PUBLIC MANAGEMENT

WHAT WORKS BEST WHEN CONTRACTING FOR SERVICES? AN ANALYSIS OF CONTRACTING PERFORMANCE AT THE LOCAL LEVEL IN THE US

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During the last decade the field of public administration has undergone a period of renewed interest in the topic of performance and effectiveness. Key contributions to the growing stream of research on public sector performance include work focusing on the adoption and implementation of performance measurement in the public sector (see, for example, Julnes and Holzer 2001; Behn 2003); theoretical and empirical research on management's effect on organizational performance (see, for example, O'Toole and Meier 1999; Meier and O'Toole 2002); and efforts to identify the determinants of organizational effectiveness (see, for example, Rainey and Steinbauer 1999; Brewer and Selden 2004). Surprisingly, this literature includes very few studies that explicitly address the issue of performance in contracting for services (exceptions include Domberger and Hensher 1993; Romzek and Johnstone 2002). In the United States alone, hundreds of billions of dollars are contracted out every year, and innumerable policies and programmes are implemented, at least in part, through contractual arrangements between public agencies and private providers (Savas 2000; DeHoog and Salamon 2002; Kelman 2002; Cooper 2003). Moreover, contracting for services appears to be a growing trend in Western Europe and other regions (Kettl 2000; Savas 2000). With the stakes so high, there is a pressing need for research that identifies factors and practices that contribute to success in contracting for services. This paper takes on the challenge by developing a model of contracting performance and testing it using Substantively Weighted Analytic Techniques (SWAT), a new methodology that allows researchers to isolate high performance among a large number of observations in order to identify variables practitioners can manipulate to improve practice (Meier and Gill 2000).

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THE PRIVATIZATION TREND

The merits and shortcomings of privatization have been debated at length by both advocates and critics. Advocates of privatization believe that through the introduction of various forms of competition, government can be made more efficient, effective and responsive (Savas 1987; Peters 1996; Greene 2002). Privatization, by shrinking the size of government and diminishing the role of the state in society, can also serve as a means of countering the coercive power of the state and protecting the personal freedom of citizens (Fitzgerald 1988; Savas 2000). As a number of experts have noted, however, contracting out raises serious concerns, including potential loss of control and accountability in service delivery; difficulties with monitoring contractor performance; the possibility of corruption, waste and political favouritism in the awarding of contracts; and thin markets for public services (Moe 1987, 1996; Donahue 1989; Kettl 1993; Auger 1999; Sclar 2000; Breaux *et al.* 2002). These concerns have led some experts to argue that the benefits of contracting out are not guaranteed and that the contracting process must be managed effectively to allow there to be any measure of success (Moe 1996; O'Looney 1998; Rainey 2003).

The privatization debate is likely to continue for some time. One thing that seems certain, however, is that privatization is not a 'fad' that will disappear in the foreseeable future. Much evidence suggests that privatization, and particularly contracting for services, remains a growing and persistent trend in the United States and elsewhere (Miranda and Andersen 1994; Martin 1999; Savas 2000), despite evidence of contracting 'back in' by some governments (Hefetz and Warner 2004). Indeed, privatization appears to have become firmly entrenched in the American system of governance (Dilger *et al.* 1997; Kelman 2002), with other countries increasingly following the American example (Kettl 2000).

Scholars have produced a large cross-disciplinary literature on contracting that offers many insights on how to manage the contracting process and improve contracting performance. Despite this abundance of work, the literature is quite elusive when it comes to offering consistent, well-validated advice on how to manage contractual relationships effectively. Several factors contribute to this situation. First, research on contracting is both extensive and unsystematic, as the discussion above indicated. Second, the literature is likely to confuse the casual reader because it speaks with more than one voice. The contracting literature comprises competing theoretical perspectives or approaches to contracting out, each offering its own set of propositions and prescriptions (DeHoog 1990; Sclar 2000). Third, studies of contracting for services often have lacked generalizability and explanatory power, including many descriptive case studies and small-n studies (see, for example, Bennett and Ferlie 1996; and Smith and Smyth 1996; Romzek and Johnston 2002; Breaux *et al.* 2002; Van Slyke and Hammonds 2003). Most importantly, researchers tend to employ methodologies such as ordinary

least squares (OLS) regression and the case study approach to identify best practices when other approaches appear better suited for the task (Overman and Boyd 1994; Meier and Gill 2000).

The objective of this study is to develop a model of contracting performance and to test the model using SWAT analysis. SWAT analysis is a quantitative methodology that allows researchers to identify from among a large number of high performing cases those variables practitioners can manipulate to improve practice (Meier and Gill 2000). In the section that follows, we will draw on various streams of research on contracting to develop a comprehensive model of contracting performance. The discussion then turns to a description of the methodology and data used for the analysis. The third section presents the results. The study concludes with a discussion of the study's limitations and suggestions for future research.

MODELLING CONTRACTING PERFORMANCE

To develop a model of contracting performance, we begin by defining the dependent variable. Most empirical studies that have examined the outcomes of contracting out have focused solely on cost or quality of service in order to compare public with private service delivery (see Savas 1987, 2000; Hodge 2000; Greene 2002). Such a narrow definition fails to capture other important dimensions of contracting performance, such as responsiveness, timeliness and legal compliance. This analysis therefore uses a multidimensional measure of contracting performance. Principal components factor analysis was used to factor analyse eight ordinal indicators of contractor performance: actual cost in comparison to projected cost; actual cost in comparison to in-house service delivery; quality of work; responsiveness to the government's requirements; timeliness; service continuity; compliance with the law; and customer satisfaction. The factor analysis produced one component with an eigenvalue of 4.81 (60.1 per cent of the variance explained); all other components had eigenvalues of less than 1.00. Six of the eight indicators had positive factor loadings of .77 or higher on this component; the first two indicators measuring cost had positive loadings of .60 and .60, respectively. The factor score serves as the measure of contracting performance (Y). It is also worth noting that a reliability test of these eight indicators yielded a Cronbach's coefficient of 0.90 (see table 4 in the appendix).

What factors and practices influence contracting performance? A broad literature can be brought to bear on this question. There appear to be at least three main streams of research that speak to the issue of contracting performance and which offer insights on how to manage contractual relationships effectively: one that reflects a classical or conventional view of how contracting for services should work; another more recent stream of research on relational contracting and inter-organizational collaboration; and research on policy implementation. Let us examine these three bodies of work in turn.

The conventional approach to contracting

The classical or conventional approach to contracting is influenced by principal-agent theory, the theory of the competitive market, and standard procurement practices. This approach views contracts as discrete arm's-length transactions between adversaries with competing interests. Success in contracting, therefore, depends on a set of factors and practices that help to program the contractual relationship and limit the contractor's ability to behave opportunistically and conceal private information. Many of the experts writing from this perspective offer practitioners the following prescriptions for achieving success in contracting for services: foster competition; develop precise and detailed contract specifications; carefully evaluate the bidders' performance capacity before awarding the contract; rigorously monitor the contractor's performance; use legal means to rein in an unresponsive contractor; limit the contractor's discretion; and employ contract administrators with in-depth knowledge of the workings of service delivery and with expertise in contract administration (Wesemann 1981; Marlin 1984; Savas 1987, 2000; Rehfuss 1989; ICMA 1989, 1992; Kettl 1993; Lavery 1999; Seidenstat 1999).

Competition is one of the most frequently cited factors relating to successful contracting (Savas 1987, 2000, ICMA 1989, 1992; Kettl 1993; Hodge 2000; Greene 2002). Competitive bidding between providers should enhance efficiency by keeping bidders honest and compelling them to minimize their price; it also should encourage providers to deliver the best quality of service possible. Allowing public employees to bid on the contract also helps to foster competition. The model includes two measures of competition: the number of bidders on the contract (X_1) and whether or not public employees were allowed to bid on the contract (X_2). The operational definitions for all of the independent variables in the model are presented in table 1 and the descriptive statistics in table 2.

The conventional approach to contracting underscores the need for the agency to perform a comprehensive evaluation of the bidders' performance capacity prior to awarding the contract so that the most competent provider is chosen (Wasemann 1981; Marlin 1984; Rehfuss 1989; ICMA 1989, 1992; Romzek and Johnston 2002). This evaluation should be based on a variety of criteria that capture a provider's potential for meeting the requirements of the contract. A count variable of seven different evaluation criteria is used to measure an *ex ante* evaluation of bidders (X_3).

Up until recently, most of the literature on contracting for services placed a strong emphasis on contract specificity. Experts suggest that contract specifications should be very precise, comprehensive, and written in language that is clearly understandable to the parties (Wasemann 1981; Marlin 1984; Rehfuss 1989; ICMA 1992; Savas 2000; Romzek and Johnston 2005). A high level of specificity should serve both to make the government's expectations clear to the contractor and to help public officials hold the contractor accountable for its performance. A single ordinal indicator is used to measure contract specificity (X_4).

TABLE 1 *Variables and measures*

Variable	Measure(s)
Number of bidders (X_1)	A 5-point ordinal indicator for the approximate number of providers who submitted bids or proposals for the contract
Public-private competition (X_2)	Response to the question 'Were public employees allowed to bid on the contract?'
Ex ante evaluation (X_3)	The total number of the following seven factors that were taken into consideration when evaluating the bidders' capacity to perform the work prior to awarding the contract: the provider's financial capacity or financial health; technical capacity; staffing capacity; cost for service delivery; reputation; total previous experience performing the work; and previous performance on other contracts with city/county
Contract specificity (X_4)	Response to the question 'On a scale from 1 to 10, with 1 being vague and 10 being very specific, how specific was the language used to write the contract's scope of work (or technical specifications)?'
Contract monitoring scope (X_5)	The total number of the following eight types of contractor perfor mance data collected by the local government: work inputs; work processes; work outputs; timeliness; cost; accuracy of invoicing; legal compliance; and complaints
Contract monitoring intensity (X_6)	Factor score created from responses to questions about how fre quently the local government used each of the following six monitoring tools or procedures to assess the contractor's performance: inspections of work in progress; inspections of work completed; complaints monitoring; examining contractor reports; performance measurement systems; and citizen surveys (6-point ordinal scale). One factor solution, eigenvalue of 2.73, 45.5 per cent of the variance explained
Reliance on legal means for resolving disputes (X_7)	Factor score created from responses to questions about how fre quently the local government relied on the following three means for resolving contract disputes: financial penalties; the threat of contract termination; and litigation to resolve disputes (4-point ordinal scale). One factor solution, eigenvalue of 1.72, 56.7 per cent of the variance explained
Contractor discretion (X_8)	Factor score created from responses to the following three Likert-type questions: 'We give the contractor considerable discretion to modify its service delivery approach so that it can deal with changing circumstances'; 'We give the contractor lots of leeway to interpret the requirements of the contract'; and 'We prohibit any changes to the original contract agreement' (five point ordinal scale). One factor solution, eigenvalue of 1.52, 50.6 per cent of the variance explained
Expertise in contract administration (X_9)	Response to the question 'How would you rate the level of expertise in contract administration among local government employees managing the contract?' (5-point ordinal scale)
Technical knowledge of the service (X_{10})	Response to the question 'How much technical knowledge about the service do local government employees have?' (4-point ordinal scale)
Reliance on alternative means for resolving disputes (X_{11})	Factor score created from responses to questions about how frequently the local government relied on the following three means for resolving contract disputes: negotiations; arbitration; mediation (4-point ordinal scale). One factor solution, eigenvalue of 1.80, 60.07 per cent of the variance explained

TABLE 1 (*Continued*)

Variable	Measure(s)
Financial incentives (X_{12})	The total number of the following three types of financial incentives that were included as part of the contractual agreement: gain sharing, contract renewal based on good performance; and bonus for reaching certain goals
Communication after contract award (X_{13})	Factor score created from responses to questions about how frequently the local government used each of the following four channels of communication to share information with the con tractor's staff: scheduled face-to-face meetings; informal face-to-face conversations; telephone conversations; and written communications (6-point ordinal scale). One factor solution, eigenvalue of 2.48, 61.8 per cent of the variance explained
Joint problem solving after contract award (X_{14})	Factor score created from responses to the following two Likert type questions: 'We always work together with the contractor to identify problems' and 'We always work together with the contractor to solve problems' (5-point ordinal scale). One factor solution, eigenvalue of 1.81, 90.3 per cent of the variance explained
Contract duration (X_{15})	The number of months that the contract has been in operation
Trust between the parties (X_{16})	Factor score created from responses to the following four Likert-type questions: 'When we encounter difficult and new circumstances, we do not feel worried or threatened by letting the contractor do what it wants'; 'We are familiar with the patterns of behaviour the contractor has established, and we can rely on the contractor to behave in certain ways'; 'We have found that the contractor is always dependable'; and 'The contractor can never be trusted to act properly' (5-point ordinal scale). One factor solution, eigenvalue of 1.95, 48.8 per cent of the variance explained
Political support for the contracting initiative (X_{17})	Factor score created from responses to questions about how supportive top management, lower-level management, and frontline (street-level workers) are of the contracting initiative (4-point ordinal scale). One factor solution, eigenvalue of 2.08, 69.5 per cent of the variance explained
Financial resources committed to the contract (X_{18})	Factor score created from responses to questions about how adequate is the amount of funding the local government has allocated for administering the contracting process, monitoring the contract, and paying or reimbursing the contractor (4-point ordinal scale). One factor solution, eigenvalue of 2.10, 70.0% of the variance explained
Number of Subcontractors (X_{19})	Response to the question 'Approximately how many subcontractors does the contractor use to deliver the service?" (5-point ordinal scale)
Task uncertainty (X_{20})	Factor score created from the responses to the following five Likert-type questions: 'The contract has numerous desired outcomes'; 'When the contractor achieves one desired outcome, it conflicts with other desired outcomes'; 'There is more than one method for achieving each desired outcome'; 'It is difficult to measure or evaluate the quality of the work performed by the contractor': and 'The work performed by the contractor is always affected by unforeseen technical changes or developments' (five point response scale). Two factor solution, with the first factor having an eigenvalue of 1.68 (33.5 per cent of the variance explained), and the second factor having an eigenvalue of 1.11 (22.4 per cent of the variance explained). The first factor is used as the measure of task uncertainty (X_{20})

TABLE 1 (*Continued*)

Variable	Measure(s)
Asset specificity (X_{21})	Factor score created from responses to the following four Likert-type questions: 'The service provided by the contractor is highly customized to satisfy our unique requirements'; 'The technical skills and knowledge of this contractor are unique'; 'The agreement requires the contractor to make large specialized investments in order to perform the work'; and 'The contractor can easily transfer only a small portion of the investments to another job' (five-point response scale). One factor solution, eigenvalue of 1.72, 43.0 per cent of the variance explained

The conventional approach to contracting strongly encourages public managers to rigorously monitor the contractor's performance (Wesemann 1981; Marlin 1984; Rehfuss 1989; ICMA 1989, 1992; Savas 2000; Prager 1994; Lavery 1999; Seidenstat 1999; Brown and Potoski 2003; Hefetz and Warner 2004). Rigorous contract monitoring is supposed to improve success in contracting by identifying instances of inappropriate or opportunistic behaviour on the part of the contractor and by detecting performance fluctuations and shortfalls. The model includes two measures of contract monitoring: monitoring scope (X_5), which refers to the variety of aspects of performance that are monitored, and monitoring intensity (X_6), which represents the frequency with which six different monitoring tools and procedures are used to assess contractor performance. Contract monitoring scope (X_5) is measured using a count variable of eight types of performance data collected by the local government. Six ordinal indicators were factor analysed to develop a multi-dimensional measure of contract monitoring intensity (X_6).

Another practice cited in the literature is the need to rely on legal means for resolving disputes, especially to rein in an unresponsive contractor who has breached the agreement (Wesemann 1981; Marlin 1984; Rehfuss 1989; ICMA 1992). Legal means for resolving disputes include financial penalties, reduced payments, litigation, and the threat of or actual termination of the contract. Given that the parties are expected to pursue competing interests, public managers should limit the amount of discretion the contractor is allowed to exercise. Multiple ordinal indicators were factor analysed to develop multi-dimensional measures of reliance on legal means for resolving disputes (X_7) and contractor discretion (X_8).

Finally, having agency personnel with expertise in contract administration and with in-depth knowledge of the workings of service delivery are factors that are expected to contribute to successful contracting. The public agency should have a staff trained in contract administration that is capable of preparing bid documents, evaluating bids, handling questions posed during a pre-bid conference, monitoring performance, and dealing with complaints and performance problems (Rehfuss 1989; DeHoog 1990; ICMA 1992; Romzek and Johnston 2002). In-house technical knowledge facilitates effective

TABLE 2 *Descriptive statistics*

Variable	Min.	Max.	Mean	Std. Dev.
Number of bidders (X_1)	1.00	5.00	2.15	0.96
Public-private competition (X_2)	0.00	1.00	0.16	0.37
Ex ante evaluation (X_3)	0.00	7.00	5.01	1.74
Contract specificity (X_4)	0.00	10.00	7.12	2.26
Contract monitoring scope (X_5)	0.00	8.00	5.45	2.05
Contract monitoring intensity (X_6)	−1.89	3.01	0.00	1.00
Reliance on legal means for resolving disputes (X_7)	−1.53	3.17	0.00	1.00
Contractor discretion (X_8)	−2.14	2.27	0.00	1.00
Expertise in contract administration (X_9)	1.00	5.00	3.82	0.89
Technical knowledge of service (X_{10})	1.00	4.00	3.37	0.66
Reliance on alternative means for resolving disputes (X_{11})	−1.18	3.96	0.00	1.00
Financial incentives (X_{12})	0.00	3.00	0.62	0.57
Communication after contract award (X_{13})	−2.14	2.22	0.00	1.00
Joint problem solving after contract award (X_{14})	−5.57	0.87	0.00	1.00
Contract duration (X_{15})	1.00	600.00	49.29	73.38
Trust between the parties (X_{16})	−4.09	1.69	0.00	1.00
Political support for the contracting initiative (X_{17})	−5.59	0.83	0.00	1.00
Financial resources committed to the contracting initiative (X_{18})	−3.92	1.89	0.00	1.00
Subcontractors (X_{19})	0.00	5.00	1.40	0.82
Task uncertainty (X_{20})	−2.69	3.26	0.00	1.00
Asset specificity (X_{21})	−2.29	2.18	0.00	1.00

Note: Variables that are saved factor scores are standardized, with a mean of 0.00 and a standard deviation of 1.00.

contract monitoring and allows a public agency to set its own goals, thereby helping to prevent erosion of accountability and the emergence of conflicts of interest that can arise when the contractor sets its own goals (Kettl, 1993). Ordinal indicators are used to measure expertise in contract administration (X_9) and technical knowledge of the service (X_{10}).

Relational contracting

The second body of work that speaks to the issue of contracting performance is the relational contracting literature (Williamson 1985, 1996; DeHoog 1990; Smith 1996; Bennett and Ferlie 1996; Sclar 2000; Lawther 2002). Relational contracts are cooperative and flexible in nature, with obligations and sanctions being diffuse, non-specific, and relatively non-measurable (Macneil 1974, 1978). The parties come to rely on extensive mutual planning, bargaining and collaboration throughout the term of the contract to 'fill in' the gaps in the original agreement. In contrast to the classical or conventional approach to contracting, the relational contracting literature suggests the following set of prescriptions for improving contracting performance: (1) rely on less adversarial means for resolving disputes, such as negotiations; (2) communicate frequently with the contractor; (3) work together with the contractor to identify and solve performance problems; and (4) build trust between the parties.

Relying on legal means to resolve disputes can heighten conflict and impede efforts to achieve mutual adjustment. Litigation can impose substantial costs in terms of money and time on both parties. Experts on relational contracting, therefore, prefer an approach that eschews confrontation and emphasizes flexibility and the use of alternative means for resolving disputes, such as negotiation, arbitration and mediation (Williamson 1985, 1996; DeHoog 1990; Smith 1996; Sclar 2000; Lawther 2002). Three ordinal indicators were factor analysed to develop a multi-dimensional measure of reliance on alternative means for resolving disputes (X_{11}). The model also includes a variable for the inclusion of financial incentives in a contract (X_{12}) to encourage good performance and prevent conflict from arising (Behn and Kant 1999; Cooper 2003).

The relational contracting literature underscores the importance of frequent communication and joint efforts by the parties to identify and solve problems throughout the life of the contract (Macneil 1974, 1978; Williamson 1985; DeHoog 1990; Sclar, 2000; Lawther 2002). High levels of task complexity and uncertainty in public service delivery often prevent public managers from writing contractual requirements that are comprehensive and highly detailed. Moreover, even moderate levels of complexity and uncertainty increase the likelihood that some of the contract requirements will be erroneous. Successful contracting, therefore, may require that the parties communicate and interact frequently to make necessary adjustments in work processes, performance standards, quantities, and prices, as well as to fill the gaps in the original contract document (DeHoog 1990, Sclar 2000; Lawther 2002). Factor analysis was used to develop multi-dimensional measures of communication (X_{13}) and joint problem solving efforts (X_{14}) after contract award. Since contracts of longer duration can facilitate learning and allow the parties more time to iron out the kinks in service delivery, the model also includes a measure of the duration of the contract (X_{15}), measured in months.

There has been an extensive amount of research on the role of trust in contractual relationships and partnerships and have generally concluded that trust has a positive effect on performance (Arrow 1974; Macneil 1980; Williamson 1985; Zaheer and Venkatraman 1995; Bennett and Ferlie 1996; Sclar 2000; Lawther 2002). Interorganizational trust is a construct involving the three components of dependability, predictability and faith in a relationship between two or more parties (see Zaheer *et al.* 1998; Young-Ybarra and Wiersema 1999). How does trust improve the outcomes of contractual relationships? The literature offers three explanations. First, trust serves as a deterrent against opportunistic behaviour. Trust between partnering organizations seems to reduce each partner's motivation to behave opportunistically and increases the likelihood that they will forgo short-term advantages in favour of mutual long-term gains (Macaulay 1963; Luhmann 1979; Bradach and Eccles 1989; Aulakh 1996; Jeffries and Reed 2000). Second, trust can be a cost-effective substitute for authority and control mechanisms (Bradach and Eccles 1989; Hill 1990; Mayer *et al.* 1995; Aulakh *et al.* 1996; Zaheer *et al.* 1998). If parties that trust each other are discouraged from behaving

opportunistically and tend to behave in ways that conform to mutual expectations, their behaviour becomes much more predictable. Predictable patterns of behaviour, in turn, reduce transaction costs in contractual relationships by diminishing the need for highly detailed contract requirements and rigorous contract monitoring. Finally, as Young-Ybarra and Wiersema (1999) explain, 'in the literature on interorganizational relationships, there has been a somewhat consistent argument that the existence of relationships based on trust between partners has a positive impact on the ability of the partners to adjust to changing environmental demands or unintended problems that may arise' (p. 443; see also Williamson 1985; Doz 1996). Four Likert-type ordinal indicators were factor analysed to develop a multi-dimensional measure of trust between the parties (X_{16}).

The policy implementation literature
The third body of work that offers insights about how to manage contractual relationships effectively is the policy implementation literature, including research on the hollow state. With increasing frequency, governments in the United States are implementing policies through contractual arrangements with one or more private organizations that entail a sharing of implementation action across organizational boundaries and sectors (Brown *et al.* 1998; Hall and O'Toole 2000; Romzek and Johnston 2002). Several of the variables that have been discussed so far have also received attention in the policy implementation literature. However, three additional policy implementation variables that appear to account for contracting performance are: (1) political support for the contracting initiative; (2) financial resources committed to the contract; and (3) the complexity of implementation structures (that is, the number of subcontractors involved in service delivery).

Political opposition from public employees and their unions is one of the key barriers to privatization that public managers and elected officials must overcome (Ferris and Graddy 1986; Chandler and Feuille 1991; Wallin 1997; Fernandez *et al.* 2005). As Mazmanian and Sabatier (1989) and others have asserted, the likelihood of successful implementation is improved when officials in the implementing agency are committed to the objectives of the policy in question and are persistent when obstacles crop up or when other actors, including members of the target group, resist change. Three ordinal indicators were factor analysed to develop a multi-dimensional measure of political support for the contracting initiative (X_{17}) among public managers and employees.

Implementation research suggests the need to provide adequate financial resources to staff implementing agencies and build administrative and technical capacity to allow them to carry out their mission (Montjoy and O'Toole 1979; Mazmanian and Sabatier 1989; Provan and Milward 1995). When contracting for services, financial resources (X_{18}) can help to enhance performance by enabling the agency to effectively administer the solicitation process, monitor performance, and manage the ongoing contractual relationship by resolving disputes and achieving mutual adjustment; adequate

funding of the contracting initiative also is necessary to protect the provider from financial stress (Romzek and Johnston 2002). Three ordinal indicators were factor analysed to develop a multi-dimensional measure of financial resources committed to the contracting initiative (X_{18}).

Policy implementation analysts have found that the structure and complexity of interactions among actors can have a significant effect on the outcomes of implementation (Van Meter and Van Horn 1975; Pressman and Wildavsky 1984; Agranoff and McGuire 1998). Complex service delivery arrangements involving multiple subcontractors imposes additional burdens on the prime contractor, including higher coordination costs, the likelihood of delays, and sometimes even conflict over the choice of goals and means, all of which ultimately weaken performance. The involvement of subcontractors also creates additional links in the chain of accountability, making it more difficult for a local government to achieve the goals it sets forth in the contract. Public managers, therefore, should be able to improve contracting performance by limiting the number of subcontractors involved in service delivery. The model includes an ordinal measure of the approximate number of subcontractors involved in the contractual relationship (X_{19}).

Lastly, the model includes control variables for the degree of task uncertainty and asset specificity involved in delivering the service. Research suggests that performance problems crop up with greater frequency when governments contract for 'soft' services, such as public safety and human services, which typically involve more complex processes and technologies and which can be more difficult to specify and measure (Bendick 1984; Hodge 2000). Asset specificity refers to unique or specialized investments made by a party to satisfy the terms and conditions of the contract. Asset specificity entails making specialized investments in physical, human, and/or technological assets that can enhance efficiency, but which 'cannot be redeployable without sacrifice of productive value if contracts should be interrupted or prematurely terminated' (Williamson 1985, p. 54). Transactions that require specialized (or transaction-specific) investments can have a 'lock-in' effect, which commits both parties to prolonging the relationship in order to economize on transaction costs. Multiple Likert-type ordinal indicators were factor analysed to develop multi-dimensional measures of task uncertainty (X_{20}) and asset specificity (X_{21}). In the section that follows, the discussion turns to the methodology and data used to test this model.

METHODS AND DATA

Throughout the history of public administration, researchers have observed behaviour in public organizations in an effort to derive a set of widely applicable principles that could improve administrative practice. This inductive 'practice to principles' approach to the study of administration survives today in the form of best practices research (Overman and Boyd 1994). As Overman and Boyd explained, those who carry out best practices research undertake selective observation of a set of exemplars across different

contexts in order to derive more generalizable principles and theories of management. Behn (1993, 1996), for instance, has argued that public management research should emulate engineering as a model for scholarship. Employing methods such as the case study approach, public management scholars should collect, codify, analyse, and disseminate knowledge held by public managers that can help improve the practice of public management.

As some scholars have observed, best practices research appears inadequate as a methodology for generating consistent and reliable knowledge that can be used to improve practice. Lynn (1996) asserted that this research genre does not encourage public managers to be mentally disciplined, analytical and reflective about practice. Overman and Boyd were just as critical in their assessment of best practice research, having argued that this approach is inadequate for testing theory, validating management innovations, and cumulating knowledge that is useful for practitioners.

What is needed in public administration research, therefore, is: (1) a rigorous methodology for identifying effective practices from among a large number of observations; and (2) testing their validity using more sophisticated statistical techniques. Ordinary least squares (OLS) regression appears to be the most common multivariate statistical technique used by public administration researchers. OLS regression will yield coefficients indicating the average impact of an independent variable on a dependent variable in a hypothetical average case. This type of regression, in other words, describes typical cases or typical behaviour and practices. Such an approach is suitable for developing an explanatory model of contracting performance and testing theoretical propositions about causal impact. However, as Meier and Gill (2000) would argue, to identify those factors public managers can manipulate to produce better results in the area of contracting, we should examine not the typical case but the high performing ones to see how they manage differently. Substantively Weighted Analytic Techniques (SWAT) allows us to do just this through an innovative application of weighted least squares (WLS) regression. Using SWAT analysis, researchers can analyse large datasets to uncover what is unique about a sizeable number of high-performing cases.

The unit of analysis for the present study is the individual contractual relationship between a local government and a private for-profit or non-profit provider. The data for this study were gathered through a mail survey of local governments throughout the United States, conducted in 2003–04. Obtaining a good sampling frame is a serious obstacle to doing a survey when the contractual relationship is the unit of analysis since it is difficult to identify the types of services that local governments have contracted out. The sampling frame used for this survey was the set of responses to the 2002–03 International City/County Management Association (IMCA) alternative service delivery survey, which identifies contracts in 67 different service areas. A sample of 982 local government contracts (with for-profit and non-profit providers) was drawn randomly from the 2002–03 ICMA dataset. The sample was stratified by the seven broad categories of services used by ICMA to group these 67

services and functions. The survey was addressed to the chief administrative office of the local government, asking them to answer a series of questions about a specific contract with a private for-profit or non-profit provider. The response rate for the survey was 48 per cent, which compares favourably to other recent large-n privatization studies (Brudney and Wright, 2002; Brown and Potoski 2003; Brudney *et al.* 2005) and previous ICMA surveys.

The data collected for this analysis appears to be fairly representative of contractual relationships at the local level in the United States. Respondents and non-respondents to the survey are remarkably similar in terms of type of local government, type of jurisdiction, population size, geographic region, metropolitan status, and form of government, thus offering no indication of non-response error (Groves 1989; Keeter *et al.* 2000). In addition, although contracts for public works/transportation and for cultural and arts programmes are somewhat overrepresented and underrepresented in data, respectively, the contracts in the dataset are quite comparable to the contracts in the sampling frame, which is the best estimate of the population of contracts at the local level in the United States. Let us now turn to the results of the analysis.

RESULTS

Since SWAT analysis is designed to isolate cases on the basis of performance, the first step involves coming up with a criterion for distinguishing the high performing cases from all the others. According to Meier and Gill (2000), a good rule of thumb is to select cases with Studentized residuals greater than 0.70. Using this criterion, we typically would select about a quarter of the cases in the sample. Given that the results of a SWAT analysis can be sensitive to the choice of criterion for identifying high performance, two criteria are used to select the most successful contractual relationships (that is, the high performers): cases with Studentized residuals greater than 0.70 and the 10 per cent highest Studentized residuals. Applying these criteria, we classify 113 cases and 44 cases as the most successful contractual relationships.

The next step in SWAT analysis involves running WLS regression, giving the high performing cases a weight of 1.00, and all other cases a weight of 0.10. The WLS regression shows which factors account for contracting performance among the most successful contractual relationships. By comparing the results of the WLS regression to those of the OLS regression, we also see how the most successful contractual relationships are managed differently in comparison with the typical case.

Table 3 shows the results of the two WLS regressions as well as those of an OLS regression. The models' *R*-squares range from 0.500 to 0.383. Two diagnostic tests revealed no multicollinearity in the OLS model. The OLS model is unaffected by extreme outliers or leverage points. We see that the results of the WLS regressions have much in common with those of the OLS regression, and with each other, in terms of coefficients and their levels of statistical significance. There are some important differences between the

TABLE 3 *SWAT results (comparison of OLS and WLS regression results)*

	OLS	WLS Studentized residuals greater than 0.70	WLS10% highest Studentized residuals
Number of bidders (X_1)	−0.037	−0.084**	−0.124**
Public-private competition (X_2)	−0.083	−0.039	−0.060
Ex ante evaluation (X_3)	0.037	0.043*	0.056**
Contract specificity (X_4)	0.021	0.010	0.000
Contract monitoring scope (X_5)	−0.004	−0.003	−0.009
Contract monitoring intensity (X_6)	−0.022	−0.036	−0.060
Reliance on legal means for resolving disputes (X_7)	0.000	0.075**	0.101**
Contractor discretion (X_8)	−0.035	0.000	0.007
Expertise in contract administration (X_9)	0.057	0.031	0.012
Technical knowledge of service (X_{10})	0.117*	0.079	0.045
Reliance on alternative means for resolving disputes (X_{11})	0.078**	0.035	0.030
Financial incentives (X_{12})	−0.064	−0.062	−0.102
Communication after contract award (X_{13})	0.056	0.068*	0.068
Joint problem solving after contract award (X_{14})	0.108***	0.135***	0.150***
Contract duration (X_{15})	0.001*	0.001	0.000
Trust between the parties (X_{16})	0.457***	0.393***	0.334***
Political support for the contracting initiative (X_{17})	0.241***	0.228***	0.205***
Financial resources committed to the contract (X_{18})	0.144***	0.158***	0.196***
Subcontractors (X_{19})	−0.092**	−0.058	−0.027
Task uncertainty (X_{20})	−0.098**	−0.120***	−0.133***
Asset specificity (X_{21})	−0.015	−0.025	−0.022
R-square	0.500	0.564	0.383
F	16.388	21.199	10.185
N	439	439	439

Note: *p < 0.10 ; **p < 0.05; ***p < 0.01.

WLS and OLS regression results, however, and that is where we can see the value of using SWAT analysis to identify what works best among the high performing cases.

Five of the variables are statistically significant in the OLS and WLS regressions but have coefficients that change when a different regression technique is used. The coefficients for joint problem solving after contract award (X_{14}) are positive and statistically significant in all three regressions. Since public managers work more closely with the contractor's staff to solve performance issues that arise during the life of the contract, the level of contracting performance tends to increase, as experts on relational contracting have predicted. We also see that the effect of joint problem solving on contracting performance is greater among the most successful contractual relationships than in the average case. The coefficient is 0.108 in the OLS regression, and it increases by 25 per cent to 0.135 in first WLS regression; the coefficient for

X_{14} increases further to 0.150 in the second WLS regression. Similarly, the coefficient for financial resources (X_{18}) is 0.144 in the OLS regression, and it increases by 10 per cent to 0.158 in the first WLS regression; the coefficient for X_{18} increases by another 24 per cent to 0.196 in the second WLS regression. These results indicate that the most successful contractual relationships benefit more from efforts by the parties to work together to solve problems and from a greater commitment of financial resources than the typical contractual relationship.

Trust between the parties (X_{16}) and political support for the contracting initiative (X_{17}) have positive coefficients that are statistically significant in all three regressions, although these variables have a smaller positive effect on performance among the most successful contractual relationships than in the typical case. The coefficient for trust (X_{16}) is 0.457 in the OLS regression. As previous research on trust indicated, the presence of trust in a contractual relationship seems to reduce the incidence of shirking and other forms of opportunistic behaviour that weaken performance. Trust also may be contributing to contracting performance by facilitating the parties' efforts to respond to unforeseen contingencies and other disturbances in the relationship in a flexible manner; the positive and statistically significant correlation between trust (X_{16}) and joint problem solving (X_{13}) ($r = 0.29$) adds support to this line of reasoning. The coefficient for trust, however, declines by about 15 per cent to 0.393 in the first WLS regression and then by another 15 per cent to 0.334 in the second WLS regression. It should be noted that since some research on trust suggests performance can influence trust, a Durbin-Wu-Hausman test was performed to test for an endogenous relationship between these two variables in the OLS model (Davidson and MacKinnon 1993; Wooldridge 2002). The results of that test indicate that the OLS regression coefficients are unbiased.

The coefficient for political support for contracting initiative (X_{17}) is 0.241 in the OLS regression. Mid- and low-level managers and street–level employees who are supportive of the contractual relationship appear less likely to fear privatization and more inclined to work in partnership with the contractor's staff to manage problems that arise during the contractual relationship. We see, however, that the effect of political support on performance declines by 5 per cent to 0.228 in the first WLS regression and then by an additional 10 per cent to 0.205 in the second WLS regression. Despite the diminished effects of trust and political support, these two variables continue to have the two largest standardized coefficients in the WLS regressions. Task uncertainty (X_{20}) has a coefficient of –0.098 in the OLS regression, and the negative impact of task uncertainty rises in the two WLS regressions, where the coefficient becomes –0.120 and –0.133. This result indicates that the most successful contractual relationships are hindered by task uncertainty more than the typical contractual relationship.

Interestingly, four of the variables that are statistically significant in the OLS regression lose their significance in the WLS regressions. In the OLS

regression, technical knowledge of the service (X_{10}) and reliance on alternative means for resolving disputes (X_{11}) have statistically significant coefficients of 0.117 and 0.078, respectively, indicating that these two factors have a positive impact on contracting performance in the typical case. Conversely, the most successful contractual relationships do not appear to benefit from the involvement of public managers with in-depth knowledge of the workings of service delivery or from the use of less adversarial means for resolving disputes; X_{10} and X_{11} do not achieve statistical significance at the 0.10 level in the WLS regressions. The duration of the contract (X_{15}) also appears to have no effect among the most successful contractual relationships. The duration of the contract has a small positive effect on performance in the typical case ($p < 0.10$), but this variable's coefficient loses its statistical significance in the WLS regressions. In addition, the results of the WLS regressions indicate that among the most successful contractual relationships, the parties find a way to overcome the coordination or transaction costs of having multiple subcontractors involved in service delivery. Whereas the coefficient for the number of subcontractors (X_{19}) is negative and statistically significant in the OLS regression ($p < 0.05$), the coefficient is not statistically significant at the $p < 0.10$ level in either of the WLS regressions.

Perhaps more noteworthy is the fact that four of the variables that fail to achieve statistical significance in the OLS regression become statistically significant in the WLS regressions. The results of the OLS regression show that, in the average case, the number of bidders on the contract (X_1), an *ex ante* evaluation of the bidders' performance capacity (X_3), reliance on legal means for resolving disputes (X_7), and communication after contract award (X_{13}), have no effect on contracting performance. Among the most successful contractual relationships, however, these four variables do appear to influence contracting performance. The coefficient for the number of bidders on the contract (X_1) is –0.084 ($p < 0.05$) in the first WLS regression. This negative effect increases an additional 48 per cent to –0.124 in the second WLS regression. This finding suggests that among the most successful contractual relationships, public managers can improve performance by limiting the number of bidders on the contract rather than by increasing the pool of bidders. Limiting the number of bidders might allow public managers to weed out unqualified service providers who may try to 'lowball the government' in order to win the contract; in certain situations, this strategy also might result in sole source contracting, which precludes a prolonged and costly solicitation process.

In the OLS regression, the coefficient for reliance on legal means for resolving disputes (X_7) was not statistically significant. The two WLS regression coefficients for X_7, however, are positive and statistically significant (0.075 and 0.101, $p < 0.05$). Unlike the typical case, the most successful contractual relationships perform at higher levels when public managers make periodic use of the 'stick' to enforce the contract. In fact, among the high performing cases, tactics such as imposing financial penalties and threatening to terminate the contract seem to enhance contracting performance more than

alternative means for resolving disputes, such as negotiation and mediation, since the coefficient for reliance on alternative means for resolving disputes (X_{11}) is not statistically significant at the $p < 0.10$ level in either of the WLS regressions. The WLS regressions also offer evidence suggesting that the most successful contractual relationships benefit from a more thorough *ex ante* evaluation of the bidders' performance capacity, as well as from frequent communication between the parties, although the typical case does not reap any benefits from either of these practices. The coefficient for *ex ante* evaluation (X_3) is 0.043 and 0.056 and statistically significant in the first and second WLS regressions, respectively. Similarly, the coefficient for communication between the parties (X_{13}) is not statistically significant in the OLS regression, but it achieves statistical significance at the $p < 0.10$ level in the first WLS regression.

Finally, eight of the variables in the model fail to achieve statistical significance at the $p < 0.10$ level in both the OLS and WLS regressions. These variables include contractor discretion (X_8); contract specificity (X_4); contract monitoring scope (X_5); contract monitoring intensity (X_6); expertise in contract administration (X_9); asset specificity (X_{21}); allowing public employees to bid on the contract (X_2); and the inclusion of financial incentives in a contract (X_{12}). In the typical contractual relationship, as well as among the most successful ones, these eight variables have little if any effect on contracting performance. These null findings are important insofar as the dominant perspective on contracting strongly maintains that limiting the contractor's discretion, developing comprehensive and detailed contract specifications, and rigorously monitoring performance will contribute to success in contracting for services.

DISCUSSION AND CONCLUSION

In this analysis, we set out to identify factors public managers can manipulate to improve performance in contracting for services. SWAT analysis was chosen as the methodology for identifying what works best among a sizeable sample of high performing cases. A comparison of WLS and OLS regression results reveals that, despite similarities, the most successful contractual relationships have certain distinct features that set them apart from the typical contractual relationship. Let us first summarize the similarities. Like the typical contractual relationship, the most successful contractual relationships experience higher levels of contracting performance when the parties work together to arrive at solutions to problems that arise during the contract; when the parties trust each other; when public employees support (or do not oppose) the contracting initiative; when the contracting process is well funded; and when the task lacks complexity.

The results of the WLS regressions also mirror those of the OLS regression insofar as they tend to reject the conventional wisdom about how to achieve success in contracting out. We do find that among the most successful contractual relationships, conducting a more thorough *ex ante* evaluation of service

providers and greater reliance on legal sanctions contribute to higher levels of contracting performance. These two findings lend some credence to principal-agent theory and its hypotheses about limiting asymmetry of information and creating incentives to minimize opportunistic behaviour. On the other hand, we also find that among the most successful contractual relationships, efforts by public managers to limit the contractor's discretion, to write tight contract specifications, and to rigorously monitor performance, do not result in higher levels of contracting performance, and we even find that the number of bidders on a contract has a negative rather than positive impact on performance. The typical contractual relationship, as well as the most successful ones, seems to achieve higher levels of performance when they are managed in a flexible, cooperative manner, although the occasional threat or sanction by the principal to enforce the agreement seems to contribute to performance. In short, these findings suggest that experts on contracting have overestimated the impact of contract management practices aimed at controlling and programming the contractual relationship, and, conversely, that greater attention must be given to factors that build trust between the parties and facilitate problem solving and mutual adjustment to meet unforeseen circumstances.

SWAT analysis also allowed us to see key differences between the typical case and the most successful ones, thereby showing its value as a methodology for suggesting to practitioners which factors they can manipulate to achieve higher levels of performance. In comparison to the typical case, the most successful contractual relationships benefit from having a smaller number of providers bidding on a contract; from a more thorough evaluation of the contractor's capacity to meet the needs of the local government; and from more frequent communication between the parties during the life of the contract. In addition, unlike the typical contractual relationship, the most successful contractual relationships are unaffected when the local government involved lacks in-depth knowledge of the workings of service delivery or when additional subcontractors become involved in the contractual relationship. Finally, the benefits of alternative means for resolving disputes fail to materialize among the most successful cases, while use of legal means for resolving dispute contributes to higher levels of contracting performance. Had we relied on OLS regression to offer advice on how to improve contracting performance, we would have encouraged public managers to engage in a somewhat different set of practices than the ones suggested by the results of the SWAT analysis. Based on the OLS results alone, for example, we would have encouraged public managers to invest in alternative mechanisms for resolving disputes, to hire additional staff or external consultants with in-depth knowledge of the workings of service delivery, and to limit the number of subcontractors who work with the prime contractor, steps that would likely increase costs for a local government.

There is one question that should always be raised whenever SWAT analysis is used to make prescriptions to improve performance: do the results point to variables practitioners can manipulate? As far as this analysis is

concerned, the answer is yes. Public managers certainly can take steps to impose legal sanctions on a contractor, to reduce public employee opposition to contracting out, to increase the frequency of communication between themselves and the contractor's staff, and to cooperate with them to solve performance problems and address other disturbances in the relationship. While public managers may find it more difficult to improve the level of trust between themselves and the contractor's staff or to secure additional funding for a contracting initiative, these two variables also can be manipulated by practitioners. O'Looney (1998), for instance, suggests several measures public managers should take to build trust between contracting parties.

Finally, we should add that one must be cautious when offering advice based on the results of a SWAT analysis. As Meier et al. (2000) explain, 'SWLS and other SWAT techniques do not estimate populations parameters; that is, there is no longer a population to make inferences about' (p. 28). In essence, researchers using SWAT are relying on coefficients to make inferences about a hypothetical population of only the high performing cases. As a result, the generalizability of SWAT findings is always in question to some degree. It should be noted again that the sample of contractual relationships used for this analysis is generally representative of contracts for services at the local level in the United States. In addition, the WLS regression of cases with Studentized residuals greater than 0.70 made inferences from a sizable sample of 113 high performing cases. The extent to which these findings may be generalizable to a more formalized public sector environment, such as the federal procurement arena or beyond, is an empirical question that needs to be addressed in future research.

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APPENDIX 1

TABLE 4 *Contract performance variable factor analysis*

Component(s)	Eigenvalue	Percentage of variance
1	4.791	59.89

Indicators	Factor loadings
Actual cost in comparison to projected cost	0.60
Actual cost in comparison to in-house service delivery	0.61
Quality of work	0.85
Responsiveness to the government's requirements	0.86
Timeliness	0.81
Service continuity	0.82
Compliance with the law	0.76
Customer satisfaction	0.83