

Issue Paper

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RAND Research Suggests Changes in Department of Defense Internal Pricing

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The popular image of the U.S. military is of Air Force, Army, Marine, or Navy units undertaking operations in the national defense. Supporting these "warfighting" units, however, is a large infrastructure of personnel and facilities that fixes equipment; provides sustenance, weaponry, and compensation to military members; and pays the government civilian employees and contractors who support them.

Some of these support activities are integrated into warfighting units. Others are separated into autonomous organizations. Many of the U.S. Department of Defense's (DoD) support organizations, including the Defense Commissary Agency (DeCA), the Defense Finance and Accounting Service (DFAS), the Defense Information Systems Agency (DISA), the Defense Logistics Agency (DLA), and portions of the military services' supply and repair activities, do not typically receive appropriations from Congress. Instead, they earn funds by selling their services to warfighters. Warfighting organizations (e.g., the Air Force's Air Combat Command, the Army's Forces Command, the Navy's Atlantic Fleet) are given "appropriated" (e.g., budgeted) funds, which can be spent on a variety of activities, one of which is support services. Figure 1 summarizes the current system.

The provision of many support services operates through a DoD internal market. Each support organization charges prices for different goods and services, which we will call transfer prices. When a customer wants services from a support organization, it must purchase these services and transfer funds to the providing organization. The transfer of funds between customers and providers is managed through a working capital fund (WCF). Support

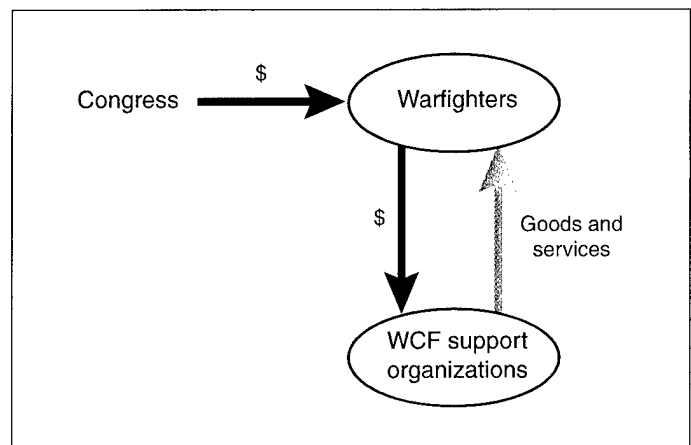


Figure 1. Current Flow of Funds to Warfighters and Support Organizations

organizations use WCF revenue as a self-sustaining way to pay their employees, buy supplies, and buy services from other providing organizations. Each WCF organization is supposed to break even over time. If a WCF organization incurs losses or gains profits in a particular year, future prices are to be adjusted upward (for past losses) or downward (for past profits) as an offset.

In the last few years, RAND researchers in all three of RAND's defense-oriented federally funded research and development centers¹ have studied the interactions

¹RAND's Project AIR FORCE undertakes research for the U.S. Air Force. The Arroyo Center conducts Army research. The National Defense Research Institute undertakes research sponsored by the Office of the Secretary of Defense and the defense agencies.

between DoD warfighting and support organizations. In this Issue Paper, we draw together some of these findings to propose policy changes to improve these interactions.

Background

Although WCFs have been used in the DoD for decades, the early 1990s saw an increased emphasis on WCFs as Congress created multi-service providing organizations such as DeCA and DFAS. These organizations provide support services to all military customers that were previously provided separately within each military service. Approximately concurrently, the Air Force and Army brought their depot-level repairables into WCFs.

Behind the WCF approach is the premise that a customer-provider arrangement "provides the mechanism for establishing a businesslike corporate approach." Under this approach, proponents argue that "revolving fund support activities provide support services to the operational forces much like any large business in the private sector."² The DoD Comptroller's office (1997) suggested that the working capital fund approach has saved billions of dollars by providing managers with greater visibility into the costs of DoD support operations.³

A key element of the customer-provider relationship is the pricing structure. Current DoD regulations generally prescribe use of what we term "expected average cost" pricing.⁴ Under this procedure, each WCF organization formulates an estimate of how much it will spend in a year to provide a given product and how much of that type of work it will perform. The ratio of estimated cost to estimated quantity then forms the WCF organization's price for that product. Unfortunately, there are lengthy lags in the DoD's budgeting process. Hence, in the spring of 2001, a WCF organization had to formulate preliminary estimates of its Fiscal Year 2003 workload, costs, and prices, which cover October 2002–September 2003.⁵

As noted, the WCF approach requires that each support organization cover all of its costs through customer fees. The DoD Comptroller's office argues that "the revolving fund form of financial management is based on the principle of full cost recovery. This requires that for any work performed, all direct costs plus an applicable share of overhead expenses must be recovered from the customer."⁶

Problems with Current DoD Transfer Pricing

Research suggests an incompatibility between current WCF pricing policies and the cost structures of DoD providing organizations. Provider organizations have fixed costs, so their incremental costs tend to be less than their average costs. Simultaneously, WCF prices are set equal to their average costs, so customers sometimes make subopti-

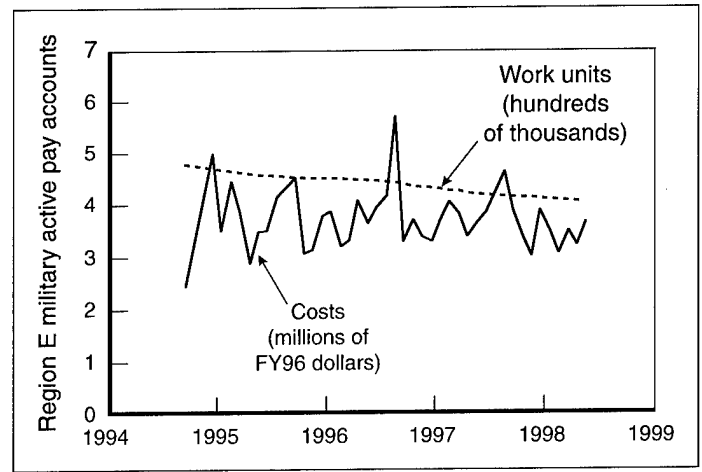


Figure 2. Military Active Pay Costs and Work Units for One DFAS Regional Center

mal decisions as to whether and how much workload to buy from WCF organizations.

Figure 2 from Keating and Gates (1999)⁷ illustrates a weak empirical relationship between workload and costs. The figure shows the costs (solid line) and workload (broken line) of a particular region of DFAS in providing military active pay account services, i.e., paying members of the military. The workload line, through the period of the data, was steadily declining while costs were largely trendless.

Figure 2 encapsulates a phenomenon we believe to be common across DoD support organizations. These organi-

²Both quotations are from U.S. Department of Defense, *Defense Business Operations Fund, Milestone II Implementation Report*, 1993.

³Department of Defense, Office of the Under Secretary of Defense (Comptroller), "A Plan to Improve the Management and Performance of the Department of Defense Working Capital Funds," September 1997.

⁴Volume 11B, DoD Regulation 7000.14R, "Financial Management Regulation," presents the requirement to charge "full," i.e., average, costs to customers. However, the Defense Working Capital Fund Reform Task Force recommended allowing prototypes of not collecting all costs through prices; the Deputy Secretary of Defense approved this recommendation in January 2000. See Marygail K. Brauner, Ellen M. Pint, Daniel A. Relles, John R. Bondanella, Paul Steinberg, and Rick Eden, *Evaluating Five Proposed Price and Credit Policies for the Army*, Santa Monica, CA: RAND, DB-291-A, 2000. Also, 10 U.S.C. 4543(b)(3)(A) permits industrial facilities to charge just variable costs for services. However, the DoD Comptroller's office has generally eschewed waiving 7000.14R or implementing the prototypes allowed since January 2000. See Department of Defense, Office of the Inspector General, *Pilot Program on Sales of Manufactured Articles and Services of Army Industrial Facilities*, Report No. D-2001-069, March 1, 2001.

⁵General Accounting Office, *Foreign Military Sales: DoD's Stabilized Rate Can Recover Full Cost*, Washington, DC: GAO/AIMD-97-134, September 1997, provides a good summary of the current WCF price-setting procedure.

⁶February 16, 2001, memo by Warren Hill, Assistant Deputy Comptroller (Program/Budget), as presented in Department of Defense (2001).

⁷Edward G. Keating and Susan M. Gates, *Defense Working Capital Fund Pricing Policies: Insights from the Defense Finance and Accounting Service*, Santa Monica, CA: RAND, MR-1066-DFAS, 1999.

zations have considerable fixed or output-invariant costs that remain relatively constant, regardless of whether workload increases or decreases. Examples of such fixed costs are computer system development, building maintenance, security, and depreciation. Government-employed civilian labor costs also have considerable rigidity as regulations make it difficult to cut such costs rapidly.⁸ Wallace, Kem, and Nelson (1999)⁹ suggest that as much as 80 percent of Air Force working capital fund costs are fixed with respect to the amount of depot-level reparable sales.

Figure 2 suggests that DFAS, empirically, has considerable fixed costs. As a caveat, we cannot dismiss the possibility that the agency has treated costs as fixed that should have been more aggressively cut as workload fell. That said, it seems intuitive that some costs, e.g., computer system development costs, cannot vary with workload levels. Software costs for a program to pay 50,000 soldiers or 500,000 would figure to be roughly the same.

The existence of fixed costs does not mesh well with current WCF pricing rules. With expected average cost pricing, revenue falls proportionally with workload, but costs almost certainly do not. Thus, WCF support organizations will almost certainly lose money when workload declines unexpectedly. Indeed, a "death spiral" of rising prices and falling revenue may occur, since current rules also stipulate that future prices must be augmented as an offset if a providing organization loses money in a year. Of course, a WCF entity will not likely die, since it is not a real business and customers often do not have the choice to seek alternative providers.¹⁰ However, this pricing spiral can lead to highly underutilized personnel and facilities.

Expected average cost pricing rules can encourage undesirable behavior by warfighting customers. Camm and Shulman (1993),¹¹ Baldwin and Gotz (1998),¹² and Brauner et al. (2000)¹³ present similar portraits of how budget-constrained Air Force and Army warfighting customers have responded to high WCF prices. Specifically, in both services, customers have gone to considerable effort to repair as many items as possible by themselves or by using local contractors instead of buying workload from their respective WCF logistics systems. For instance, Brauner et al. (2000) note how the U.S. Army's Forces Command (FORSCOM) set up an intra-command redistribution and repair system to reduce the amount of workload it sent to the Army's already underutilized depot repair system. FORSCOM customers save operations and maintenance (O&M) funds for other uses by not buying as many services from the Army's WCF, but these are not necessarily savings from an Army-wide perspective because of the discrepancy between WCF prices and actual variable costs.

Camm and Shulman (1993) note how working capital fund policies give Air Force installations excessive incentive to screen items themselves before sending them into the depot repair system. Also, Baldwin and Gotz (1998) and Wallace, Kem, and Nelson (1999) report cases of customers consolidating broken parts on single carcasses sent into the Air Force logistics system. Such consolidation reduces a customer's WCF expenditures, but almost certainly does not save the Air Force money. First, customers make inefficient use of their time by consolidating broken parts and, second, the degraded carcasses are harder for depots to repair, raising average repair costs and thus future prices.

As these reports note, the warfighting customer's rational response to WCF pricing is likely not optimal for the DoD as a whole. Specifically, the military services have considerable unutilized capacity in parts of their depot/WCF systems. Some of this excess capacity stems from required wartime or replenishment capacity. Other excess capacity is due to the failure of DoD infrastructure cuts to keep pace with falling demand. In particular, there has not been a round of base realignment and closure (BRAC) since 1995.

Excess depot capacity mixes perniciously with expected average cost transfer pricing. Specifically, excess capacity drives up WCF prices which, in turn, further encourages budget-constrained warfighting customers to draw more work away from the depot system; this results in even higher depot prices. (Such spirals can result for other reasons as well. For example, if aging equipment unexpectedly drives up depot system costs, the depots will lose money, and future prices will increase, even if there is no excess capacity in the depot system.)

⁸See Albert A. Robbert, Susan M. Gates, and Marc N. Elliott, *Outsourcing of DoD Commercial Activities: Impacts on Civil Service Employees*, Santa Monica, CA: RAND, MR-866-OSD, 1997.

⁹John M. Wallace, Dale A. Kem, and Caroline Nelson, *Another Look at Transfer Prices for Depot-Level Repairables*, McLean, VA: LMI, PA602T1, 1999.

¹⁰There are a number of breakdowns in potential analogies between WCF support organizations and real businesses, so it may be inappropriate to expect WCF support organizations to "act like businesses." See Appendix A of Edward G. Keating, Susan M. Gates, Jennifer E. Pace, Christopher Paul, and Michael G. Alles, *Improving the Defense Finance and Accounting Service's Interactions with Its Customers*, Santa Monica, CA: RAND, MR-1261-DFAS, 2001.

¹¹Frank Camm and H. L. Shulman, *When Internal Transfer Prices and Costs Differ: How Stock Funding of Depot-Level Repairables Affects Decision Making in the Air Force*, Santa Monica, CA: RAND, MR-307-AF, 1993.

¹²Laura H. Baldwin and Glenn A. Gotz, *Transfer Pricing for Air Force Depot-Level Repairables*, Santa Monica, CA: RAND, MR-808-AF, 1998.

¹³Marygail K. Brauner, Ellen M. Pint, John R. Bondanella, Daniel A. Relles, and Paul Steinberg, *Dollars and Sense: A Process Improvement Approach to Logistics Financial Management*, Santa Monica, CA: RAND, MR-1131-A, 2000.

Proposed Reform of DoD Transfer Pricing

Although specifics vary, Camm and Shulman (1993), Baldwin and Gotz (1998), Keating and Gates (1999), and Brauner et al. (2000) suggest broadly similar reforms of DoD transfer pricing.¹⁴ In particular, all the reports suggest that DoD customers should face considerably lower incremental prices for services from DoD support organizations. Transfer prices should be set at the support organizations' incremental or marginal, not average, costs. Costs that DoD will incur regardless of customers' choices should not be included in customers' prices. Such excluded costs would include fixed costs of installations DoD cannot close, depreciation costs of systems already purchased, and costs of needed excess capacity for surge or replenishment purposes. Past losses or profits should also be ignored when setting transfer prices.

A pricing reform of the sort we propose would require an adjustment in terms of how WCF support organizations receive funding. If WCF prices reflect only incremental costs to support organizations, WCF support organizations will require appropriations to cover their fixed costs. Figure 3 summarizes how funds would flow under the reformed system.

The proposed policy change should not require additional DoD spending. Instead, a portion of appropriations would be moved from warfighting O&M accounts to direct payments to WCFs to cover fixed costs. Since the adoption of the WCF model, the DoD has been paying WCF fixed costs through the incentive-distorting transfer prices. Acknowledging and explicitly budgeting for these fixed costs will not make DoD worse off. Instead, we hypothesize that customers will make more appropriate workload decisions based solely on DoD's incremental costs. This hypothesis could be tested through an incremental cost pricing experiment, which appears to be permitted by current legislation.

Our hypothesis is that utilization rates at WCF facilities would increase with transfer pricing reform. Assuming one cannot close a facility, it is reasonable to keep it busy. Of course, if at some point in the future additional BRAC rounds are allowed, a facility being currently

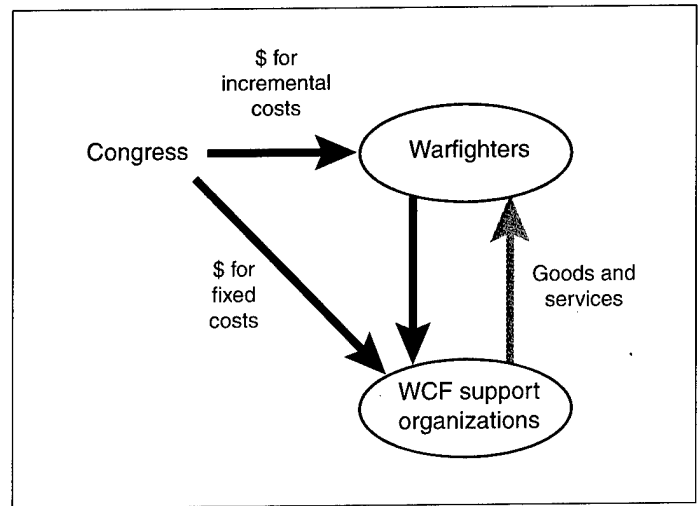


Figure 3. Proposed Flow of Funds to Warfighters and Support Organizations

busy would not be prima facie evidence not to close it. Although a facility may have low incremental costs, DoD should consider whether a facility's fixed costs are low enough to justify its continuation, if the DoD can re-optimize its infrastructure.

As noted above, it can be opaque as to which costs are truly fixed (versus simply being left uncut as workload has fallen). We would urge categorization of specific types of costs (e.g., computer systems, facilities, depreciation, past losses) as fixed, versus solely examining the history of how costs have evolved. Indeed, although transfer pricing reform should reduce system inefficiencies, it is unlikely to eliminate them altogether. Other reforms might be complementary to pricing reform. For example, better DoD accounting systems, e.g., activity-based costing, would help improve identification of variable costs and thereby improve the accuracy of DoD transfer pricing. More generally, accounting reform would provide better information and thereby improve the ability of DoD leadership to manage the department.

¹⁴So too does an extensive academic literature on transfer pricing, cited in Baldwin and Gotz (1998).

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