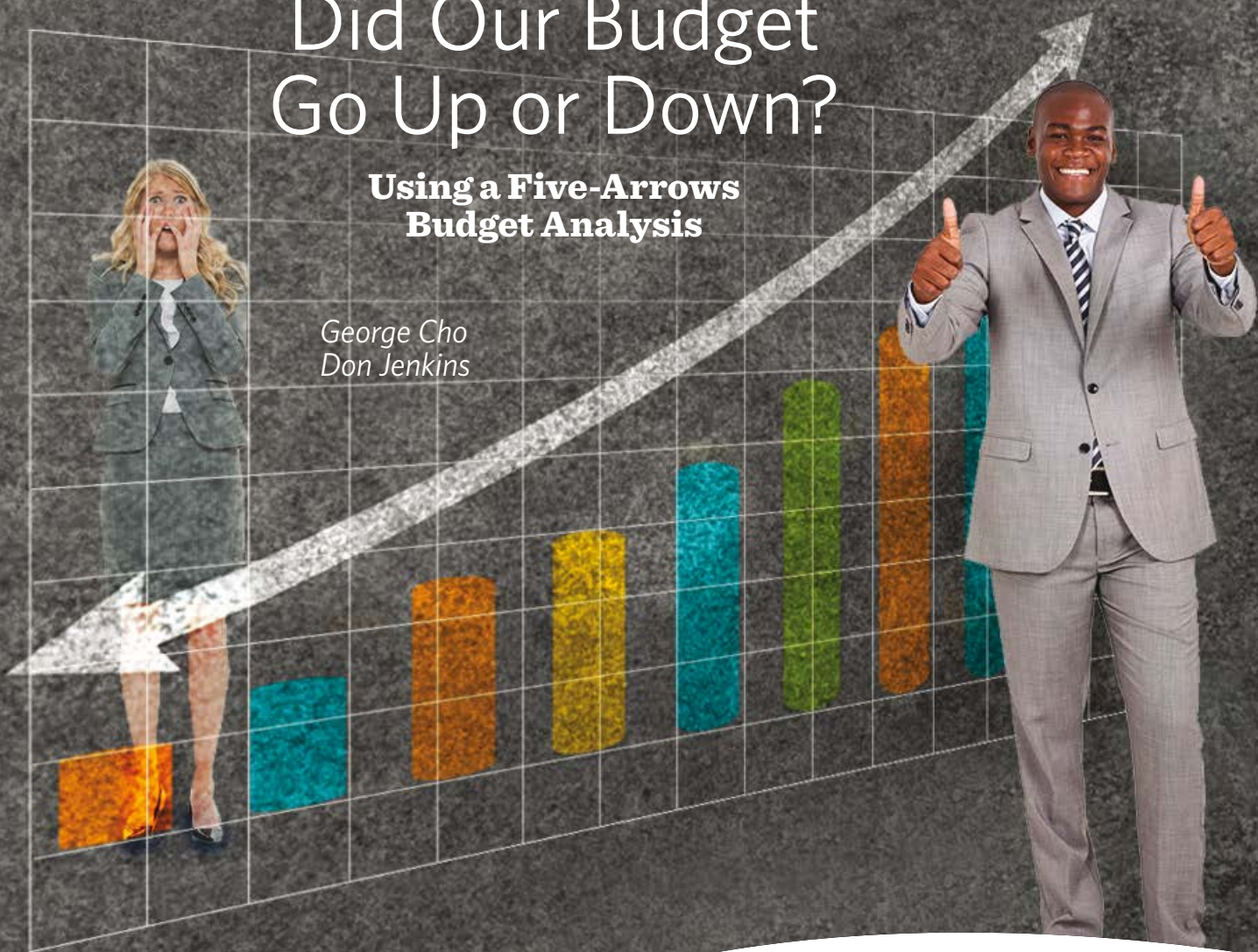


Did Our Budget Go Up or Down?

Using a Five-Arrows Budget Analysis

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A FEW YEARS AGO, THE DIRECTOR OF THE NATIONAL SECURITY SPACE INTEGRATION OFFICE WAS briefing a room full of senior leaders in the Department of Defense (DoD), including the Executive Agent for Space and the Under Secretary of the Air Force, on the state of the space budget. He reported that the space budget was going up. The Director, Program Analysis and Evaluation (the predecessor to Cost Assessment and Program Evaluation or “CAPE”) took exception and said, “No, your budget isn’t going up ... it’s going down!” Caught off guard, the director said that he would look into it and quickly moved on to the next slide in his briefing.

Back in his office after the briefing, the director summoned his budget analysts (i.e., the authors of this article) and said: “If that ever happens to me again, you’re fired! Don’t ever give me wrong data.”

After retreating to our cubicles to assess the situation, we realized that our figures were in fact correct. But, we found that CAPE’s figures also were correct. How could that be?

Cho and Jenkins are budget analysts who developed the Five-Arrows technique of analyzing and reporting budget changes as well as software tools to aid the analysis for the Principal Assistant to the Secretary of the Air Force for Space. The views expressed are those of the authors and do not necessarily reflect the official policy or position of the Department of the Air Force or the U.S. Government. This presentation consists of SAIC general capabilities information that does not include controlled technical data as defined by the International Traffic in Arms (ITAR) Part 120.10 or Export Administration Regulations (EAR) Part 734.7-11.

The answer was, both sets of figures were correct—depending on the point of view. We painstakingly put together some charts to show how both sets of figures were correct, even though they appeared to point to different trends.

We took some deep breaths, then went back into the director’s office to show him the analysis. After some initial skepticism, he acknowledged the validity of our data and the explanation for the difference between his position and CAPE’s. Feeling relieved—and vindicated—we made it a point to be ready for any future similar encounters by building what we call a “Five Arrows Budget Analysis” every time we compared one budget position to another. So, what is the Five Arrows Budget Analysis?

Consider this hypothetical example for space programs: The President’s Budget (PB) for Fiscal Year (FY) 2019 requested \$10 billion, and programmed (i.e., intended) \$12 billion for FY 2020. The PB for FY 2020 showed that \$9 billion was appropriated for FY 2019, and requested \$11 billion for FY 2020. Setting the budget profiles in a grid for ease of comparison, we get the chart shown in figure 1.

The budget comparisons we report on our Five-Arrows Chart are:

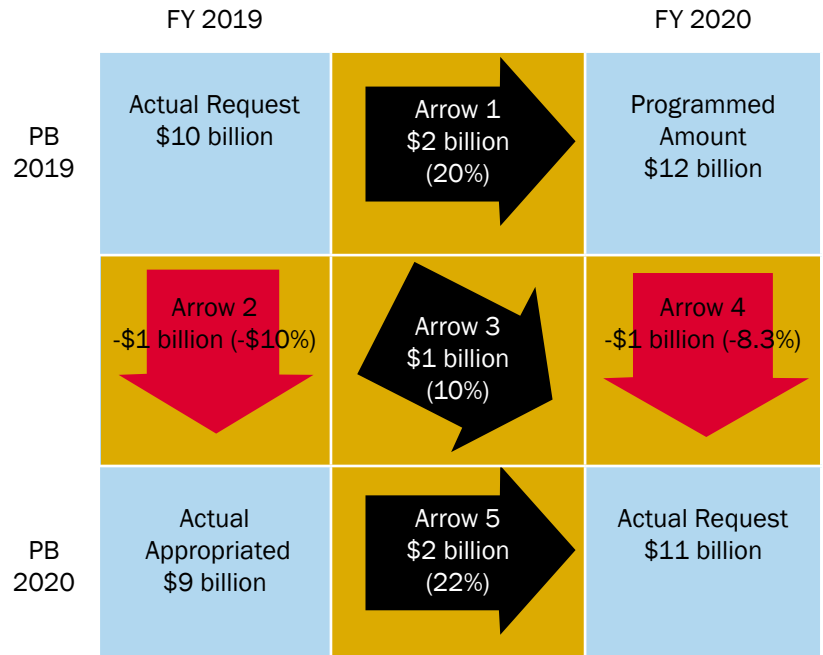
Arrow 1: How much we requested for last year versus how much we programmed for this year. This conveys that our intent was to expand or accelerate our space programs.

Arrow 2: How much we requested last year versus how much we actually received (i.e., appropriated). This indicates how well we justified our budget request to Congress, and how much Congress supports our space programs.

Arrow 3: How much we requested for last year versus how much we are requesting this year. This reflects our revised plans after taking into account congressional support and restrictions, as well as another year of program executions including fact-of-life perturbations.

Arrow 4: How much we programmed for this year versus how much we actually requested. This indicates how much our planned program was revised given the current level of congressional support and program changes.

Figure 1. Five-Arrows Chart



Key: PB=Presidential Budget; FY=Fiscal Year

Source of chart: The authors.

Arrow 5: How much we actually received (i.e., how much was appropriated) last year versus how much we requested this year. This indicates how much support we hope to receive from Congress after factoring in their level of support in the previous year and how much additional support we need as we deal with program changes in the past year.

Notice that there can be large differences in budget changes depending upon which arrows we examine. In some cases, one arrow might be very positive (representing a budget increase), while another arrow might be very negative (representing a budget cut). In this example, the budget change could be described as being as much as a \$2 billion (22 percent) increase, or a \$1 billion (10 percent) decrease.

Our boss was reporting a \$1 billion Arrow 3 increase in the budget, while the Director of CAPE was reporting a \$1 billion Arrow 4 decrease. Both were right, but from different points of view.

So, which arrow is the “best” one to use? The answer is, as you might expect, “It depends.” It depends upon your audience’s frame of reference, and the message you are trying to convey to them. For example, if you are trying to show you are attempting to build on the programs that Congress approved and funded last year, then you probably would want to focus on Arrow 5. The budget changes



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represented by Arrow 5 are influenced by the budget changes (either positive or negative) imposed by Congress. If Congress cut your budget and caused schedule delays, then your budget requests now will be driven by the new de facto schedule. The amount requested in the current PB would reflect that new budget requirement.

Or, if you are trying to explain the impacts to your programs as a result of programmatic changes since last year, then you probably would want to focus on Arrow 4 since those budget changes were probably driven at least in part by program execution issues and congressional marks. You would want to compare what you had programmed last year to what you are now requesting after taking into account all programmatic changes (including congressional marks) since last year.

The Principal Assistant to the Secretary of the Air Force for Space periodically publishes a “Space Budget Brainbook” that features our Five-Arrows analysis of the space budget. Included for each arrow are the programs that positively or negatively contributed to the changes. This makes it easy to see specifically which programs changed and by how much. In some cases, a decrease in budget is the result of a delay in schedule. But, there are instances where a budget decrease is good and expected. For example, a few years ago the procurement budget for the Evolved Expendable Launch Vehicle (EELV) showed a sharp decrease. But that was not a bad news story—it was a good news story. The Air Force finished procurement of the EELVs that it needed, so naturally there would be no need to continue funding EELV at historic levels. The drop in EELV’s budget did not mean something was lost. In this case, it meant something positive happened.

For completeness, in addition to the Five-Arrows analysis, we also include an Arrow 6 analysis that compares the budget for a range of years in one budget position to the same range of years in a different budget position. Typi-

cally, we use the common years in the Five Year Defense Program for both budget positions. In the scenario above, we would use FY 2020–FY 2023 as the range of years when comparing PB 2019 to PB 2020.

We produce the Space Budget Brainbook for every PB, Program Objective Memorandum and Budget Estimate Submission as they are published. Then, we are always prepared to recognize—and explain—different characterizations of what happened to the space budget.

Every year we are asked, “Did the space budget go up or down?” Our reply is always to ask, “Which comparison are you making?” This is not meant to confound anyone. We want to answer the correct question, which is not always obvious. After determining which Arrow analysis is being requested, we use CAPE’s database and their Major Force Program for Space (MFP-12) list of programs to come up with the numbers. Any time another office comes up with different numbers our first questions are, “Are you using the MFP-12 list of programs?” and “What database did you use to get your numbers?” After ensuring that we are using a common set of budget data, any differences in the numbers are generally attributable to using different Arrow comparisons.

We have found the Five-Arrows analysis of budget positions to be useful throughout the year as we have discussions about our budgets both internally and externally. For example, we used this analysis when we met with congressional staffers and the Office of Management and Budget. This analysis enabled us to quickly focus on the exact budget comparisons of concern. We believe every office in DoD that needs to track, analyze, or report on its budgets would benefit from using a similar technique. If you would like more information about this topic, feel free to contact the authors at the e-mail addresses below.

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