

PERFORMANCE MEASURES FOR EVALUATING THE FINANCIAL BENEFITS OF STATE TERM COMMODITY CONTRACTS

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ABSTRACT. A common justification for state term commodity contracts is that they are beneficial to taxpayers because of savings that result from the price concessions expected from volume purchasing. With the growing popularity of performance based budgeting in state legislatures, there is a clear need for performance measures to document these taxpayer benefits. Based on a survey of state purchasing offices and a review of the major purchasing associations and the academic literature, this paper develops guidelines and a set of performance measures for evaluating the financial benefits of state term commodity contracts.

INTRODUCTION

The use of performance measures for judging the effectiveness of government programs is an increasing phenomenon at the federal, state, and local level. Led by the Government Accounting Standards Board, there has been a widespread movement since about 1985 to publicize this approach for measuring the specific benefits of government programs to taxpayers, and for improving both the adopted measures and the database

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of comparison metrics. This paper focuses on performance measures for one aspect of government programs; the financial benefits of volume purchasing of commodities through term contracts.

The General Services Administration, together with its Federal Supply Service branch, is the largest government organization providing term contracts for commodities. State and local government organizations can avail themselves of the benefits from these contracts by purchasing commodities through a federal program known as the Cooperative Administrative Support Unit (CASU) Program. In spite of this access to General Services Administration contracts, most of the individual states have paralleled these federal efforts with their own term contracts for the purchase of commodities. Consistent with the national movement toward measuring the specific benefits of government programs to taxpayers, the important question is whether these parallel efforts by the states result in additional savings to the taxpayer.

The primary purpose of this paper is to survey the state of the art in performance measures for evaluating the financial benefits of state term commodity contracts. Other performance measures such as quality of service might be of some importance in program evaluation, but the primary justification for a state to initiate an independent term contract program must be that it results in financial benefits to the taxpayer. To be sure, there are two sources of savings to taxpayers from term contracts. First, because term contracts involve high usage commodities, there are administrative cost savings that result because of the ease of purchasing from term contracts relative to the high costs of the administrative process that is involved with repetitive invitations to bid. Although term contracts represent clear savings in administrative costs, measuring these benefits would require relatively cumbersome time and motion studies across agencies to determine the magnitude of these savings. Furthermore, the availability of General Services Administration contracts through the CASU program already affords the states an avenue for avoiding the administrative costs involved with repetitive invitations to bid without initiating their own term contracts. Thus, this paper does not address the area of administrative cost savings as the primary financial benefits that justify state term contracts because these savings should be available by purchasing through existing federal contracts. Second, there are the potential savings from the price concessions that are expected from volume purchasing. These savings in commodity prices are the dimension that is most commonly used to

justify the use of term contracts, and it is this potential reduction in commodity prices that constitutes the focus of this paper.

The paper begins with a review of the academic literature and related professional organizations on the development of performance measures and benchmarks for measuring the financial benefits of state term commodity contracts. The second section reviews the four categories of performance measures as defined by the Government Accounting Standards Board. The third section summarizes the results of an informal survey of existing federal and state practices in this area. The fourth section integrates this existing history into a potential set of performance measures and includes specific guidelines for developing (calculating) and using each of these measures. Finally, the paper concludes with recommendations on performance measures for judging the benefits to the taxpayer of state term commodity contracts.

ACADEMIC LITERATURE AND PROFESSIONAL ORGANIZATIONS

A search of the literature on performance based budgeting and performance measures specifically related to commodity contracts revealed that there were few articles addressing this topic. Furthermore, none of the articles addressed purchasing performance measures for government agencies, or savings measures in particular. However, two purchasing textbooks offered very short discussions on performance measures and government purchasing (Leenders and Fearon 1997; Heinritz, Farrell, Guinipero, and Kolchin 1991). Both offered the same two measures related to the cost rather than the benefit side of the programs. The first measure is a cost per dollar of purchases efficiency indicator while the second measure is a closely related efficiency indicator, cost per purchase order. The cost per dollar of purchases efficiency indicator has been used by the General Services Administration and is reviewed in a later section.

Although minimal literature specific to the financial benefits of commodity contracts was found, there is a much larger body of literature devoted to performance based contracting in general. For example, the Government Accounting Office website (www.GAO.gov) offers a general discussion on the performance and accountability of the federal government. Additionally, a recent article in this journal (Martin, 2002) offers an excellent discussion and bibliography on performance based contracting for human services.

Five professional organizations were contacted and their websites and journals researched for information on performance measures and government purchasing: the National Association of State Purchasing Officers, the National Institute of Government Purchasing, the National Association of Purchasing Management (recently changed names to the Institute for Supply Management), the American Society for Public Administration, and the National Association of State Budget Officers.

The National Association of State Budget Officers and the American Society for Public Administration did not yield any new information aside from some general discussions of performance measures and performance based budgeting. The American Society for Public Administration Center for Accountability and Performance did publish a workbook on performance measurement for classroom use (CAP 1999), but it was also a general discussion of performance measures and did not yield any new information directly related to measures of the financial benefits of term contracts.

Contact with the Center for Advanced Purchasing Studies, affiliated with the National Association of Purchasing Management, did lead to a body of literature on purchasing performance measures (for example, see Fearon and Bates 1997). In general, the studies address the procurement function for production materials in large manufacturing businesses rather than contracting for finished commodities by centralized government purchasing organizations. Also, they address the general categories of performance measures rather than the mechanics of calculating specific performance measures and do not address the source of the needed input data. One point of interest was that one of the performance measures for businesses recommended by the Center for Advanced Purchasing Studies was the cost per dollar of purchases. This is the same efficiency indicator cited earlier in the two purchasing textbooks.

The National Association of State Purchasing Officers was considered a more likely source of information than the National Association of Purchasing Managers because it is an organization of state purchasing officers rather than the private business purchasing officers. However, the National Association of State Purchasing Officers indicated that they have not conducted research on the subject of performance measures for cost savings, but they were willing to send out a general request for information to all of their members. No additional

information concerning purchasing performance measures was received from this request.

The search of the National Institute of Government Purchasing web site did not yield any information on performance measures nor did it provide any related reference materials. However, it did provide the list of state web site contacts that was used in the attempt to obtain feedback from the individual states. The resulting information is reviewed later in the discussion of state and federal contacts.

GOVERNMENT ACCOUNTING STANDARDS BOARD GUIDELINES

The Government Accounting Standards Board has developed a website devoted to performance measures for all areas of state and local government (see GASB website). Performance measures related to the purchasing function of state government have not yet been developed although measures for various other areas of government service are offered. Although there are no measures directly related to term contract savings, the web site does offer some general guidelines on four categories of indicators that are the building blocks for performance measurement systems. The discussion adds to a general understanding of the relationship between categories of performance measures.

For the first category, the Government Accounting Standards Board defines “Indicators of Service Efforts” as the *Inputs*, and offers examples of the dollar costs of the service and the amount of work time expended for the service. For the second category, “Indicators of Service Accomplishments” are defined as the *Outputs*, or the amount of workload accomplished, and *Outcomes*, or a numeric indicator of program results such as indicators of service quality, effectiveness, and amount or proportion of need that is being served. For the third category, “Indicators That Relate Service Efforts to Service Accomplishments” are defined as the *Efficiency Indicators*, or ratios developed through the general formulas of Input/Output and Input/Outcome. The Government Accounting Standards Board notes that the term *Productivity Indicators* is sometimes used when the two general formulas cited above are inverted such that the input number is in the denominator. Finally, the fourth category discussed is “Explanatory Information”, which is the footnote to the reported indicators that detail those elements substantially outside the control of the purchasing office (such as demographic characteristics) as well as those elements over

which the purchasing office has significant control (such as staffing patterns). The focus of this paper is on the outcome measures for price reductions and the related efficiency or productivity indicators.

SURVEY OF STATE AND FEDERAL PRACTICES

A listing of Internet addresses for all fifty of the state purchasing agencies was obtained from the National Institute of Government Purchasing. Electronic mail was sent to each of the states, and a second effort was made to contact those states that did not respond to the original inquiry. The initial inquiry simply asked if they were using performance measures to track the pricing benefits of term contracts, and, if so, what measures were being used. For those states that were using performance measures, follow-up inquiries were sent to determine specific definitions for the measures and the sources for the required input data.

Although numerous states expressed a clear interest in developing performance measures for state term contracts, only five states indicated that they were currently using some type of measure to track the benefits of term contracts: Florida, Minnesota, New York, Texas, and Washington.

The State of Florida tracks two performance measures relative to the financial benefits of term contracts: percent of state term contract savings and state term contracts cost avoidance. The basis for calculating both measures is the percent savings reported by vendors with their bid submission. The reported number is defined as the percent savings in prices offered in the bid compared to prices that would be paid by the purchaser without the benefit of a contract resulting from the bid.

The final percent savings number for an individual term contract is either the linear average of the reported percent savings numbers for all successful bidders, or it is the linear average of a subjective sample of the numbers reported, with the sample determined by the contract administrator. There is no common approach used to determine which vendors or how many vendors to include in the sample although an attempt to include the highest volume vendors does appear to be a common consideration. For each vendor, the final percent savings number is applied to the total revenue received by that vendor under the contract to arrive at the dollar cost avoidance for that vendor. The aggregated dollar cost avoidance across all vendors and all state term

contracts represents one of the two reported performance measures, referred to as state term contracts cost avoidance.

The second performance measure, percent of state term contracts savings is calculated by dividing the aggregated state term contracts cost avoidance by the aggregated total expenditures. It is worthy of note that this approach is equivalent to a weighted average percent savings for all of the vendors on all of the contracts, as distinct from a linear average of the percent savings number for all vendors.

Objections to these two performance measures were raised by auditors from the State of Florida Office of Program Policy Analysis and Government Accountability (OPPAGA) based on their reliability and verifiability.

...the program did not obtain data needed to verify the extent to which its performance exceeded the standards for price discounts and the dollar amount of costs avoided through the use of its contracts. Program staff used unverified data provided by vendors to calculate results for the outcome measure, *state term contracts cost avoidance*. Vendors reported to the program the percentage discount they offered under their contracts and the discounts they would normally offer state agencies, but did not provide any supporting information that could be used to independently validate their reported figures. The vendor-reported data cannot be taken at face value because it is in a vendor's interest to have its discount viewed in the best possible light." (OPPAGA, 1998)

Florida did attempt to use a market basket approach where a number of high-volume items were selected and individual price quotes were obtained from vendors to compare to prices under the term contract. The approach was characterized as involving questionable methodology and being labor intensive, and therefore time consuming and not cost effective. The market basket approach was abandoned as a viable alternative after one attempt.

The process used by Minnesota to measure percent savings and dollar savings is remarkably similar to the process used by Florida. It differs in two respects. First, Florida specifies a single definition for calculating percent savings while Minnesota allows the vendor to choose their base as the percent less than a price quoted to an individual agency, the percent less than the manufacturer's wholesale price, or the percent

less than the vendor's retail price list. Although Minnesota did indicate that they would likely revise their procedures to include a single, common definition for calculating percent savings, this current practice leads to a further problem in the Minnesota data because the reference point for computing percent savings may be different among vendors and among contracts. It is important to have a single common base for calculating percent savings to preserve the quality of data comparability. Second, Minnesota calculates the overall percent savings on a contract as a linear average whereas Florida uses a linear average in one part and a weighted average in another part of their methodology. The weighted average percent savings does represent a more accurate measure. Beyond these two points, Minnesota's percent savings performance measure suffers from the same critical weakness that was observed in the Florida audit. That is, the vendor-supplied data for percent savings are not reliable or verifiable in their current form.

New York measures program growth in terms of number of customers using the term contracts and the estimated dollar value of term contracts. They also measure the savings to the state in order to calculate a performance measure for return on investment based on the cost of operations. This measure is an excellent example of a Government Accounting Standards Board productivity indicator that might be considered by the states. Unfortunately, further inquiries as to how the "savings to the state" were estimated led to the characterization of the process as based on estimates and informed guesses that are neither scientific nor mathematical.

The only performance measure related to state term contracts reported by Texas was the percent of goods purchased from term contracts. Washington reported fourteen measures ranging from number of new contracts to percentage increase in the number of bidders. None of the measures used by Texas or Washington are directly related to the financial benefits of state term contracts.

Preliminary information on federal efforts in this area suggested that the General Services Administration and the Federal Supply Service were measuring term contract savings based on a "market basket" approach. This savings measure and its calculation were based upon the costs for a select number of high volume office and administrative supplies compared to prices found in retailer catalogs such as Staples and Office Depot. However, the measure was discontinued by early 1998.

The General Services Administration Inspector General issued a report that included the statement:

We did not assign a risk assessment to the Federal Supply Service (FSS) 'Savings Over Competition for the Market Basket,' because FSS elected to omit this measure from the Annual Report as a result of issues raised during our review (GSA Inspector General, 1998).

Because of problems with the methodology for calculating this measure and because of the narrow category of products used in the calculation, the General Services Administration abandoned their market basket approach. This short-lived attempt to use a market basket approach was similar to the experience in Florida that was noted earlier.

The only performance measure related to procurement cited in the General Services Administration 1997 annual report is a measure of program costs per 100 dollars of purchases. The report noted that the costs of the supply and procurement programs declined from \$4.67 per \$100 purchases in fiscal year 1996 to \$4.48 per \$100 in fiscal year 1997 (GSA 1997). Further research on this measure turned up a later General Services Administration report which cited the performance measure cost per \$100 purchases as having a baseline of \$5.25, a FY 98 goal of \$4.52, and a FY 99 goal of \$4.65 (GSA 1998). Subsequent annual reports continued to track this measure of performance. Although this measure addresses the cost side rather than the benefit side of procurement, it does represent a Government Accounting Standards Board efficiency indicator that might be considered by the states. It has an added benefit because a history of General Services Administration benchmarks currently exists for possible use in cross-sectional comparisons.

PERFORMANCE MEASURE GUIDELINES

The informal survey indicated that a straightforward measure of taxpayer savings from state term contracts is a highly desirable measure because it assesses a critical issue in justifying legislative budget allocations. The review of related literature indicated that a cost to purchase efficiency indicator was the most often cited performance measure. However, it addresses the cost rather than the savings side of the purchasing function. As to the specific mechanics of a cost avoidance measure that does address the savings side of the purchasing function, the survey information at least identified a few key qualities for

designing a performance measure. One obvious quality of the selected measure is that it must be based on a sample rather than the entire population of products. This follows from the recognition of the magnitude of the task of measuring the savings on hundreds of thousands of individual commodities and the realization that it would be a nearly prohibitive task. Also, it would not be in the best interest of the taxpayer to devote the necessary resources to track every item. Secondly, the estimation procedure should be based on weighted averages of percent savings whenever possible rather than linear averages. This method avoids a mathematical bias to the estimate. The final quality is that the selected measure should be based on reliable and verifiable data. These guidelines provide the foundation for the design of a plausible alternative for compiling and processing data to be used to calculate the performance measure dollar savings from state term contracts.

Using the sampling approach, the variable percent savings is estimated from the sample. This estimate can then be extrapolated to the entire population of hundreds of thousands of items, thus arriving at the final measure of total dollar savings. In other words, an average percent savings is first determined from the sample, and then this average percent is applied to the total expenditures to arrive at the dollar savings measure. The next issue is that of determining the sampling technique to use since multiple items are supplied by multiple vendors with many vendors supplying the same items.

One possible sampling approach is to develop a market basket of commodities to represent the hundreds of thousands of individual items. However, the difficulty with this approach is that the average percent that is developed from the sample will most likely be based on a linear average since volume measures for each of the sampled items is not generally available. The process is likely to yield a more accurate overall percent savings measure if weighted averages can be used to the greatest extent possible when aggregating sets of lower level percent savings numbers. However, linear averages may be necessary when volume data is not available. In the case at hand, the unlikely availability of volume data for the individual commodities is an operational constraint that suggests a shift in focus to the individual vendors, because volume data is generally available for individual vendors. However, if volume data is available for individual commodities across all vendors, then a weighted average percent savings can be used for each commodity and for each vendor.

Assuming the availability of sales volume data for individual vendors but not for individual commodities, the percent savings for each individual vendor can be calculated as a linear average of a sample of that vendor's products and then applied to the total sales volume for that vendor. The resulting dollar savings and sales volume can be summed across all vendors, and then an overall percent savings figure, which represents a weighted average across vendors, can be calculated. Finally, this percent savings figure can be multiplied times the aggregate volume of all term contract purchases to arrive at the final number of dollar savings on state term contracts. The remaining problem is to address the verifiability and reliability issues by defining the base number for calculating the percent savings on an individual product.

One possibility for defining the base number for calculating the savings would be to request specific information from vendors on invoices to other large purchasers of the same product similar to the "commercial sales practice" procedure that is used in General Services Administration contracting. The specific details are presented in *The FSS Contractor Guide* available on the Internet. This would appear to satisfy the need for verifiable data since a follow up audit could confirm these numbers. However, since states can already avail themselves of the administrative cost savings of avoiding repetitive bids as well as the reduced prices for volume purchasing on General Services Administration contracts through the CASU program, it follows that the only clear justification for a state to parallel General Services Administration contracts with their own term contracts would be if the state contracts resulted in lower prices than could be attained through the federal contracts. In other words, the incremental benefit to taxpayers of state term commodity contracts would be the potential savings over federal contract prices. Thus, General Services Administration prices could represent the basis for calculating the savings resulting from a state term contract. The fact that federal contract prices are available at the Advantage on-Line web site for more than 400,000 products and services indicates that one could reasonably expect a sufficient overlap between the items on state term contracts and the 400,000 plus items on the General Services Administration price list to be able to develop a sample of common products (GSA Advantage web site). The General Services Administration prices would serve as the basis for calculating the percent savings.

The underlying mechanics of the approach would begin by asking the vendor to specify with his/her bid a percent savings relative to General Services Administration prices. Additionally, the vendor should be asked to provide the bid price and the General Services Administration price on some number of the highest volume products that he/she expects to sell to the state under the state term contract. The contract administrator or any interested state agency could verify the federal contract price through the Advantage on-line web site, thereby satisfying the criteria of verifiability. The contract administrator could then calculate the percent savings based on a comparison of the bid price to the General Services Administration price and confirm the vendor's recorded percent savings. If the percent savings number cannot be verified, the contract administrator can ask the vendor for an explanation and/or further information. Finally, the linear average of the percent savings figures is applied to the total sales volume for that vendor. The remainder of the estimation process is as described earlier. That is, the resulting dollar savings and sales volume can be summed across all vendors, and then an overall percent savings figure can be calculated. This percent savings figure could represent the desired performance measure or it can be multiplied times the aggregate volume of all term contract purchases to arrive at the performance measure of total dollar savings on state term contracts.

CONCLUSION

The purpose of a performance measure is to gauge the progress of a public program in achieving the outputs or outcomes that are expected from the program. In the case of state term contracts, the most obvious outcome that is expected is the reduction in the overall costs of procurement to the state. This reduction of costs is purported to occur for two reasons: the reduction in administrative costs that accrue over time and the reduction in commodity prices due to volume purchasing, which presumably changes each time the contract is bid. Since the use of General Services Administration contracts through the CASU program implicitly avoids these administrative costs while affording the states an opportunity to participate in the price reductions from volume purchasing, a state must be able to attain a lower price than from General Services Administration contracts to justify their own term contracts. Thus, General Services Administration prices become the obvious basis for calculating the savings to the state.

It may be that the methodology for calculating state savings is not considered to be a cost effective approach worthy of annual (or quarterly) updates and/or worthy of use in temporal comparisons. If that is deemed to be the case, then an alternative approach that shifts the primary focus to a more straightforward tracking measure should be considered. Although the savings to the state continue to represent the primary justification to initiating a state term contract, this alternative approach involves the dropping of the dollar or percent savings measure as the primary performance measure and putting greater emphasis on the relatively popular cost per dollar purchasing measure currently used by the General Services Administration and endorsed in the academic texts.

The cost savings measure would still be used, but it would become a secondary measure used primarily as the justification for initiating a new state term contract. Thus, it would be estimated only once, at the point when the state term contract is first awarded. The performance measure used in annual reviews of program accomplishments would be the agency cost per dollar purchasing. There are two points that serve to recommend this approach. First, the event of interest is the first bidding of the state term contract and therefore, since there should be a significant number of prior purchases by state agencies for the underlying commodity to justify the consideration of a term contract, it is the point in time when a large number of pre contract prices are available for comparison with General Services Administration prices. Second, taxpayers should expect a comprehensive feasibility study, especially focusing on cost savings, to be completed prior to initiating the bid process for a new term contract. Since this would serve to establish the fact that the state is saving money through a new term contract, it follows that measures such as cost per dollar purchasing would be a valid temporal measure of the efficiency of the state in pursuing those discovered savings. Cost per dollar of sales is a straightforward measure that is based on reliable internal data and that can be easily verified by auditors.

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