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The Naval Acquisition Workforce: Toward Understanding the Impact of Its Growth

19 October 2016

Ira Lewis, Associate Professor of Logistics

Graduate School of Business & Public Policy

Naval Postgraduate School

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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Abstract

In response to an increase in the size of the acquisition workforce within the Department of the Navy (DoN) since 2008, the questions have been asked: What has been the impact of this change in acquisition staffing, and how is acquisition different now than with the smaller, previous workforce? Addressing this issue is not straightforward, due to both the complex structure of the acquisition workforce and the acquisition activities themselves. Nevertheless, it should be possible to discern some basic indicators that, while not definitive, do provide some indication of the impact of the increase in the workforce. It might be appropriate to use case studies as a proof-of-concept for whether it is possible to meaningfully determine the impact of the mandated increase in the acquisition workforce (independent variable) on selected impact measures (dependent variables) at the program or contract levels. If the link can be satisfactorily established, then a larger scale, quantitative study could be attempted that uses measures such as regression analysis to assess the impact of the increase in the acquisition workforce.

Keywords: Acquisition Workforce, Contract Management, Program Management

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Executive Summary

In 2008, the Department of the Navy (DoN) set as an objective to in-source at least 3,500 civilian acquisition positions over the Future Years Defense Program period and hire an additional 1,590 civilian positions using funds from the Defense Acquisition Workforce Development Fund. These actions would lead to an increase of 8% in the civilian acquisition workforce over the subsequent six years.

In response to this increase in personnel, the questions have been asked: What has been the impact of this change in acquisition staffing within the DoN, and how is acquisition different now than with the smaller workforce of 2010 and previously? Addressing this issue is not straightforward, both due to the complex structure of the acquisition workforce and the acquisition activities themselves. Nevertheless, it should be possible to discern some basic indicators that, while not definitive, do provide some indication of the impact of the increase in the workforce.

A case study approach to a small number of offices, programs, or contracts may provide additional insights that can be extrapolated in a reasonable manner to the overall DoN situation.

It might be appropriate to use the case studies as a proof-of-concept for whether it is possible to meaningfully determine the impact of the mandated increase in the acquisition workforce (independent variable) on selected impact measures (dependent variables) at the program or contract levels. If the link can be satisfactorily established, then a larger scale, quantitative study could be attempted that uses measures such as regression analysis to assess the impact of the increase in the acquisition workforce.

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Introduction

The Department of the Navy (DoN) 2010 acquisition workforce (AWF) strategic plan noted that since the 1990s, the value of DoN contracting had increased by more than 50%, while the acquisition workforce had declined by almost 50% (DoN, 2010). The cuts in the workforce reflected the view then held in Congress that the defense acquisition workforce was too large for the acquisition budget and the size of the uniformed force. Another trend had been the significant growth of contractor support positions, in part due to civil service hiring restrictions. In response, as a component of the Department of Defense (DoD), the DoN set as an objective to in-source at least 3,500 civilian positions over the Future Years Defense Program period and hire an additional 1,590 civilian positions using funds from the Defense Acquisition Workforce Development Fund. These actions would lead to an increase of 8% in the civilian acquisition workforce over the subsequent six years (DoN, 2010; Schwartz, Francis, & O'Connor, 2016).

In response to this increase in personnel, the questions have been asked: What has been the impact of this change in acquisition staffing within the DoN, and how is acquisition different now than with the smaller, previous workforce? Addressing this issue is not straightforward, both due to the complex structure of the AWF and the acquisition activities themselves. Nevertheless, it should be possible to discern some basic indicators that, while not definitive, do provide some indication of the impact of the increase in the workforce.

DoN senior management has expressed the need for an improved understanding of measuring AWF productivity. As discussed later, we believe that it might be more productive to discern the factors behind productivity using a structured case study approach than by attempting to construct an input (resources) versus output (production) model. We suggest that an input-output model would depend on too many variables to be meaningful as a tool for managerial decision-making. A small number of well-chosen case studies, in contrast, would assist in appreciating the complexities of how the AWF's performance was affected by the

increase in size over a five-to-six-year period. However, we present both potential approaches for consideration.

One important caution in considering the impact of the mandated increase in the size of the AWF relates to traceability. Changes in the total numbers of employees at the DoD or DoN levels may not translate directly at lower levels such as individual offices. There is considerable fluctuation at the office level due to normal turnover as well as directed changes in personnel billets that may not be related to the mandated increase in AWF size. The methodology for counting members of the AWF is in itself quite complex, and considerable data collection and analysis is required to count gains, losses, and switches (personnel moving into or out of the AWF to other positions). The extensive work performed by RAND on defining and analyzing the size and composition of the AWF should be used as a starting point for any analysis of the impact of the mandated increase in AWF in order to provide a common baseline of personnel resources (Gates, Roth, Srinivasan, & Daugherty, 2013).

Background

In a well-cited review of research into organizational performance, March and Sutton (1997) found that the structure and definition of performance were rarely explicitly justified and that the appropriateness of performance is rarely questioned. Organizational performance is frequently used as a dependent variable, and researchers pay little attention to the complications of using such a formulation to characterize the behavior of organizational phenomena.

Part of the reason for this practice is that organizational research demands and rewards speculations about how to improve performance. March and Sutton (1997) further noted that it isn't clear that organizational purpose can be portrayed as unitary—a factor familiar to students of public administration—and that the multiple purposes of an organization aren't reliably consistent. March and Sutton further suggested that organizational researchers live in two worlds; one demands speculations about how to improve performance, while the other requires adherence to rigorous standards of scholarship. Finally, seeking knowledge "about historically ambiguous phenomena such as organizational performance is more a necessary form of disciplined self-flagellation than a pursuit of happiness" (March & Sutton, 1997, p. 705).

Richard, Devinney, Yip, and Johnson (2009) found a limited effectiveness of commonly accepted measurement practices in tapping the multidimensionality of performance. The authors suggested that addressing these findings required researchers to possess a strong theoretical rationale on the nature of performance and rely on strong theory as to the nature of measures. Further, Richard et al. found little progress in the unquestioning assumptions about performance since what they termed March and Sutton's (1997) "call to virtue."

Research involving public sector procurement specialists revealed that these professionals were "skeptical about the possibility that performance measurements can be useful or can increase the quality of decision-making in public procurement"

(Diggs & Roman, 2012; as cited in Rendon, 2015). Part of this skepticism revolves around the inherent contrast between collecting “objective” measures of performance (such as organization size or contracting volume) and measures of strategies or practices (such as the use of Other Transaction Authority or Integrated Product Teams).

Bromiley and Rau (2014, 2016a, 2016b) suggest the latter approach, called the practice-based view (PBV), is amenable to transfer across organizations. However, the PBV has been criticized for isolating practices from the implications of “‘who’ is engaged in the practices and ‘how’ the practices are carried out” (Jarzabkowski, Kaplan, Seidl, & Whittington, 2015).

Given the previously discussed research, it is difficult to contemplate how one would measure the addition of thousands of employees, particularly professionals doing complex work, to the Navy’s AWF. On the input side, one is struck by the difficulties in measuring who worked where at what time, as well as what they did. From the output perspective, the “units of work,” such as contracts, financial and other reporting documents, e-mails, meetings, and so forth, vary significantly in size and importance.

It would also be necessary to account for differences in work hours caused by such factors as training and leave. Measuring the productivity of military acquisition personnel, who make up approximately 10% of the Navy’s AWF, has its own set of challenges above and beyond those associated with civilian personnel. These include the impact of high turnover, promotions, centralized control over most training and development, and so forth.

Part of the challenge of determining the increase in output caused by the change in size of the AWF is related to data limitations. Schwartz (2016) found significant limitations in the data available to inform acquisition research, particularly with respect to reliability and comprehensiveness. The Federal Procurement Data System (FPDS), which is the central database of U.S. government procurement, contains data with limited “utility, accuracy, and completeness” (Government

Accountability Office [GAO], 2012). A DoD report on the performance of the defense acquisition system noted that defense acquisition "is complex, and each measure has its strengths and weaknesses, so attributing performance to a single measure is subject to the limitations of that measure," and that such data, even when combined with other information, constitute a "crude indicator of the effectiveness of these officials' decision making." (DoD, 2015, p. xv)

Rather than trying to determine the macro-level impact of the increase in acquisition personnel, it might be more productive to undertake a series of case studies. A rigorous case study approach has been shown to result in findings that are tightly linked to data, empirically valid, and can serve as a basis for developing theory (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2013).

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A Possible Case Study Approach

A case study approach for the Navy could involve assessing the impact of the increase in the AWF on a small number of representative organizations. The use of multiple case studies has been suggested as an appropriate means of building theory, particularly in a rich empirical context. While "laboratory experiments isolate the phenomena from their context, case studies emphasize the rich, real-world context in which the phenomena occur" (Eisenhardt & Graebner, 2007). For example, individual cases could include a number of major programs managed by Systems Commands, as well as systems support activities falling under Naval Supply Systems Command Weapons Systems Support (NAVSUP WSS) and acquisition of commodities, the last of which could be studied jointly with the Defense Logistics Agency (DLA).

The numerous multiple dimensions of the possible impact of the increase in acquisition personnel make a case study approach attractive. It would be almost impossible to objectively measure each dimension, such as increased performance, decreased cost, increased operational availability, or better adherence to schedules, and associate these factors with a specific change in the number of acquisition personnel. The diversity of the workforce (including occupational categories), differing degrees of relevant experience, and civilian/military distribution make the concept of "acquisition workforce" much more than a monolithic, homogenous total.

Guidance for the development of the case study approach could be extracted from a literature review covering research on the AWF. Key sources could include the following:

- Acquisition Research Program reports;
- Naval Postgraduate School MBA projects and theses;
- Government Accountability Office (GAO) reports;
- Technical reports from the Defense Technical Information Center database; and

- *Defense Acquisition Research Journal* (ARJ) and *Defense AT&L* articles.

It might also be desirable to interview staff from the Navy's Office of Acquisition Career Management to ascertain key issues, suggested programs or activities for case studies, and potential measures of impact of the increase in the AWF. Predetermined Interview questions (known as the semi-structured approach) would be based on the key indicators of acquisition performance (or "output") extracted from the literature review. Interview results would then be used to refine those indicators in the direction of answering the question of the impact of the AWF expansion.

An Alternative, Quantitative Approach

It remains possible to follow the model-based approach mentioned earlier—determining inputs and outputs over the period of the increase in the AWF to attempt to discern an impact. Such a project would involve a considerable simplification, perhaps beyond what is credible, of the actual work done by the AWF. In the case of contracting, one could attempt to adopt one of the categorizations of contracting actions (none of which are all-encompassing with respect to actual workload) and determine whether a correlation exists with the number of contracting personnel over time. Of course, many individuals other than those strictly considered contracting personnel contribute to the contracting process. There is also the important issue of the considerable variability in the actual amount of work involved in each individual contracting action, which is not directly translatable into contracting type or dollar amount.

Such an effort would draw heavily on the FPDS, with the limitations mentioned previously associated with this system, along with a breakdown of AWF headcount provided by the DoN. Techniques such as regression analysis or factor analysis could then be used to determine the strength of any association between resources and production. One of the key research questions would be whether a model could be developed that demonstrates this association in a way that is managerially relevant.

Some preliminary work in this regard was done in the DoD (2015). That report stated that “basic principles assert that workforce capabilities are key to the performance of the acquisition system”; however, input and process measures (such as workforce) “do not directly reflect the output and outcomes” (p. 125). The report noted, for example, that in 2008, 58% of the defense AWF met certification standards, a figure that had risen to 77% by 2015 (p. 127). The evolution of the size of the AWF as of 2015 is described as follows:

> Workforce capability begins with sufficient size. While it is difficult to analytically calculate the minimum size of a workforce at a macro level, direct

> observation has shown that the significant reductions in the mid-1990s of the acquisition workforce eliminated significant capabilities that have led to performance issues. Thus, one key use of the DAWDF [Defense Acquisition Workforce Development Fund], together with an "insourcing" campaign, was in rebuilding the acquisition workforce. DAWDF funding has led to the hiring of more than 10,000 new civilian hires—over one-third of the 23 percent growth in the civilian acquisition workforce from FY 2008–2011. Since then, the civilian acquisition workforce has been protected and remains essentially flat despite the budget pressures. In this environment the DoD has, for the last few years, focused on improving the capability of the existing workforce rather than on size increases. This has been the purpose of the BBP [Better Buying Power] 2.0 and 3.0 "building professionalism" initiatives. (DoD, 2015, p. 126)

Within this context, it is noteworthy that the cited report, *Performance of the Defense Acquisition System: 2015 annual report* (DoD, 2015), the third in an annual series, suggested only the percentage of the AWF meeting certification requirements as a potential input measure. The report, however, did report a large number of output measures and trends, such as cost growth, Nunn-McCurdy breaches, operational test performance, for Major Defense Acquisition Programs (MDAPs) falling within the scope of the report.[1] However, the authors did not attempt to relate the sole input measure to any of the outputs.

An important related issue is whether to emphasize program-level data, contract-level data, or some combination of both. For example, the same report found cost and schedule improvements at both levels since 2009, but with each level using obviously different sets of measures. More MDAPs were seeing reductions in program funding in both development and production, and as mentioned previously, there was a reduction in the number of Nunn-McCurdy breaches. At the contract level, since 2009, a higher percentage of contracts had experienced "negative price growth," while there was also a downward trend in contract cycle time (contract

[1] "MDAPs are DoD acquisition programs that are not highly sensitive classified programs and are either: (a) designated as such by the Secretary of Defense, or (b) estimated to require an eventual total expenditure for RDT&E [Research, Development, Test, and Evaluation] of more than $300 million (in FY [fiscal year] 1990 constant dollars) or an eventual total expenditure for procurement (including all planned increments or spirals) of more than $1.8 billion (in FY 1990 constant dollars)—see 10 U.S.C. section 2430(a)." (DoD, 2015, p. xv, n. 2)

length). Contract cycle time may provide an early indication of schedule-related effects at the program level (DoD, 2015, p. xxvii).

If a quantitative approach is chosen, the *Report on the Performance of the Defense Acquisition System 2015 annual report* probably provides the most complete set of variables, along with potential correlations, available in a single location. An alternative (or complementary) source would be building a set of variables from GAO reports on defense acquisition, these arguably providing a body of knowledge on key factors of importance to Congress.

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Conclusion

There is no single obvious way to proceed in answering the question of what the impact has been of the increase in the AWF. As mentioned earlier, the extensive work by RAND on simply characterizing the AWF gives an indication—and in that case, there was no attempt to measure the impact of the changes in personnel numbers. Measuring impact could use techniques such as regression analysis or factor analysis, but the combination of sheer complexity and limited explanatory power of personnel numbers—a point already made by some DoN managers—could result in a product of limited usefulness in answering the question of what the impact of the increase in personnel actually was.

A case study approach to a small number of offices, programs, or contracts may provide additional insights that can be extrapolated in a reasonable manner to the overall DoN situation.

It might be appropriate to use the case studies as a proof-of-concept for whether it is possible to meaningfully determine the impact of the mandated increase in the AWF (independent variable) on selected impact measures (dependent variables) at the program or contract levels. If the link can be satisfactorily established, then a larger scale, quantitative study could be attempted that uses measures such as regression analysis to assess the impact of the increase in the AWF.

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