

The Financial Implications of Decisions Related to Choice of Contracting Techniques and the Influence on Contractor Performance

**Dr. Anand Krishnamoorthy*

ABSTRACT

This study looks at the implications of outsourcing the public sector function of residential refuse collection. We hypothesize that the private sector can provide services in a more efficient manner than public sector agencies. This study is an extension of an earlier study on this topic using more recent data. Some results of this study are consistent with prior studies, on this topical area, but some are unique to the current study. Generally speaking, a majority of jurisdictions reported satisfaction with the quality of work provided by private contractors.

Keywords: Outsourcing, local jurisdiction, private contractors, contract design variables, choice of contracting techniques, contractor performance

**Associate Professor Troy University, Washington DC, USA*





INTRODUCTION

To produce needed services internally or to rely on a private source is an important governmental decision. In the United States, a prevalent form of privatization is contracting for needed goods and services. In analyzing the make or buy decision public organizations must initially develop political support for the action and ensure that consequences in terms of impact on citizens are acceptable. Critical decisions include the selection of particular services to contract and what contracting techniques should be used in choosing a private firm for a contractual relationship. This study focuses on the services public organizations rely on private contractors to provide and the various contracting techniques used in choosing a contractor for jurisdictions that contract for residential refuse collection. The following research questions are investigated in this study:

What contracting techniques do local jurisdictions use when deciding to hire a private contractor for delivery of residential refuse collection?

What is the association between contracting techniques and contractor performance for delivery of residential refuse collection?

A prior study (Shetterly et al, 2013) investigated *contract design techniques for residential refuse collection* and scheduled public bus transit service. That study relied on a 1992 International City/County Management Association (ICMA) survey of Alternative Service Delivery Approaches as a starting point. The 1992 ICMA survey shows patterns of contracting for-profit and non-profit firms covering 62 different services.

The current study builds on similar survey information collected by the ICMA in 2017. The 2017 ICMA survey resulted in a report titled Profile of Local Government Service Delivery Choices, 2017 and shows contracting patterns to for-profit and non-profit firms for 67 local governmental services. The 2017 survey was mailed to Chief Administrative Officers in a random selection of jurisdictions with populations of 10,000 or greater and counties with populations of 25,000 or greater. A total of 7,023 jurisdictions were mailed surveys and 1,321 responses were received.

The 1992 and 2017 ICMA surveys show that there is a substantial amount of contracting for local level services to for-profit and non-profit organizations. Table 1, which is located at the end of the manuscript, collapses the data from the ICMA surveys into seven major service categories and shows the amount of contracting to for-profit and non-profit firms within each category. This study focuses on residential refuse collection within the Public Works/Transportation Category. Although, the context of this study may seem narrowly focused, it has far reaching implications. Public agencies worldwide face the dilemma of whether to provide services in-house or outsource services to private contractors. Furthermore, although this study focused on only one issue which is residential refuse collection, it has implications for other public services such as scheduled public bus transportation.

As alluded to in the preceding paragraph, the target audience for this paper consists of local jurisdictions that provide public

services to residents who reside within the jurisdiction's limits. Local jurisdictions often times wrestle with the implications of providing public services in-house or outsourcing them to private contractors. In the abstract, they may realize that there are pros and cons to both aspects, but may lack specific knowledge of the various implications of this important public policy decision. This study sheds light on some of these implications and can therefore enable public policy decision makers to make a more informed decision regarding outsourcing local jurisdiction functions.

The results of this study has worldwide applicability. Throughout the globe, local jurisdictions are entrusted with providing services to residents who reside in the jurisdiction in question. Although this study was based on U.S. jurisdictions, the public policy implications of whether the jurisdiction in question should provide needed services themselves or outsource to private contractors is applicable to other countries and their respective local jurisdictions.

Given the substantial reliance on private providers a local government that decides to contract for service delivery is faced with a number of policy choices that impacts how service contracting is accomplished. The remainder of this study deals with the techniques local governments use when establishing contractual arrangements with private for profit and non-profit organizations. The next section describes the methodology used to investigate the research questions, described earlier, in the context of residential refuse collection. This is followed by sections that discuss the research results and a qualitative discussion of those results, respectively. The final section provides some concluding comments as well as the implications of this study. The reference list and all tables follow the conclusions section.



ETHODOLOGY

This study employs a web based survey using the on line survey resources offered by Survey Monkey. The target population for data collection are the set of city and county officials that indicated in the ICMA 2017 Profile of Local Government Service Delivery Choices that their jurisdiction outsourced residential refuse collection to either a for-profit or non-profit firm. In total 1,321 jurisdictions responded to the 2017 ICMA Survey and of those 328 reported contracting for residential refuse collection and represents the target population for this study.

A survey questionnaire was developed to acquire data on contract design and contractor performance. The survey questionnaire contained two sections. The first section included nine questions on contract design. All questions can be answered by using a check off procedure. The second section has one question for collection of performance data on five related attributes. The performance data question can also be answered using a check off procedure. An email message was sent to each target that provided an Internet link to access the survey. The email message advised targets that participation in the study is voluntary. Targets were given the option to decline to participate altogether, or leave blank any questions they did not wish to answer.

It should be noted that administration of the survey was undertaken by ICMA. The author received the survey data set in MS Excel format. The authors were also provided a summary report regarding relevant information such as administration of the survey and the response rate.

Contract design variables

The contracting design variables include specification type, solicitation method, contract type, financial incentive provisions, contract length, multiple awards, type of firm, and type of oversight used by the jurisdiction. These design variables, and their definitions, are consistent with previous studies on this topic and are explained in detail below:

Specification Type: A specification is a description of the work to be performed. It is hypothesized that better satisfaction with performance should result with a performance specification in which contractors are free from procedural constraints and able to devise their own methods on how work is best done.

Solicitation Method: It is hypothesized that use of a sealed bid method is expected to result in better satisfaction with contact or performance.

Contract Type: Because of increased flexibility and potential for innovation, use of a fixed price contract is expected improve the efficiency and overall satisfaction with performance of service contractors.

Incentives: Some contracts may include positive incentives which promote efficiency by providing contractors a share of the savings realized by implementing innovative practices. Other contracts may include negative incentives, such as penalties which deduct amounts from the contractor payment for missed stops or damaged refuse collection containers. Another common practice is to include a termination clause in the contract. From a principal-agent perspective, penalties and a termination clause shift risk to the contractor. Therefore, assuming contractors are risk-averse, use of these provisions is expected to increase the cost of contracted services with a resulting decrease in overall satisfaction with contractor performance.

Contract Length: Contract length measures the number of years for which the contract was awarded. A risk-averse contractor may favor a longer contract, rather than the uncertainty of a shorter contract at a higher price. Therefore, from this perspective, contract length is expected to increase satisfaction with contractor performance.

Multiple awards: Local governments may contract for a single service using one firm or many firms. A refuse collection contract could be awarded to one firm, or to two or more firms, with each contractor responsible for a designated geographic area. This variable measures the number of providers awarded a contract for each solicitation.

Firm Type: Firm type measures the type of private organization awarded a contract. With a for-profit firm the existence of a profit motive should provide a greater incentive for cost savings. Use of for-profit firms is expected to have a positive impact on contractor performance.

Oversight: Oversight measures the occurrence of monitoring activity. If oversight is conducted there should be a greater likelihood of receiving quality service. Oversight activity is expected to promote better satisfaction with contractor performance.

Dependent variable

In keeping with prior research, five performance dimensions were used to measure the level of satisfaction with contractor performance for residential refuse collection. The five dimensions are efficiency (Cost per customer), reliability (timely in meeting schedules), complaints by citizens, damage to private property, and quality in terms of cleanliness, odor, noise, etc. An overall performance score was calculated for all of the dimensions.

The performance dimensions are measured on a Likert scale ranging from a low of 1 to a high of 7. A one is reflective of strong dissatisfaction with contractor performance and a seven with strong satisfaction.



TATISTICAL ANALYSIS

Descriptive statistics were used to show the usage pattern of contracting techniques among reporting jurisdictions. A Chi square analysis was then performed to determine the association between contract design techniques and performance (low vs. high) with a level of significance set at $p = 0.05$. Jurisdictions were divided into 2 groups of Low Performance or High Performance. Jurisdictions were classified into the Low Performance Group if the overall performance score for the level of satisfaction was less than the mean; they were placed in the high performance group if the overall performance score for the level of satisfaction was above average. Use of the Chi-square statistic is consistent with prior studies on this field. The Chi-square test was used to identify contract design variables that were associated with the overall performance score for the level of satisfaction.



RESULTS

Table 2, which is located at the end of the manuscript, provides descriptive statistics on the use of contract design variables. The survey questionnaire was made available via email notification to 328 respondents. A total of 84 completed questionnaires were received for an overall response rate of 26%.

The distribution of overall performance scores for the low performance group and the high performance group for each of the contract design variables are described in the succeeding paragraphs. A total of 30 jurisdictions that used performance specifications fell in the high performance group, while only 12 fell into the low performance group. For jurisdictions that did not use performance specifications, only 16 fell into the high performance group while 26 were in the low performance group.

Only 20 jurisdictions that used a solicitation method of sealed bid, fell into the high performance group, but 28 jurisdictions that used a solicitation method of sealed bid fell into the low

performance group. Out of the 36 jurisdictions that did not use a sealed bid solicitation method, 20 were in the high performance group, and 16 fell in the low performance group. Of the 70 jurisdictions that used a fixed price contract, 38 and 32 fell into the high and low performance groups, respectively. Of the 14 jurisdictions that used a different contract type, 9 were in the low performance group and 5 were in the high performance group.

Of the 76 jurisdictions that used a for profit firm, 62 were in the high performance group and only 14 were in the low performance group. For jurisdictions that outsourced residential refuse collection to a non-profit firm, the results were evenly split between the two groups.

There were 30 jurisdictions that reported using a penalty for nonperformance that fell into the high performance group, while 22 fell into the low performance group. A majority of the 32 jurisdictions that used termination for convenience features in the contract design fell into the low performance group.

For jurisdictions that reported shorter contract lengths, between 1 and 5 years, the majority were in the low performance group. For jurisdictions that used longer contract terms, of over 5 years, nearly 60% was in the high performance group.

Out of the 8 jurisdictions that reported multiple awards, about 75% (n=6) fell into the low performance group, while only 25% (n=2) fell into the high performance group. For jurisdictions that did not have multiple awards, 41 fell into the high performance group while 35 were in the low performance group.

For the 82 jurisdictions that use one or more oversight method, 68 fell into the high performance group while only 14 were in the low performance group. Both jurisdictions that reported no oversight were in the high performance group.

The results of the Chi-square test of association for each contract design variable and performance group are described in the following paragraph. The results of the Chi-square analysis demonstrate that only the performance specification design variable, type of firm and oversight method were statistically significantly associated with the performance group at the 95% level of significance ($p < .05$). No significant associations were found between the performance group and the other contract design variables.

For the performance specification variable, the Chi-square statistic was 4.01; for solicitation method, it is .73; for contract type, it is 2.01; for type of firm, it is 5.93; for the penalty for nonperformance variable, it is 1.03; for termination for convenience, it is 1.02; for contract length, it is 1.62; for multiple awards, it is 0.97; and for oversight method, it is 5.68. The chi-square statistic was statistically significant at the 95%, or higher, level of significance only for the performance specification, type of firm and oversight method variables. For those variables with a statistically significant Chi-square value, the results are consistent with the stated hypothesis with respect to that particular contract design variable.



DISCUSSION

The goal of this study was to investigate patterns of service contracting, use of contracting techniques, and the association between contracting techniques and contractor performance for local jurisdictions that use a private service provider for residential refuse collection. The following discussion addresses each of these contract design variables.

Specification Type

There is an even split between those jurisdictions that use a performance specification and those that do not. Use of a performance specification should be associated with stronger contractor performance. The rationale is that a performance specification has fewer procedural constraints and gives contractors the freedom to devise their own methods on how work is to be done. The finding of this study is consistent with the proposed hypothesis. Jurisdictions that use a performance specification reported greater satisfaction with contractor performance. Furthermore, the Chi-square result for this contract design variable was statistically significant.

Solicitation Method

57% of the jurisdictions reported using a sealed bid solicitation method. Based on a competitive contracting perspective use of a sealed bid method should be associated with stronger contractor performance. However, the results for this variable are inconclusive since the Chi-square statistic is not significant at conventional levels.

Contract Type

An overwhelming majority (83%) of jurisdictions reported using a fixed price contract which is hypothesized to result in higher satisfaction. However, the results for this variable are inconclusive since the Chi-square statistic is not significant at conventional levels.

Firm Type

An overwhelming majority (90%) of jurisdictions reported using a for profit firm which is hypothesized to result in higher satisfaction. The findings are consistent with the proposed hypothesis. Jurisdictions that use a for profit firm reported greater satisfaction with contractor performance. Furthermore, the Chi-square result for this contract design variable was statistically significant.

Incentives

62% of the jurisdictions reported including a penalty for non-performance in the contract that was awarded. 38% reported including a termination for convenience clause in the contract. From a principal-agent perspective, penalties and a termination for convenience clause shift risk to the contractor. It is hypothesized that a risk-averse contractor would compensate for such risk by increasing the cost of contracted services and thereby reducing overall satisfaction with contractor performance. However, the results for this variable are inconclusive since the Chi-square statistic is not significant at conventional levels.

Contract Length

Contract length measures the number of years for which the contract was awarded. This variable involved competing hypotheses. One hypothesis is that contract length would be associated with decreased satisfaction with contractor performance because contracts would be competitively awarded less frequently. A competing hypothesis was that contract length would be associated with an increase in satisfaction with contractor performance. From a principal-agent perspective, a risk-averse contractor may prefer the security of a longer contract at a lower price rather than the uncertainty of a shorter contract at a higher price. However, the results for this variable are inconclusive since the Chi-square statistic is insignificant at conventional levels.

Multiple Awards

A majority of jurisdictions did not utilize multiple firms for the same service. It is hypothesized that using multiple firms fosters competition among providers of the service in question and should result in better performance. However, the results for this variable are inconclusive since the Chi-square statistic is not significant at conventional levels.

Oversight Method

All the jurisdictions, except for two, reported using one or more oversight methods to oversee contractor performance. It is hypothesized that having oversight should result in higher quality work by the provider of the service. This hypothesis is supported by the statistically significant Chi-square statistic for this particular contract design variable.



CONCLUSION

The purpose of this study was to investigate the relationship between various contract design variables and satisfaction with contractor performance for local jurisdictions that out source residential refuse collection. The results indicate that specification type, firm type and oversight

method are significantly associated with contractor performance. The results for the other contract design variables are inconclusive at best.

The study has numerous practical implications. Local jurisdictions worldwide wrestle with the decision of whether to provide public services in-house or outsource them to private contractors. This study has shed some light on some of the issues that are relevant in this regard that deserve consideration.

Although this study focused on residential refuse collection in selected U.S. jurisdictions, it has applicability to other countries as well. India is one such example. Local jurisdictions in India provide residential refuse collection to residents who reside within the jurisdiction's boundary. These local jurisdictions might wrestle with the decision as to whether to provide services in-house or outsource them to private contractors. The results of this study should provide them with some insight into the issues, and the resulting implications, that are relevant to this important public policy decision.

This study's practical implications extend far beyond residential refuse collection. Local jurisdictions worldwide provide a myriad of services of residents who call the jurisdiction home. These include, but are not limited to, local transportation services such as buses and subways, electricity deliverance and the like. The contract design variables discussed in this manuscript are not unique to residential refuse collection and can therefore be applied to other local jurisdiction services as well.

There are numerous avenues for further research on this topic. One obvious avenue is to further investigate the contract design variables that did not yield statistically significant results. Furthermore, as alluded to in the preceding paragraph, this study was narrow in scope in that it only considered residential refuse collection. Hence, another potential avenue for future research is to investigate this issue with respect to other public sector services that are outsourced to private for-profit and not-for-profit contractors.

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Table 1 - Contracting Patterns by Service Category

Service Category	2017 FPO	2017 NPO	2017 Total	1992 FPO	1992 NPO	1992 Total
Public Works & Transportation	3,251	293	3,544	3,428	303	3,731
Public Utilities	516	67	583	482	49	531
Public Safety	1,312	1,598	2,910	1,323	299	1,622
Health & Human Services	972	1,392	2,364	1,041	1,681	2,722
Parks & Recreation	302	91	391	225	90	315
Cultural & Arts	71	452	523	63	518	581
Support Functions	2,301	149	2,450	2,728	244	2,972
Total	8,725	4,042	12,767	9,290	3,184	12,474

Source: 1992 and 2017 ICMA Surveys on Service Delivery

TABLE 2 – DESCRIPTIVE STATISTICS

Variable	Definition	n=84	%
Specification type	Performance specs.	4242	50.0%
	No performance specs.		50.0%
Solicitation method	Sealed bid	4814	57.1%
	Competitive negotiation	1210	14.3%
	Two step sealed bidding		11.9%
	Non competitive		
Contract type	Fixed price	7012	83.3%
	Cost reimbursement	2	14.3%
	Franchise		2.4%
Firm type	For profit	768	90.5%
	Non profit		9.5%
Incentives	Penalty for non- performance	52	61.9%
	Termination for convenience	32	38.1%
Contract length	1 year	2	2.3%
	2 years	2	2.3%
	3 years	8	9.5%
	4 years	4	4.8%
	5 years	36	42.9%
	6 years	4	4.8%
	7 years	8	9.5%
	8 years	2	2.3%
9 years	2	2.3%	

Variable	Definition	n=84	%
	10 years.	16	19%
Multiple awards	Yes	8	9.5%
	No	76	90.5%
Number of awards	One award	76	92.9%
	Two awards	6	4.8%
	Three awards	2	2.3%
Oversight method*	Citizen surveys	18	21.4%
	Observation by staff	70	83.3%
	Citizen complaints	72	85.8%
	Review of records	32	38.1%
	External oversight	12	14.3%
	No oversight	2	2.4%

*some jurisdictions reported using multiple oversight methods