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The Defense Industrial Base: How Idiosyncratic and Historical Influences Dictate Its Future

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Cover Page Footnote

Henry Walter recently graduated with a Bachelor of Arts, political science and economics, from the University of Kansas.

The Defense Industrial Base: How Idiosyncratic and Historical Influences Dictate Its Future

The Trump Administration's 2017 National Security Strategy (NSS) and 2018 National Defense Strategy (NDS) represent a major shift from a focus on counter-terror operations to great power competition. Since the end of the Cold War until the release of these new strategies, the Department of Defense (DoD) claimed to lack a near-peer—let alone peer—competitor able to exert influence globally. Coupled with the fact that the War on Terror directed the Department's strategic decision making and resource allocation since its inception, the United States has been focused on anything *but* great power competition for the last twenty-seven years. The defense industrial base (DIB), that collection of firms that supply the materials for the country's defense needs, is often a lagging indicator of these major strategic shifts. Currently, that lag is even greater than the historical norm.

Defense drawdowns after the Cold War caused a wave of change in this sector, which ultimately harmed its long-term effectiveness. The War on Terror gave the DIB a cash injection, but only in a specific set of capabilities, many of which would not be applicable or survivable in a great power war. Given the need for new capabilities to fulfill new objectives against new potential adversaries (a revisionist China and resurgent Russia), the DIB will be called upon in a way it has not been since the 1986 Reagan buildup. This paper will explore the health of the industrial base by examining market idiosyncrasies that impact how government and firm decisions are made; historical trends that explain how the sector got to where it is today and what lessons that may hold for the future; a check-up on specific capabilities and the acquisition process. Ultimately, despite difficulties in adapting the DIB to a new set of military needs, it is highly unlikely that industry would not be up to the task. Instead, this transition will present a

political problem requiring exorbitant expense or serious tradeoffs. This paper shall offer this analysis without comment on whether this strategic shift is a sensible or harmful one for the United States—that analysis would require a whole other paper, if not book, to tackle.

Market Uniqueness

There are a series of discrepancies between the defense market and other private markets, but most can be traced back to the defense market's unreliable monopsonist—the US federal government. A monopsony is a market in which there is a single buyer. This describes the market for US defense contractors as the federal government is the only buyer in the United States and there are a series of export restrictions that restrict these contractors from selling to foreign buyers, even allies.¹ Under the International Trafficking in Arms Regulation, the licensing process is burdensome and difficult to navigate. The labyrinthine paperwork process involved with selling to foreign buyers deters small companies from making the attempt, thus limiting their market. The strictness of the regulations can also chill informal cooperation between international academia and industry on emerging technologies, such as artificial intelligence and quantum computing, because both the universities and corporation fear censure or legal action from the DoD.² These factors combined incentivize more Foreign Military Sales (FMS, which are government-to-government) than Direct Commercial Sales (DCS, which are industry-to-government), meaning the government will often over-buy a project with the intent to export the excess. This practice exacerbates many of the market imperfections described below and can complicate the relationship between the DoD and DIB.

In the traditional monopsony model, the buyer would be able to perfectly price discriminate and the outcome would mirror a perfectly competitive market, but with the buyer capturing all available surplus. There are two reasons that this is not the outcome for the

American defense market: first, the federal government is an imperfect monopsonist and second, the supplier side of the market is insufficiently competitive to allow for effective price discrimination.

The DoD is unable to act as a perfectly price-discriminating monopsonist because its demands are often unpredictable and unreliable. The demands are unpredictable as they are based on the Department's strategic mission, which is liable to change considerably at any time.³ This change can happen gradually over a long period (from World War II to the Cold War or from the wars in Iraq and Afghanistan to the current focus on great power competition) or quickly due to crises (Pearl Harbor or 9/11). The type of transition impacts the degree of strain on the industrial base, but the DIB is pulled by market "signals" more than any other industry. The word signals is in quotation marks because the defense market does not respond to signals so much as it does declarations. The mission is the market signal, meaning that the DoD has strong incentives to clearly describe the anticipated environment and its objectives (the foundations of any security strategy) both in public documents like the NDS and in private communications with contractors.⁴

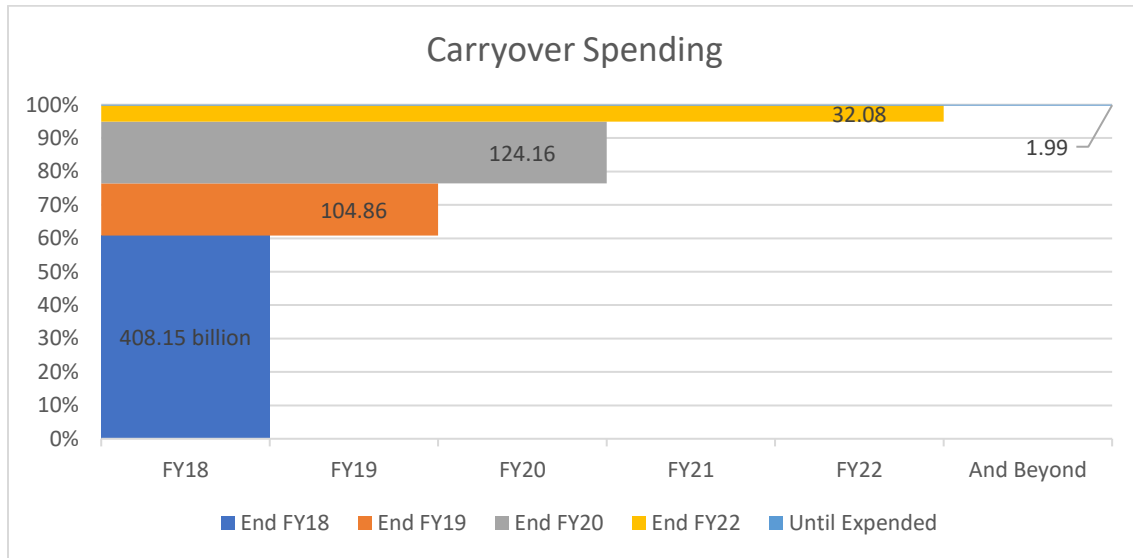
This forceful and immediate market signal is both a blessing and a curse. During periods such as World War II, it meant that the industrial base mobilized on an epic scale.⁵ In the case of the War on Terror, nearly the entire DIB shifted to produce the new, specific equipment required by the unfamiliar tactical environment, such as drones, which meant that many traditional industries, such as shipbuilding, began to atrophy.⁶ Government regulation in many markets provides a level of institutional stability for buyers and sellers; when the buyer *is* the government, all bets are off and demand signals are both clear and volatile.⁷ This problem applies to nearly all government contractors across a range of industries, but the DIB feels it

most acutely. Many capabilities take years or even decades to develop, and by the time a project is complete, it may be obsolete.

There is often utility in market lag. In a typical industry, there are firms on the “cutting-edge,” firms that stick to their traditional strengths, and boutique firms that fill niches. Although the DIB generally resembles this setup, the singular and clear nature of the demand signal pushes suppliers toward homogeneity, making future transitions more difficult and creating a thermostatic pattern of innovation.⁸

Congress produces the unreliability of DoD purchasing. The defense budgeting process is subject to both the complications that permeate the entire federal budgeting process and some unique convolutions. Continuing resolutions (CR) have plagued all of federal budgeting over the last several years. A continuing resolution is a temporary agreement that extends the last appropriations bill for some agreed upon period of time. Under a CR, agencies only fund projects that are already in progress. This has an outsized impact on the DIB because, as mentioned, projects take a long time to complete and the contracts that underlie those projects take time to negotiate—both of which are frozen under a CR. CRs also squeeze spending timelines.

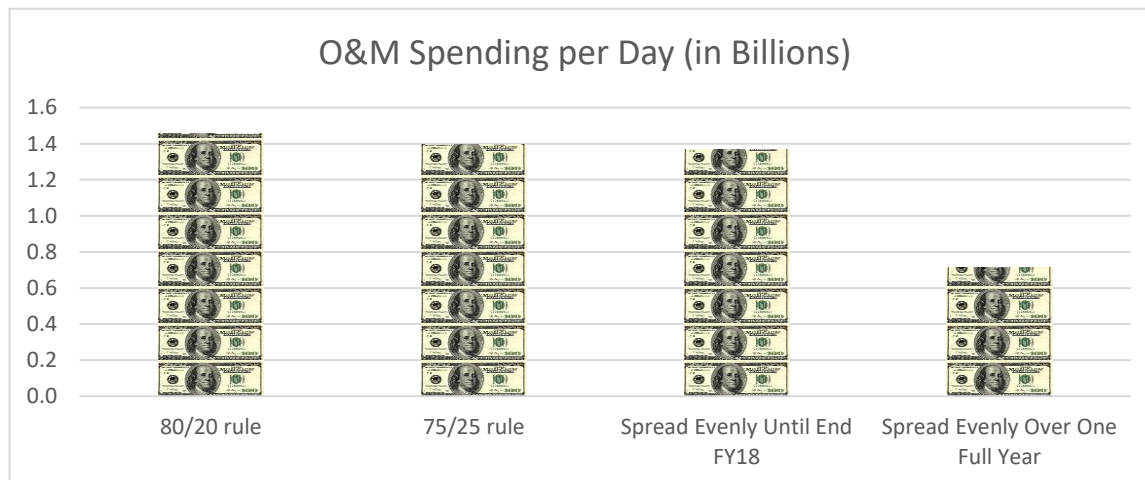
The different titles in the defense budget (operation and maintenance (O&M); military personnel; procurement; research, development, test, and evaluation (RDT&E); revolving and management funds (RMF); military construction) have different timelines to spend the money appropriated for them.⁹ For example, the operation and maintenance account has until the end of the fiscal year (September 30) in which appropriations are passed, whereas procurement has until the end of the following fiscal year (FY). The graphic on the next page demonstrates the relative proportion of these timelines for 2018 appropriations.



CRs do not change the fiscal calendar, meaning that whenever a budget deal is reached, and appropriations subsequently delivered, the clock has already been running on the DoD for however many days the Department was operating under a CR. This issue is exacerbated by the notorious 80-20 rule (which became the 75-25 rule for the first time in 2018). The 75-25 rule states that no more than 25 percent of an agency’s funds can be spent in the last two months of the fiscal year.¹⁰ Any leftover money is lost to the Treasury. This rule, like many established by Congress, is a well-intentioned effort at fiscal responsibility, but ultimately incentivizes the Department to spend as quickly as possible, generating inefficiencies in the form of higher prices and haphazard contracting.¹¹ The graphic below demonstrates the impact of CRs and the rule. The operation and maintenance account must spend, on average, over a billion dollars per day until October 1, 2018 to clear its coffers.¹² If the appropriations process worked flawlessly and

the Department was given from October 1, 2017 till September 30, 2018 without any additional rules, the amount spent per day would be cut about in half, as shown below.

A reform to allow even spending and carryover budgets would relieve pressure on lawmakers, Department officials, and contractors. It does not take a PhD in economics, government, or war studies to realize that there will be some years in which tax revenues will be



higher or lower due to better or worse economic performance; some years in which the majority party will be more or less willing to fund the military; and some years in which military capabilities will be in greater or lesser demand. Allowing the DoD to manage its money for the long-term would partially insulate it from the changes in Congress and provide greater confidence to its contractors. The most recent government shutdown, the longest in American history at thirty-five days,¹³ demonstrates the increasing riskiness of US budget politics.

Although the DoD had already had its funding approved, defense contractors expressed concern that interruptions in funding for related agencies such as the Department of Homeland Security, Coast Guard, and NASA would impair contractors' cash flows.¹⁴ There is also the concern that the DoD might be a key focus in the next budget fight.

The boom-and-bust nature of defense budgeting has a significant impact on the DIB. In general, these factors attract companies that can operate under extreme risk and wait-out long

periods of less work. This means that corporations with substantial capital reserves are well positioned to endure the travails of the defense market. This theoretical prediction is borne out by the domination of the so-called “Big Five” defense contractors. Boeing, Lockheed-Martin, Northrop Grumman, Raytheon, and General Dynamics are, by a wide margin, the largest defense contractors. These corporations are targets of criticism from politicians such as Senator Bernie Sanders, who has consistently railed against the lack of transparency and accountability from these de facto “government agencies.”¹⁵ There is quite a bit of truth to the idea of these contractors as agencies. Lockheed-Martin alone made \$35.2 billion from government contracts in 2017, which would make it the tenth-largest federal agency by outlays.¹⁶ The federal government rarely contracts with smaller companies; instead, they are typically subcontractors for specific aspects of a project that is contracted between the government and one of the Big Five.¹⁷ Independent of the political question, this high market concentration has a significant impact on the makeup of the defense industry.

The DIB is, in many ways, an oligopoly, and there are some contracting practices that exacerbate these effects. The DIB’s major players consistently show preference for market stability. This preference manifests itself as soft collusion to raise barriers to entry and swamp new competitors. Of the Big Five, only Boeing generates more than 50 percent of its income in non-government, non-defense contracts.¹⁸ Predictably, only Boeing has demonstrated a penchant for destabilizing change strategies, meaning some significant alteration to acquisition and production.¹⁹ Whether stabilization or destabilization strategies are preferable for the DoD’s strategic mission remains an open question. On the one hand, stability facilitates trust and relationships between contractors and government. On the other, destabilization is often necessary for innovation.²⁰ Of course, some mix seems optimal for the industry at large.

The cartel-like structure of the DIB also means that there is an extremely high sensitivity to economies of scale. Simply put, companies like Lockheed Martin are not well positioned to produce fifteen specialized planes. They can do it, but the DoD would pay a relatively similar price for fifteen as it would for a hundred; much of a project's cost is the fixed price of setting in motion the hulking mass that is one of the Big Five.²¹ In a wide survey of DoD projects over the last twenty years, it was found that scaling projects back typically results in a 10 percent increase in per-unit cost.²²

Competition is further hampered by the DoD's contracting practices. The Department awards contracts according to the best initial design or demonstration, meaning that competition only exists in the cost-estimating phase. Once costs come to bear, the DoD is stuck with its initial contractor whether it is the most efficient option or not. An analogous situation in a typical market is unimaginable; it would be as if all the major cell carriers submitted a plan and demonstration to the state of Nevada, a single provider was selected, and then the companies moved on to compete in the next state, never to revisit Nevada. Although this model of picking winners might preserve a baseline level of competition if the Pentagon effectively spreads the wealth, it lacks any ongoing competition to drive down prices and incentivize efficiency.²³ Pile onto these risks to sellers the potential for "buyer breakout." The federal government could "breakout" and begin its own independent production system if it felt that the DIB was insufficient for its needs.²⁴ This could quickly render entire swaths of the industrial base customer-less. These factors combine to produce oligopolistic effects. Starting from this low baseline of producer competition, mergers and acquisitions have outsized influence on market structure.

Mergers and acquisitions are a common coping strategy for firms dealing with market contractions. During the troughs of the defense business cycle, all firms feel the squeeze. However, those companies that can weather the storm often come out even further ahead. The duration of the defense industry's business cycles may be somewhat more unpredictable, but the bounce-back is generally more reliable than a typical industry.²⁵ Since the entire sector depends on exogenous factors (mainly, whether the US is preparing for war), there is little doubt that business will eventually pick back up. This means that companies with deep pockets can go on a predatory acquisition streak during a downturn to augment their portfolio despite losses.²⁶ Even if mergers occur in the ideal, diagonal manner (two companies of comparable size, with some overlap in knowledge and projects, but also significant distinctness), studies have found that the newly-combined defense manufacturer is typically less than the sum of its innovative parts.²⁷

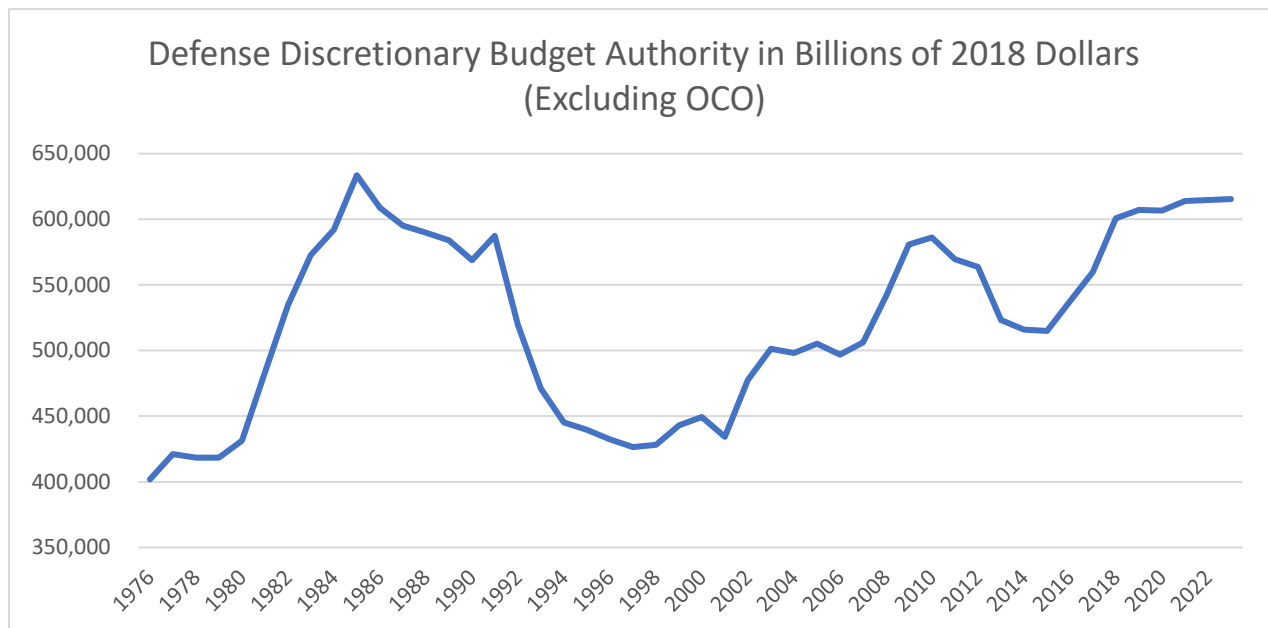
Some of these market quirks are more impactful than others, but, in sum, they create high barriers to entry, decrease sector flexibility, and deter would-be defense dabblers from entering the sector at all. The DoD has recently made a deliberate effort to attract technology companies and other non-traditional firms as cybersecurity and artificial intelligence begin to play an expanding role in security. However, unless the positive incentives or reforms to funding and personnel are substantial, the DIB is unlikely to add the "immeasurable innovative impact"²⁸ of major non-defense firms due to the barriers and uncertainty described above.

Historical Perspectives on the Defense Industrial Base

Although it is often difficult to track the network of events that shape industries, the DIB is relatively straightforward; the demands of war shape the industrial base. The first major mobilization of the DIB was in response to World War II. This rapid expansion is well documented, but its long-term effects are less clear. Although World War II introduced a

massive production increase, it also witnessed an increase in market concentration.²⁹ The need to ramp-up production as quickly as possible meant that the DoD relied on companies with substantial existing manufacturing capabilities, thus largely sidelining smaller firms. These effects lingered after the war. The 1950s was a growth period for the DIB, despite increasing market concentration and talent shortages.³⁰ For a typical industry, these factors might limit growth or at least induce new suppliers to enter the market. However, the continued expediency required by the Korean War and the beginning of the Cold War, unreliable exogeneity of demand, and alternative opportunities in a growing economy meant that the existing suppliers were asked to do more. This solidified existing firms' positions and led to higher prices as fewer companies were able to provide scalable products and services.³¹

Defense growth flat-lined for the rest of the pre-Reagan Cold War. This is not to say that existing defense contractors were hurting, but only that they were not growing. After the Vietnam War, in which the US mostly utilized World War II-era capabilities, the Pentagon made a push for modernization. During Ronald Reagan's presidency, defense budgets expanded and, in 1986, Congress passed the Goldwater-Nichols Department of Defense Reorganization Act. Goldwater-Nichols made significant reforms across the DoD, including formalizing the defense acquisition process (which has been under constant reformation since).³² However, the impetus behind expanding budgets did not last forever. As the graphic below shows, 1986 was the high-water mark for the Reagan buildup. The Berlin Wall fell just three years later, and the Soviet Union dissolved two years after that, marking the end of the Cold War.



Source: Author's calculations using appropriations bills from 1976-2018 and the Trump budget plan for FY19.

The DIB underwent significant restructuring between the end of the Cold War and 9/11, which helps to explain how the industry arrived at the status quo. During the Cold War, the clear threat and corresponding set of strategic priorities incentivized a lean and efficient DoD, from procurement to personnel. During the post-Cold War drawdown, budgets decreased, but were still in the hundreds of billions, commanding a large portion of the US discretionary budget. This meant that defense firms that had most benefitted from budget increases quickly saw a large portion of their sales disappear. They were suddenly out over their skis in terms of the size of their workforces, projects, and research budgets.³³ Since the defense budget remained substantial despite the lack of a clear adversary against which to prepare, significant sections of the budget were reallocated as earmarks and other pork-barrel spending.³⁴ Before diving into how these patterns have carried into today, it is worth examining the nature the post-Cold War drawdown because it demonstrates just how radically the DIB was reshaped in the transition away from great power competition (which today is being reversed).

The so-called “Peace Dividend” was straightforward: the defense budget need not be nearly as large as during the Cold War because there was no actor that could come close to challenging the US militarily. The nature of the budget also changed. The defense budget was no longer catastrophic insurance (protection against a single high-risk threat), but comprehensive (protection against a range of unforeseen and improbable threats).³⁵ This combination meant the DoD had to prepare for more contingencies with fewer dollars with “no way to determine how much is enough.”³⁶ As such, the Pentagon had to go looking for cuts. Capability requirements have always been determined by changes in technology and international politics, both of which are unpredictable. There is no endogenous predictor for what capabilities will be required when.³⁷ Given this unpredictability, coupled with the fact that the equipment from the Reagan buildup was relatively new, the DoD and Congress’s agreed-upon solution was to make dramatic cuts to the acquisition pipeline.

The Aspin-Perry Initiative, named for the then-Secretary of Defense Les Aspin and Deputy Secretary William Perry, entailed a 40 percent reduction in DoD modernization (procurement plus RDT&E) spending.³⁸ It began in 1993 with the “last supper,” at which Aspin notified the chiefs of the largest defense firms of the impending cuts. The goal was to prompt market-based consolidation to avoid a government-dictated transition.³⁹ Although a noble goal in some sense, the approach ignored the fact that the decision to cut 40 percent of spending was already a massive government intervention in the marketplace. Over the course of five years, there were dozens of acquisitions—and few mergers. The fact that so much of this consolidation was acquisition-based meant that the firms that survived did so with high debt burdens. There was no intention to pay back this debt until defense outlays rebounded at some uncertain future

date, meaning that major firms' credit ratings were downgraded and research budgets (which were perceived as nonessential) were squeezed out.⁴⁰

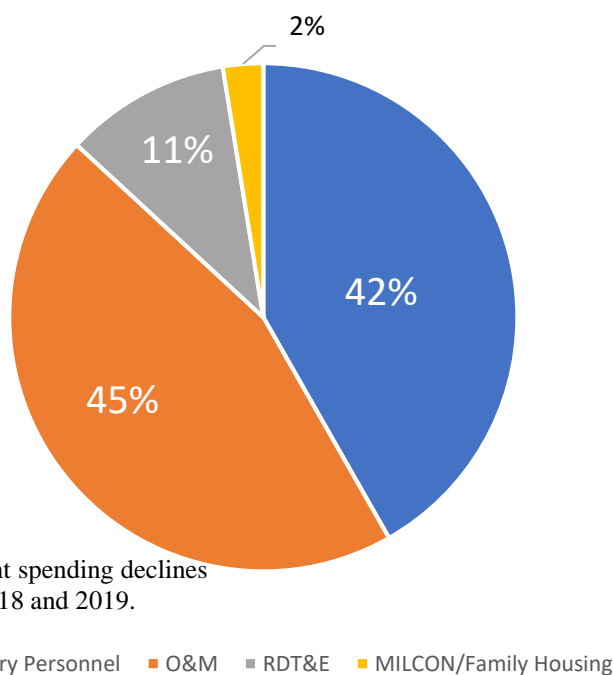
The waves of consolidation came to an abrupt end in 1998 due to competition concerns after the Lockheed Martin-Northrop Grumman merger was not approved by federal antitrust authorities.⁴¹ The blood had already been spilled. The number of large primes (the classification just below the Big Five) went from sixteen to six, the six major shipyards had gone from six different owners to two, and what had been fifty-one separate companies became the Big Five.⁴²

These losses were compounded and extended for years by the distention in other parts of the defense budget. From 1991-1996, there were four base realignment and closure (BRAC) rounds.⁴³ BRAC is the tool for efficiency most favored by the Pentagon and defense experts and most hated by Congress. Many bases are major employers and foundational to communities, meaning that their strategic importance (or lack thereof) is overwhelmed by Congress's political considerations. In 1997, Congress refused another BRAC round, meaning the Department had to look elsewhere for cuts. This practice of refusing BRAC rounds has become common practice. The last BRAC round was in 2005. Although the Pentagon requests a BRAC round every year, Congress has demonstrated a preference to inflate an already large and unwieldy defense budget instead of redistributing existing resources.

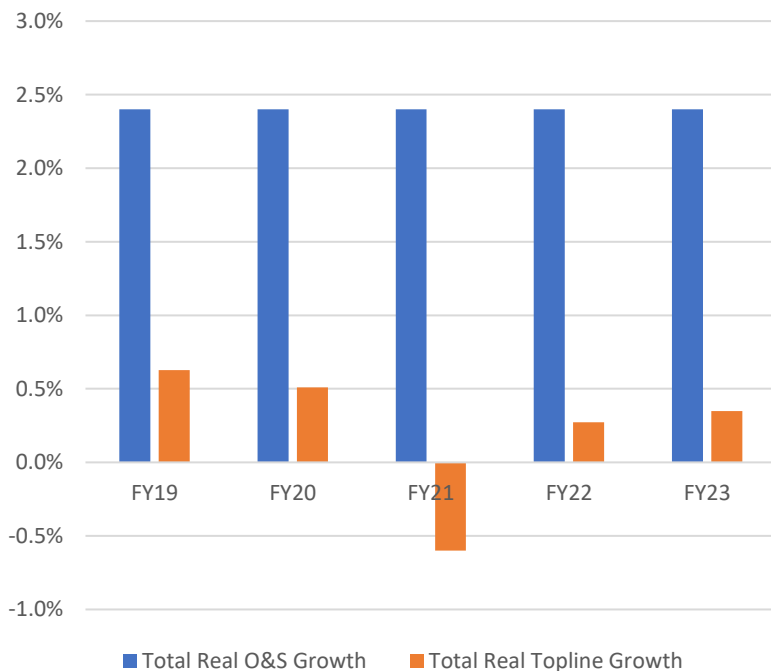
This is symptomatic of a wider political problem in defense budgeting. Rather than defunding low-priority initiatives to make budgetary room for high-priority ones, the budget is merely expanded and perhaps slightly redistributed. Furthermore, these budget expansions have not been evenly distributed. As the graphic below shows, the growth in operation and sustainment (O&S, the combined cost of operation and maintenance and military personnel) enormously outpaces the growth in modernization. This demonstrates the rising influence of

political considerations relative to strategic calculations. Bases and jobs are almost always popular, “gambling” or “wasting” money on the plane, ship, or vehicle of the future is risky. Without a change, modernization spending will continue to be eaten up by political pork.⁴⁴

New Spending By Public Law Title in 2019



O&S vs. Overall Real Growth



Source: Author’s calculations using Pub. L. No. 115-141 and the President’s 2019 budget request.

Source: Author’s calculations using publicly available Congressional Budget Office data.

This trend towards wasteful spending is not only propagated by representatives’ political interests, but also by the influence of the defense lobby. The literature on this group of lobbyists is robust and even goes as far back as Adam Smith.⁴⁵ The following will only serve as a taste of this research to demonstrate its role in the broader web of defense spending decisions. The “revolving door” phenomenon between lobbying and government is especially pronounced in defense not only because it is a specialized field with bipartisan support and funding behind it, but also because there is a third “room” the revolving door connects: the military itself.⁴⁶ There

is high fluidity between a post in the military, a government job as a defense specialist or elected official, and work as a defense lobbyist.

The concrete effects of the lobby include slowing acquisition reform that would have eliminated obsolete systems,⁴⁷ persuading officials to use military spending as politically-insulated economic stimulus despite its being demonstrably less effective than alternative spending,⁴⁸ and pushing the concept of “gold-plating” in which DIB producers can introduce expensive modifications to existing systems rather than building from scratch because the profit margins are higher on quick fixes than long-term innovation.⁴⁹ That said, the defense lobby’s influence is neither all-powerful nor unfiltered. Keeping old systems and bases that do not require upgrades in place does not benefit the DIB. Yet, Congress does that anyway because of pressure from constituent groups or legitimate tactical interests.⁵⁰ Political, industrial, and strategic interests form a complex blend of pressures on lawmakers that further complicates—and often obfuscates—the defense decision making process.

Zooming back out to consider historical trends, the Peace Dividend left the DIB smaller, more concentrated, and with far fewer capabilities in the research pipeline. A study conducted by the RAND corporation on the challenges of defense planning in 1994 presciently stated that “it would be dangerous to ignore the potential early in the next century for larger conflicts or future superpower rivals, because doing so might create vacuums that would make the emergence of such rivals more likely.”⁵¹ Not only is this warning supported by the rise of Russia and China, but the DoD and DIB were both even more prone to “ignore” potential superpowers because of the demands of the War on Terror.

For the DIB, there are two basic takeaways from the wars in Iraq and Afghanistan: the needed capabilities were largely theater-specific and there was an emphasis on acquisition

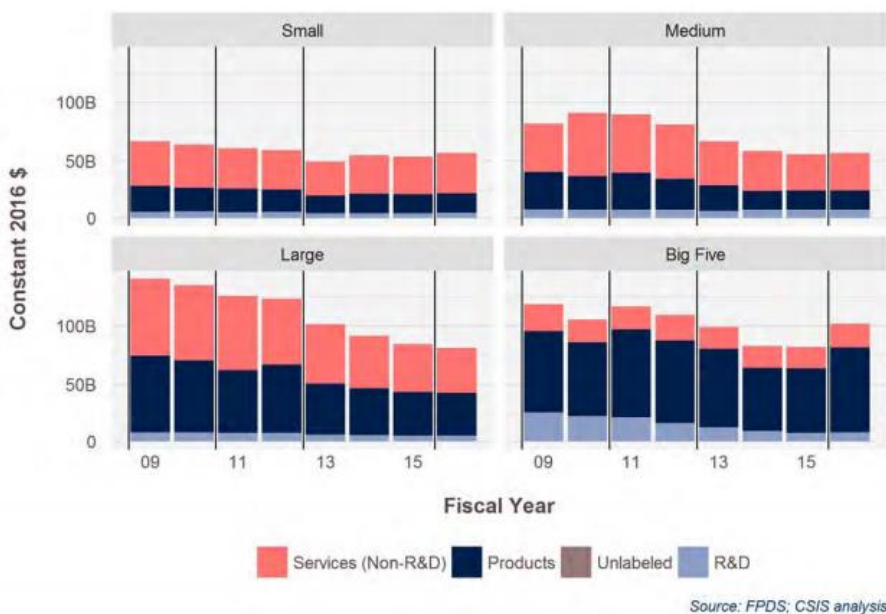
timeliness to impact the rapidly evolving conditions on the ground. The War on Terror was mostly conducted in uncontested airspace, by drones and other low-end aircraft.⁵² This differs substantially from potential wars with Russia and China, which would likely emphasize ground-based and sea-based capabilities, respectively. In both scenarios, the Air Force would be tasked with surviving in a highly contested environment.

This period also changed acquisition patterns. The rapid acquisition and Overseas Contingency Operations (OCO) portions of the budget, both previously reserved for temporary responses to crises, grew in accordance with the US's growing permanent regional military presence. Forty-six percent of all acquisitions were rapid (a timeline of three years or less) by 2017, and OCO had grown by several billion dollars.⁵³ This change was useful at the time to respond to contingencies in the Middle East, but its associated bureaucratic inertia meant that the habit was hard to kick. The rapid acquisition model could not be applied to a modern fighter jet or nuclear submarine that would take several decades to build, adding to the laundry list of reasons why these capabilities were pushed to the margins as the Iraq and Afghan wars progressed.⁵⁴ These effects were magnified by sequestration.

Sequestration (alternatively, the sequester), the across-the-board budget cuts mandated by the 2011 Budget Control Act, was designed to be a problem, not a solution. The cuts were thought to be so painful that they would induce compromise before going into effect.⁵⁵ That was the case for several sequester deadlines, but was not so in 2013. As no budget deal was struck, the budget caps took effect and the DoD saw a \$42 billion cut in 2013 and a \$34 billion cut in 2014.⁵⁶ A consistent refrain from former Secretary of Defense Jim Mattis and other high-level DoD officials was that “no enemy in the field has done more to harm the combat readiness of our

military than sequestration.”⁵⁷ The president’s \$716 billion budget request for 2019 returns the budget to where it would have been had it risen with inflation without the sequester.⁵⁸

Of course, much like the Peace Dividend, the impact of the cuts on the DIB were deep. Overall, there was a 20 percent decrease in prime vendor contracts.⁵⁹ In particular, aircraft and space saw decreased competition and some sellers exited the defense market entirely because there were viable opportunities in the private sector as the country recovered from the 2008 recession.⁶⁰ As demand for aircraft and space equipment reemerges—as it is now—cost overruns and delayed acquisition timelines are likely because the institutional, intellectual, and physical infrastructure required to produce those capabilities has decayed. The decrease in contracting was not evenly distributed. The figure below shows that the Big Five and small contractors saw relative stability while midsize and non-Big Five large firms suffered losses.⁶¹



This outcome makes sense and demonstrates a broader phenomenon within the DIB: the Big Five are large enough to persist through budget cuts and are likely to sign the few major contracts remain; small firms that make specialty products are unlikely to pivot to some other product or market and can more easily ramp-down; medium-sized companies are more flexible

in turning to alternative markets and less flexible in being able to produce significantly less than before because of higher fixed costs.⁶² This is not a promising sign for the DIB because companies with midsized investments in defense are those that the DoD is trying to attract to be engines of innovation in emerging fields.

A typical analysis would have predicted industry consolidation in response to sequestration, but that was nearly nonexistent because there was so little slack in competition to begin with.⁶³ This meant that most companies were hemorrhaging cash and trying to move investments around to stay afloat. In response, the DoD coordinated with industry to shift a chunk of procurement spending into RDT&E with the reasoning that it is cheaper to study the threat than to be the threat.⁶⁴ This reallocation has created the “bow-wave” of procurement that now troubles all the armed services.

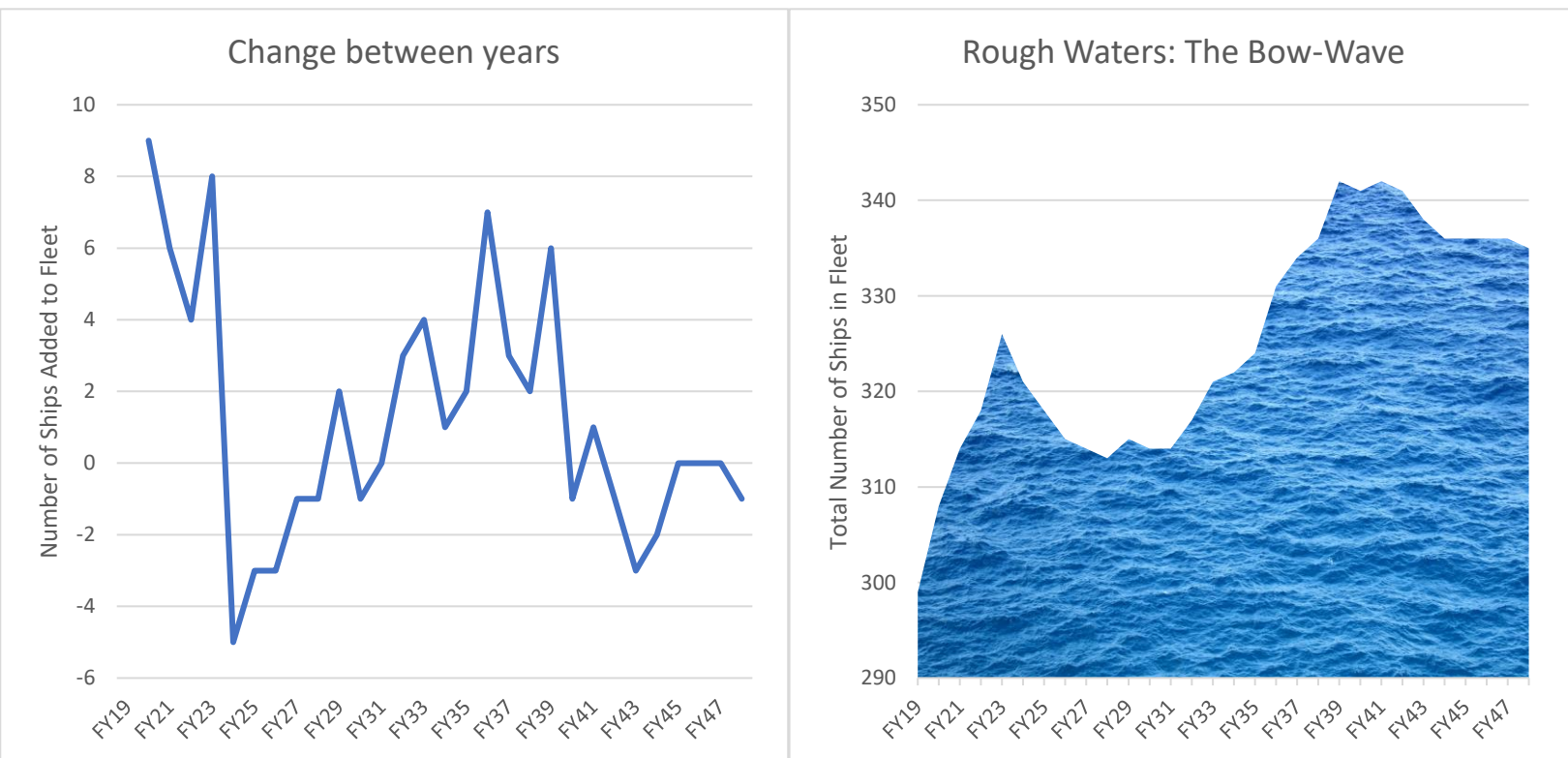
The Services' Trouble with the Medium-Term

Secretary of the Navy Richard Spencer declared that the 2018 Bipartisan Budget Act provided the “resources to stop analyzing the threat and be the threat.”⁶⁵ Developing the requisite capabilities to effectively threaten, however, will take time. Secretary Spencer’s Navy is the prime test case. The Navy’s goal in its thirty-year shipbuilding plan is to reach 355 ships. However, as the graphics below illustrate, their path to get there is erratic because the fleet is already old. Forced retirements are going to tick up over the coming decades, meaning that the procurement rate has to increase even more rapidly to increase the total size of the fleet. This is starkest example of the procurement bow-wave (in which the middle out-years see a significant dip).

Yet, the 355-ship goal also risks creating a so-called “hollow force” in which the DIB is pressured to churn out as many hulls as quickly as possible without considering the capabilities

on the ships.⁶⁶ This problem has been considered by Navy leadership, as evidenced by Navy Chief of Staff Admiral James Richardson’s comment that “with respect to the industrial base...the numbers do count. We are at 282 ships...by 2023 we will be at 326...We are building ships in a balanced way that not only builds the platform, but builds the weapon, builds the systems, the people, the infrastructure, you know, the whole Naval power enchilada.”⁶⁷

This approach is correct, but will take decades to complete and will leave the Navy struggling to keep its head above water in the medium-term.



While increased funding is a necessary part of this expansion, it is not sufficient. Money sets the DIB in motion, but it will take time to spin-up the shipyards that have laid dormant for years. The main challenge is finding workers with the specific skills required. Submarines require the most specialized expertise, and the Columbia-class sub is the Navy’s top priority for the next ten years.⁶⁸ Yet, it is not all bad news for shipbuilding. Four littoral combat ships (LCS)

are under construction, keeping shipyards afloat. Navy leadership is optimistic that these ships should create “robust competition for the frigate,” the Navy’s forthcoming multipurpose ship.⁶⁹

Similar medium-term challenges exist for Air Force surveillance aircraft and Army land vehicles. Both services are considering extending the lives of midcentury technology (the U2 spy-plane and Abrams tank) to an absurd 100 years.⁷⁰ Yet, both services have focused their modernization efforts on the distant future: the Air Force has cancelled its JSTARS recapitalization program in favor of increased funding for a distributed sensor network still in preliminary development; the Army has announced its goal to leapfrog a generation of armored vehicles. This creates concerns for the DIB because the preparation for the high-end futuristic fight favors the Big Five and raises questions about the role for smaller firms and the manufacturing elements of the DIB (as opposed to research) over the next five to ten years.

Finally, no discussion of the DIB or tactical capabilities is complete without mentioning the oft-bemoaned F-35. Although an incredibly expensive, somewhat inefficient, and behind-schedule project, the F-35 is seen as the future of warfighting by many.⁷¹ However, it is the somewhat distant future and should only be used for the high-end fight. Although the espoused vision from Air Force leaders aligns with this reality, the budget and DIB do not. Secretary of the Air Force Heather Wilson has framed F-35 development and surveillance modernization mentioned above this way: “We also recognize that in this contested environment, where we may have some fifth-generation aircraft that are quarterbacking the fight and penetrating contested airspace, it will be a mixture of fourth- and fifth-generation aircraft that actually win the fight in the end.”⁷² Tactically, this approach is sound. However, non-fifth-generation aircraft are becoming ever scarcer in the Air Force and other branches. F-35s are taking and increasingly large share of aircraft budgets across the Air Force, Navy, Army, and Marines.⁷³ Yet, the F-35

was never intended to be the default aircraft. The Government Accountability Office dubbed the F-35 the “most complex and ambitious air acquisition” project ever.⁷⁴ Rather than abandoning F-22 Raptor production, the Air Force should have maintained the mix in contracting and production of generations of planes that strategy now requires.⁷⁵ Even if the status quo’s bloated budgets allow the services to spend somewhat recklessly on top-of-the-line planes, there will be a time when budgets contract and the idea of producing thousands of F-35s will seem little more than pie-in-the-sky thinking. Instead, the F-35 should be used largely for what it was originally lauded: short takeoff and vertical landing (STOVL) capabilities for the Marine Corps and limited sections of the Air Force. This line of F-35s, the F-35B, should continue at relatively high rates of production, while production of its sister aircraft, the F-35A and F-35C, should be significantly reduced in favor of greater F-22 production and modification as well as other midlevel fighter jets.⁷⁶

Conclusions and Recommendations for Future Research

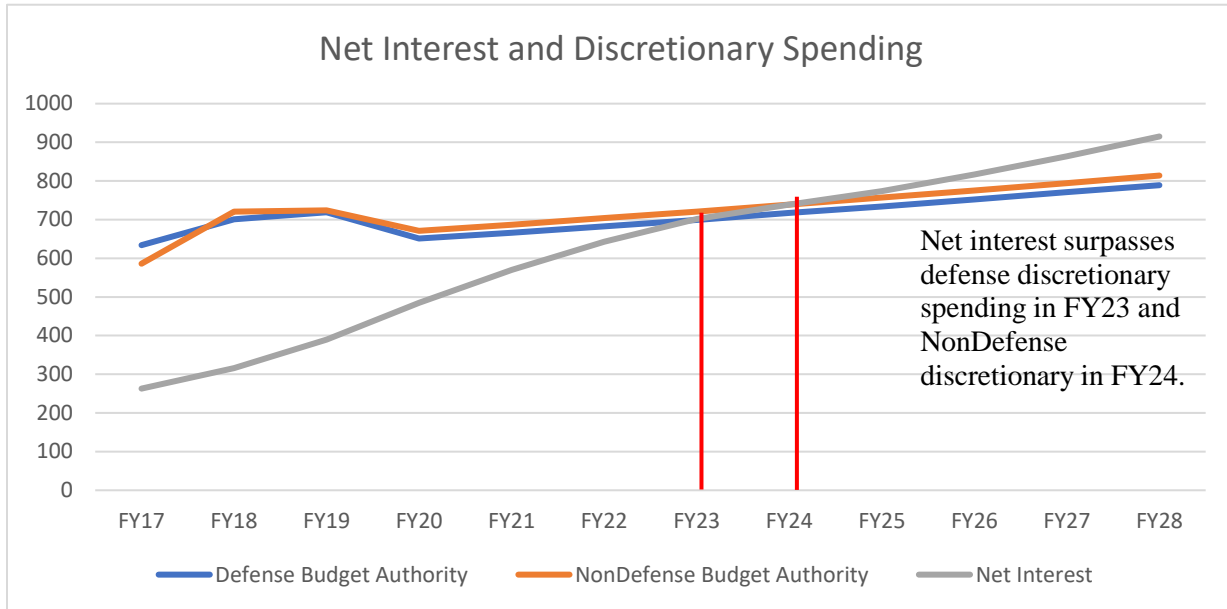
Ultimately, the DIB is “not in imminent crisis.”⁷⁷ If the US wants to build it, defense contractors will come (however inefficiently). Although the US defense market would benefit from significant reform, it is important to maintain perspective: the US modernization budget alone is still larger than any other country’s entire defense budget.⁷⁸ The US Congress clearly prioritizes military spending more than any other country: even under the Obama presidency, in 2015, over 50 percent of discretionary federal spending and over 15 percent of total federal spending are dedicated to defense.⁷⁹ US military spending already constitutes more than a third of global military spending.⁸⁰ Future acquisition reforms should begin from an understanding that the US defense industry is already unlike any other market and is deeply influenced by historical trends and decisions.

US monopsony power should be leveraged more precisely to encourage competition rather than letting an unnatural market run its natural course. Existing market concentration will need to be addressed, but antitrust-minded officials are afforded more tools than usual: breaking up mergers, increasing contracting with non-Big Five companies, and loosening restrictions for firms to sell to allies can help promote competition.⁸¹ Acquisition reform should also increase the prevalence of incrementalism and sustained competition over the life of a project. This would lower prices and increase efficiency while also promoting new technological innovations and improvements to be incorporated over the course of development of a long-term project.⁸² The Pentagon should also develop explicit sourcing criteria and reduce reporting requirements as much as permitted by Congress in order to disincentivize market exit by mid-sized firms and to induce market entry by non-traditional firms.⁸³

The largest long-term risk to the DIB and the defense budget at large is the political challenge of budgeting generally. Not only are mounting deficits likely to catch up to Congressional budgeteers both economically and politically, but mandatory spending (Medicare, Medicaid, Social Security, and interest on the debt) remains a far greater—and faster growing—share of total federal spending (as shown in the graphic below). At some point, it will become infeasible to continue to fund new initiatives while maintaining old ones. Republican administrations may be willing to cut other programs to continue pumping up the defense budget, but future Democratic presidents and Congresses will almost surely have budget priorities that require cuts to military spending. Building the political willingness to cut unnecessary bases and personnel instead of modernization when that time comes will require a concerted effort in the meantime. Those that care about a strong national defense should

recognize that these political dynamics control the destiny of any major modernization project and should dedicate resources accordingly.⁸⁴

Finally, the strategic risks posed by the procurement bow-wave require more research.



Source: Author’s calculations using publicly available Congressional Budget Office data and estimates.

There has been some speculation that the focus on the short-and long-term capabilities at the expense of the medium-term exposes the US to escalation risks. If potential adversaries observe the US developing dominant long-term capabilities, they may be more likely to take a chance while the US is in a position of relative weakness. This theory seems more than plausible at first blush, so it would be worthwhile for future research to examine it systematically.

ENDNOTES

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