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**Do Relationships Matter?
Assessing the Association between
Relationship Design and Contractor Performance¹**

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ABSTRACT

Contracting relationships vary both in the extent to which they are complete and involve formal contract specification as well as the extent to which they are based on strong relationships and rely on cooperation and trust. Where a contracting arrangement falls on these two continuums constitutes what this paper refers to as “relationship design” and is likely to impact contractor performance. We use data from a survey of child care centers and Head Start agencies in Ohio to examine the association between the design of contracting relationships and contractor performance. Contractor performance is assessed in two ways: an objective measure of violations identified by government inspectors and a perceptual self-rated measure of performance reported by the contracted service providers. Measures of relationship design are constructed using multiple survey items and are included in multivariate regression analyses while controlling for a variety of organizational characteristics. Findings suggest that contracts involving stronger relationships are positively associated with child care center performance and more complete contracts are negatively associated with performance, when performance is measured using contractor self-reports.

Key words: contractor performance, relationship design, complete contract, relational contract

INTRODUCTION

Representing a departure from the hierarchical decision-making process, collaborative governance has recently gained renewed attention from public management scholars. It involves some degree of trust in partners' competencies and presumes participation of many actors in the decision-making and implementation processes. While being examined in a variety of settings, collaborative activities are of particular interest in the context of privatization which almost always involves short or long-term inter-organizational links and relationships.

A key challenge for public managers implementing government contracts involves determining which characteristics of contracts can enhance or hinder the contractors' performance. Based on empirical findings suggesting collaborative relationships are prevalent in many government contracts (Beinecke and DeFillippi 1999; DeHoog 1990; Johnston and Romzek 2008; Lambright 2009; Romzek and Johnston 2005; Smith 1996; Van Slyke 2007), some scholars believe such modes of contract implementation represent a distinct type of contracts commonly referred to as *relational*. In relational contracts, trust and cooperation are essential, and parties recognize that they have an interdependent relationship (Sclar 2000). Relational contracts involve open-ended, long-term exchanges (Allen 2002; Beinecke and DeFillippi 1999; MacNeil 1974; Smith 2005) and are used in situations with a high level of asset specificity and uncertainty (Sclar 2000). Principals and agents work together to develop and implement relational contracts (DeHoog 1990; Brown et al. 2006), and the terms of the agreement evolve throughout the contracting process (Artz and Brush 2000; Campbell and Harris 1993; Milgrom and Roberts 1992).

This provides parties with great flexibility to respond to changing conditions (Levin 2003).

While there has been a growing scholarly interest in relational contracting, little is known about the situations in which relational contracting will be more or less effective than traditional contracting (Brown et al. 2006). To address this gap, this study explores the association between the design of contracting relationships and contractor performance. The contributions that this research makes to the contract management literature are empirical. We develop several measures that operationalize existing concepts within the relational contracting literature by employing data on a variety of specific practices used by public managers in the course of contract implementation. Examples of these measures include shared goals and procedures, the involvement of contractors in different aspects of decision-making, and the utilization of practices based on mutual respect and openness. In addition, this research provides important insights into the role of relationship design in contract implementation in the context of social services with its focus on child care. This is a field where contract performance is difficult to measure and quantify, where long-term relationships are prevalent and private markets are thin, and where close and informal relationships are particularly important (Johnston and Romzek 2008; Lambright 2009; Smith 1996; Smith and Smyth 1996; Van Slyke 2007).

This paper begins by providing an overview of complete, incomplete, and relational contracting and by developing hypotheses about the association between relationship design and contractor performance. Due to the fact that the body of public administration literature focusing on relational contracting is still relatively limited, this

study uses cross-disciplinary research from the fields of economics, sociology, law, and public health. Following this, our methodology and findings are detailed. We conclude by exploring the implications of our findings on the association between relationship design and contractor performance and by highlighting areas for further research.

COMPLETE, INCOMPLETE AND RELATIONAL CONTRACTS

Scholars have typically described contracts as either being complete, incomplete, or relational. These contracting arrangements are not mutually exclusive: contracts can vary in both the extent to which they are complete and the extent to which they are relational. This section reviews existing theoretical and empirical research on complete, incomplete, and relational contracts, recognizing the ambiguous distinctions between these terms.

All types of exchanges, including government contracts, involve transaction costs (Williamson 1975, 1981, 1985). Transaction costs incurred prior to service implementation, referred to as *ex ante transaction costs*, are associated with finding an appropriate partner as well as negotiating and writing the contract. The *ex post transaction costs*, incurred in the implementation stage, include dispute resolution as well as monitoring, enforcing, and renegotiating the contract. The point at which transaction costs are incurred by the involved parties in the contracting process has been used in the literature to identify two types of contracts: complete and incomplete.

In complete contracts, transaction costs are primarily incurred at the outset of the exchange. With this type of contracting, parties must be able to foresee all possible contingencies, agree to responses to all these contingencies, and be willing to abide by the terms of the contract (Milgrom and Roberts 1992). True “complete” contracts are

considered impossible in practice because of the cognitive limits of individuals (Brown et al. 2006; Milgrom and Roberts 1992; Tirole 1999).

The extent of “incompleteness” in real-world contracts varies (Williamson 1985): some contracts are very complex and specify a variety of future contingencies and responses to these contingencies in advance while others are more open-ended and rely on parties to develop responses to contingencies as they arise. Transaction costs associated with these activities are incurred both prior to and during the implementation of the contract. The managerial tradeoffs between the ex ante and the ex post transaction costs may be determined by the level of uncertainty associated with contract implementation. It may be possible to lessen the cost of making the contract by avoiding the specification of all future contingencies, resulting in an incomplete contract and increasing the likelihood of renegotiation in the future to deal with unspecified contingencies (Allen et al. 2002).

Incomplete contracts are vulnerable to opportunism, defined by Williamson as “a lack of candor or honesty in transaction, to include self-interest with guile” (1975, 9) because they create opportunities for adverse selection and moral hazard (Sclar 2000). In the contracting literature, the party performing the task is referred to as the agent, and the party delegating the task is referred to as the principal. Adverse selection, or “hidden information” as Arrow (1984) describes it, happens when an agent misrepresents their ability to fulfill their contractual responsibilities (Eisenhardt 1989; Van Slyke 2007). With moral hazard, or “hidden action,” it is difficult for the principal to observe and evaluate all of the agent’s actions (Arrow 1984). Agents can exploit this informational

asymmetry and fail to fulfill their contractual responsibilities, creating a moral hazard problem (Eisenhardt 1989; Sclar 2000; Van Slyke 2007).

One strategy for addressing the problems created by incomplete contracts is to modify the agreement to more closely resemble a complete contract (Sclar 2000). However as Granovetter (1985) highlights, relying solely on contracts in the absence of trust will simply result in individuals trying to invent creative ways to circumvent institutional constraints. Another strategy is to capitalize on the trust and the mutual understanding between the involved parties and to develop a relational contract. While being ambiguous and lacking a universally accepted definition (Van Slyke 2006), relational contracting generally refers to contracts based on long-term relationships that involve trust and cooperation and are less vulnerable to opportunism (Allen 2002; Allen et al. 2002; Bennett and Ferlie 1999; DeHoog 1990; Brown et al. 2006; Sclar 2000). Empirical evidence suggests that relational contracts have been used in a wide variety of public policy settings including infectious disease management (Allen et al. 2002), Medicaid managed care (Beinecke and DeFillipi 1999), HIV/AIDS services (Bennett and Ferlie 1996), foster care services (Klingner et al. 2002), social services (Romzek and Johnston 2005; Smith 1996; Van Slyke 2006), and human waste collection (Kim 2005).

Being by definition incomplete, relational contracts do not determine all terms of the agreement in advance of its execution (Artz and Brush 2000; Campbell and Harris 1993; Milgrom and Roberts 1992). Instead, they provide parties with the flexibility to respond appropriately to the different contingencies that may arise (Campbell and Harris 1993; DeHoog 1990, Levin 2003; Milgrom and Roberts 1992). In relational contracting, principals and agents jointly develop and implement contracts (DeHoog 1990; Brown et

al. 2006) and maintain strong ties perceived to be in the best long-term interests of both the principal and agent. As described by Baker, Gibbons, and Murphy (2002), relational contracts are “sustained by the value of future relations (p. 39).” Each party is expected to make the necessary accommodations in order to protect this relationship even if it is not necessarily in their best short-term interest.

Relational contracts involve not only economic but also emotional exchanges (Artz and Brush 2000; Macneil 1974, 1978, 1983). As interorganizational relationships become institutionalized over time, personal ties between individual organizational members often become increasingly important (Ring and Van de Ven 1994) and can pressure individuals to fulfill their obligations (Ellickson 1991; Macaulay 1963). Trust can be viewed as a learning process in relational contracting: parties begin by taking small risks and are willing to take larger risks in subsequent interactions if these cooperative efforts are successful (Lorenz 1999). Transaction costs in relational contracting are incurred prior to implementation of the contract when parties initially establish their relationship and following its implementation when parties periodically renegotiate and adjust the contract (Artz and Brush 2000). While successful relational contracting has higher short-term transaction costs, the long-term transaction costs may be lower because of reduced bidding, monitoring, and legal costs (Brown et al. 2006).

Some scholars have argued that trust and the degree of formalization can play complementary roles in contracts (Deakin, Lane, & Wilkinson, 1994; Allen et al., 2002). A formal agreement between parties may signal a pre-existing cooperative relationship because such relationships can facilitate the planning needed to develop a detailed contract (Deakin et al. 1994). Likewise, the process of contract development, itself, may

actually serve as a mechanism for building trusting relationships (Allen et al. 2002). Consistent with the perspective that trust and the degree of formalization in contracts can play complementary roles, this paper conceptualizes the extent to which a contract is complete and the strength of the relationship between the government and contractor as two intersecting continuums.

<Figure 1 about here>

Some contracts have considerable formal specification and involve strong relationships between the government and contractor. There are also contracts that lack one of these two features. Thus, some contracts have substantial formal specification but they involve weak relationships. Other contracts have little formal specificity but they involve strong relationships. Contracts in this latter category have been traditionally classified as “relational” in the contracting literature. Finally, there are contracts that lack both formal specification and strong relationships between the government and the contractor. The degree of relationship strength and specification is often in flux, and the same contract may not consistently fall in one category over time. Our understanding of contracts in this paper is not limited to the formal written agreement between two entities in which one entity promises to deliver products or services to the other entity in exchange for money. Instead, contracts here refer to the entire relationship that exists between these two entities with its formal and informal aspects.

HYPOTHESES

In summary, all real life contracts appear to be incomplete. Contracts can vary in the extent to which they are complete and in the strength of the relationship between the government and contractor. Where a contracting arrangement falls on these two

continuums constitutes what this paper refers to as “relationship design” and is likely to be associated with contractor performance. However, the direction of these associations is unclear. Reflecting this, several rival propositions are developed in this section.

On the one hand, contractor performance may be expected to improve as the relationship between the government and contractor becomes stronger. Since the government and contractor in strong relationships are jointly involved in the development and implementation of the contracts, the provider is more likely to feel involved, appreciated, and empowered in this type of contracting arrangement. This will encourage the service provider to act as a steward, taking a leadership role when problems arise. As a result, one would expect problems to be resolved faster and with more openness, which in turn will positively affect program performance. The trust and cooperation that strong relationships foster can also lessen principal concerns that the agent will behave opportunistically. Close involvement reduces the likelihood of informational asymmetries and incentives for shirking. Moreover, due to their critical role in the implementation, service providers are more likely to view performance data as meaningful and accurate. In such cases, the contractors will be less likely to view their compliance with performance standards and requirements imposed by the government agency as a distraction from programmatic activities. As a result, the government will need to spend less time and money on direct monitoring and evaluation and will therefore incur fewer transaction costs. Under these conditions, we would expect contractor performance to be improved if the partnership reinvests these initial transaction cost savings into service delivery.

Hypothesis 1a: Relationship strength is positively associated with contractor performance.

With this in mind, it is also possible that contractor performance may suffer as the relationship between the government and contractor becomes stronger. As DeHoog (1990) points out, the close cooperative relationships that can develop in contracts may foster a sense of complacency and result in the parties failing to develop adequate systems for monitoring service delivery. Informal ties between government agencies and contractors may discourage in-depth investigation of performance outputs, and as a result, there may be less incentive for contracted providers to deliver high quality services. Hence a competing hypothesis can be proposed here:

Hypothesis 1b: Relationship strength is negatively associated with contractor performance.

Similarly, rival hypotheses can be proposed on the impact of contract completeness on contractor performance. On the one hand, empirical evidence suggests that carefully specified contracts make it easier for the government to hold contractors accountable for the services they deliver (Romzek and Johnston 2005). Based on this, one would expect contractors to be more motivated to provide better services and to perform better as contract specificity increases.

Hypothesis 2a: The extent to which a contract is complete is positively associated with contractor performance.

On the other hand, carefully specifying a complicated contract delivered under uncertain conditions may result in the government and contractor diverting staffing, time, and other resources from service delivery towards contract specification and negotiation. Moreover, as the quality of the contract increases, the cost of monitoring the implementation frequently increases as well (Bouckaert and Peters 2002). If contract

specificity results in excessive transaction costs, we would expect contractor performance to suffer. Thus, our rival hypothesis is as follows:

Hypothesis 2b: The extent to which a contract is complete is negatively associated with contractor performance.

METHODS

In this study, we identify several components of government contracts used to characterize the strength of the relationship between the government and contractor and the extent to which these contracts are complete. Based on these classifications, we investigate how relationship design impacts performance in the field of child care. Aside from the central variables of interest, pertaining to the design of contracting relationships, the framework also includes a set of controls .

Data. The data for this study come from the Partnership Impact Research Project (File ICPSR04298-v1, 2001-2004). It is a three-year study aimed at describing and evaluating the character of early education partnerships in the state of Ohio. Two of the six data sets comprising the Partnership Impact Research Project have been used in the analysis: (1) the Child Care Center Data (DS1), containing data on the child care centers mainly provided by center directors and focusing on the population served, services provided, funding sources, and other major characteristics of the centers, and (2) the Child Care Center Partnership Data (DS2), containing data on child care centers' contracts with local Head Start agencies in Ohio and focusing on various aspects of the relationships between the two contracting parties. Both files include pooled time-series data with up to three survey records for each Center (or partnership, in the case of DS2).

The Child Care Center Data is a larger organizational-level dataset containing information on nonprofit and for-profit service providers. Some of these providers

contract with a local Head Start agency while others do not. Meanwhile, the Child Care Center Partnership Data is a smaller partnership-level dataset and includes information only on those centers that have partnerships with a local Head Start agency. These data sets were merged using Center ID numbers and wave indicators to obtain an unbalanced panel data set containing 193 records, each describing a partnership between a private center and a local Head Start agency. Thus, centers that are not involved in a contract with a local Head Start agency have been dropped from the analysis.

Dependent Variable. In the public management literature, there is a broad consensus that organizational performance is a complex and multi-dimensional concept (Boyne et al. 2005; Boschken 1992, 1994; Brewer and Selden 2000; Brewer 2006; Cameron 1978, 1981, 1982; Quinn and Rohrbaugh 1981, 1983; Rojas 2000; Selden and Sowa 2004). Hence, multiple measures of organizational performance may provide a fuller picture of the delivered results. We use two measures of child care center performance, one subjective and one objective, in order to capture the complex and multi-dimensional nature of organizational performance (Boyne et al. 2005; Boschken 1992, 1994; Brewer and Selden 2000; Brewer 2006; Cameron 1978, 1981, 1982; Quinn and Rohrbaugh 1981, 1983; Rojas 2000; Selden and Sowa 2004). The Partnership Impact Research Project dataset includes data generated by government agencies. For our first measure of child care center performance, we use an interval-ratio variable reflecting the “number of violations documented during state licensing inspection.” The actual values of this variable in the data set range between 0 and 49. The variable appears to have a Poisson distribution with positive-only values and a large share of cases clustered around lower values.

Our second measure of performance is based on child care center directors' answers to the following survey question: "How satisfied are you with the overall quality of your center?" Respondents were asked to select one of the following five response categories: "very satisfied" (5), "somewhat satisfied" (4), "neither satisfied nor dissatisfied" (3), "not very satisfied" (2), or "not satisfied at all" (1). In the survey, directors were first asked to provide detailed background information on their center as well as feedback on teacher training and professional development, parental involvement, center services, and center administration and organization. The question about directors' satisfaction with the overall quality of their center was strategically placed after all of these concerns had been discussed.

Based on the above mentioned question, we created an ordinal variable and used it in the ordered logistic regression analysis. For sensitivity analysis, we created a dummy variable coded as 1 for "very satisfied" and 0 for all other responses. Since we were concerned that the child care center directors were unlikely to express dissatisfaction with their own operations, we grouped "somewhat satisfied" in the "0" category in order to reduce the "halo effect." The resulting variable was used as the dependent variable in the dichotomous logistic regression model. Similar to measures used in several recent studies (e.g. Chun and Rainey 2005; Moynihan and Pandey 2005; Brewer and Selden 2000; Selden and Sowa 2004), this measure of organizational performance is clearly subjective. While measures that are considered to be more "objective" are frequently treated as the "gold standard" in public management research, they are often not available or do not adequately capture the multi-dimensional nature of performance (Andrews et al. 2006). On the other hand, scholars agree that it is possible to develop valid, reliable, and

sensitive subjective measures of organizational performance (Brewer 2006). An advantage of using employee self-reports to measure performance in addition to the data on “violations” is that the reports provide a global measure of performance and are able to capture both output and outcome-based criteria (Moynihan and Pandey 2005).

Independent Variables. The survey items used to create independent variables are listed in Appendix 1. To account for relationship design, we created three independent variables. The variable *complete* was created to measure the existence of formally recorded documents and procedures guiding contract implementation. This variable was computed by finding the sum of the following eight dichotomous survey items:

1. Currently do you have a written legal agreement or a contract with Head Start?
2. Do you regularly update the document?
3. Does this agreement specify the maximum number of children who can receive Head Start enhanced services at your center?
4. In your partnership with Head Start, do you have a written document that describes roles and responsibilities of Head Start and of people at your center in providing services?
5. Do you have any documents that describe the partnership's goals and specific actions that the partnership plans to take to achieve the goals?
6. In your partnership, do you have any written documents that state what your program needs to do to meet Head Start Program Performance Standards?
7. Do you have documents describing procedures for communicating with your Head Start partner?
8. Do you have a well-defined process for recruiting and enrolling children into your center for Head Start enhanced services?

We had two measure of relationship strength for each contract in the data. Our measure of *current relationship strength* was created by computing the mean of several survey items, each measured on a 5-point Likert scale. The variable *shared procedures* was created to reflect the existence of procedures which govern the partnership and are understood by both parties but are not necessarily formally recorded. This variable is a mean of eight survey items measured on a 5-point Likert scale and listed in Appendix 1. The variable *goal agreement* reflects contractors’ perception of both parties’ agreement

on contract goals computed from four survey items. The variable *communication quality* measures whether or not child care center directors believe they have good communication with Head Start and is computed from three survey items listed in Appendix 1. Finally, *cooperation in contract implementation* is a variable based on five survey items describing a variety of cooperative strategies. To assess the reliability of the scales for the four new variables, we calculated Cronbach alphas, and the results show acceptable alpha scores which range from 0.792 to 0.906. A confirmatory factor analysis of these four variables indicated that they could effectively be combined into a single measure of *current relationship strength*.⁴ Thus, we created a composite *current relationship strength* scale using principal component factor analysis. Factor scores produced from the factor analysis are used as a measure for *current relationship strength*.

The measures of *relationship strength* described above characterize the current design of the contracting relationship, i.e., one existing at the time of the survey. This study also accounts for the elements of *relationship strength* exhibited in the contract development and specification stage. Since some aspects of strong relationships may be viewed as “deference” in disguise due to the contractor’s power, information on the contractor’s input in the specification process may also help separate the effect of the contractor’s power in the relationship. We have created a variable *collaborative contract development* as our second measure of relationship strength using the following question: “Was this agreement⁵ developed by both your program and your partner?” Positive answers to this question were coded as 1, and negative answers were coded as 0. This measure reflects the collaborative nature of the contractual relationship at the onset of

contracting, while the rest of our relationship strength variables characterize the ongoing relationship.⁶

Control Variables. Several empirical studies within the public administration literature have examined determinants of organizational performance that may serve as relevant controls in this study (Rainey and Steinbauer 1999; Boyne 2003; Moynihan and Pandey 2005). Integrating the existing literature on organizational performance, Moynihan and Pandey (2005) test the effect of two categories of performance determinants: internal management factors and external environmental influences. While focusing on the effect of relationship design, we use their framework to justify the inclusion of control variables pertaining to various organizational and environmental factors. These variables are listed in Figure 2, and the coding procedures are explained in Appendix 1.

Center management and staffing practices are critical organizational characteristics that may impact performance. Similar to Moynihan and Ingraham (2003), we view management capacity as a broad concept and measure it in a variety of different ways in our study. The level of effort made by child care center administrators to monitor teaching quality, improve child care programs, and evaluate program performance may impact staff commitment and attitudes and the innovativeness of the child care programs. Our first measure of management capacity, *internal management practices*, is based on the sum of seven survey items and focuses on various administrative processes, such as managers “observing teachers in the classroom to assess their practice” and “meeting with teachers to provide feedback regarding their teaching practices in the classroom.”

We also consider human resource capacity as another aspect of management capacity. Staff qualifications may be positively associated with contractor performance because the design and operation of a child care program predominantly depends on the quality of its teachers. As a proxy for human resource capacity, we include two measures reflecting the *proportion of teachers with a Bachelor's and Master's degree*, as explained in Appendix 1.

As a final aspect of management capacity, we consider the impact of resource availability on contractor performance. Many empirical studies have found that organizations with more resources are able to achieve better outcomes (Boyne 2003). Additional resources may allow a child care center to improve its physical environment and instructional practices. Based on this, we include both a child care center's *total annual operating budget* as well as the *budget-student ratio* to measure the availability of financial resources. We also control for the supply of teachers in each center using the *student-teacher ratio* reported by each center. Availability of teachers may increase the amount of individualized attention available for each student and improve teacher motivation by decreasing burnout.

Organizational size is another internal factor commonly thought to be associated with organizational performance. Organization size can be hypothesized to have either a negative or positive impact on contractor performance. Larger contractors may enjoy economies of scale in acquiring educational resources, reducing maintenance costs of facilities, containing administrative costs, and creating efficient administrative procedures. On the other hand, larger organizations may have more red tape which negatively influences innovativeness and the adoption of new ideas (Moynihan and Pandey 2005).

Smaller contractors may also have an advantage in fostering a more nurturing and intimate environment for young children. In this study, we used the *average daily enrollment of preschoolers* as a proxy measure for organizational size.

Several studies suggest that organizational ownership may affect performance, and a subset of the privatization literature specifically explores the effect of the privatized entities' ownership status on the outcomes (Amirkhanyan, Kim, and Lambright 2008; Amirkhanyan 2008). Nonprofit contractors are expected to provide higher quality of care to children. In comparison to for-profit care centers, nonprofit centers are more likely to have higher mission valences which may motivate their teachers (Rainey and Steinbauer 1999). Nonprofit child care centers are also required to reinvest any profits back into their organizations instead of rewarding shareholders as for-profit child care centers may choose to do (Cohen 2001). As a result, nonprofit centers would be less likely to increase their profits through cost-cutting strategies that may ultimately undermine quality. In addition, whether a child care center is a faith-based organization may matter. Compared to their secular counterparts, faith-based organizations may use different service delivery methods or they use the same service delivery methods but with a different intensity (Graddy and Ye 2006). To reflect these possible relationships, we include a dummy variable indicating whether the contracted child care center is a *nonprofit* organization, as well as a separate variable indicating if the center is a *faith-based organization*.

In addition, several variables have been included to reflect external organizational relationships and other environmental factors. First, external organizational ties and relative organizational independence have been hypothesized in the literature to be correlated with organizational performance. We created a nominal variable using the

following survey item to control for external organizational ties: “Is your center part of a larger agency or umbrella organization?” Hypothesizing that a child care center that heavily depends on government funds may be pressured to perform better, we also created a variable reflecting contractors’ reliance on government funds, including Federal Head Start, State Head Start, State Preschool Subsidies, and USDA CACFP (see Appendix 1 for coding procedures). In addition, we included a dummy variable that indicates whether the center operates in a “small town” or “rural area” (as opposed to an “urban” or “suburban” area). Child care centers in urban and suburban areas are likely to serve more diverse populations, making service provision more complicated. On the other hand, contractors working in rural areas or in small towns may have difficulty hiring high quality staff, which may negatively influence performance. Recognizing that the characteristics of the client population might affect center outcomes, we control for the *percent of white* preschoolers as well as the *percent of subsidized families* whose children receive care at the center.

In this study, we also control for relationship length measured by the number of years that a child care center has engaged in a partnership with a local Head Start agency. Having a longer relationship may foster a greater shared understanding of service delivery goals between the government and contractor, ultimately improving contractor performance. Longer relationships also give contractors more time to make the service delivery adjustments needed to satisfy government expectations or to modify the government’s expectations so that the expectations are perceived as more reasonable by the contractor. On the other hand, longer relationships may make the government more lax in monitoring contractor behavior, and performance may suffer as a result. Since

partnerships have been studied over time, we separate the year fixed effects by including two dummies indicating the wave of each survey record.

<Table 1 about here>

<Table 2 about here>

Descriptive Statistics and Analysis. The descriptive statistics of the variables and the correlations are provided in Tables 1 and 2, respectively.⁷ In our analysis, we ran four regression models. The first two use perceived center performance as the dependent variable while the second two use the number of regulatory violations.

Two perceived center performance measures – ordinal and dichotomous, as explained previously – were analyzed using ordered and dichotomous logistic regressions. Approximately 45% of the surveyed center directors were “very satisfied” with the performance of their child care center. A child care center director’s satisfaction with organizational performance was regressed on the complete set of independent variables, summarized in Appendix 1. Since the variable reflecting the number of violations found in each child care center was found to have a skewed distribution with positive-only values, we obtained Poisson and Negative Binomial regressions in order to adjust for skewness of the dependent variable and prevent the model from predicting negative values. The poisson regression had a Pearson chi-square (5.769) and deviance greater than one (5.862), indicating overdispersion which violates the assumption of equality of the mean and the variance of the dependent variable imposed by the Poisson model. In such cases, Negative Binomial models are recommended. They accommodate the overdispersion by including a random term reflecting unexplained between-subject differences (Gardner, Mulvey and Shaw 1995). The LR chi-square statistic is satisfactory

(38.63, $p=0.007$). In the findings section, we show the results for both the OLS and negative binomial regressions.

Limitations. There are some limitations associated with the data and research design. First, our data set is limited to contracted agencies located in one state delivering one type of service which may result in the findings of our study having limited generalizability. Cost of living, child care worker salaries, child care policies as well as an array of other factors are likely to vary across states, and this variation is not captured in our study. Focusing on a service area in which performance is very difficult to measure also limits the generalizability of our study. Our findings are likely to be most generalizable to other social services where customers are typically unable to judge quality such as elderly care services. Users' relatives in these situations must look for performance clues and guess if the service is good. In contrast, our findings may be less generalizable to a social service area such as job training where customers are able to advocate for themselves. Further replications of this study can help verify the external validity of our findings. In addition, the sample size for our analysis is less than two hundred which suggests that the statistical power of our models may be limited.

Finally, there are limitations associated with some of the variables included in our study. Most of the data describing the relationship between contractors and Head Start are provided by the contractors, rather than by both parties. Thus, this study explores the effect of *contractors' perception* of goal congruence, shared procedures, joint participation, and other factors. This limits our ability to view the design and performance of contracting relationships from multiple perspectives. However, the contractors' views, we believe, are quite informative for this analysis. In particular, one would expect

contractors to have less incentive than the government to misrepresent the level of collaboration in the contracting process.

FINDINGS

Regression results presented in Table 3 suggest that *current relationship strength* is positively associated with child care center performance when measured by the directors' satisfaction. In the ordered logit model, as *current relationship strength* increases, so does the center director's satisfaction with child care services. This association is also confirmed in the dichotomous logistic regression model. It suggests that having a stronger ongoing relationship between the government agency and the center increases the odds that a center director will be very satisfied with its performance. On the other hand, the variable *complete* has a negative significant association with perceived service quality in both the ordered and dichotomous logit models. An increase in the extent to which a contract is *complete* is associated with a decrease in the satisfaction with a center's service quality. We found no evidence of a contractor's participation in the contract specification process being associated with the director's satisfaction with their center's performance. The coefficients for *collaborative contract development* are insignificant in both models. Thus, it is the ongoing relationship strength that appears to be associated with performance rather than the initial collaborative work on contract specification.

<Table 3 about here>

Besides the coefficient estimates, we computed the marginal change in the predicted probability of being satisfied with child care services in response to a one standard deviation change in each significant explanatory variable around its mean. The

marginal change reflects the marginal effects of a one unit difference in the independent variables. These can be used to compare the effects of different variables included in the model.⁸ In Table 4, a one standard deviation increase in the variable *current relationship strength* increases the predicted probability of being very satisfied by 12.6 percent, while a one standard deviation change in the variable *complete* decreases the predicted probability of being very satisfied by 13.1 percent. While the variable *complete* appears to have a larger impact, the difference between these two explanatory variables is only 0.5 percentage points. The marginal changes in probabilities in the ordered logit model concur with the probability changes predicted in the dichotomous logit model. A one standard deviation change in the variable *complete* decreases the probability of being “very satisfied” by 14.7 percent while increasing the probability of all the other responses. Similarly, as *current relationship strength* increases by one standard deviation, the probability of being “very satisfied” increases by 19 percent, but the probability of all the other responses decreases.

<Table 4 about here>

Several control variables also have significant associations with a child care center director’s satisfaction with performance. In both models, the proportion of teachers with a Bachelor’s degree is positively associated with the director’s perception of organizational performance. In addition, the ordered logistic regression model indicates that being part of a larger organization is positively associated with the director’s satisfaction with performance. Meanwhile, there is a negative association between our dependent variable and the length of the contracting relationship. In the dichotomous logit, a higher student-to-teacher ratio has a negative association with the center director’s

satisfaction. Also, a higher percentage of white students is associated with better performance in this model.

As a sensitivity analysis, we ran two additional models (not shown). First, we used an OLS model to regress our original (ordinal) dependent variable measuring directors' satisfaction on all independent variables. Second, we recoded our ordinal dependent variable into a dichotomous variable using a more traditional approach, i.e., coding "very satisfied" and "somewhat satisfied" as 1, and the rest of the response categories as 0. This variable was used to run a dichotomous logit. Both models produced results similar to those shown in Table 3.

Next, we ran two models using the number of regulatory violations detected during the state licensing inspection at each center as a dependent variable. Contrary to the results from the perceived performance models, none of the key independent variables were significant in either of these models as shown in Table 5. However, several control variables have significant associations with contractor performance. Similar to the perceived performance model, the estimated parameters for the *proportion of teachers with BA degrees* and *student-teacher ratio* have the expected signs indicating better teacher quality and smaller numbers of students per teacher are associated with a reduced number of violations. Two other variables capturing the effects of available organizational resources are also significant, but the directions of the associations are mixed. While the *budget-student ratio* shows a positive association with the number of violations which is contrary to expectations, *annual budget* has a negative association with the number of violations as hypothesized. Finally, having external ties to a larger umbrella organization is negatively associated with the number of violations.

<Table 5 about here>

DISCUSSION

This paper makes an empirical contribution to the contracting literature by examining the association between the design of contracting relationships and contractor performance. Consistent with assertions by Deakin et al. (1994) and Allen et al. (2002) that trust and the degree of formalization can play complementary roles in contracts, this paper conceptualizes contracting relationships as varying both in the extent to which they involve formal contract specification and the extent to which they rely on cooperation and trust. In situations where the relationship between the government and contractor is strong, contractors actively participate in contract design and implementation. These contracting relationships also involve openness and depend on collaboration to resolve day-to-day operational problems. Meanwhile, completeness involves generating and enforcing formally documented conditions, standards, and performance measures.

This study finds partial support for Hypothesis 1a: relationship strength is positively associated with perceived contractor performance but not with the number of regulatory violations. Contractors that had stronger ongoing relationships with the government (i.e., those existing during contract implementation, rather than at the contract specification stage) were more satisfied with the performance of their center. Child care centers reporting shared understandings of procedures, agreement on contract goals, high communication quality, and cooperation in contract implementation were more likely to be satisfied with the overall quality of their facility. These findings suggest that having participatory contract implementation may allow contractors to: (1) have a voice in developing meaningful contract monitoring procedures, (2) provide feedback and

share their understanding of contract goals and government agencies' expectations, and (3) communicate openly and frequently while seeking help in the case of operational problems. These mechanisms may result in contractors being more satisfied with their child care center's effectiveness.

Relationship strength seems to matter during contract implementation but not in contract specification. While *current relationship strength* is positively associated with perceived contractor performance, *collaborative contract development* is not significantly associated with either perceived performance or the number of regulatory violations. Thus, the ongoing relationship dynamics between the contractor and government agency appear to have a greater impact on contractors' assessment of their performance than the relationship dynamics that exist during the short period of contract specification.

In addition, we find partial support for Hypothesis 2b: the extent to which a contract is complete is negatively associated with perceived contractor performance but there is no association between contract specificity and the number of regulatory violations. Contractors who reported being required to comply with the formally documented standards and procedures were less satisfied with their center's performance. Having a contract with a high degree of formalization may force vendors to spend scarce organizational resources on complying with procedural and reporting requirements and give them less time to focus on core programmatic activities. As a result, contractors may believe that their performance has suffered. Having a contract with a high degree of formalization also may increase the likelihood that the vendor will perceive at least some of its procedural and reporting requirements as unclear, unreasonable, or overly strict. This is another reason why lower satisfaction may be associated with such contracts.⁹

The opposite signs of our two key independent variables in the models where perceived performance is the dependent variable are notable. While having an informal, shared understanding of rules and procedures has a positive association with perceived performance, having documents that formally describe those rules has the opposite association. While being able to “pick up the phone and call” the Head Start agency is associated with enhanced performance, having formal documents that describe the procedures for communicating with the agency is not. Having a close relationship with the government may empower the contractor and means that the vendors can “initiate” interactions, freely discussing their operational issues and seeking feedback. On the other hand, formally specifying the procedures for communication presumes that the informal ties are not there, and the formal ones may be viewed as constraints. Thus, the extent that informal, trust-based strategies are used in place of more formalized ones in contracting relationships appears to be crucial in determining organizational performance, at least as it is perceived by the contractor.

The arguments presented above suggest that that having a stronger relationship or lower levels of contract specification should also be negatively associated with the number of violations identified by the government inspectors. This study, however, fails to find any evidence of such effect: relationship design variables are insignificant when regulatory violations as used to measure contractor performance. What our findings may suggest is that when contractors feel comfortable and satisfied *with their relationships* with the government agency, they will also be likely to feel comfortable and satisfied *with their performance*. Similarly, being required to comply with the formally documented standards and procedures may contribute to the vendors’ frustration due to

the need to spend organizational resources on complying with these formal requirements. On the other hand, the way relationships are structured has no impact on the more objective measures of contractor performance – their likelihood of violating a rule or a procedure. Thus, while the literature on relational contracting has only now begun exploring the effect of collaborative strategies on performance, our study suggests that the question must be reframed to differentiate the effects of relationships on the distinct aspects of organizational performance.

In addition to two of our explanatory variables being significantly associated with one measure of contractor performance, we find significant associations between several control variables and at least one of our dependent variables. Here we highlight the most interesting associations. Recent performance management studies have frequently stressed that management matters for organizational performance (Forbes and Lynn 2005; Goerdel 2006; Moynihan and Pandey 2005). We find partial support for an association between managerial capacity and contractor performance. The following measures of managerial capacity demonstrate a significant association with contractor performance in the expected direction in at least one of our models: *proportion of teachers with BA degrees*, *student-teacher ratio*, and *annual budget*. In addition, the *budget-student ratio* is significantly associated with contractor performance but in the opposite direction than hypothesized.

Our analysis also provides partial support for an association between relationship length and center performance. This finding is particularly significant since our analysis focuses on human service agencies where the common predicament is “once a contractor, always a contractor.” First, long-term relationships may be more prevalent in small and

non-competitive markets. In such cases, the absence of competitive markets could discourage the vendors from excelling (especially if the contracts were politically motivated), and the government agencies may be forced to partner with organizations despite performance problems. Second, as the regulatory requirements in the field of health and human services are becoming more complex, the child care centers that were given contracts many years ago may have a hard time satisfying the current expectations of the government inspectors. Finally consistent with arguments made by DeHoog (1990), longer contracts may result in monitoring arrangements where relationships become more important than performance, and the increasing latitude in government oversight translates into lower performance. Thus, contractors' motivation and commitment to excel in child care would tend to diminish as the relationship continues.

CONCLUSION

For years, public management scholars have expressed concern over government agencies' contract monitoring capacity. In order to ensure public managers are investing their time and resources as effectively as possible, it is important to understand what monitoring mechanisms are going to make a difference for the "outcomes" government agencies care about, rather than using those that merely "satisfy" the vendors. Ultimately, whether or not these findings mean that public managers should invest more or less of their time focusing on relationship development and contract specification, depends on the merits of each performance measure used in this study.

Objective measures are often a key source of performance data informing government agencies' decisions. Our study's violation measure mostly focuses on the health and safety of child care settings. This measure may be perceived as overly formal

and rigid and may be applied in ways that do not take into consideration the service delivery context and the holistic impact of child care services. Subjective measures, on the other hand, may be more comprehensive and informed by an in-depth knowledge of conditions in the field and client outcomes. However, they may also reflect the contractors' understanding of organizational and programmatic goals that may or may not coincide with those of the government agencies. Thus, each measure may be argued to have its strengths and weaknesses. This study suggests that objective measures of contractor performance collected by government agencies may not always correlate with the contractors' own perception of organizational performance. Based on this, governments should be encouraged to collect performance information from a variety of sources in order to capture the complex, multi-dimensional nature of performance. Possible sources of performance measurement data include: government contract managers, contractors, third-party inspectors, and service recipients.

This study finds that efforts to make contracts more complete and to strengthen relationships appear to matter for subjective assessments of contractor performance but not for more objective measures of performance. If future research confirms these findings, public management scholars should continue to explore alternative managerial strategies and identify ones that do affect objective measures. Likewise, public managers should be cautioned against investing significant resources in carefully detailing as many contractual contingencies as possible and cultivating strong relationships with contractors if these investments are not going to improve the actual quality of contracted services.

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⁴ To confirm the measurement model, we employed a confirmatory factor analysis with the four measures of the *current relationship strength* variable using principal component analysis method. The result shows that there is only one factor whose eigenvalue is higher than one. The eigenvalue for this factor is 3.044. The produced factor loadings are “shared procedures” (0.844), “goal agreement” (0.886), “communication quality” (0.881), and “cooperation in contract implementation” (0.878).

⁵ By “this agreement” the interviewer is referring to the contract itself, as indicated in the earlier questions.

⁶ The variable measuring directors’ satisfaction with the center – our first independent variable – has only one missing case and we imputed the mode to retain that case in our analysis. There were less than five missing cases in any of the relational design variables and we imputed means (the means and the medians had similar values). The second dependent variable measuring the number of violations had 32 missing cases. Since this number is substantial, we did investigate the determinants of missing data for this variable by running a logit model with the dependent variable indicating missing data for the number of violations. We found that no key variables (pertaining to relationship design) were significant in that model with the exception of collaborative contract development. This variable positively predicted the missing data at 0.10% confidence level. For sensitivity analysis, we have imputed the median number of violations for the missing 32 cases (5 violations) and ran our regressions with this new dependent variable. The effects of independent variables remained unchanged. The proportion of missing cases among control variables was well below 5%, and we imputed average or mode values.

⁷ We conducted a collinearity diagnosis using VIF and condition index. All the VIF values (1.123~4.122) are much lower than the typical cut point, 10 (Allison, 1999). We chose 30 for the critical value of condition index following Gujarati (1995) and 0.5 for the proportion of variation index threshold as suggested by Besley, Kuh, and Welsch (1980). Only one of the condition index scores (56.211) exceeds 30. At the highest condition index level (i.e. 56.211), none of the proportion of variation scores is greater than 0.5, except for *reliance on government funds* of which the variation proportion is 0.602. When only one high variation is associated with the highest condition index, the potential collinearity does not exhibit degradation (Besley et al. 1980). Therefore, we conclude that the estimation is not biased by collinearity.

⁸ The marginal change in odds was calculated by using the `prchange` command in STATA.

⁹ We are unable to rule out the possibility of reverse causality in our model. Given this, another possible interpretation of our results is that poor contractor performance results in the adoption of more formalized contracts. Based on the operationalization of our variables, it is also possible to interpret our results as indicating that contractor staff who believe their organizations are performing well are less likely to perceive formalization in their relationships with the government.