdf (accessed March 10, 2015).

¹⁶ John F. Kelly, *U.S. Southern Command Posture Statement*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC:

U.S. Department of Defense, February 26, 2014),
http://www.southcom.mil/newsroom/Documents/2014_SOUTHCOM_Posture_Statement_HASC_FINAL_PDF.pdf (accessed March 23, 2015).

¹⁷ John F. Kelly, *U.S. Southern Command Posture Statement*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, February 26, 2014),
http://www.southcom.mil/newsroom/Documents/2014_SOUTHCOM_Posture_Statement_HASC_FINAL_PDF.pdf (accessed March 23, 2015).

¹⁸ Gross Domestic Product (GDP) as the sum of consumption (C), investment (I), government spending (G), and net exports (NX) (the equation $GDP = C + I + G + NX$) assumes the use of the expenditure approach to calculate GDP. For more details, see Investopedia LLC, "Gross Domestic Product - GDP," linked from *Investopedia Home Page* at "Dictionary,"
<http://www.investopedia.com/terms/g/gdp.asp> (accessed March 16, 2015).

¹⁹ The World Bank defines Gross Domestic Product (GDP) as: "the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products." See, World Bank
<http://data.worldbank.org/indicator/NY.GDP.MKTP.CD> (accessed March 30, 2015).

²⁰ U.S. Department of Commerce, Bureau of Economic Analysis, "Table 1.1.5. Gross Domestic Product," linked from *Bureau of Economic Analysis Home Page* at "Interactive Data,"
http://www.bea.gov/iTable/index_nipa.cfm (accessed March 16, 2015).

²¹ International Monetary Fund, "World Economic Outlook Database," linked from *International Monetary Fund Home Page* at "Data and Statistics,"
<http://www.imf.org/external/pubs/ft/weo/2014/02/weodata/index.aspx> (accessed March 16, 2015).

²² U.S. Department of Commerce, Bureau of Economic Analysis, "Table 1.1.5. Gross Domestic Product," linked from *Bureau of Economic Analysis Home Page* at "Interactive Data,"
http://www.bea.gov/iTable/index_nipa.cfm (accessed March 17, 2015).

²³ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 60,
<http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

²⁴ Department of the Army, "FY15 Army Budget Request," linked from *Army Financial Management Home Page* at "Budget Materials,"
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²⁵ Department of the Air Force, "FY15 Budget Overview," linked from *Air Force Financial Management & Comptroller Home Page* at "Budget,"
<http://www.saffm.hq.af.mil/budget/pbfy15.asp> (accessed March 16, 2015).

²⁶ Department of the Navy, "FY15 Budget Overview," linked from *Fiscal Year 2015 Department of the Navy Budget Materials Home Page*
<http://www.finance.hq.navy.mil/FMB/15pres/BOOKS.htm> (accessed March 16, 2015).

²⁷ For a contrasting opinion advocating the use of percent of U.S. GDP as a control mechanism for determining U.S. National Defense expenditures, see James J. Carafano, et al, "Four Percent for Freedom: Maintaining Robust National Security Spending," April 10, 2007, linked from *The Heritage Foundation Home Page* at "RESEARCH, Reports, Executive Memorandum #1023," <http://www.heritage.org/research/reports/2007/04/four-percent-for-freedom-maintaining-robust-national-security-spending> (accessed March 29, 2015). For a detailed analysis refuting the Heritage Foundation recommendation to spend 4% of GDP on U.S. National Defense, see Steven M. Kosiak, "Analysis of Proposals to Allocate Four Percent of GDP to Defense," September 9, 2008, linked from *Center for Strategic and Budgetary Assessments Home Page* at "Publications," http://www.csbaonline.org/4Publications/PubLibrary/B.20080909.Analysis_of_Propos/B.20080909.Analysis_of_Propos.pdf (accessed March 29, 2015).

²⁸ This analogy assumes basic control of an aircraft, without automation of the throttles as is prevalent in virtually all large transport and many contemporary smaller turbine powered aircraft. The "control" and "performance" instrument construct is borrowed from aviation. Much like the U.S. economy, an aircraft has control instruments and performance instruments. The pilot adjusts the controls (throttle) to set a parameter on a control instrument (percent of thrust on the engines) and then monitors the performance instrument (airspeed) to know if another adjustment is required. Attempting to set and airspeed with throttle adjustments without reference to a power instrument is a control process that will frustrate the pilot's efforts to hold a consistent airspeed. Similarly, the percent of U.S. GDP devoted to the top-line of national defense provides significant value as a "performance" parameter when viewed over an historical context providing a "level of effort" comparison of a State's economy to provide for its national defense, but attempting to budget U.S. National Defense expenditures as a percentage of U.S. GDP is a flawed budget mechanism.

²⁹ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 60, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

³⁰ John F. Kelly, *U.S. Southern Command Posture Statement*, presented to the U.S. House of Representatives Armed Services Committee, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, February 26, 2014), http://www.southcom.mil/newsroom/Documents/2014_SOUTHCOM_Posture_Statement_HASC_FINAL_PDF.pdf (accessed March 23, 2015).

³¹ 1940-2014 U.S. National Defense spending as a percent of U.S. GDP data for this plot are directly from Undersecretary of Defense (Comptroller), "Table 7-7" in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015). A similarly authoritative source for U.S. National Defense expenditures as a percentage of U.S. GDP prior to 1940 could not be located. Therefore 1900-1939 U.S. National Defense expenditures as a percentage of U.S. GDP were calculated from U.S. Bureau of the Census, "Series E 40", "Series F 125", and "Series Y 467" data in *Historical Statistics of the United States, Colonial Times to 1970* (Washington, DC: U.S. Department of Commerce, 1975), 200, 232 and 1115. Wholesale Price Index data (Series E 40, p 200; 1926 = 100) was used to convert GDP in constant 1929 dollars (Series F 125, p 232) to nominal dollars. Series E 40 was selected based on the three year proximity from 1929 to 1926 base years.

Wholesale Price Indices for 1910-1914, 1958, and 1967 were available but not selected. 1900-1939 U.S. National Defense spending as a percentage of U.S. GDP was calculated by dividing Major National Security expenditures data (Series Y 467, p 1115) by calculated nominal U.S. GDP. The author is deeply grateful to Michael J. Meese, PhD, Brigadier General, U.S. Army (Retired), for insight into data sources and calculation methodology that made analysis of these critical pre-1940 data possible.

³² Period start and end years are somewhat subjective. The results presented are simple arithmetic mean values of annual U.S. National Defense spending as a percentage of U.S. GDP. 1940-2014 U.S. National Defense spending as a percent of U.S. GDP data for this plot is directly from Undersecretary of Defense (Comptroller), "Table 7-7" in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015). 1900-1939 U.S. National Defense spending as a percentage of U.S. GDP data for this plot is from U.S. Bureau of the Census, "Series E 40", "Series F 125", and "Series Y 467" data in *Historical Statistics of the United States, Colonial Times to 1970* (Washington, DC: U.S. Department of Commerce, 1975), 200, 232 and 1115. Wholesale Price Index (Series E 40, p 200; 1926 = 100) was used to convert GDP in constant 1929 \$ (Series F 125, p 232) to nominal dollars. 1900-1939 U.S. National Defense spending as a percentage of U.S. GDP was calculated by dividing Major National Security expenditures data (Series Y 467, p 1115) by calculated nominal U.S. GDP.

³³ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 78, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

³⁴ "The Recession. When did it end?," April 15, 2010, linked from *The Economist Home Page*, <http://www.economist.com/node/15911334> (accessed March 18, 2015).

³⁵ The research plus critical and creative thought underpinning this paper resulted in four other potential areas for related research, analysis, and writing. These four areas are annotated in the main body of the paper with the phrase "while not the subject of this paper" or "beyond the scope of this paper" to inform the reader of the author's explicit ideas that were not further researched, refined, or elaborated. These topics are:

- Exploration of the use of U.S. National Defense spending as a Keynesian macroeconomic stimulus. This topic has the potential for significant value to both the national defense of the U.S. and the recovery of the U.S. economy from a recession.

- Is there correlation between the level-of-effort a nation devotes to national security as measured by the percent of GDP devoted to defense and subsequent war? Does low relative national defense spending encourage aggressor nation states? Does relatively high defense spending deter aggression? Is there a level-of-effort that instigates a classic security dilemma? This is another excellent example of the value of macroeconomic analysis applied to national defense strategy.

- Should the non-U.S. NATO countries increase defense spending to the level of the U.S.? Will they and under what conditions? Can the U.S. decrease its level of defense spending to join the rest of the NATO countries? Is there an optimum point in between these two

endpoints? The macroeconomic concept of percentage of GDP aids senior leader framing of these questions, defining the problem statement(s), and uncovering potential solutions for this national strategic problem.

- How much should the U.S. devote to defense acquisition? Analysis of the major components of defense spending (operations & support, acquisition, and infrastructure) across a broad number of diverse countries over a meaningful timespan should inform the answer to that question.

³⁶ Investopedia LLC, "Public Good," linked from *Investopedia Home Page* at "Dictionary," <http://www.investopedia.com/terms/p/public-good.asp> (accessed March 20, 2015).

³⁷ Investopedia LLC, "Public Good," linked from *Investopedia Home Page* at "Dictionary," <http://www.investopedia.com/terms/p/public-good.asp> (accessed March 20, 2015).

³⁸ There are arguable nuanced differences between a public good and a common good as it applies to the global commons of space, international airspace, and sea lines of communication. However, a public good and common good both suffer from the free-rider problem. For a discussion on the difference between a public good and a common good see James B. Quilligan, "Why Distinguish Common Goods From Public Goods?," linked from *The Wealth of the Commons, A World Beyond Market & State Home Page* at "Contents," <http://wealthofthecommons.org/essay/why-distinguish-common-goods-public-goods> (accessed March 20, 2015).

³⁹ Barack H. Obama, *National Security Strategy* (Washington, DC: The White House, February 2015), cover letter.

⁴⁰ Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (December 13, 1968): 1243-1248, <http://www.sciencemag.org/content/162/3859/1243.full> (accessed March 20, 2015).

⁴¹ *The North Atlantic Treaty* (Washington, DC: April 4, 1949), http://www.nato.int/nato_static_fl2014/assets/pdf/stock_publications/20120822_nato_treaty_en_light_2009.pdf (accessed February 23, 2015).

⁴² Jens Stoltenberg, "The Secretary General's Annual Report 2014," January 30, 2015, http://www.nato.int/cps/en/natohq/opinions_116854.htm?selectedLocale=en (accessed February 23, 2015).

⁴³ Jens Stoltenberg, "The Secretary General's Annual Report 2014," January 30, 2015, http://www.nato.int/cps/en/natohq/opinions_116854.htm?selectedLocale=en (accessed February 23, 2015).

⁴⁴ Jens Stoltenberg, "The Secretary General's Annual Report 2014," January 30, 2015, http://www.nato.int/cps/en/natohq/opinions_116854.htm?selectedLocale=en (accessed February 23, 2015).

⁴⁵ Undersecretary of Defense (Comptroller), "Table 7-7" in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262,

http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015).

⁴⁶ Undersecretary of Defense (Comptroller), "Table 7-7" in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015).

⁴⁷ Jens Stoltenberg, "The Secretary General's Annual Report 2014," January 30, 2015, http://www.nato.int/cps/en/natohq/opinions_116854.htm?selectedLocale=en (accessed February 23, 2015).

⁴⁸ This global analysis of national defense spending was based on the most recent estimates available for all countries of interest using data from "The World Factbook," linked from *U.S. Central Intelligence Agency Home Page* at "Library" then "Publications," <https://www.cia.gov/library/publications/the-world-factbook/index.html> (accessed March 20, 2015).

⁴⁹ The World Bank, "GDP per capita, PPP (current international \$)," linked from *The World Bank Home Page* at "Data" then "Indicators," <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD> (accessed March 20, 2015).

⁵⁰ Undersecretary of Defense (Comptroller), "Table 7-7" in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015).

⁵¹ "The World Factbook," linked from *U.S. Central Intelligence Agency Home Page* at "Library" then "Publications," <https://www.cia.gov/library/publications/the-world-factbook/index.html> (accessed March 20, 2015).

⁵² "China's Defense Budget," linked from *GlobalSecurity.org Home Page* at "Military" then "World" then "China," <http://www.globalsecurity.org/military/world/china/budget.htm> (accessed February 24, 2015).

⁵³ China's reported defense spending of \$145B is 29.2% of \$496B DoD base budget authority in FY 2015 as reported by Undersecretary of Defense (Comptroller), *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 1, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015). While projecting growth rates a decade or more into the future has significant uncertainty, at 10% per year \$145B grows to \$501B in 13 years.

⁵⁴ U.S. Congressional Budget Office, *Long-Term Implications of the 2012 Future Years Defense Program* (Washington, DC: U.S. Congressional Budget Office, June 2011), 1-2, https://www.cbo.gov/sites/default/files/06-30-11_fydp.pdf (accessed February 24, 2015).

⁵⁵ Mark A. Welch III, "Senate Armed Services Committee Remarks," January 28, 2015, linked from *The U.S. Air Force Home Page* at "Home > About Us > Air Force Senior Leaders >

CSAF,” http://www.af.mil/Portals/1/documents/Speeches/CSAF_SequestrationTranscript.pdf (accessed February 5, 2015).

⁵⁶ Jens Stoltenberg, “The Secretary General’s Annual Report 2014,” January 30, 2015, http://www.nato.int/cps/en/natohq/opinions_116854.htm?selectedLocale=en (accessed February 23, 2015).

⁵⁷ “China’s Defense Budget,” linked from *GlobalSecurity.org Home Page* at “Military” then “World” then “China,” <http://www.globalsecurity.org/military/world/china/budget.htm> (accessed February 24, 2015).

⁵⁸ “China’s Defense Budget,” linked from *GlobalSecurity.org Home Page* at “Military” then “World” then “China,” <http://www.globalsecurity.org/military/world/china/budget.htm> (accessed February 24, 2015).

⁵⁹ Martin E. Dempsey, *FY15 Posture Statement*, Posture Statement presented to the Senate Appropriations Committee – Defense, 113th Congress, 2nd Session (Washington, DC: U.S. Department of Defense, June 18, 2014) , <http://www.appropriations.senate.gov/sites/default/files/hearings/2014%20CJCS%20Written%20Posture%20Statement%20SAC-D%20FINAL.PDF> (accessed March 23, 2015).

⁶⁰ This paper uses the definitions below for Budget Authority, Net Interest, Debt, Deficit (Surplus), Discretionary Spending, Mandatory Spending, and Outlays from U.S. Congressional Budget Office, *Glossary* (Washington, DC: U.S. Congressional Budget Office, January 2012), http://www.cbo.gov/sites/default/files/glossary_0.pdf (accessed March 23, 2015).

Budget Authority – Authority provided by law to incur financial obligations that will result in immediate or future outlays of federal government funds. The terms “Budget” or “Federal Budget” are often used in place of the more precise term Budget Authority.

Net Interest – The Federal government’s interest payments on national debt.

Debt – The total value of outstanding debt instruments issued by the Federal government. Its value is the summation of all budget deficits and surpluses and is synonymous with National Debt.

Deficit (Surplus) – The amount the Federal government’s total outlays exceed (fall short of) total revenues in a fiscal year.

Discretionary Spending – The budget authority provided and controlled by annual appropriation acts (or continuing resolutions).

Mandatory Spending – The budget authority provided by laws other than appropriation acts (or continuing resolutions). Mandatory spending is synonymous with direct spending.

Outlays – Spending (typically by the Treasury) to pay a federal obligation incurred in the current or prior fiscal year.

⁶¹ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 59, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

⁶² Since the terms “mandatory spending” and “direct spending” are synonymous, this paper in all cases uses “direct spending” for two reasons. First, it is more descriptive, as budget

authority provided by laws other than appropriations acts is directly converted to outlays and can be changed by future other than appropriations acts. Net interest payments are actual mandatory outlays. Second, the terms mandatory spending used in communication implies or endorses (intentional or otherwise) that the items are not subject to inclusion in the trade space for discussion at the national strategic level and this less precise terminology has the potential for a significantly different impact with stakeholders. See U.S. Congressional Budget Office, *Glossary* (Washington, DC: U.S. Congressional Budget Office, January 2012), http://www.cbo.gov/sites/default/files/glossary_0.pdf (accessed March 23, 2015).

⁶³ In the National Defense Budget Estimates (“The Green Book”), published by the Office of the Undersecretary of Defense (Comptroller) (USD(C)), the term “National Defense” is defined as a “category of the federal budget (for) activities pertaining to the nation's defense, even outside of DoD activities.” Where realistic, this paper uses the broader U.S. National Defense budget numbers as the DoD budget does not fully represent the complete U.S. national spending on the defense of the U.S. or U.S. national security. Capitalization of “U.S. National Defense” is specifically referring to the USD(C) definition from the Green Book and is an explicit differentiation from a more generic national defense. See Undersecretary of Defense (Comptroller), *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 264, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015).

⁶⁴ Non-DoD U.S. National Defense spending was significant as the nation built its initial strategic nuclear weapon stockpiles during the early Cold War years. In 1951 through 1964, Non-DoD National Defense spending averaged 1.5% of U.S. GDP. In the fifty year period immediately following the initial build-up of U.S. strategic deterrent forces (1965 – 2014) Non-DoD U.S. National Defense spending averaged 0.2% of U.S. GDP with a peak of 0.6% of U.S. GDP in 1965. U.S. National Defense, Non-DoD spending in the first fifteen years of the 21st century was very consistent (and relatively very low) with a peak and an average of 0.2% of U.S. GDP. See Undersecretary of Defense (Comptroller), “Table 7-7” in *National Defense Budget Estimates for FY 2015 (Green Book)* (Washington, DC: U.S. Department of Defense, April 2014), 260-262, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/FY15_Green_Book.pdf (accessed March 30, 2015).

⁶⁵ Tyrone C. Marshall Jr., “Debt is Biggest Threat to National Security, Chairman Says,” September 22, 2011, <http://www.defense.gov/news/newsarticle.aspx?id=65432> (accessed March 23, 2015).

⁶⁶ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 85, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

⁶⁷ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 59, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

⁶⁸ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 67,

<http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

⁶⁹ U.S. Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (Washington, DC: U.S. Congressional Budget Office, January 2015), 60, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf> (accessed March 23, 2015).

⁷⁰ U.S. Joint Chiefs of Staff, *Commander's Communication Synchronization*, Joint Doctrine Note 2-13 (Washington, DC: U.S. Joint Chiefs of Staff, December 16, 2013), i, http://www.dtic.mil/doctrine/notes/jdn2_13.pdf (accessed March 23, 2015).

⁷¹ U.S. Joint Chiefs of Staff, *Information Operations*, Joint Publication 3-13 (Washington, DC: U.S. Joint Chiefs of Staff, November 20, 2014), II-7, http://www.dtic.mil/doctrine/new_pubs/jp3_13.pdf (accessed March 23, 2015).

⁷² U.S. Joint Chiefs of Staff, *Public Affairs*, Joint Publication 3-61 (Washington, DC: U.S. Joint Chiefs of Staff, August 25, 2010), vii-xv, http://www.dtic.mil/doctrine/new_pubs/jp3_61.pdf (accessed March 23, 2015).