AEROSPACE INDUSTRIES ASSOCIATION

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

Measuring the Impact of Sequestration and the Defense Drawdown on the Industrial Base, 2011-2015

EXECUTIVE SUMMARY

NOVEMBER 2017

AEROSPACE INDUSTRIES ASSOCIATION

Dear AIA Colleagues:

The Budget Control Act (BCA) of 2011 dramatically reduced funding for the Department of Defense (DOD), both from planned levels and in real terms.* Although sequestration's cuts have been somewhat mitigated by Overseas Contingency Operations (OCO) funding and short-term budget agreements, appropriations have been unpredictable and inconsistent. Despite the dedication of our troops, and the noble work of our companies, neither the government nor the private sector can operate properly under these conditions; it is no surprise that senior military leaders have publicly warned that they are struggling to maintain readiness and modernize capability.

To bring life to these concerns, earlier this year AIA joined with the Center for Strategic and International Studies (CSIS), a prominent Washington D.C.-based think tank, in support of their study of the effects of the BCA on the supply chains that support key U.S. defense capabilities. Through analysis of publicly-available contract data, this study has determined sequestration's actual impact – lost suppliers, changes in competition and market structure, and other turmoil – on the defense industrial base. On behalf of AIA and CSIS, I am pleased to present this summary of the study's findings. To quote from the report: *"Though the defense budget had been declining in the years leading up to sequestration in FY 2013, the enactment of sequestration and budget caps marked a severe market shock that had a considerable impact on the defense industry."*

As this study was underway, President Trump issued Executive Order (EO) 13806, *Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States,* on July 21, 2017. The Order directs the Secretary of Defense to "assess the resiliency and capacity of the manufacturing and defense industrial base and supply chains of the United States to support national security needs…based on contingencies that may disrupt, strain, compromise, or eliminate the supply chains of goods[.]" The Secretary's assessment is due to the President on April 17, 2018, and AIA is fully engaged with the Departments of Defense, State and Commerce to ensure that our industry's data and expertise play a prominent role in it. The CSIS study presented here will help to inform our aggressive advocacy.

We are grateful to CSIS for this analysis, and we are pleased that their work gives us a head start in making our case for restoring the manufacturing and defense industrial base. With the President's Executive Order, and the resulting review now underway in DOD, we are confident that 2018 will be a clear turning point for America's aerospace and defense sector, and we look forward to spearheading that vital effort in our nation's capital.

Sincerely,

JFLR

John Luddy
Vice President, National Security Policy

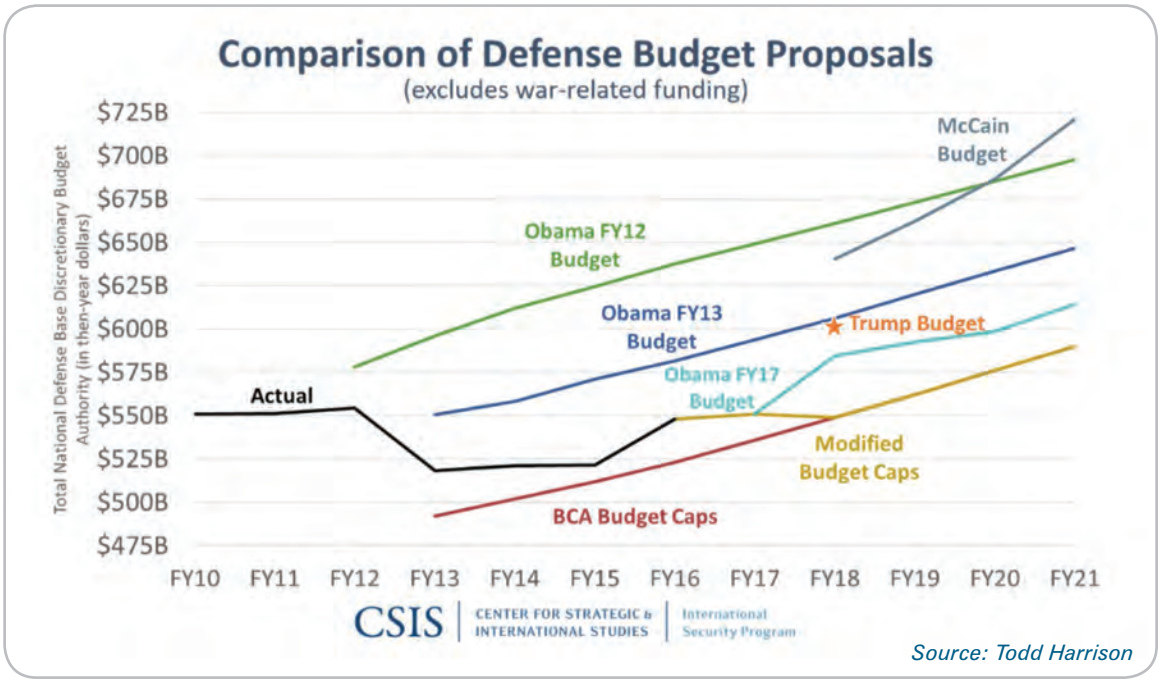
* The BCA requires the President to withhold ('sequester') discretionary appropriation accounts to stay below statutory annual spending limits – enforced by automatic, across-the-board cuts to government agencies. BCA reductions totaled $1.2 trillion over 10 years, split evenly between defense and domestic discretionary spending.

IMPACT OF SEQUESTRATION AND THE DRAWDOWN ON THE DIFFERENT SECTORS OF THE INDUSTRIAL BASE

The United States has long recognized the importance of supporting and sustaining an advanced defense industrial base for maintaining global technological superiority. Maintaining a technologically superior industrial base requires a wide vendor pool from which to produce products, conduct research and development (R&D), and provide services for the Department of Defense (DOD). However, the implementation of the 2011 Budget Control Act's (BCA) enforced reductions to the federal budget, as shown in Figure 1 below, has prompted Congressional, DOD, government oversight, and industry officials all to express concerns over the health and future of the defense industrial base. Overseas Contingency Operations (OCO) funding associated with the wars in Iraq and Afghanistan is exempt from these caps, but has also declined steeply since 2011. The combined effect of these reductions is referred to as the current defense drawdown, or the drawdown, for this study.*

The current public discussion surrounding the impact of the drawdown on industry is largely based on anecdotes with little empirical support. Using data available from the Federal Procurement Data System (FPDS) and the Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS), this paper examines trends in defense contracting across the various sectors of the defense industrial base during the current defense drawdown.

Figure 1: *Defense Budget Proposals Compared to Defense Budget Caps*



Source: Todd Harrison

* Rhys McCormick, Greg Sanders, and Andrew Hunter, "Measuring the Impact of Sequestration and the Defense Drawdown on the Industrial Base," (Washington DC: Center for Strategic and International Studies, December 2017).

CSIS analysis showed that buried within the substantial decline in defense contract obligations were significant variations from sector to sector, with declines varying from catastrophic (Land Vehicles), to steep (Facilities and Construction, Space Systems), to relatively modest (Ships and Submarines). Other sectors suffered a whipsaw effect in which solid business growth suddenly switched to sharp decline (Aviation). Due to the limitations in the subcontract database, CSIS cannot say whether these companies have exited the industrial base entirely, or still perform work at the lower tiers. The shape of the supporting industrial base was significantly restructured in some sectors, although the size of losing and gaining vendors varied substantially across industry. However, in general, small firms mostly succeeded in holding market share, and the Top 5* saw the composition of their work shift away from R&D and towards products and services.

The most complex dynamic occurred in competition. Overall effective competition remained fairly steady, but there were notable declines in sectors where competition was already fairly limited (Aircraft; Ordnance and Missiles; Air and Missile Defense). The size of a platform portfolio's decline had little explanatory effect. Different sectors experienced similar levels of decline while experiencing very different trends in the rate of effective competition within the sector. Sectors where the DOD vendor base may strongly overlap with robust commercial markets, such as Facilities and Construction; and Electronics, Communcations and Sensors (EC&S); showed little decrease in competition despite large declines in obligations and vendors.

Some sectors, such as aviation, also experienced a 'whipsaw' effect, turning from solid growth to sharp decline in just a few months.

METHODOLOGY & RESEARCH DESIGN

This report leverages and builds upon the methodology used in previous CSIS reports on federal contracting and DOD contracting by platform portfolio and analyzed these platform portfolios to measure the impact of sequestration and drawdown on different sectors of the defense industrial base. The study specifically focuses on five research questions:

- Did the DOD components respond differently to sequestration and the drawdown?
- Were the different subsectors of an industrial base sector equally impacted?
- How did the share of contract obligations change among vendors of different sizes, particularly small businesses?
- Did the number of prime vendors change within a sector?
- Did the rate of effective competition change within a sector?

Though the defense budget had been declining in the years leading up to sequestration in FY 2013, the enactment of sequestration and budget caps marked a severe market shock that had a considerable impact on the defense industry. To measure that shock, CSIS categorized contracts into periods to measure two different questions: What was the trajectory of the industrial base sector prior to the enactment of sequestration and budget caps? Did the enactment of sequestration and budget caps change the industrial base compared to its previous trajectory, and if so, how? To measure these questions, the study team created the following three periods:

- Pre-drawdown: FY 2009 to FY 2010
- Start of Drawdown: FY 2011 to FY 2012
- BCA decline period: FY 2013 to FY 2015

Additionally, to better measure the trends between periods, the study team averaged contract obligations across the years comprising a period.

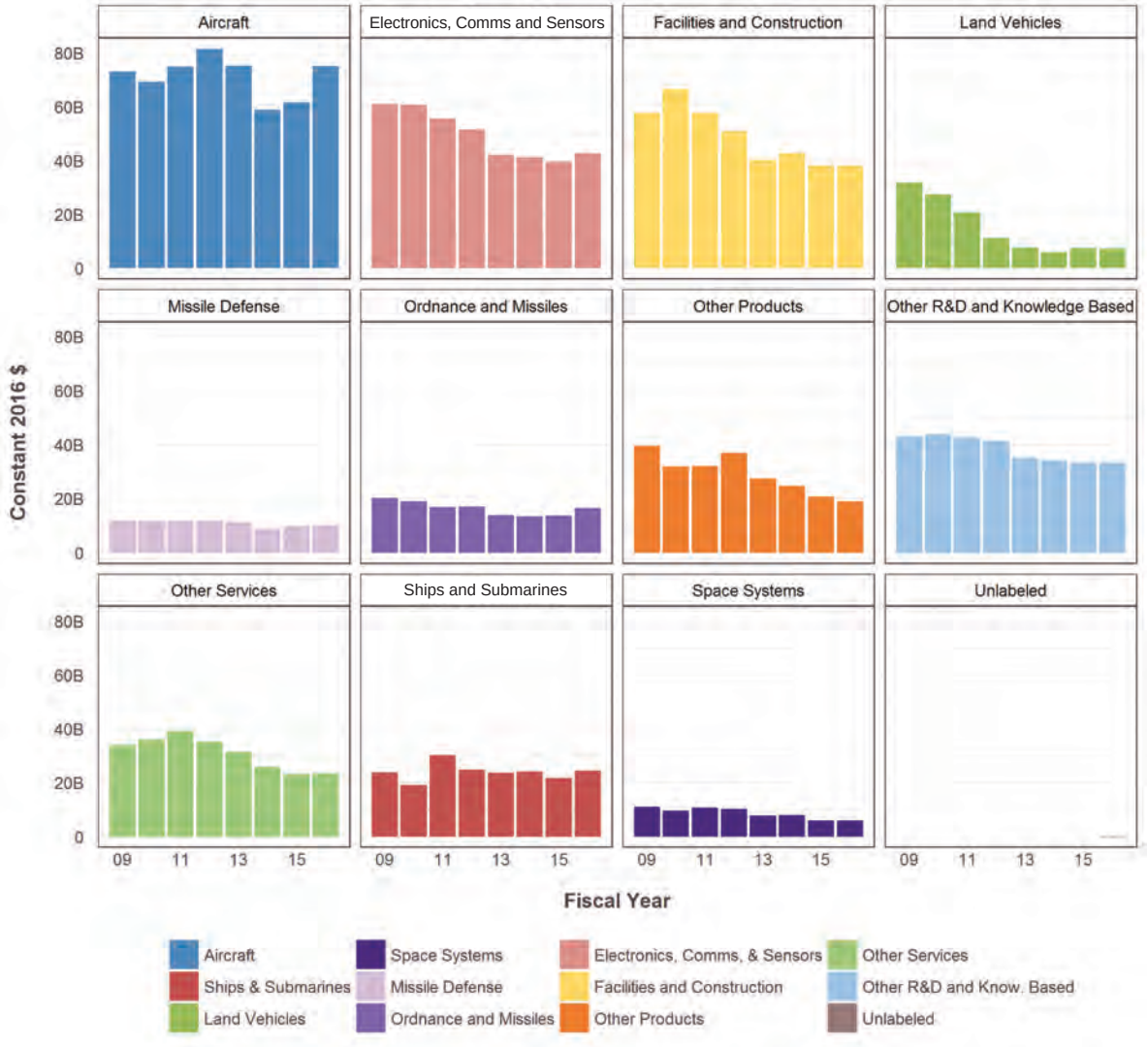
* CSIS splits the industrial base into four categories. The Top 5 are the five largest defense contractors: Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamics. Large vendors are those other vendors that have been identified by CSIS as having $3 billion or more in total annual revenue from all sources. Small vendors are those defined as small businesses by the federal government; all remaining vendors are categorized as medium.

OVERALL DOD TRENDS BY PLATFORM PORTFOLIO

At the start of the drawdown (FY 2011 to FY 2012), average annual defense contract obligations decreased by 5 percent compared to the pre-drawdown (FY 2009 to FY 2010) period. When sequestration was triggered in FY 2013, defense contract obligations decreased by 15 percent from FY 2012 in that single year. Average annual defense contract obligations fell 23 percent during the BCA Decline period (FY 2013 to FY 2015).

As shown in Figure 2, the impact of sequestration and the defense drawdown on the different sectors of the defense industrial base varied widely in magnitude. Although every platform portfolio* experienced double digit percentage declines during the BCA decline era, the degree of cuts in this period ranged from the 16 percent decline in Ships and Submarines to the 56 percent decline in Land Vehicles. In addition to Ships and Submarines, Missile Defense (-16 percent), Aircraft (-19 percent), Other R&D (-19 percent), and Ordnance and Missile (-20 percent) all experienced reductions smaller than the overall rate of decline across DOD. At the other end of the spectrum, Space Systems (-32 percent), Other Products (-30 percent), and Other Services (-28 percent) joined Land Vehicles in experiencing cuts greater than the overall DOD decline.

Figure 2: *Defense Contract Obligations by Platform Portfolio, 2009-2016*



Source: FPDS; CSIS analysis

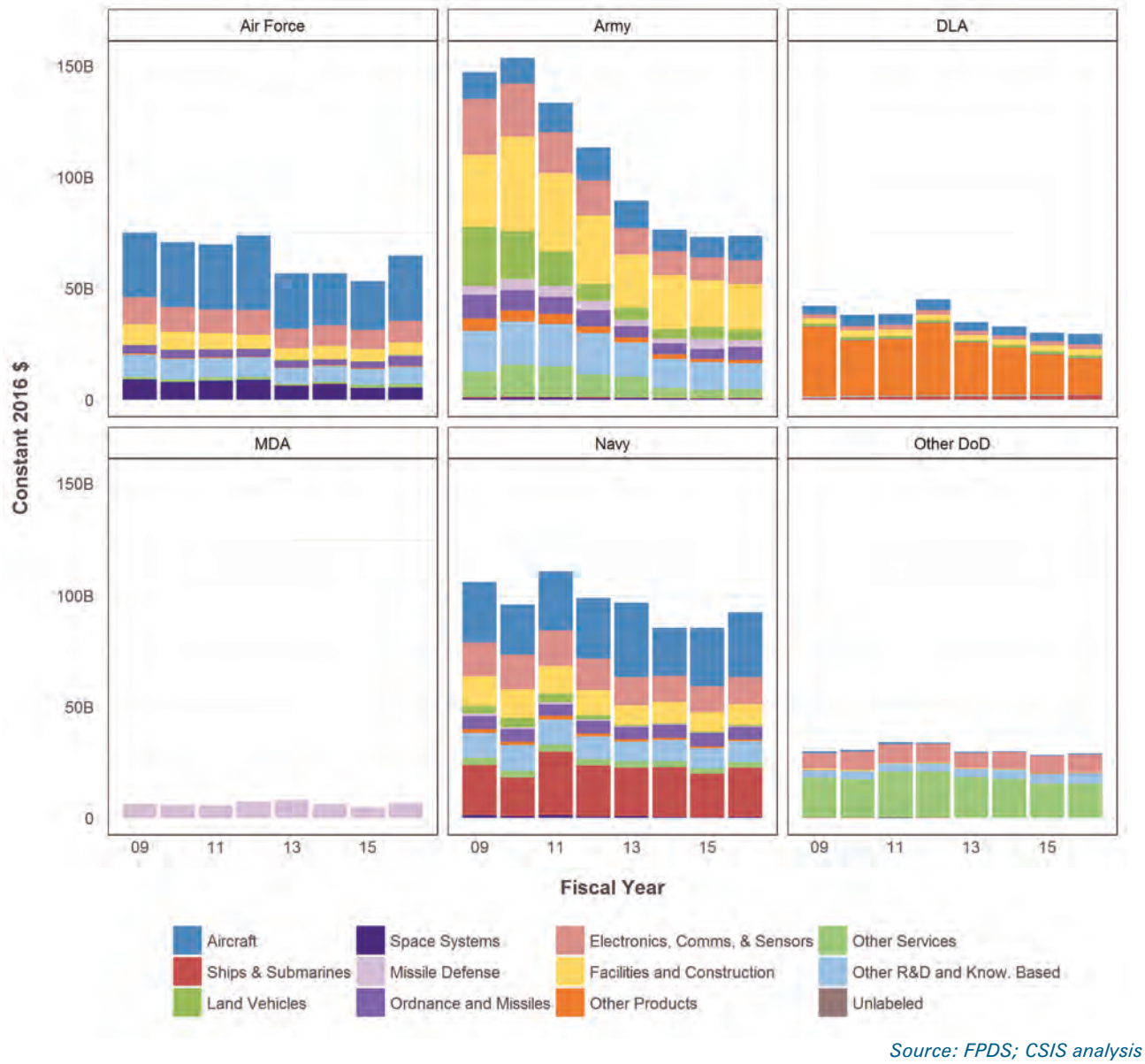
* The eleven platform portfolio categories were developed by categorizing contracts primarily by the platform they support. This was done using multiple columns of data in FPDS, including looking at the specific system supported, the claimant program, and finally the product or service code. To overcome ambiguity between missiles and space systems, contracts managed by the Missile Defense Agency that are not otherwise claimed are classified in the Missile Defense platform portfolio.

RESEARCH FINDINGS

Did the DOD components respond differently to sequestration and the drawdown?

As seen in Figure 3, the data show that the DOD components took different approaches in responding to the market shock of sequestration and the defense drawdown. The Army, which took the largest percentage cut in total contract obligations, distributed cuts across all platform portfolios unevenly. For example, the Army's Air and Missile Defense contract obligations fell at a rate slower than the overall rate of Army decline at the expense of other platform portfolios, such as Land Vehicles. The Air Force took a more distributed approach with only a few platform portfolios, such as Air and Missile Defense and Space Systems, seeing cuts larger than the overall rate of decline. The Navy prioritized contracts for Aircraft and Ordnance and Missiles at the expense of more severe cuts in Facilities and Construction, Land Vehicles, Air and Missile Defense, and Space Systems.

Figure 3: *Defense Component Contract Obligations by Platform Portfolio, 2009-2016*



Source: FPDS; CSIS analysis

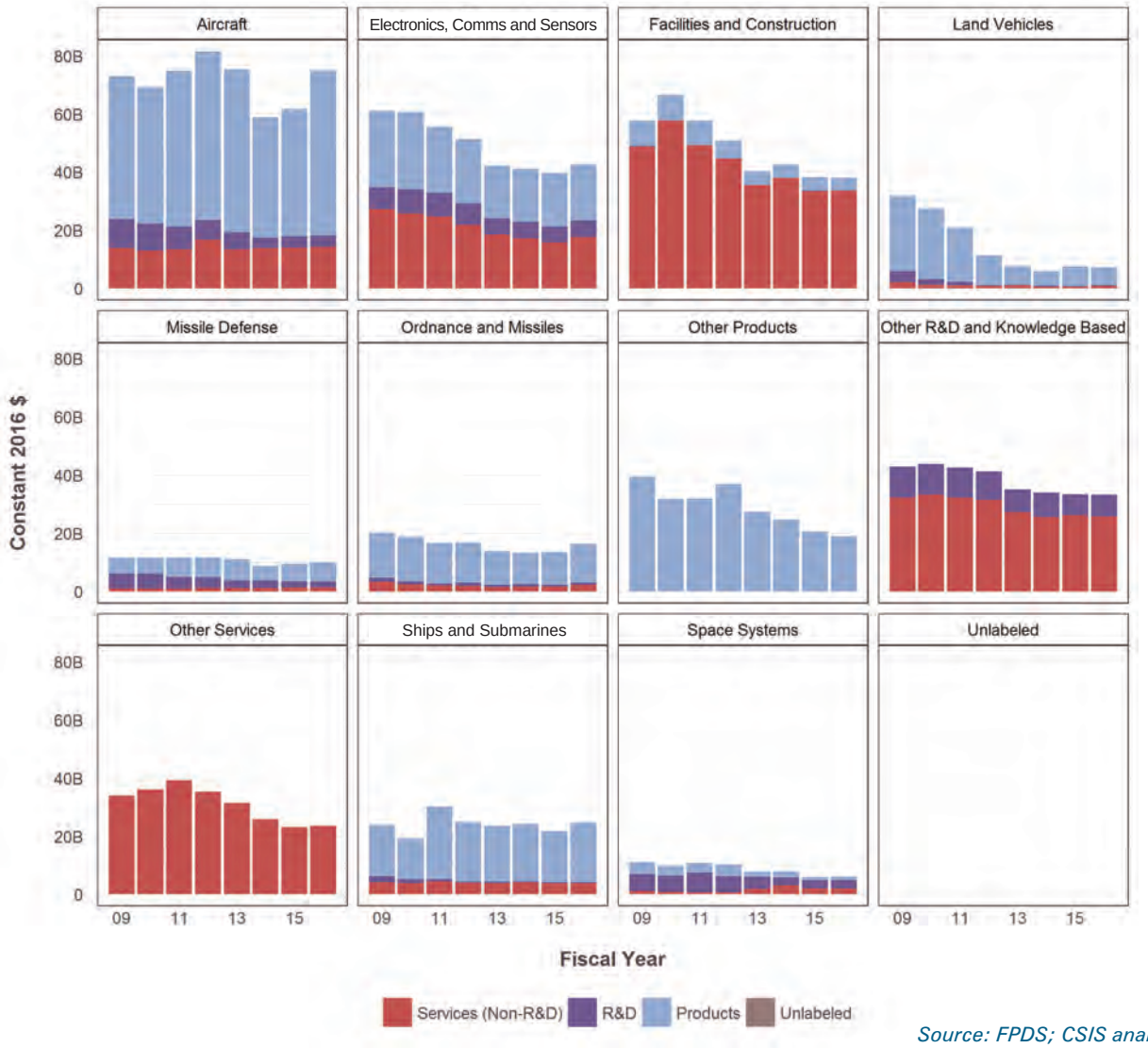
The land vehicles sector suffered a serious decline as a result of sequestration and lost almost a third of its prime contractors; this sector is the most vulnerable of the major sectors of the industrial base and will remain so until funding for Army modernization recovers.

Were the different areas (products, services, R&D) of an industrial base sector equally impacted?

As shown in Figure 4 below, over the course of the drawdown, R&D took cuts greater than products or services in most platform portfolios. The data show that across most platform portfolios, R&D took disproportionate cuts, but the products and services trends were more sector specific.

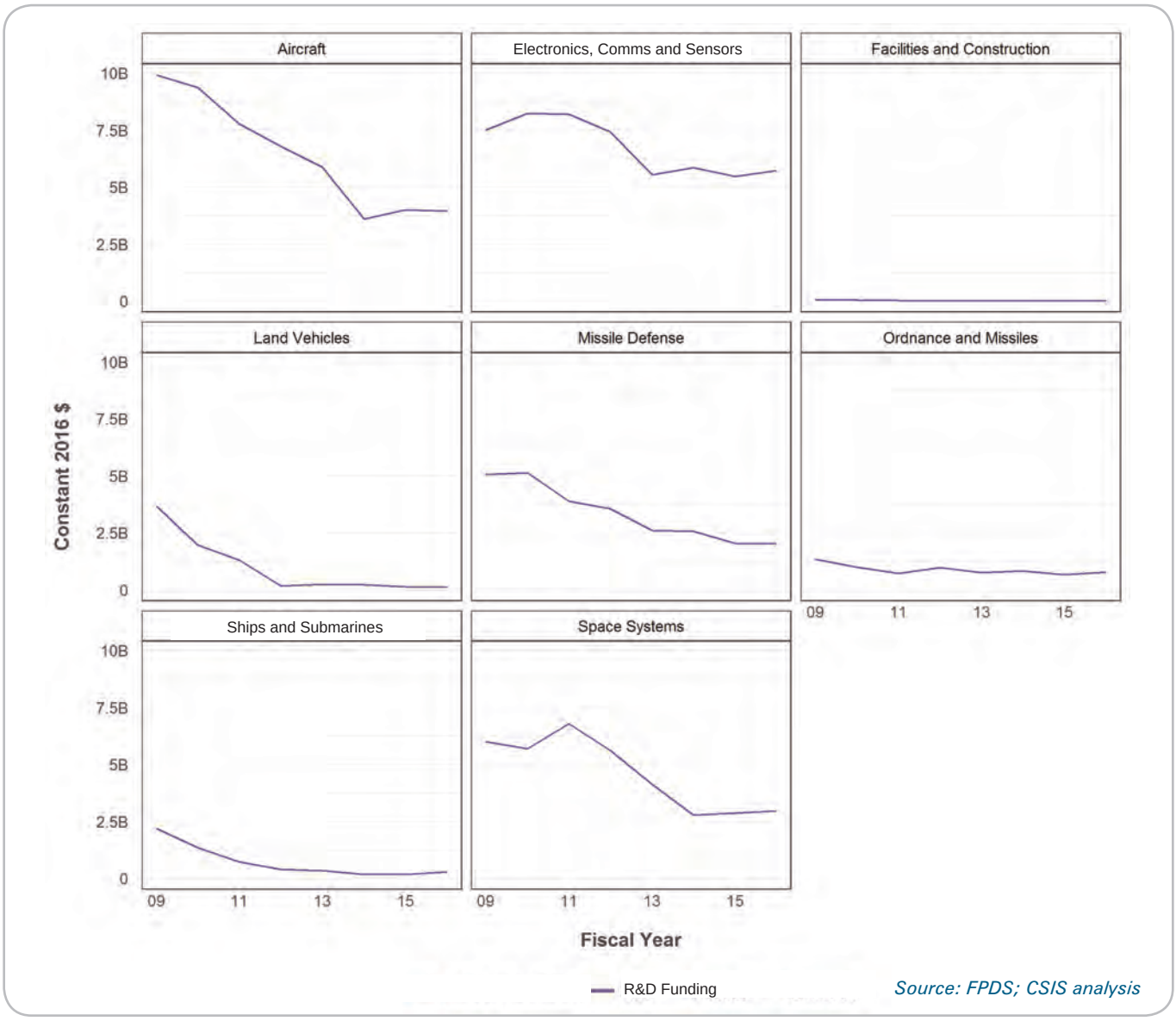
At the start of the drawdown, EC&S and Space Systems R&D contract obligations fell at rates faster than the overall platform portfolio rate of decline. During the BCA decline period, EC&S and Space Systems R&D also experienced greater than overall platform portfolio percentage declines, though Ordnance and Missiles R&D contracts fell at a rate slower than the overall rate of decline. Figure 5 on the following page shows the R&D trends by platform portfolio from FY 2009 to FY 2016.

Figure 4: *Platform Portfolio Contract Obligations by Area, 2009-2016*



Source: FPDS; CSIS analysis

***Figure 5**: R&D Contract Obligations by Platform Portfolio, 2009-2016*



Source: FPDS; CSIS analysis

How did the share of contract obligations change among vendors of differing sizes?

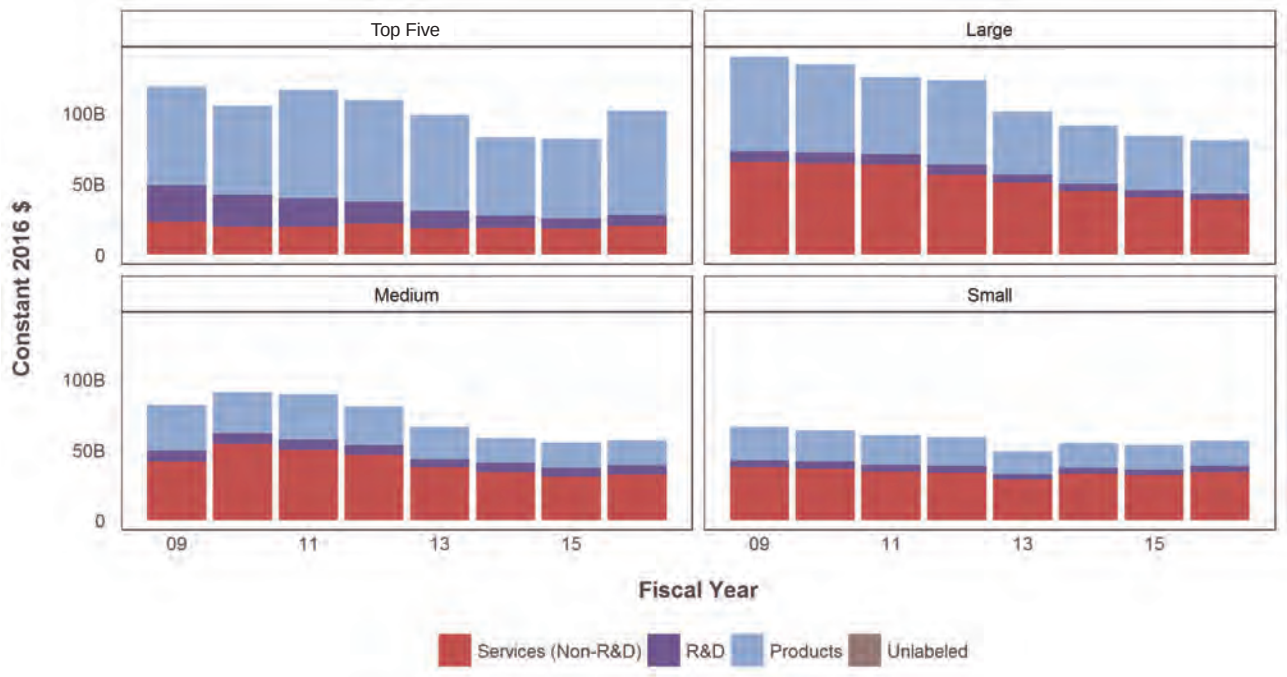
The data show that despite pre-sequestration predictions, the drawdown did not disproportionately harm small vendors. In six of the eight platform portfolios analyzed in this paper, small vendors either increased their share of platform portfolio contract obligations or held steady, while large and medium vendors were most harmed by the market shock from sequestration and the defense drawdown.

Small vendors fared best in the Land Vehicles; EC&S; and Facilities and Construction platform portfolios, where their share of contract obligations increased during the drawdown. Interestingly, small vendors held steady over the drawdown in the three platform portfolios (Aircraft, Space Systems, and Air and Missile Defense) where small vendors received less than five percent of total platform portfolio contract obligations pre-drawdown.

Small vendors' share of contract obligations fell in the Ordnance and Missile and Ships and Submarines platform portfolios over the drawdown. While the share of contract obligations fell in both platform portfolios, there are different explanations for that decline. In Ordnance and Missiles, the decline is explained by small vendors' contract obligations falling at a rate greater than the overall platform's rate of decline. In Ships and Submarines, small vendors' contract obligations grew 5 percent at the start of the drawdown compared to the pre-drawdown period; however, contract obligations for the Top 5, large, and medium vendors also grew at rates higher than the overall rate of decline.

Beyond the top-line defense vendor size and area trends, there are distinct differences in the impact of sequestration and the defense drawdown on vendors of differing sizes depending on what area (Products, Services, or R&D) vendors are contracted for. Figure 6 below shows defense contract obligations by area by size of vendor from FY 2009 to FY 2016.

Figure 6: *Defense Contract Obligations by Area, by Size of Vendor, 2009-2016*



Source: FPDS; CSIS analysis

For defense products, the Top 5 experienced a large whipsaw between the start of the drawdown and the BCA decline periods. At the start of the drawdown, average annual Top 5 products contract obligations grew 12 percent from pre-drawdown levels, even as overall Top 5 contracts declined. However, during the BCA decline period, annual average Top 5 defense products declined by 19 percent, a rate higher than the overall Top 5's period decline.

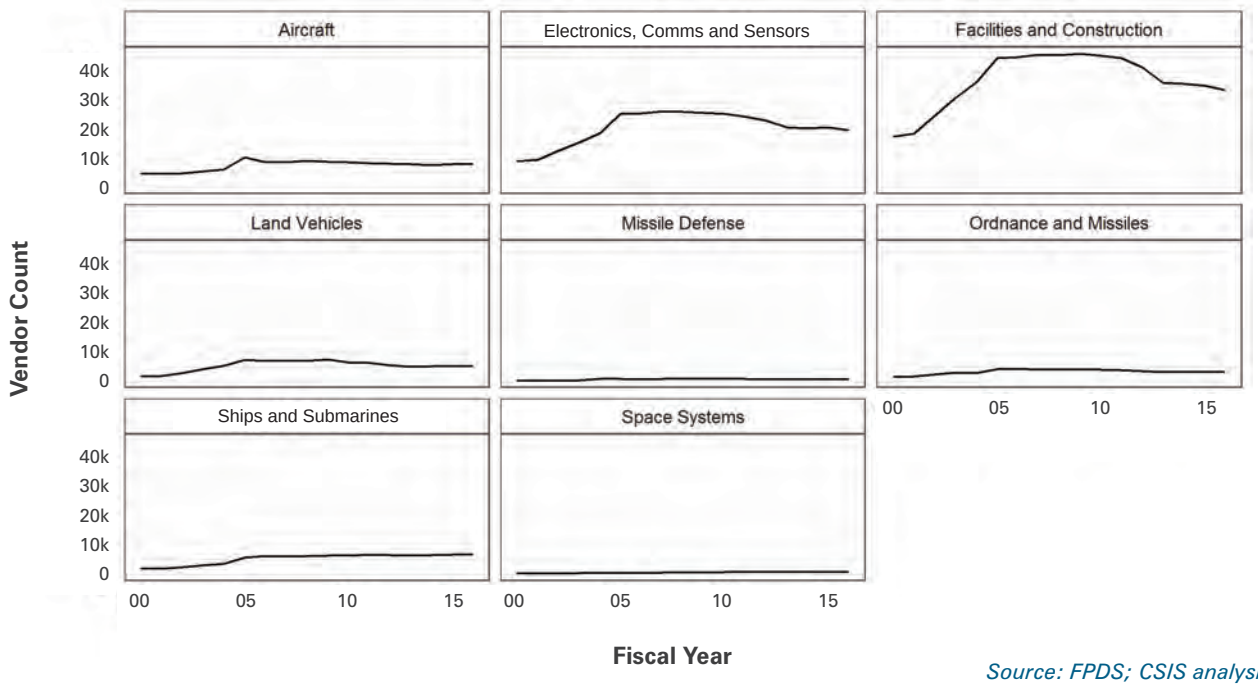
For defense R&D, the notable findings are the differing rates at which average annual contract obligations declined compared to the overall rate throughout the study period. At the start of the drawdown, large (-6 percent), medium (-7 percent), and small (-5 percent) all fell at rates well below the overall rate of decline (-17 percent), while the Top 5 vendors took the brunt of the R&D cuts (-26 percent). During the BCA decline period, prime contract awards to medium and small vendors continued to fall at rates well below the overall rate of decline (-33 percent), falling just 14 and 18 percent respectively. Large vendors (-27 percent) continued to decline slower than overall defense R&D, while Top 5 average annual Defense R&D contract obligations crashed, declining 48 percent during the BCA decline period compared to the start of the drawdown.

For defense services, the Top 5 (-4 percent) declined at a rate roughly equal to the overall rate of decline (-5 percent) at the start of the drawdown, only to fall 10 percent during the BCA decline period, a rate significantly below the overall 21 percent decline. Large vendors declined at rates slightly higher than the overall sub-sector in both the start of the drawdown (-8 percent) and BCA decline period (-24 percent). Medium vendors were the only ones to see a complete reversal in trajectories, declining in the BCA decline period (-29 percent) after previously growing at the start of the drawdown (+1 percent). Finally, small vendors fell at a nearly consistent rate across the start of the drawdown and BCA decline period (-8 percent; -9 percent).

Did the number of prime vendors change?

Across the defense industrial base, the number of prime vendors declined from an average of approximately 78,500 pre-drawdown to ~72,600 at the start of the drawdown (-8 percent decline), and then fell to ~61,700 in the FY 2013 to FY 2015 period, a 15 percent decline from the previous FY 2011 to FY 2012 period. Although the number of overall DOD first tier prime vendors was already declining slowly prior to the drawdown, the market shock of sequestration and the budget caps accelerated those trends. In total, the number of prime vendors was reduced by roughly 20%, or about 17,000 vendors. Across the sectors analyzed in this paper, the total number of prime vendors in each sector decreased, except in Ships and Submarines and Space Systems. Unlike other sectors, the total number of Ships and Submarines prime vendors grew from approximately 6,500 pre-drawdown to ~6775 at the start of the drawdown and essentially held steady during the FY 2013 to FY 2015 period. The total number of prime vendors for Space Systems grew during the drawdown, going from an approximate 750 vendors pre-drawdown to 850 vendors at the start of the BCA decline period. However, this growth might prove temporary, as the number of vendors in this sector fell 6 percent during the BCA decline period and an additional 8 percent in FY 2016.

Figure 7: *Vendor Count by Platform Portfolio, 2005-2016*



Source: FPDS; CSIS analysis

During the drawdown, the number of vendors receiving prime contracts from DOD declined by 17,000 - almost 20%.

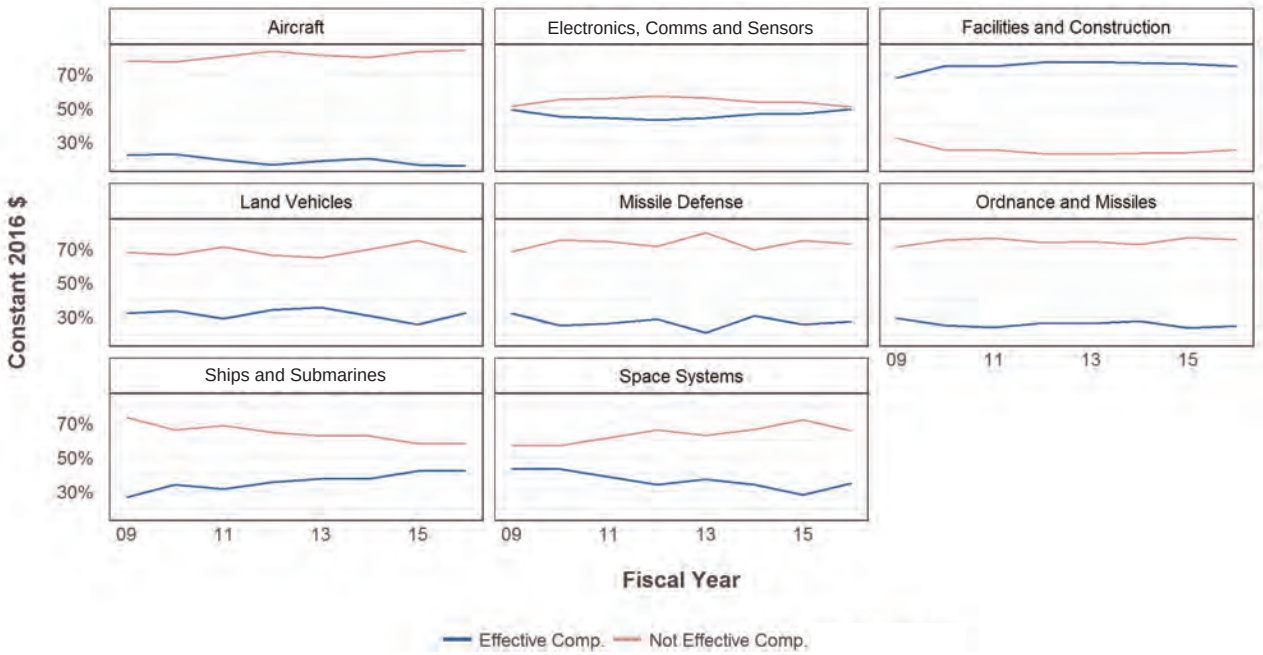
The overall rate of effective competition remained steady near 50 percent throughout the course of the drawdown, but the trends were more complex at the sector level.

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

The data show that DOD's overall rate of effective competition* remained steady near 50 percent throughout the course of the drawdown, but the trends were more complex at the sector level. During the drawdown, the Ships and Submarines and Facilities and Construction platform portfolios saw increases in the share of contract obligations awarded following effective competition. The positive trend in Ships and Submarines was largely the result of contract obligations awarded after effective competition increasing at the start of the drawdown from $6.5 billion to $9.1 billion. This increase is notable given that the Ships and Submarines industry is often anecdotally referred to as one of the least competitive sectors of the industrial base.

Within the Land Vehicles; Air and Missile Defense; EC&S; and Ordnance and Missiles platform portfolios, the rate of effective competition fell somewhere between two to three percent during the drawdown compared to pre-drawdown levels. The Aircraft and Space Systems platform portfolios saw more significant declines in the rate of effective competition during the drawdown than other platform portfolios. Comparing rates of effective competition from the pre-drawdown to the Budget Caps eras, Aircraft fell from 23 percent to 19 percent, while Space Systems fell from 43 percent to 33 percent.

Figure 8: *Rate of Effective Competition by Platform Portfolio, 2009-2016*



Source: FPDS; CSIS analysis

* CSIS defines *effective competition* as competitively sourced contracts receiving at least two offers.

CONCLUSION

The empirical data presented above show that the effect of the defense drawdown on industry was substantial; and that while defense contract obligations fell across all platform portfolios, the impact of the drawdown on the different sectors of the defense industrial base varied widely. Some sectors saw continual declines in contract obligations, while others experienced a whipsaw effect, swinging rapidly from growth to decline. In general, small and Top 5 vendors' market share remained steady, while medium and large vendors' shares were more volatile. Over the course of the drawdown, the Top 5's contract portfolio shifted toward products and services, and away from R&D.

As noted above, over the course of the drawdown, the total number of first tier prime vendors declined by approximately 17,000 vendors, or roughly 20 percent. Due to limitations in the data, CSIS cannot definitively say what happened to these vendors: did they completely exit the defense marketplace? Did they remain in the defense marketplace, but as lower-tier suppliers? CSIS's research effort also was limited by the lack of reliable subcontracting data. There is no doubt that a huge portion of the recent turbulence in the defense industrial base has taken place among subcontractors, who are less equipped to tolerate the defense marketplace's funding uncertainly and often onerous regulatory regime - yet it remains extremely difficult to determine the real impact of these conditions on subcontractors. Reliable self-reporting by industry could be helpful in this area.

Both the findings herein, and the remaining gaps in our understanding, highlight the vital importance of the industrial base review now underway in DOD and other government departments. The President's Executive Order has come at a critical time; as it notes, *"The ability of the United States to maintain readiness, and to surge in response to an emergency, directly relates to the capacity, capabilities, and resiliency of our manufacturing and defense industrial base and supply chains."* Ultimately, these issues are not just about the interests of the defense industrial base, but about its ability to sustain U.S. forces and ensure continued U.S. technological superiority for potential future conflicts - with a clear demand signal from DOD informed by insight into the state of the industrial base and the burdens it faces, that ability can be secured.

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All sectors of the industrial base declined during the defense drawdown, but the impact was uneven across different industry sectors.

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