COST GROWTH, ACQUISITION POLICY, AND BUDGET CLIMATE

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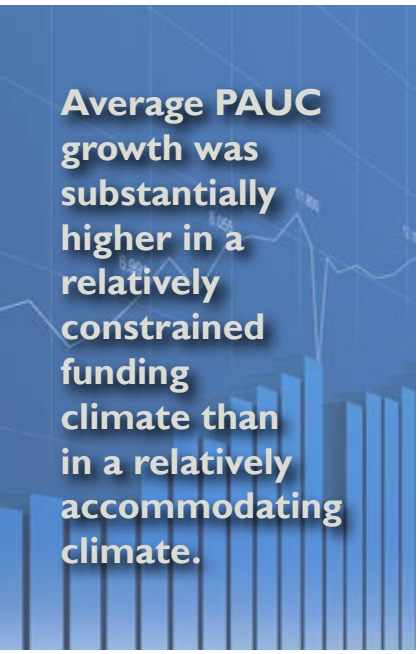
The Problem

This article asks whether, taking account of funding climate, there is a statistically significant association between changes in acquisition policy and process and cost growth on Major Defense Acquisition Programs.

Discussions of acquisition reform over the past twenty-five years have usually put the Department of Defense (DoD) Program Manager (PM) and personnel in the program office in the foreground. These people oversee the contractors and do myriad things that must be done by the government for a major acquisition program to move forward—contracting, financial management, and test planning, among others. In the background are the contractors who typically do the development and manufacturing. A good program will not occur if the government personnel and contractors do not do their jobs well. It is equally true that if these individuals and organizations do their jobs well, a good outcome for the program is more likely.



What this focus on the DoD PM, the program office personnel, and the contractors' PMs and workers leaves out are factors they must accept as "givens." These givens are subject to changes—sometimes large and fairly sudden—that presumably have substantial consequences for program outcomes. One of the givens is DoD acquisition policy and process. A second is the DoD budget, which does not determine, but generally has a marked influence on, the funding for individual programs.

ACQUISITION REGIME AND PAUC GROWTH

DoD acquisition policy and process over the period 1970–2007 can be grouped into five successive regimes:

1. The Defense Systems Acquisition Review Council (DSARC), 1970–1982
2. The Post-Carlucci Initiatives DSARC, 1983–1989
3. The Defense Acquisition Board (DAB), 1990–1993
4. Acquisition Reform (AR), 1994–2000
5. The DAB – Post-Acquisition Reform, 2001–2007

Table 1 displays the average PAUC growth for MDAPs that passed Milestone (MS) B or (pre-2001) MS II or filed a first Selected Acquisition Report (SAR) in each of these regimes. The PAUC growth figures all are measured from the MS II/B baseline and normalized to the MS II/B total inventory objective. There are a number of interesting aspects to these data: for example, the high PAUC growth during the AR period and the lower PAUC growth for 2001–2007. The single most notable feature of these data is the absence of any trend in PAUC growth. If changes in acquisition policy and process have had a sustained influence on PAUC growth, it does not show up in this table.

Broadly, there are two ways to explain the absence of sustained effects of acquisition policy and process on the PAUC growth data. First, they may in fact not have a strong or consistent effect on PAUC growth. Second, acquisition policy and process may have substantial effects that are masked by some other factor or factors.

FUNDING CLIMATE AND PAUC GROWTH

Thinking along the lines of the second of these possibilities led to consideration of whether changes in the DoD funding climate might be associated with PAUC growth. The period 1970–2007 includes two sub-periods during which the DoD budget was relatively constrained: FY 1970–FY 1980 and FY 1987–FY 2002. It also includes two sub-periods in which MDAP new starts found funding climate relatively accommodating: FY 1981–FY 1986 and FY 2003–FY 2007. Table 2 displays the average PAUC growth data for these four sub-periods.

Table 1. Average PAUC Growth in Successive Acquisition Regimes

Acquisition Regime	Time Period	Average PAUC Growth	No. of Observations
DSARC	1970–1982	32%	48
Post-Carlucci Initiatives DSARC	1983–1989	19%	40
DAB	1990–1993	36%	11
Acquisition Reform (AR)	1994–2000	66%	27
DAB Post-AR	2001–2007	19%	25

Table 2. Average PAUC Growth in Different Funding Climates

Relatively Constrained		Relatively Accommodating	
Period (FY)	PAUC Growth	Period (FY)	PAUC Growth
1970–1980	35% (42)	1981–1986	12% (35)
1987–2002	53% (55)	2003–2007	7% (19)

Note: Numbers in parentheses are the number of observations available.

These data make it clear that the average PAUC growth in relatively constrained funding climates was far larger than it was in periods during relatively accommodating funding climates—by a factor of three in the first comparison and by a factor of more than seven in the second.

ACQUISITION REGIME AND FUNDING CLIMATE

Table 3 expands Table 2 by replacing the funding climate sub-periods with the acquisition policy and process regimes. This table provides results for two sets of natural experiments. First, the PAUC growth columns give the effect of changes in the acquisition regime for a given funding climate. Second, the rows show the effect of funding climate for a given acquisition regime. For example, the first eleven years of the DSARC (FY 1970–FY 1980) were in a relatively constrained funding climate, while the next two (FY 1981–FY 1982) were in a period in which the DoD budget was relatively accommodating.

Statistical analysis of the data behind the averages in this table leads to two conclusions. First, there is no statistically significant improvement or worsening of PAUC growth correlated with the different acquisition policy and process regimes. This result is not surprising for the relatively accommodating climate (column on the right). In contrast, in the relatively constrained periods (column on the left), average PAUC growth for AR and DAB post-AR is noticeably higher than the averages for previous periods, but the differences proved not to be statistically significant because of the large variance among programs in each period.

Second, average PAUC growth was substantially higher in a relatively constrained funding climate than in the relatively accommodating climate. We have only three natural experiments of changes in funding climate for a given acquisition regime,

Table 3. Average PAUC Growth by Acquisition Regime and Topline Condition

	Relatively Constrained		Relatively Accommodating	
Acquisition Regime	**Period (FY)**	**PAUC Growth**	**Period (FY)**	**PAUC Growth**
DSARC	1970–1980	35% (42)	1981–1982	11% (6)
Post-Carlucci Initiatives DSARC	1987–1989	34% (11)	1983–1986	13% (29)
DAB	1990–1993	36% (11)	None	N/A
Acquisition Reform (AR)	1994–2000	61% (27)	None	N/A
DAB Post-AR	2001–2002	57% (6)	2003–2007	7% (19)

Note: Numbers in parentheses are the number of observations available.

since two of the five acquisition regimes (DAB and AR) fall entirely within one funding climate. Each of these three natural experiments on the effect of funding climate had the same outcome—MDAPs that passed MS II/B in a relatively constrained funding climate on average had a much higher PAUC growth rate than those that passed MS II/B in a relatively accommodating funding climate for a given acquisition regime.

These differences are statistically significant at the 1 percent confidence level. The outcomes of the first two experiments are virtually identical—an average PAUC growth of 35 and 34 percent, respectively, in the two periods when funding was relatively constrained and average PAUC growth of 11 percent and 13 percent, respectively, in the two periods when the funding climate was relatively accommodating. The effect is even more pronounced in the third experiment (DAB Post-AR)—57 percent in FY 2001–FY 2002 versus just 7 percent for FY 2003–FY 2007.

DOES THE RESOURCE ALLOCATION PROCESS PLAY A MAJOR ROLE IN PAUC GROWTH?

These conclusions tend to challenge a fundamental assumption implicit in most discussions of acquisition reform: that the main causes of PAUC growth are to be found in the acquisition realm—the performance of the contractors, the effectiveness of the PM, the adequacy of the developmental test plan, and the completeness of the systems engineering plan, among others. This assumption is hard to maintain when the many changes in acquisition policy and process made in the past four decades have not had statistically significant effects on PAUC growth, but there is a significant association between PAUC growth and funding climate at the point when the MS II/B baseline was set.

The association between PAUC growth and funding climate suggests that the resource allocation process, particularly at the Service level, plays an important role in cost growth. This does not mean "budget instability." Budget instability is a term of art for changes in MDAP funding through the annual resourcing cycle and "taxes." Budget instability is a chronic condition, present to some degree in all periods. What we observed is a recurring pattern—that MDAPs that passed MS II/B during periods of relatively constrained funding, on average, had much higher PAUC growth than those that passed MS II/B when funding was relatively accommodating.

The conjecture that the resource allocation process plays an important role in cost growth gets some support from an unexpected direction—MDAPs with negative cost growth, of which there are twenty-nine in our sample. Negative PAUC growth is recorded if the actual cost of a program proves to be less than the cost in the MS II/B baseline. Assuming the program was funded to its MS II/B baseline, this implies that, over time, funds can be taken from the program in question and reallocated to other applications, including other acquisition programs.

The program, then, effectively can be used as a "bank"—a way to hold

reserves in relative safety until they are needed. A bank of this sort is more likely to be needed in a relatively accommodating funding climate, as it can then serve as a way to delay final decisions on allocation of the higher level of funding that has become available. We would therefore expect to find a higher proportion of MDAPs with negative PAUC growth in the relatively accommodating climates, and this is what we observe. About 30 percent of our MDAPS that passed MS II/B in relatively accommodating funding climates show negative PAUC growth, compared to about 10 percent across the periods of relatively constrained climate.

MDAPs with "high cost growth," which we define as quantity normalized PAUC growth of at least 50 percent, also suggest an influence from the resource allocation process. DoD resource managers, particularly at the Service level, have only a few tools for responding to a relatively constrained funding climate. One of these is to impose top-down limits on the funding for particular MDAPs as they approach MS II/B. Plausibly, the result will be particularly optimistic programmatic and costing assumptions, which lead to an expectation that MDAPs started in periods of relatively constrained funding climate will have a larger proportion with high PAUC growth. This is again what is observed. During periods of relatively constrained funding climate, about 40 percent of MDAPs had very high PAUC growth. In contrast, during periods of relatively accommodating funding climate, only about 7 percent of MDAPs experienced high PAUC growth.

Taking both funding climates together, 85 percent of MDAPs with PAUC growth of at least 50 percent passed MS II/B during a relatively constrained funding climate. These MDAPs had an average PAUC growth of 93 percent and accounted for just over three-quarters of total PAUC growth. Excluding high cost growth MDAPs and MDAPs with negative PAUC growth, average PAUC growth across the two funding climates was just 18 percent. High PAUC growth is then predominantly a feature of programs with PAUC growth of at least 50 percent, and these programs mainly passed MS II/B in periods of relatively constrained funding climates. These points are important because they suggest that reforms directed to the average or typical MDAP may miss the real source of the problem.

IMPLICATIONS FOR DISCUSSIONS OF ACQUISITION REFORM

Our research points to three implications for a discussion of acquisition reform. First, the relevant context for understanding PAUC growth is the interface between the acquisition process and the resource allocation process. The crucial evidence behind this point is the strong association between funding climate and PAUC growth. Resource managers must think in terms of a portfolio of programs at various stages of the acquisition life cycle, from efforts in the technology base through programs nearing the end of production.

When a program is completed, it opens a resource "hole" that

programs emerging from Engineering and Manufacturing Development can occupy. In turn, programs earlier in the acquisition cycle can move forward as well. When funding for acquisition turns down, these holes get smaller, close entirely, or require cuts in funding for ongoing programs. The alternatives available in this circumstance are all undesirable—cancellations of programs, delays in new starts, stretches, and unrealistic pricing. The evidence summarized here suggests that it is in this context that high PAUC growth arises.

Second, it seems unlikely that further broad changes in the acquisition process would have a major effect on PAUC growth. The research found no evidence that the efforts to strengthen the acquisition process through the years have resulted in lower or higher PAUC growth. This does not mean that the DAB process does not provide a useful discipline on acquisition programs; moreover, further changes in acquisition policy or process might be warranted for reasons of good government. The evidence does, at a minimum, suggest that the effects of changes in the acquisition process since the early 1970s have not had a dominant effect on PAUC growth.

Third, it is difficult to see that the cultures of the DoD acquisition organizations are a crucial obstacle to improved performance on cost growth. The key point is that high PAUC growth is not persistent, but rather episodic, and correlated with environmental factors outside of the control of the acquisition process. There is little PAUC growth in periods when the funding climate is relatively accommodating. It seems fair to ask if it makes sense to assert that an entrenched culture sometimes results in high cost growth and other times in low cost growth. Just how is it that the A team takes the field so quickly and quietly when the budgetary sun comes out? And why even in bad budgetary weather do more than half of MDAPs exhibit comparatively modest PAUC growth?

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Reference

McNicol, David L., and Linda Wu. *Evidence on the Effect of DoD Acquisition Policy and Process on Cost Growth of Major Defense Acquisition Programs.* IDA Paper P-5126. Alexandria, VA: Institute for Defense Analyses, September 2014.