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# Measuring the Impact of Sequestration and the Defense Drawdown on the Industrial Base

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## Abstract

The presence of a technologically superior defense industrial base has been a foundation of U.S. strategy since 1945. While the implementation of the budget cuts in the Budget Control Act of 2011 has caused concerns for the industrial base, the resulting debate has been lacking in empirical analysis. The purpose of this research is to measure the impact of the current defense drawdown across all the tiers of the industrial base. The technical approach analyzes prime and subprime DoD contract data to measure the impacts of the drawdown by sector to better understand how prime and subprime contractors have responded to this external market shock.

## Introduction

The United States has long recognized the importance of supporting and sustaining an advanced defense industrial base to maintain global technological superiority. Maintaining a technologically superior industrial base requires a wide vendor pool from which to produce products, conduct research and development, and provide services for the Department of Defense (DoD). This vendor pool includes both the defense contractors awarded prime contract obligations but also the lower subcontracting tiers of the industrial base.

However, since the implementation of the 2011 Budget Control Act's (BCA's) mandatory reductions to the federal budget, Congressional, DoD, government oversight, and industry officials have all expressed concerns over the health and future of the defense industrial base. These cuts affect not only the top tier of the industrial base (the prime contractors), but also the more numerous lower-tier suppliers (subcontractors) that are so often the sources of critical technological advances. Heavily dependent on subcontract awards from the prime contractors, some of these subcontractors face the risk of going out of business due to the drawdown. Funding associated with the wars in Afghanistan and Iraq has also declined steeply since 2011, further reinforcing and magnifying the effect of the



BCA reductions. The combined effect of these reductions is what is referred to as the current defense drawdown, or the drawdown, for purposes of this project.

The current public discussion surrounding the impact of the drawdown on industry is largely based on anecdotes lacking empirical support. Through analysis of publicly-available contract data, this research effort measures the impacts of the drawdown by sector to better understand how prime and subprime contractors have responded to this external market shock.

## **Literature Review**

As stated previously, the public discussion surrounding the impact of budget drawdown trends on industry is often based on anecdotes, absent of empirical evidence. To better assess the validity of some of these claims, the study team looked to the academic literature to help ground the analysis in general historical principles of industrial base evolution. Where similarities exist, the academic literature permits comparing whether the challenges of sequestration, and subsequent responses, are like similar historical external market shocks seen in the private sector. Reviewing the academic literature further illuminates research variables that, while present in business and academic journals, have been underexplored in the defense context.

### ***DoD Component***

The DoD faced the largest overall reductions of any department in the U.S. federal government during sequestration. These reductions had significant but uneven effects on DoD spending and affected each service in differing ways. Though the defense industrial base is effectively a monopsony in which the U.S. federal government is ultimately the only buyer, many acquisition decisions are not made by a singular decision-making organization, but by the major DoD components. While a topline budget and overall/cross-department acquisition trends are somewhat out of the components' control, lower-level trends are likely to reflect the component's top priorities and not just standardized cuts across the board. For example, given these dynamics, it would not be surprising to see the Navy limit, to the extent possible, cuts to its shipbuilding budget even if it meant taking sharper cuts elsewhere.

The policy guidance for responding to budgetary cuts coming out of the components leading up to and throughout the defense drawdown reflects this dynamic. Each of the different components had its own set of priorities and varied plans for addressing the budgetary challenges. For example, the Navy's choices are seen in this 2014 Quadrennial Defense Review statement: "To sustain investment in critical force structure and modernization, the Navy will reduce its funding for contractor services by approximately \$3 billion per year to return to 2001 levels of contractor support" (DoD, 2014b). Meanwhile, the Air Force planned to address the budgetary challenge by making "near-term capacity reductions in mission areas such as lift, command and control, and fighters" to prioritize its top three modernization programs: F-35 Fighter, B-21 Bomber, and KC-46A Tanker (DoD, 2014b). Furthermore, the Army announced that it would take an approach different from either the Air Force or the Navy, electing to protect funding for readiness at the expense of modernization and force structure.

### ***Vendor Size***

A critical question asked prior to and throughout sequestration and the drawdown was whether smaller defense contractors would be able to survive the sequestration and continuing drawdowns (Samuelsohn, 2013). Furthermore, Sen. Mary Landrieu, Chairwoman of the Small Business and Entrepreneurship Committee, speculated that "small businesses



are going to be the ones that feel the most immediate effects” of spending cuts originating from the BCA (Samuelsohn, 2013). Due to the number of contracts held by smaller defense contractors and their specialized niche capabilities, some argued that it seemed almost inevitable that the negative impacts of sequestration will “disproportionately” affect smaller contractors (Eaglen, 2012). Without having a large and diversified portfolio of defense contracts that reduce the impact of spending cuts in one line of business, small defense contractors looked to be unable to withstand the reductions in military spending (Homan, 2014).

Within the academic literature, the relationship between vendor size and its success during a downturn is less clear. Even though commentators tend to give credit to larger businesses having more success than small business during an economic downturn, the literature suggests that success is more dependent on strategies available to a company, not its size alone (Sivy, 2012). The role of vendor size is indirect but can still be critical; the size of a vendor influences what business strategies are available for pursuit. Vendors of different sizes pursue different strategies during periods of market shock, such as economic downturns.

Smaller businesses and non-profits may have their strategic options limited because they face significantly higher obstacles to other strategies, like raising money, during an economic downturn (Banjo & Kalita, 2010). Due to their associated risk, small businesses were often denied needed external financing from banks during the 2008 recession (Guo, 2014). Without the revenue of a growing market and no access to external financing, small business were left with higher rates of unemployment compared to large businesses (Guo, 2014). Additionally, during the recent recession, it was common for organizations to immediately seek the means to reduce their operating costs in order to stay afloat (Gulati, Nohria, & Wohlgezogen, 2010). Larger companies typically rely on their ability to consolidate and reduce significant amounts of operating costs to survive an economic downturn (Kambil, 2008). While this option may be available to larger companies who have multiple lines of business and substantial reserves to pull from, small businesses do not have the same quantity of cash flow or large reserves available (Bossaller & Kammer, 2009).

Although small businesses generally faced increasingly more difficult challenges during the downturn, they also retained certain benefits that large companies did not have access to (Lai et al., 2016). When reducing operating costs, large companies often undergo substantial structural changes that force larger lay-offs (Lai et al., 2016). Small firms, on the other hand, have a notable strength in flexibility and adaptability to a rapidly changing market (Lai et al., 2016). Without the levels of bureaucracy in a large company, small companies retain a shorter timeline for decision-making which allows them to respond quickly and efficiently to their customer base (Bossaller & Kammer, 2009).

### ***Vendor Count: “Consolidation Theory”***

Both the academic literature and historical examples suggest that the DoD should expect to see consolidation within the defense industrial base under sequestration and the subsequent drawdown. Since the end of the Cold War, defense contractors have resorted to consolidation amid budgetary drawdowns (Gholz & Sapolsky, 2000). As the defense budget fell sharply throughout the 1990s, defense contractors turned to horizontal mergers, acquisitions, and divestitures in order to prevent themselves from going under, setting off “a wave of consolidation” that reduced the number of American-based large prime defense contractors from 16 in 1993 to only six in 2000 (Alfieri et al., 2014; Kovacic & Smallwood, 1994).



After the BCA was enacted in 2011, and with the prospect of sequestration looming on the horizon, many defense contractors were worried about their imminent future (Scully, 2011). Although history suggests that we would expect to see an increase in consolidation in such circumstances, this may not be the case at the top tier of defense contracting, given that the already high-level of consolidation during the post–Cold War drawdown left little room for the large prime defense contractors to acquire additional market share (Thompson, 2010). Nonetheless, in the period leading up sequestration, large primes such as Lockheed Martin, L-3, and Exelis were vocal about seeking the means to consolidate and waiting to “take any available piece of a shrinking pie” (Banham, 2013).

The academic literature supports the argument that we might expect to see further consolidation within the defense industry under market shocks such as sequestration and the defense drawdown. One strategy for improving profit and revenue during a recession has been to effectively consolidate certain aspects of a business (Kambil, 2008). A recessionary period offers a unique opportunity for businesses to capitalize on competitors’ vulnerabilities and increase value through consolidation (Rhodes & Stelter, 2009). In a recession, consolidation through a merger has been shown to generate 15% more value than in “normal conditions” (Rhodes & Stelter, 2009). Furthermore, the relationship between market shocks such as recessions to higher rates of consolidation was also recently demonstrated by the higher rate of consolidation in the banking industry during the 2008 recession.

### **Competition**

An evergreen top DoD priority is the presence of a competitive defense industrial base. In the “Guidelines for Creating and Maintaining a Competitive Environment for Supplies and Services in the Department of Defense,” the DoD lays out seven different reasons competition is important in the defense marketplace (DoD, 2014a):

1. Competition creates an incentive for contractors to provide goods and services at a lower price (economic efficiency);
2. Competition spurs innovation of transformational technologies, which allows the Department to field the best weapon systems for our warfighters quickly;
3. Competition yields improvements in the quality of products delivered and services rendered (firms that turn out low quality are driven out of the market and are unable to effectively compete);
4. Competition affords the Department the opportunity to acquire performance improvements (e.g., faster, lighter, more sustainable) by using “best value” source selection criteria;
5. Competition provides opportunities for capable small businesses to enter new markets;
6. Competition enhances (or maintains) a strong defense industrial base which provides an operational surge capability to handle demand spikes, and;
7. Competition curbs fraud by creating opportunities to re-assess sources of goods and services reinforcing the public trust and confidence in the transparency of the Defense Acquisition System.

Given the importance of competition, the DoD tracks and publishes the share of contract obligations in its annual “Competition Report.” In the DoD’s *FY 2015 Competition Report*, it reported that the share of contract obligations awarded after competition had been falling, with the exception of FY 2014, each year since FY 2009. Whereas 60.7% of FY 2009 contract obligations had been awarded after competition, only 55.4% of FY 2015 contract



obligations were awarded after competition (Defense Procurement and Acquisition Policy, n.d.). However, CSIS analysis, supported by data contained in the *FY 2015 Competition Report*, shows that the declines in the overall competition rates are a result of policies reducing conditions in which contracts are awarded after an open competition, but receive only offer. Therefore, while the overall rate of competition may have technically fallen, the rate of effective competition has remained relatively steady (Hunter et al., 2017).

The academic literature on consolidation is also relevant here as market shocks can further reduce competition by encouraging consolidation. In a consolidated market, a smaller number of firms have a greater market share, which reduces the number of potential competitors for any given project. While the decline in competition predates sequestration, its continuation during most of the drawdown years seems to show that at the Department-wide level, the literature and the DoD's metrics are aligned.

However, while the annual DoD competition report provides important data at the topline, it insufficiently measures the rate of competition at lower levels, particularly sector-by-sector. Beyond the topline, the annual competition reports provide data on the rate of competition within the major DoD components, but each service reports its data differently, and these reporting frameworks do not always align for comparative purposes.

## Methodology & Study Design

This report leverages and builds upon the methodology used in previous CSIS reports on federal contracting.<sup>1</sup> To measure the impact of sequestration and the defense drawdown on different sectors of the defense industrial base, the study team first created a dataset of prime and sub-prime contract awards from 2010–2015 using the Federal Procurement Data System (FPDS) and Federal Subaward Reporting System (FSRS). From this dataset, the CSIS study team separated the defense industrial base into 10 distinct “platform portfolios.”<sup>2</sup> To create these platform portfolios, the study team first classified contract obligations by their listed DoD Claimant Program Code. Second, for instances where the “DoD Claimant Program Code was missing or not platform specific (e.g., Services or Subsistence) obligations were classified using the Product or Services Code” (Berteau, McCormick, & Sanders, 2014).

Having created these 10 unique platform portfolios, the CSIS study team decided to focus its analysis in this paper on the three sectors of the defense industrial base that Frank Kendall, former Under Secretary of Defense (AT&L), had previously identified as of the most concern: ground combat, high-performance aircraft, and surface combatant ships (Bertuca, 2014). These three sectors largely align to the Aircraft and Drones, Land Vehicles, and Ships and Submarines platform portfolios respectively. In the final technical report, the CSIS study team will expand its analysis to include the other platform portfolios beyond these initial three sectors.

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<sup>1</sup> For the full CSIS FPDS methodology, see: <http://csis.org/program/methodology>

<sup>2</sup> The 10 unique CSIS platform portfolios are as follows: Aircraft and Drones; Ships and Submarines; Land Vehicles; Missiles and Space Systems; Weapons and Ammunition; Other Products; Electronics and Communications; Facilities and Construction; Other Services; Other R&D and Knowledge Based; Unlabeled





For these three platform portfolios, the CSIS study team focused on the four variables identified in the literature review that are observable through FPDS data:

- DoD Component: Did the DoD components respond differently to sequestration and the defense drawdown?
- Vendor Size: How did the share of contract obligations change among vendors of differing sizes, particularly small businesses?
- Vendor Count: How did the number of vendors change?
- Competition: Did the share of contract obligations awarded after effective competition change?

Finally, the study team sought to evaluate the availability and quality of subcontracting data across the different sectors of the defense industrial base. This effort builds off a 2014 study conducted by Nancy Moore at RAND, which concluded for FSRs data from FY 2010 to FY 2012, FSRs data was often incomplete or missing, but was improving each year (Moore, Grammich, & Mele, 2014).

### **Did the DoD Components Respond Differently?**

Across the DoD, the response to the market shock imposed by sequestration and the budget drawdown differed among the various major DoD components, both in magnitude and response strategy. At the top line, average overall DoD annual contract obligations from 2012–2015 fell by 21% compared to the pre-down period. Of the major DoD components, the Army bore the brunt of these cuts, suffering a 39% decline in average annual contract obligations over that same period while the Air Force (-15%) fell at rates below the overall DoD rate of decline. Finally, the Defense Logistics Agency (DLA) (-7% decline), Navy (-12%), and Other DoD (-6%) fell at rates significantly slower than the overall DoD rate of decline, while the Missile Defense Agency (MDA) grew 12% over that same period.

Within the major DoD components, their response to sequestration and the defense drawdown differed. The Air Force, more so than any other component, balanced the distribution of the cuts but still elected to fund certain platform portfolios over others. As annual average Air Force contract obligations declined 15% during the drawdown, most Air Force platform portfolios fell at rates similar to the overall rate. For example, average annual Air Force contract obligations for Aircraft and Drones, Missile and Space Systems, and Electronics and Communications fell by 11%, 20%, and 14% respectively. The Air Force made cuts greater than the overall rate of decline to its Facilities and Construction (-26%) and Other Products (-42%) allowing for the 11% increase in Weapons and Ammunition.<sup>3</sup>

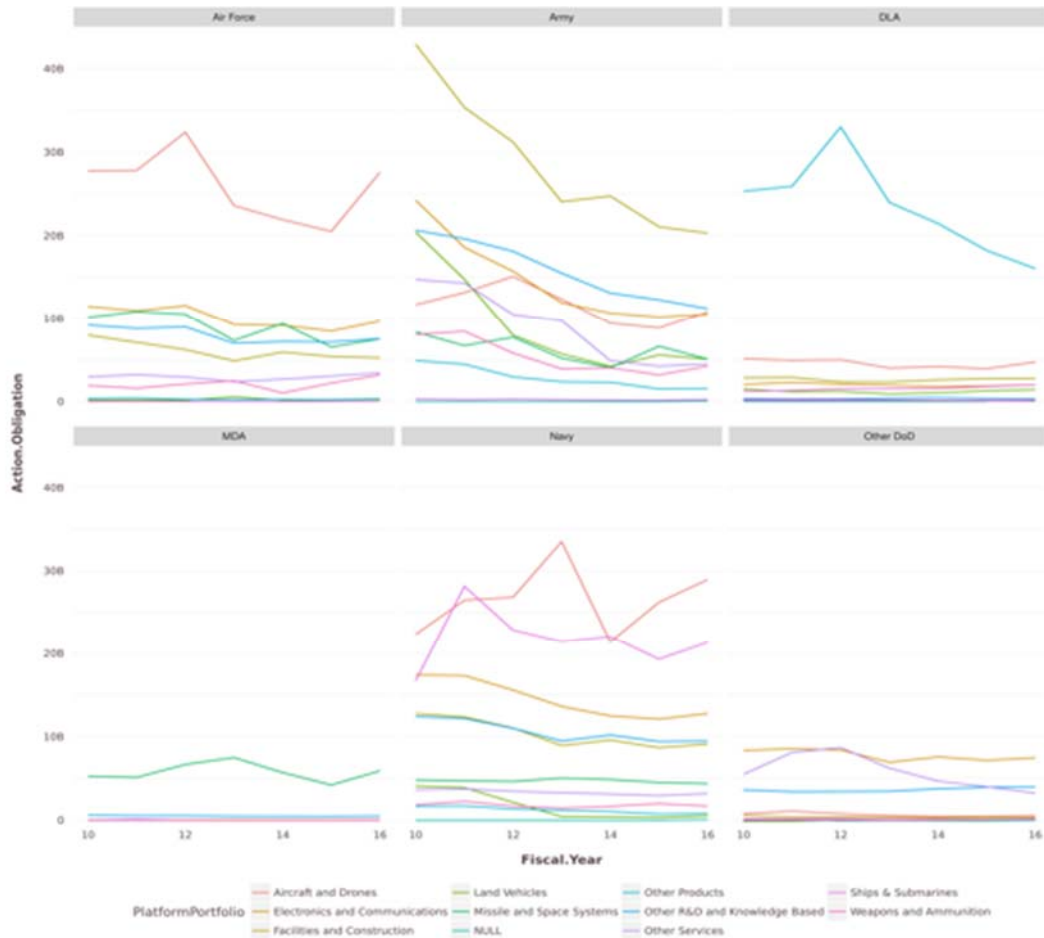
The Army made cuts to every platform portfolio, but those cuts were not distributed evenly across the platforms. The Army Aircraft and Drones platform portfolio saw the smallest cut (-8% decline in average annual contract obligations), followed by Missiles and Space Systems (-22%), and Other R&D (-27%). To limit the cuts made in these platform portfolios, more severe cuts were made to Land Vehicles (-67%), Other Products (-51%), Other Services (-49%) and Weapons and Ammunition (-49%).

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<sup>3</sup> Air Force Ships & Submarines (44%) and Land Vehicles (61%) platform portfolios experienced growth in average annual contract obligations during the drawdown, but represent just 0.2% of total Air Force contract obligations.



Finally, similar to the Army, the Navy elected to protect certain platform portfolios over others. However, unlike the Army, the Navy increased funding over previous levels for certain platform portfolios. As overall average annual Navy contract obligations decreased by 12%, average annual Navy contract obligations for Aircraft and Drones and Missiles and Space increased by 11% and 0.1% respectively. Additionally, average annual Navy Ships & Submarines contract obligations decreased just 4% during the defense drawdown. Funding for these three platform portfolios was offset by more severe cuts in Electronics and Communications (-23%), Facilities and Construction (-24%), Other Products (-41%), Land Vehicles (-79%) and Other R&D (-36%).



**Figure 1. Platform Portfolio by Major DoD Component, 2010–2016**  
(Source: FPDS; CSIS analysis)

### Platform Portfolio Case Study 1: Aircraft and Drones

For the first platform portfolio, Aircraft and Drones, average annual contract obligations during the defense drawdown declined 4% as compared to pre-drawdown average contract obligations. The predominant source of that decline was the 41% decline in annual average contract obligations for Aircraft and Drones R&D contract obligations. Annual average contract obligations for Products remained steady, and Services (10%) grew over that period.



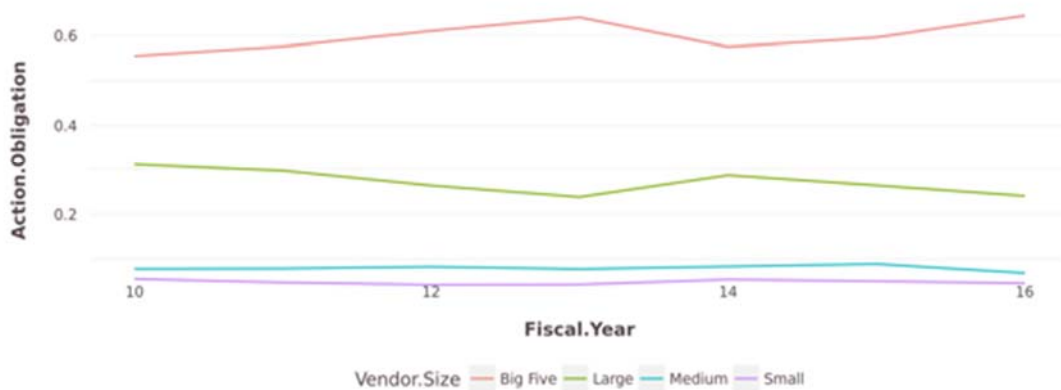


### Aircraft: Vendor Size

Under sequestration and the defense drawdown, the Big 5 have only further increased their market share of this sector at the expense of other large contractors.<sup>4</sup> Prior to the drawdown, the Big 5 accounted for 57% of total Aircraft and Drones contract obligations, compared to 30% for Large vendors. Between 2012 and 2015, the Big 5 increased their market share to 61% of total Aircraft and Drones contract obligations as Large vendors fell to 26%. These trends continued into the reversal of the contracting drawdown in 2016 with Big 5 vendors rising to 64% and Large vendors falling to 24% of total Aircraft and Drones contract obligations.

The share of contract obligations going to Small and Medium vendors remained relatively steady. Before the drawdown, small and medium vendors were awarded 5% and 8% of total Aircraft and Drones contract obligations respectively and remained at that rate throughout the drawdown period. This outcome is in line with the finding from the literature that business strategy more than business size drives results.

Figure 2 shows Aircraft and Drones by Vendor Size from 2010 to 2016.



**Figure 2. Aircraft and Drones by Size of Vendor, 2010–2016**  
(Source: FPDS; CSIS analysis)

### Aircraft: Competition

Under sequestration and the defense drawdown, the historical trends for increasing contract obligations awarded without competition in the Aircraft and Drones sector accelerated. Between 2000 and 2010, only 26% of Aircraft and Drones contract obligations were awarded after effective competition, while 67% of contract obligations were awarded after no competition.<sup>5</sup> Between 2012 and 2015, the share of annual average contract obligations awarded after effective competition fell to 18%, while the share of annual average contract obligations awarded without competition increased to 79%. Throughout the

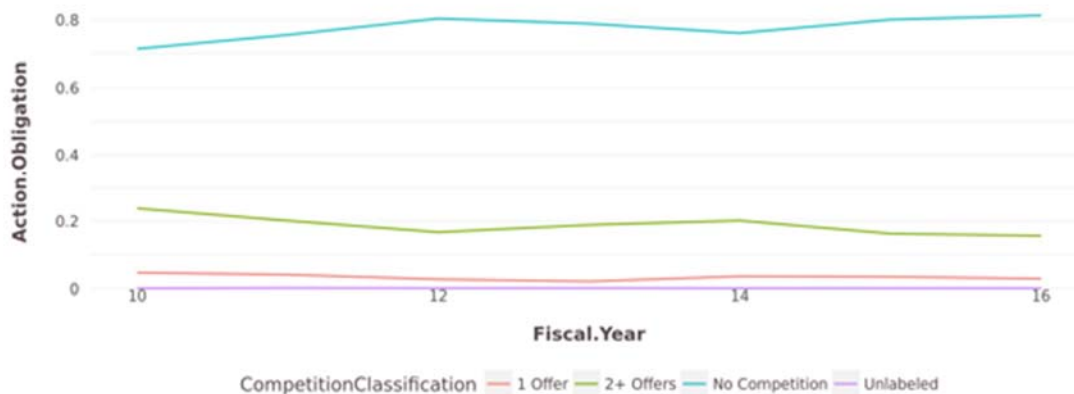
<sup>4</sup> CSIS defines the Big 5 as Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics.

<sup>5</sup> CSIS uses the term *effective competition* to refer to competition with two or more offers.

2012 to 2015 period, annual average contract obligations awarded without competition grew from \$51.9 billion prior to the drawdown, to \$53.6 billion, a 3% increase even as overall Aircraft and Drones contract obligations fell 4%.

When the contract drawdown began to reverse in 2016, these trends only further continued as the share of Aircraft and Drones contract obligations awarded after no competition increased to 81%. Only 18% of Aircraft and Drones contract obligations were awarded after effective competition in 2016.

Figure 3 shows Aircraft and Drones by competition classification from 2010 to 2016.



**Figure 3. Level of Competition for Aircraft and Drones Contract Obligations, 2010–2016**

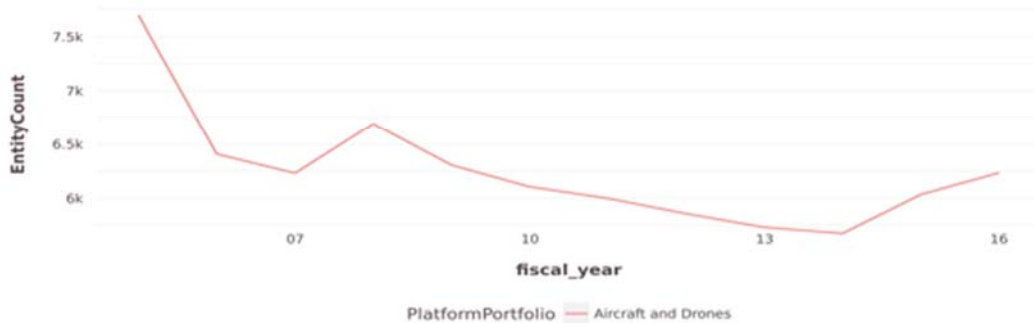
(Source: FPDS; CSIS analysis)

### ***Aircraft: Vendor Count***

As shown in Figure 5, the number of vendors in the Aircraft and Drones sector increased over the course of the defense drawdown after initially declining. This result is somewhat surprising given that since 2005, except for 2008, the number of vendors in the Aircraft and Drones sector had been declining compared to the previous year, reaching approximately 6,100 vendors in 2010. This decline continued until 2014, when there were under 5,700 vendors in 2014, a 7% decline from 2010. However, beginning in 2015 and continuing into 2016, the number of vendors in the Aircraft and Drones sectors increased from the previous year. In 2016, there were approximately 6,250 vendors in the Aircraft and Drones sector, a 10% increase as compared to 2014. The speed with which the number of vendors rebounded and the steady market share for small and medium vendors is consistent with the observation in the literature that smaller players can prove nimble in response to market shocks.



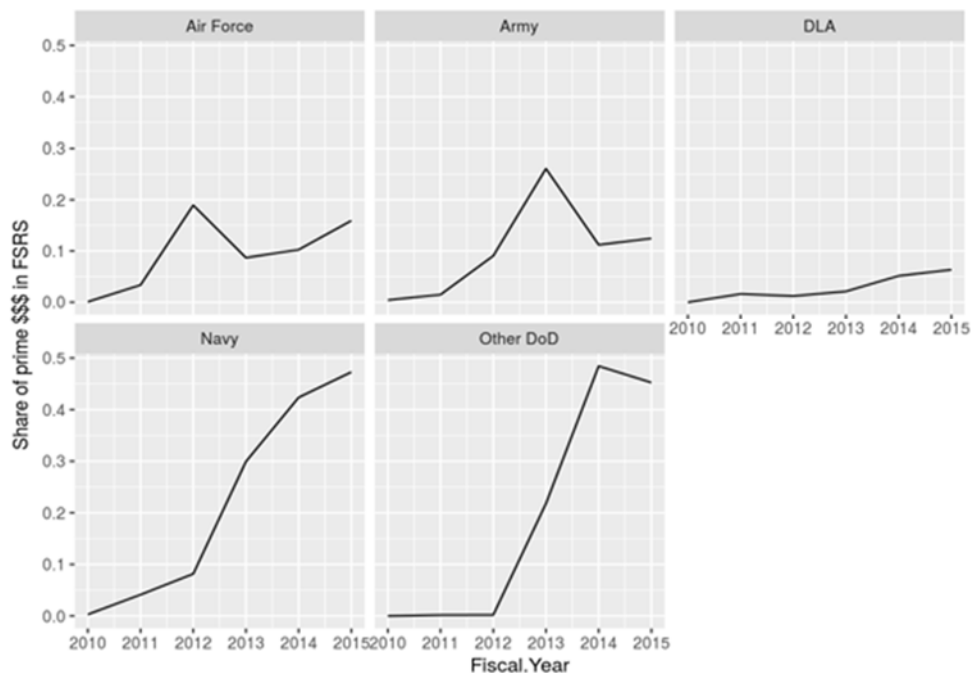
Figure 4 shows the number of vendors in the Aircraft and Drones platform portfolio from 2005 to 2016.



**Figure 4. Aircraft and Drones by Vendor Count, 2005–2016**  
(Source: FPDS; CSIS analysis)

***Aircraft and Drones: Subcontract Data Availability***

In analyzing FSRs data, the CSIS study team found a large discrepancy in the availability of subcontracting data for the Aircraft and Drones platform portfolio between the major DoD components. Shown in Figure 5, of the major DoD components, the Navy and Other DoD had the greatest share of prime contract obligation dollars in FSRs, both near approximately 45%. Comparatively, both the Air Force and the Army lag the Navy and Other DoD, reporting less than one-third of prime contract obligations in FSRs annually.



**Figure 5. Aircraft and Drones FSRs Data Availability by SubCustomer, 2010–2015**  
(Source: FPDS; CSIS analysis)

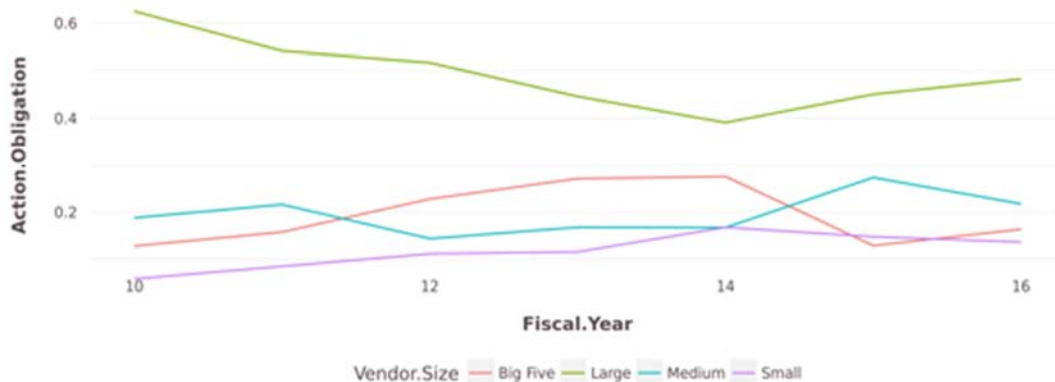


## Platform Portfolio Case Study 2: Land Vehicles

In recent years, the Land Vehicles platform portfolio underwent greater percentage declines than any other platform portfolio as average annual contract obligations fell -65% compared to before the drawdown. The collapse reflects not just that the components priorities were elsewhere, but also a fall from favored status during the period of large scale contingency operations and rapid acquisition of highly protected tactical vehicles such as mine resistant ambush protected vehicles. The 65% decline was nearly double the next closest percentage decline (Weapons and Ammunition; -34%), and significantly higher than the 21% overall DoD decline.

### **Land Vehicles: Vendor Size**

As shown in Figure 6, throughout the 2013–2015 period, the Land Vehicles sector experienced significant change in the share of contract obligations awarded by vendor size. Prior to the start of the defense drawdown, Land Vehicle contract obligations were awarded as follows: 58% to Large vendors, 14% to the Big 5, 20% to Medium vendors, and just 7% to Small vendors. Throughout the drawdown, the Big 5 and Small vendors saw increased market share at the expense of Large vendors. During this period, the share of annual average contract obligations going to Large vendors fell to 45%, while the share going to the Big 5 and Small Vendors increased to 23% and 14% respectively. The increased share of contract obligations going to the Big 5 (-44%) and Small (-34%) vendors can be accounted for by their slower average annual contract obligation decline than the overall rate of decline (-65%).

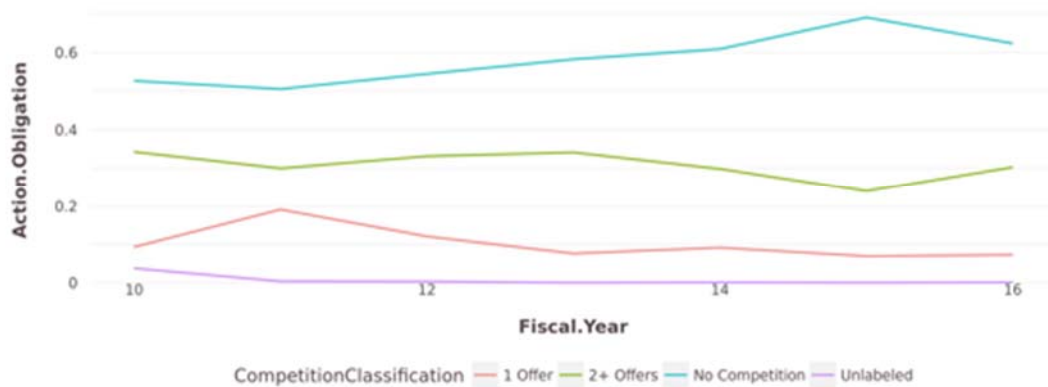


**Figure 6. Land Vehicles by Size of Vendor, 2010–2016**  
(Source: FPDS; CSIS analysis)

### **Land Vehicles: Competition**

Throughout the defense drawdown, the Land Vehicle sector saw a decline in the rate of effective competition and increase in the share of contract obligations awarded without competition. As shown in Figure 7, at the start of the drawdown, 32% of Land Vehicle contract obligations were awarded after effective competition, and 52% were awarded with zero competition. During the drawdown, the share of contract obligations awarded after effective competition fell slightly to 30%, as the share of contract obligation awarded without effective competition increased to 69% from 65%.



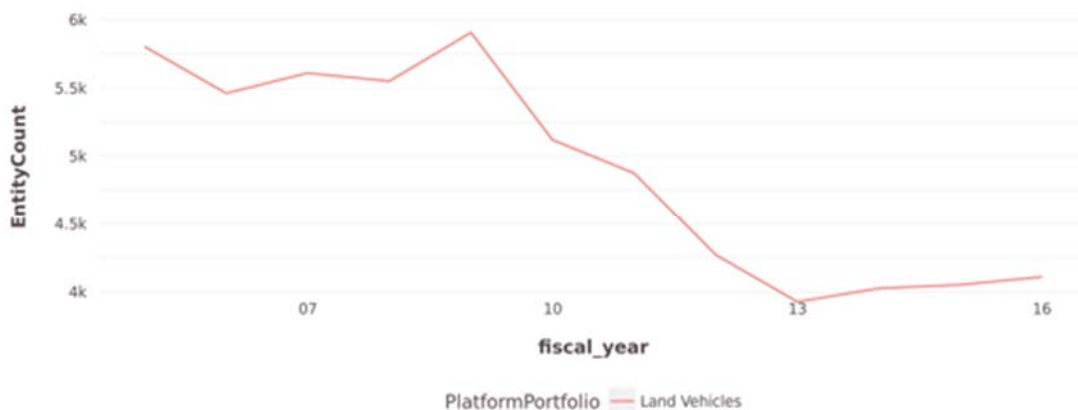


**Figure 7. Level of Competition for Land Vehicles Contract Obligations, 2010–2016**  
(Source: FPDS; CSIS analysis)

These trends began to reverse themselves in 2016 as the share of contract obligations awarded after effective competition increased to 30%, and the share of contract obligations awarded without competition fell to 62%. New contracts appear to be driving the increasing share of effective competition; the sector saw a 9% rise in contract obligations in 2016, as compared to average annual contract obligations during the drawdown period. Land Vehicle contract obligations awarded after effective competition rose from an average of \$2.0 billion from 2013–2015 to \$2.2 billion in 2016.

**Land Vehicles: Vendor Count**

At the start of this defense drawdown, the downward trend in the number of vendors in the Land Vehicles sector continued declining before eventually flattening out and slowly rebounding near the end of the study period. After spiking in 2009 at approximately 5,900 vendors, 2010 marked the start of the decline in the number of Land Vehicles vendors as the wars in Afghanistan and Iraq and subsequent war-related vehicle funding declined. This trend continued until 2013, when there were just under 3,950 vendors, a 33% decline from 2009. However, that trend began to slowly reverse in 2014, with the number of Land Vehicles vendors growing on average, 1.5% per year since 2014, as shown in Figure 8.



**Figure 8. Land Vehicle by Vendor Count, 2005–2016**  
(Source: FPDS; CSIS analysis)

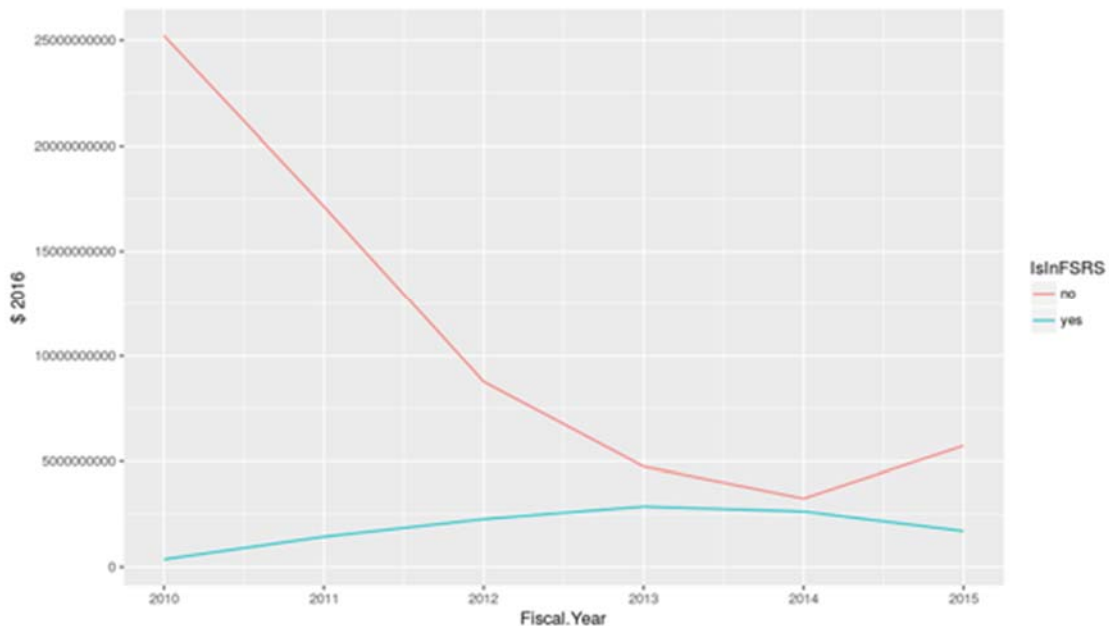


### **Land Vehicles: Subcontract Data Availability**

The FSRs data show that the subcontracting data for Land Vehicles is more available than Aircraft and Drones, but significant gaps exist. At peak data availability in 2014, over 40% of prime dollars was available in FSRs. However, as prime contract obligations for Land Vehicles increased in 2015, FSRs data availability fell.

The Land Vehicle data validate Nancy Moore’s findings on the manner in which old, large contracts drag down the availability rate of FSRs subcontract data. Given the requirement to report subcontract awards to FSRs is relatively new and not retroactive, many large older contracts will never show up in the database. Therefore, as those contracts are canceled, expired, or not renewed, one should expect to see FSRs data availability go up, as in the case of Land Vehicles during the defense drawdown.

Figure 9 shows the share of prime dollars available in FSRs compared to the share of prime dollars not available in FSRs from 2010 to 2015.



**Figure 9. Land Vehicles FSRs Data Availability, 2010–2015**  
(Source: FPDS; CSIS analysis)

### **Platform Portfolio Case Study 3: Ships & Submarines**

During the recent defense drawdown, the Ships & Submarines platform portfolio saw the smallest decline of all the platform portfolios, falling just 3% from the pre-drawdown levels. During the drawdown, average annual Ships & Submarines R&D contract obligations declined by 49%, compared to the 3% decline in Products and 2% increase in Services contract obligations.

#### **Ships & Submarines: Vendor Size**

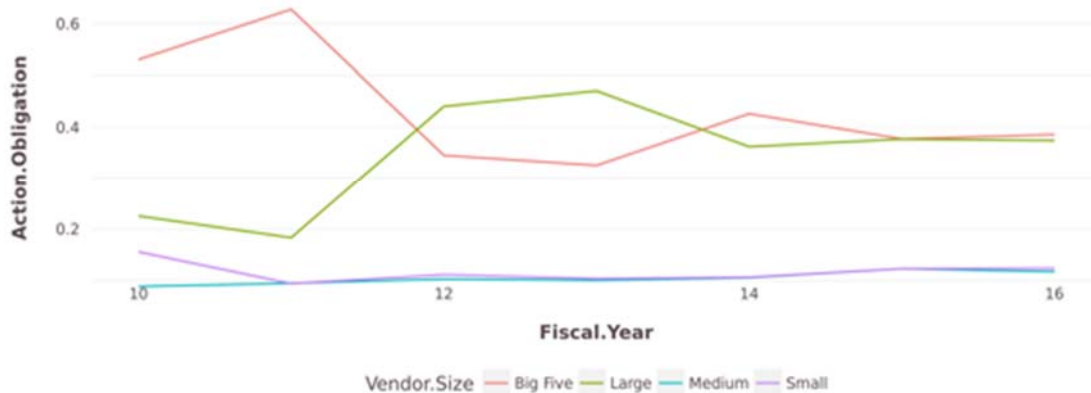
Over the study period, the Ships & Submarines platform portfolio saw a significant shakeup in the share of contract obligations awarded by vendor size as the Big 5 saw significant decreases in market share. However, this trend was largely driven by Northrop Grumman’s decision to spin off its shipbuilding sector into Huntington Ingalls Industries (HII)





in 2011. Given shipbuilding’s low profit margins and then-uncertainty about future defense budgets at that time, Northrop decided to re-prioritize investment in other sectors of the defense industrial base and spin off its shipbuilding assets, creating HII effective halfway through FY 2011 (Drew, 2011).

Figure 10 shows that at the start of the drawdown and prior to the formation of HII, the Big 5 accounted for 58% of all Ships & Submarines contract obligations. However, by the end of the defense drawdown, the Big 5 accounted for just 37% of contract obligations, as the share of contract obligations awarded to Large vendors increased from 20% to 41%. Both the share and sum of contract obligations awarded to Medium-sized vendors. As a share of contract obligations, Medium-sized vendors increased from 9% to 11%, while total contract obligations increased by 13%, rising from an annual average of \$2.2 billion pre-drawdown, to \$2.5 billion during the drawdown. The share of contract obligations going to Small vendors fell slightly, but remained relatively steady going from 12% to 11%.



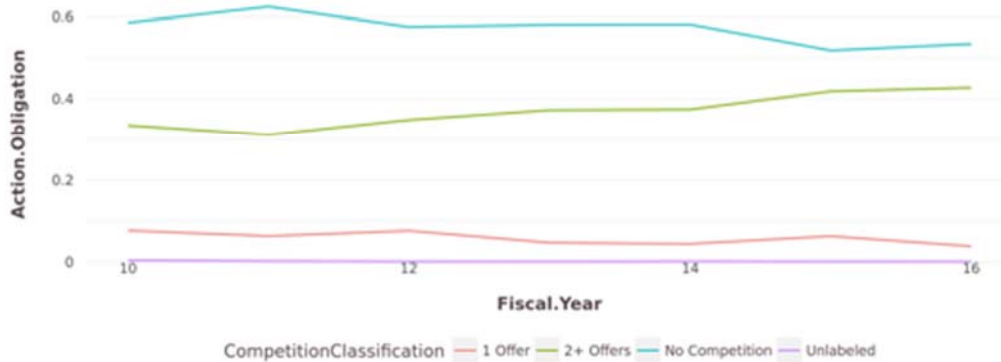
**Figure 10. Ships & Submarines by Size of Vendor, 2010–2016**  
(Source: FPDS; CSIS analysis)

***Ships & Submarines: Competition***

During the most of this recent drawdown, the Ships & Submarines platform portfolio saw an increase in the share of contract obligations awarded after effective competition as shown in Figure 11. In the years prior to the start of the drawdown, 32% of contract obligations were awarded after effective competition. Throughout the drawdown, the percentage of contract obligations awarded after effective competition rose from 32% to 38%. As the share of contract obligations awarded after effective competition increase, the share of contract obligations awarded without competition and the share of contract obligations awarded with just one offer fell from 61% to 56% and 7% to 6% respectively. The rise in shipbuilding competition contrasts with the fall in harder hit sectors, suggesting that rates of competition may be one of the consequences of the shock.

Of note, the increase in the share of contract obligations awarded after effective competition was not from declines in average annual contract obligations awarded without competition (-10%), but by increasing average annual contract awarded after effective competition as the overall platform portfolio decreased. Prior to the drawdown, annual average Ships & Submarines contract obligations awarded after effective competition totaled \$7.7 billion. During the drawdown, that number increased by 14%, rising from \$7.7 billion to \$8.8 billion.





**Figure 11. Level of Competition for Ships & Submarines Contract Obligations, 2010–2016**  
(Source: FPDS; CSIS analysis)

***Ships & Submarines: Vendor Count***

In the years leading up to the defense drawdown, the number of vendors in the Ships & Submarines sector had been slowly increasing after a previous decline, peaking at approximately 5,300 in 2011. After peaking in 2011, the number of vendors in the Ships & Submarines sector declined slightly, approximately 1%, for two years until 2013. Since 2013, the number of vendors in this platform portfolio has increased by 2.7% annually, totaling an approximately 5,600 vendors.

Figure 12 shows the number of vendors in the Ships & Submarines platform portfolio from 2005 to 2016.



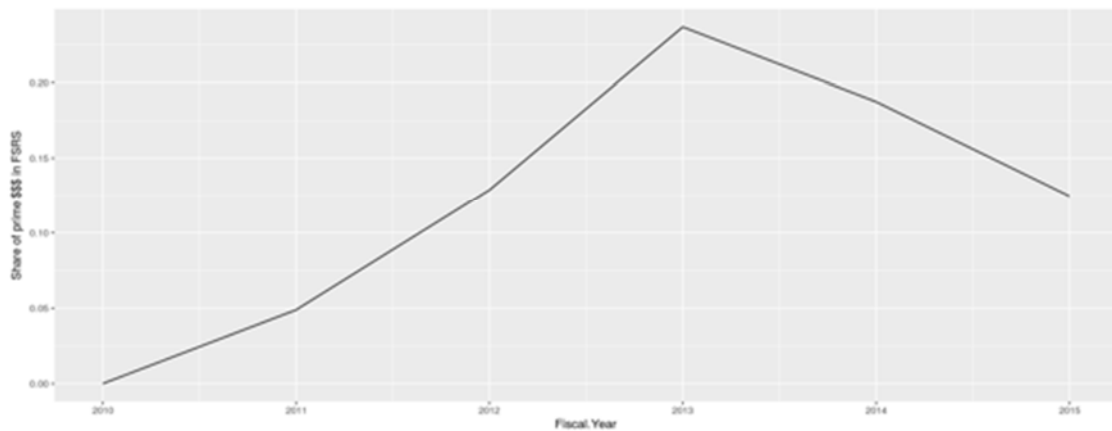
**Figure 12. Ships & Submarines by Vendor Count, 2005–2016**  
(Source: FPDS; CSIS analysis)

***Ships & Submarines: Subcontract Data Availability***

Of the platform portfolios analyzed, the Ships & Submarines FSRs data was the most incomplete. As shown in Figure 13, after continual increases in data availability from 2010 to 2013, the share of prime dollars available in FSRs peaked around 25% in 2013.



Since 2013, the share of prime dollars available in FSRS has continued to fall and sits at approximately 13% in 2015.



**Figure 13. Ships & Submarines FSRS Data Availability, 2010–2015**  
(Source: FPDS; CSIS analysis)

## Conclusion

The results of this preliminary data analysis show that sequestration and the broader defense drawdown have made a measurable impact on the defense industrial base. Furthermore, the data show that the impact of sequestration and the defense drawdown has not been uniform across the entire defense industrial base, with each sector analyzed in this paper responding differently.

### ***DoD Component: Did the DoD components respond differently to sequestration and the defense drawdown?***

The results of the CSIS analysis demonstrate that the Army, Navy, and Air Force each took a different approach for responding to the challenges imposed by sequestration and the defense drawdown. The Army, facing the most significant budgetary declines, elected to distribute uneven cuts across all platform portfolios. In the Army's contracting account, the Aircraft and Drones and Missile and Space Systems platform portfolios saw smaller cuts than the overall rate of Army decline, at the expense of other platform portfolios such as Land Vehicles and Weapons and Ammunition. The Air Force took a more distributed approach with only a few platform portfolios seeing cuts larger than the overall rate of decline. Finally, the Navy prioritized three platform portfolios (Aircraft and Drones; Missiles and Space Systems; Ships & Submarines) at the expense of more severe cuts in five other platform portfolios.<sup>6</sup>

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<sup>6</sup> These five Navy Platform Portfolios that experienced more severe cuts were: Electronics and Communications; Facilities and Construction; Other Products; Land Vehicles; and Other R&D.

***Vendor Size: How did the share of contract obligations change among vendors of differing sizes, particularly small businesses?***

The data show that the changes in the share of contract obligations among vendors of differing sizes depended on the sector of the defense industrial base. In the Aircraft and Drones sector, the Big 5 vendors maintained and expanded their market share during the recent defense drawdown at the expense of Large vendors. Small vendors maintained their pre-drawdown, albeit small, share of this sector market seeing little change in either direction throughout the study period.

In the Land Vehicles sector, the Big 5 and Small vendors increased their share of the market throughout the defense drawdown at the expense of Medium and Large vendors.

Finally, in the Ships & Submarines platform portfolio, the Big 5's decreased market share throughout the defense drawdown is attributable to the spinoff of HII from Northrop Grumman. Contract obligations that had previously been going to Northrop were now being awarded to HII, a Large vendor. Throughout the study period, Small vendors remained relatively steady around 12% of overall Ships & Submarine contract obligations.

***Vendor Count: How did the number of vendors change?***

Across all three platform portfolios analyzed, the data show that at the start of the defense drawdown the number of vendors in these sectors was decreasing, before starting to rebound near the end of the defense drawdown. For example, the Aircraft and Drones sector experienced a 7% loss in vendors from 2010 to 2014, before growing by 10% from 2014 to 2016. This is similarly matched by the 1.5% and 2.7% annual growth in the number of vendors in the Land Vehicles and Ships & Submarines platform portfolio respectively.

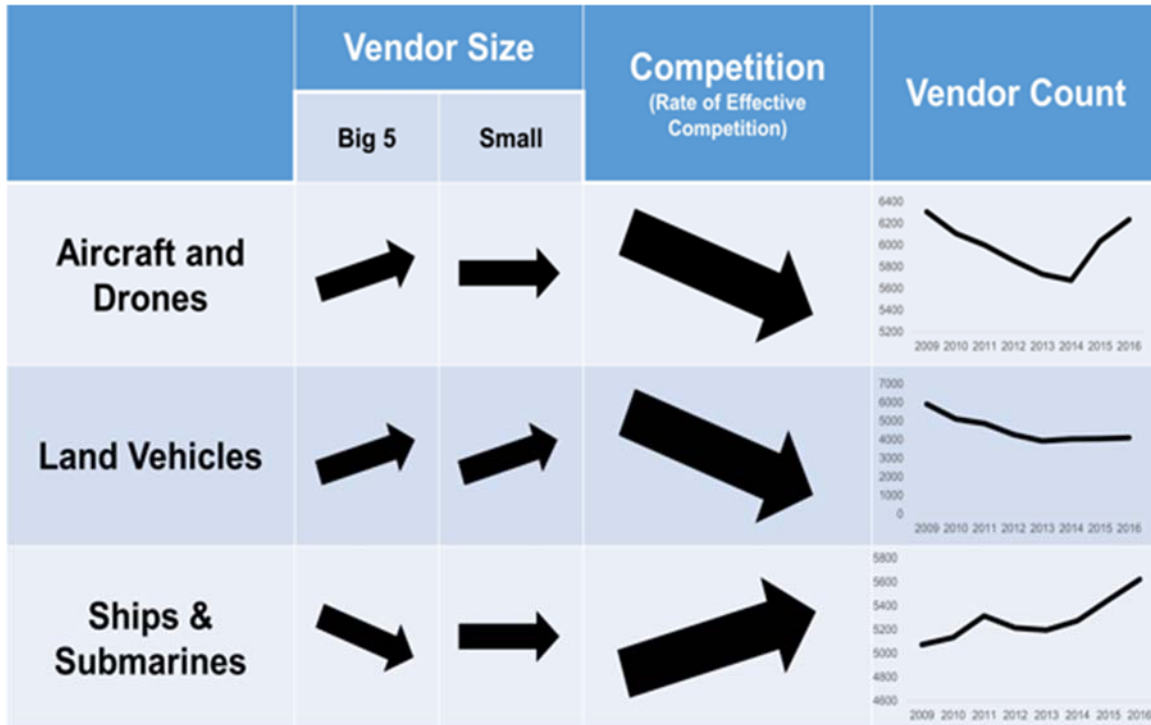
***Competition: Did the share of contract obligations awarded after effective competition change?***

The data show two very different results across the three platform portfolios analyzed here. In both the Aircraft and Drones and Land Vehicles platform portfolios, the rate of effective competition declined throughout the course of the defense drawdown. In both cases, the rise in the share of contract obligation awarded without effective competition was driven by increases in the share of contract obligations awarded without competition.

Meanwhile, the Ships & Submarines industry is often anecdotally referred to as one of the least competitive sectors of the industrial base. However, the data show that share of contract obligations awarded after effective competition increased during the drawdown. This trend was driven by two separate factors. First, throughout the drawdown, annual average contract obligations awarded without competition increased at a rate higher than the overall rate of decline. Second, annual average contract obligations awarded after effective competition increased by 14% as the overall platform portfolio decreased by 3%. The rise in shipbuilding competition contrasts with the fall in harder hit sectors, suggesting that declining rates of competition may be one of the consequences of the shock.



Figure 14 summarizes the CSIS platform portfolio analysis results.



**Figure 14. Summary of CSIS Platform Portfolio Analysis Results**

***Is the FSRS Data Available?***

The data show that the FSRS database remains too incomplete to draw top-level trends across every platform portfolio category. Alarming, the rate of reporting also appears to be plateauing after early years of steady improvements. Of the three platform portfolios analyzed above, Aircraft and Drones and Land Vehicles had roughly the same availability at around 25 to 30% of prime contract obligations dollars appearing in FSRS in recent years. For Ships & Submarines, only 10 to 20% of contract obligation dollars appeared in FSRS in recent years. These three platform portfolios also represent three of the more complete platform portfolios with regards to data availability. Only the Missile and Space Systems and Weapons and Ammunition platform portfolios have relatively similar shares of prime contract obligations in FSRS.

The data show that the FSRS database is inadequate for top-level trend analysis; the data presented above show that certain sub-sectors are more mature than others, even within the same platform portfolio. For example, in the Aircraft and Drones platform portfolio, the Navy had much better coverage in FSRS than either the Air Force or the Army. While FSRS data may be inadequate for the top-level analysis, the maturity of certain sub-sectors makes analysis of the subcontracting trends in that sub-sector possible. When combined with data from FPDS, other mature sub-sectors, and qualitative interviews, it is possible to glean important insights into the sub-contracting dynamics in action in various parts of the defense industrial base.



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