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Democratic-Constitutional Values and Procedural
Tasks in Federal Agencies

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Federal Agencies

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ABSTRACT

Contracting out has been considered one of the main performance management strategies to reduce costs and bring more expertise to government agencies. However, there is a lack of research analyzing the influence of contracting out on complex services for non-traditional performance outcomes that are difficult to measure. This study particularly examines whether contracting achieves better performance in complex services for democratic-constitutional, procedural (DCP) tasks compared to in-house delivery. Using agency level panel data on discrimination complaint processing from the U.S. Equal Employment Opportunity Commission (EEOC), the findings show a mixed relationship between contracting out and performance in DCP tasks measured with two proxy metrics—timeliness and costs. An increase in the use of contractors is associated with a decrease in the average cost and a decrease in timeliness.

Introduction

To enhance government performance, several performance management strategies have been implemented in result-oriented public management systems. Under result-oriented management systems in the United States, there has been a widespread use of contracting out as one form of privatization. Governments usually utilize contracting out strategies by making a contract with external entities in order to “deliver a service or perform a function for the government” (Fernandez & Smith, 2005, p. 357). As the demands of services have become extensive and more complicated, it is more likely that governments attempt to use private sector expertise to lower costs and reduce regulations to meet their policy goals, by contracting out.

Public administration scholarship has explored the effects of contracting out and the conditions in which contracting out becomes effective in public organizations (Bertelli & Smith, 2010; Brown & Potoski, 2003; Brown, Potoski, & Van Slyke, 2010; Fernandez, 2004; O’Toole & Meier, 2004; Van Slyke, 2003). As contracting out has been used for a broader range of public services, performance in contracting for complex services, also called “soft” services, has been paid attention to but challenging. Although governments are not highly recommended to use contracting out strategies for soft services of which performance is difficult to measure in theory, contracting for complicated services is likely to crop up in practice.

Considering the difficulty of tracking the performance of government contractors providing complex services two important issues deserve our attention. First, we know little about whether contracting is a beneficial strategy for complex human resource management services. Most studies have focused on the implementation of contracting out strategies in street-level service or product delivery, such that there is a lack of evidence about how contracting out strategies for the workforce management perform (with the exception of Lu, 2013). Second,

contracting performance in complex services in pursuit of democratic-constitutional, procedural (DCP) values has been less examined. DCP values can be defined as the values that an agency pursues according to legislation and the Constitution, often known as non-mission-based values or mission-extrinsic public values (Baehler, Liu, & Rosenbloom, 2014). Earlier research on privatization offers evidence based on the assumption that privatization strategies are implemented for achieving efficiency and effectiveness in a program whose outcomes are clearly measurable. As the outcomes of such complex services for DCP values such as equity and due process cannot be easily measured and observed, it needs to be more careful when the DCP-related tasks are contracted out. Accordingly, there is more room for investigating the influence of contracting out on the performance of programs whose outcomes are not clearly measured and observed.

Given this, the purpose of this study is to examine the impact of contracting out on agency performance in DCP tasks. It aims to answer the following research question: Does contracting achieve better performance in complex human resource management services for DCP values compared to in-house delivery? In answering this question, this study proceeds as follows. First, this article defines DCP values and places an emphasis on the importance of such values in the public administration domain. Second, this paper presents the models and hypotheses for testing outcomes of contracting for complex services aligned with DCP values. To do this, prior studies of contracting are reviewed and integrated into the literature on performance measurement of DCP endeavor. Third, after providing a description of data and methods, the results and implications of the study are presented. In particular, this study provides an empirical analysis of testing hypotheses in the context of Equal Employee Opportunity (EEO)

discrimination complaint procedure as an example of DCP-related tasks. This study also suggests theoretical and practical implications of the results.

Democratic-Constitutional, Procedural Values and Tasks in Public Administration

Before reviewing the current literature on contracting out and performance on DCP tasks, it is worth first clarifying what DCP values and tasks are and discussing why we need to pay attention to these values in the public administration domain. To begin with, DCP values can be broadly defined as the values that an agency pursues according to legislation and the Constitution, including equity, transparency, individual rights, due process and so on, above and beyond specific program requirements. These values are often known as non-mission-based values or mission-extrinsic public values (Baehler et al., 2014). This study defines DCP tasks as “non-mission-based tasks” that ultimately pursue values that are based on the Constitution or legislation.

Waldo (1948) strongly argues that democratic values must coexist with administrative values such as efficiency and effectiveness, with a strong belief that public administration does not differ from political theories and principles. In his book *The Administrative State*, he states that efficiency is “a major objective of public administration, but it must be ‘socially and humanly interpreted’” (Waldo, 1948, p. 197). Therefore, it is not surprising that “social equity should be the third pillar for the theory and practice of public administration” (Frederickson, 1990, p. 235). This is also well articulated in Frederickson’s normative idea of New Public Administration, which integrates social equity and political systems in public administration (Frederickson, 2016). While we know little about how traditional federal employees are faring, we know even less about the growing contract workforce. All in all, it is essential to keep a

balance between managerial values (i.e., efficiency and effectiveness) and DCP values in public administration, by embracing such democratic values into a performance management strategy (Radin, 2006; Stivers, 2008).

With respect to performance management and measurement, there is existing literature on DCP values, especially focusing on equity, fairness and transparency (see Radin, 2000; Rosenbloom, 2007; Wood & Lewis, 2017). However, “there is no universal protocol in the literature on strategic planning and performance measurement with regard to the treatment of non-mission-based, democratic-constitutional values” (Piotrowski & Rosenbloom, 2002, p. 651). Relying on performance measurement may lead agencies to pay attention to measurable indicators and to neglect other outcomes that are important but difficult to quantify (Hatry, 2007). He particularly argues that equity is often ignored in performance measurement discussion, in spite of its importance in public programs. The main problem is that although some may argue that democratic values can be integrated into agency missions, “their direct connection to specific performance outputs and outcomes is difficult or impossible to measure” (Piotrowski & Rosenbloom, 2002, p. 651). This inattention to non-mission-based values, which can be classified as a form of goal displacement, results in the neglect of important performance of DCP values under a results-oriented public management system.

Contracting Performance for Complex Services with Mission-Extrinsic and DCP Tasks

As reviewed, it has been argued that contracting is an effective strategy that can enhance government performance. Prior work, however, has more focused on contracting cases for traditional government services and products (e.g., refuse collection) that can be easily quantified or measured. It is less examined whether that argument is still valid for non-traditional

performance outcomes of DCP tasks that are relatively hard to measure and observe. In other words, the following question still remains: Is there any evidence that contracting out is as beneficial to agency performance in services for DCP values (i.e., DCP tasks or DCP endeavor) as it is to performance in conventional service delivery?

This question is worth asking because most DCP endeavors are difficult to measure, which makes it important to examine whether contracting is effective for complex services with difficult-to-measure performance outcomes. Kelman (2002) puts an emphasis on performance measurement in contracting, as it can be a great challenge for public managers when managing contracting. Proponents of privatization and small governments usually believe that contracting is still beneficial to the programs whose outcomes are difficult to observe and measure (Bennett & Johnson, 1981; Savas, 1982), although empirical evidence has been relatively limited (except for DeHoog, 1985). However, in contracts for difficult-to-measure services, it is not easy to set clear standards and measures for tracking contractor performance (Kelman, 2002).

Linking literature on performance measures to contracting performance literature, it is clear that effective contracting may depend on the degree to which performance is easy to measure, so that the contract enables principals to assess the outputs or outcomes of the service. If performance can be easily measured and assessed in government contracting, it would have agents held accountable for what they perform (Van Slyke, 2003; Van Slyke & Roch, 2004). Conversely, when performance outcomes are difficult to measure and observe, this is likely to create a higher risk of principal-agent problems, which in turn leads to contracting failure. Thus, in principle, it is often suggested that in-house delivery is more suitable for certain services and products, acknowledging that these kinds of public services can make the principal-agent

problems much more complicated (Brown, Potoski, & Van Slyke, 2006; Hefetz & Warner, 2004; Hirsch & Osborne, 2000).

There is a small but growing number of empirical studies examine contracting performance for complex services; studies show mixed results in terms of the impact of contracting out on performance, with regard to non-traditional outcomes of DCP tasks. On the one hand, a few studies find that contracting out for DCP tasks has a positive influence on performance, in spite of difficult-to-measure outcomes, which is consistent with what proponents of contracting out have maintained. In the context of Freedom of Information Act (FOIA), for example, a study observes that “the use of federal FOIA contractors is not widespread, but if used judiciously to expedite old FOIA requests, they may improve the speed of the release process” (Piotrowski, 2007, p. 80). In addition, it is suggested that contracting out for social service programs is more effective when competition, trained state contract managers and government managerial capacity exist (Romzek & Johnston, 2002; Van Slyke, 2003).

On the other hand, some findings show either a negative or not positive relationship between contracting out and performance in DCP endeavors. Contracting out can fail to increase performance of social service programs when there is still monopoly power in the private sector (Van Slyke, 2003). As a more normative view, opponents of contracting out also argue that contractors, who often value their profits and self-interests more, are not the right people to deliver public goods and services for DCP values, because of the conflict between these values. Thus, government employees, not contractors, should play a role in releasing government information (Piotrowski, 2007). Privatization generally reduces transparency, because private contractors are not legally responsible for regulations (Rosenbloom, 2007).

Measuring Government and Contracting Performance on DCP Tasks

It is argued that in-house delivery is more appropriate for difficult-to-measure or complex services, because there is more possibility of failing when complex services and products are contracted out. Notwithstanding, what if public agencies finally decide to contract these difficult-to-measure services out to the private agent, instead of or in addition to in-house delivery? This point is a more important one to raise, because in practice a government cannot always provide in-house delivery of complex products and services, and the contracting areas of government programs and services have been expanded, due to fiscal restraint and personnel flexibility (Brown, Potoski, & Van Slyke, 2018; DeHoog, 1985). Also, these kinds of service include social services and human resource services that usually pursue DCP values (e.g., equity, fairness and public safety) as ultimate goals. Thus, the provision of these social services and human resource services is often operated under federal laws and regulations (e.g., Title XX of Social Security Act and Titles II and IV of the revised Comprehensive Employment and Training Act of 1978) (DeHoog, 1985).

Due to the difficulty of measuring and assessing non-traditional performance in DCP values, some scholars attempt to find alternative ways to measure program performance for DCP tasks that are not easy to measure. Hatry (2007) gives a great insight by categorizing the programs with difficult-to-measure outcomes and suggesting alternative measures for each case. For example, for the programs that might take a long time to produce outcomes, he suggests “agencies can track early intermediate outcomes such as the percent of time that reports and plans were provided on schedule” (p. 76). In addition, for the programs whose outcomes do not occur very often (such as emergency response programs and federal or state litigation programs), “indicators might include response times and the number of people who are served over the

periods” (p. 76). His suggestions are worthwhile in that most outcomes of the programs for DCP values may take many years to be achieved and sometimes might not frequently appear. This implies that having those proxy measures would be helpful to reduce difficulties of measuring performance in DCP endeavors.

In contracting relationships, even though outcomes are difficult to measure, “service performance can still be assessed if it is relatively straightforward to monitor the activities of the vendor, and these activities are reasonable proxies for desired outcomes” (Brown et al., 2006, p. 326). Thus, for performance of the DCP tasks which are not easy to measure, public agencies can utilize proxies, and this mitigates the possible drawbacks that occur in contracting out with difficult-to-measure services. This is somewhat relevant to the performance contracting ideas that governments put effort into, identifying and elucidating performance metrics in DCP tasks. As a result, it is possible to assess contracting performance of DCP tasks by utilizing proxies of performance outcomes in DCP tasks, focusing on the milestones that must be met in the procedure of DCP tasks.

With respect to proxy metrics to be used, this article utilizes timeliness and costs of completing procedural milestones as performance measure of DCP tasks. Wood and Lewis (2017) measure agency performance on non-mission tasks in the FOIA process, which pursues transparency. Because transparency is one example of DCP values that are hard to measure and observe directly, they used four proxy measures instead— time to confirm, time to respond, the number of exemptions and whether or not the agency charged fees. In Piotrowski's (2007) study, the speed of processing tasks was taken as a proxy measure in order to assess contractors' performance in FOIA requests, which is hard to measure directly. In other words, they focus on

timeliness measure and specific activities that must be done during the process as alternative measures of performance on the tasks that are ultimately for achieving government transparency.

Combined, the main argument is straightforward: contracting is effective even for complex services with DCP tasks that are difficult to measure, if appropriate proxy measures are used for measuring performance of DCP tasks. In particular, this study suggests that the performance of complex services with DCP tasks can be managed by using proxies—time and costs of completing the milestones that must be done during the process. Acknowledging the difficulty of directly assessing performance of DCP tasks, having those proxies might be useful for principals to track and monitor outputs of procedural activities, which is one way of increasing contract management capacity. All in all, this study hypothesizes the following:

H_{1a}: Agencies having more contractors will have better performance on DCP tasks measured in timeliness measure.

H_{1b}: Agencies having more contractors will have better performance on DCP tasks measured in average costs.

In addition to contracting use as an independent variable, it is worthwhile to mention that this study also includes staff expertise and task complexity as control variables based on the literature. According to the literature, these two variables are the factors that might account for contracting performance. First, in terms of staff expertise, previous studies have argued that public agencies are easily captured by contractors possessing high skills sets, when the agencies do not have employees with sufficient knowledge and skills to monitor and assess contractors'

performance. Also, public managers' experience and knowledge help to structure detailed agreements which "strengthen public management's capacity to conduct rigorous oversight and to enforce accountability" (Van Slyke & Hammonds, 2003). Second, this study controls *Task complexity* as the degree to which the task is complex can also influence contracting performance. Task complexity can be referred to as "the degree of difficulty in specifying and monitoring the terms and conditions of a transaction" (Globerman & Vining, 1996, p. 579). Prior studies discuss the role of task complexity in contract dynamics, as task complexity might be a challenge in effective contracting. High task complexity means tasks consist of a series of rules or legal requirements, such that it is more difficult to draft specific terms and conditions. Accordingly, when highly complicated tasks are contracted out, it makes it extremely difficult for public managers to specify contract details (Fernandez, 2004).

The EEO Discrimination Complaint Process: An Example of Performance on DCP Tasks

To test these hypotheses, this study looks at contracting out performance in the context of the EEO discrimination complaint process. The EEO discrimination complaint procedure is an appropriate context to look at contracting performance on DCP tasks for two reasons. First, the EEO discrimination complaint process can be considered as a series of DCP tasks, as the ultimate goal of the process is to promote fair and non-discriminative work environment in the federal agencies. Second, both (in-house) agency EEO employees and EEO contractors serve in the EEO discrimination complaint process.

This discrimination complaint process is legally based on Title VII of the Civil Rights Act of 1964 (Title VII). According to this law, it is illegal to "discriminate against someone on the basis of race, color, religion, national origin, or sex" (U.S. Equal Employment Opportunity

Commission, 2017). From 1972 onwards, the EEOC has been in charge of overseeing the enforcement of non-discrimination laws. In this process, complainants explain when and why they feel they have been treated inappropriately by the law. To deal with the discrimination complaints, EEO staff need to counsel a complainant or/and investigate the discrimination case to see if the discrimination has actually occurred.

There are several procedural milestones that must be met within a specific time frame, when a federal employee believes that he or she experienced discrimination in the workplace. First, once the federal employee believes that there is an incident of discrimination, they are required by regulation to contact an agency EEO counselor “within 45 days from the date discrimination is alleged to have occurred” (Lipnic, 2017, p. 4). At this stage, the EEO counselor will advise the employee to choose either EEO counseling or an alternative dispute resolution (ADR) for mediation. If the claim is not settled through this informal complaint process, the agency EEO office will issue a notice of the right to file a complaint, and the employee can file a formal discrimination complaint “within 15 days from the date notice from an EEO counselor about how to file a complaint is received” (Lipnic, 2017, p. 4). From the date the discrimination complaint is formally filed, regulations require the agency to complete the investigation within 180 days, with a few exceptions.

In every stage of the informal and formal EEO complaint process, (in-house) EEO agency employees or/and EEO contractors facilitate review of a discrimination case by serving in one of three roles: counselors, investigators, or consolidated counselors/investigators. Within this procedure, EEO contractors play a part in the process by counseling or investigating the discrimination complaints. They can be involved in procedural activities to achieve democratic-

constitutional values (i.e., non-discrimination and fairness), even though they may not make the final decision.

Data and Measures

This study aims to answer the following research question: Does contracting achieve better performance in complex human resource management services for DCP values compared to in-house delivery? To explore this question, this study mainly uses the 2013-2016 Federal EEO Statistical Report of Discrimination Complaints (EEOC Form 462 reports) data. Among the agencies which submitted EEOC Form 462 reports, National Guard agency units and United States Postal Service (USPS) observations are excluded in this analysis. Also, this study also excluded eleven federal agencies where there is no EEO workforce and four intelligence-related agencies where there is no workforce report over at least one year. Finally, 356 observations at agency level (89 federal agencies in 4 years) are included in the analysis.

Dependent Variables

Performance in DCP endeavor. As discussed earlier, this paper employs two proxy measures – timeliness and costs of completing milestones that should be met – for measuring performance in DCP tasks. Timeliness and costs are calculated by the following items below:

- Timeliness = A consolidated measure calculating the average of the proportion of timely completed cases of counseling (excluding remands), the proportion of timely completed cases of investigations, and the proportion of timely completed cases of merit final agency decisions (FADs) without administrative judge (AJ) decision (see details in table 1).
- The average cost of investigations (inverse item).

Independent Variable

Contracting Use. This study operationalizes contracting use with the percentage of EEO contractors. The percentage of EEO contractors is calculated by taking the number of EEO contractors divided by the total EEO workforce (i.e., all counselors, investigators and counselors/investigators) and then it is multiplied by a hundred. When it comes to counting the EEO workforce, it is worth noting that the EEO workforce consists of full-time, part-time, or collateral duty staff. Considering the difference between the positions, this study puts different weights on these roles: the number of full-time EEO staff, half of the number of part-time EEO staff, and a quarter of the number of collateral duty EEO staff (see table 1). For example, when there are thirty full-time EEO staff, ten part-time EEO staff, and sixteen collateral duty EEO staff in an agency, the study considers that the number of EEO workforce is thirty-nine in total.

Control Variables

This study mainly includes control variables based on the literature or practical evidence. As mentioned earlier, staff expertise and task complexity are controlled as the factors that might account for contracting performance. To measure staff expertise, this study takes a weighted average of the number of EEO employees using six categories of EEO staff training hours for both experienced and new EEO staff. As experienced EEO staff's level of expertise may not be the same as new EEO staff's in addition to the different training hours, I put different weights (in six points) for the number of EEO staff in each category and take the average of it to measure agency-level staff expertise. More detailed formula is presented in table 1. In terms of the measure of task complexity, this study utilizes proxy measure using the proportion of unresolved

cases in the ADR program. When the discrimination complaint case is complex and it is hard to find the cause, it might not be easily resolved in the ADR process, which is one of the pre-complaint processes. Thus, the rate of the unresolved cases in the ADR process (i.e., the ADR resolution rate subtracted from one) can be used as a proxy when measuring task complexity. This study calculates the ADR resolution rate, taking the total number of completed ADR cases (with settlements with benefits and no formal complaint filed) divided by the total number accepted into the ADR program.

The other control variables are not directly from the literature but to account for agency characteristics or year dummy variables. First, this study includes *Independence of the EEO director* variable which indicates whether or not an agency EEO director reports to the agency head. The EEOC (2014) describes why independence of agency EEO directors is crucial stating that “[b]y placing the EEO director in a direct reporting relationship to the agency head, the agency underscores the importance of the EEO to the agency’s mission and ensures that the EEO director is able to act with the greatest degree of independence” (p. I-1). In addition, the type of agency categorized by the mission is controlled by including *Types of Agency Mission* variable. Agency mission types can be potentially related to the EEO process in a way, so it might be helpful to control such differences for the analysis. Following Rubin, Park, & Alteri's (2017) work, this article adopts ten categories based on agency mission areas, including financial regulation, science and research, energy and environment, public health, economic development, oversight, law enforcement, social support, national security, and all other agencies. In addition to these, *Workforce* is included to control for the size of the agencies by taking the natural log of the number of employees, and *Year* dummy variables (base year is 2013) are added in the model to control for the effect of the unchanging characteristics of the year across the units.

[Insert table 1 here]

Model and Methodology

Deeply grounded in the theories and literature, this research develops model specifications and suggests hypotheses for answering the research question: Does contracting achieve better performance in complex services for DCP values compared to in-house delivery? In terms of performance in complex services for DCP values as a dependent variable, this study looks at two separate measures: (1) timeliness and (2) average costs. Considering this, this study uses a fixed effect model as follows.

$$PERFORMANCE_TIMELINESS_{it} = \beta_0 + \beta_1 CONTRACT_{it} + C + \delta_t + v_{it}$$

$$PERFORMANCE_COSTS_{it} = \alpha_0 + \alpha_1 CONTRACT_{it} + C + \gamma_t + \varepsilon_{it}$$

(i= agency and t=year)

where $PERFORMANCE_TIMELINESS_{it}$ is the proportion of timely completed tasks; $PERFORMANCE_COSTS_{it}$ is an average cost of investigation; $CONTRACT_{it}$ is the proportion of having contractors out of total EEO staff (a continuous variable for Model I or a categorical variable for Model II); C includes control variables; γ_t and δ_t represent year fixed effect; ε_{it} and v_{it} are error terms; and α_1 and β_1 are estimable parameters.

This study runs both fractional response generalized linear models (GLM) and ordinary least squares (OLS) regression models. Whereas OLS regression can be used for costs performance measure, it needs to be careful to use OLS regression for timeliness performance measure as a dependent variable. It is possible that OLS assumptions might not met when the dependent variable is indicated in the proportion. In particular, OLS regression model might not be appropriate for predicting timeliness operationalized in the proportion which has the interval from 0 to 1. In this case, a fractional response generalized linear model is more suitable for predicting values, which is “quasi-maximum likelihood estimation with a fractional logit technique” (Papke & Wooldridge, 1996; Smith & Fernandez, 2010, p. 92).

In particular, we separate into two models for each measure of the dependent variable—timeliness and average costs – to provide robust regression results. Model I tests the effect of contracting on agency performance in DCP tasks by utilizing contracting use as a continuous variable. In Model II the contracting variable is recoded into a categorical variable with the first category representing *Low Contracting Use* if the percentage of contracting use is equal to or below the first quartile, which is the bottom 25 percent. The second category is indicated as *Low/Medium Contracting Use*, if the percentage of contracting is between the first and the second quartile and third category is *Medium/High Contracting Use* where the percentage of contracting is between the second and the third quartile. The last category is *High Contracting Use* where the percentage of contracting is equal to or above the third quartile which is the top 25 percent. For the purpose of this study, it will be focused on the comparison between the top 25 percent group (i.e., *High Contracting Use*) and the bottom 25 percent group (i.e., *Low Contracting Use*) in model II.

Results

Prior to estimating the models, the descriptive statistics of the study are presented in table 2. Overall, the percentage of contracting use in EEO workforce (i.e., the percentage of EEO contractors out of total EEO staff) is roughly 50 percent. This shows that EEO workforce is quite balanced between (in-house) agency EEO employees and EEO contractors in federal agencies. However, when we look at the percentages in detail, it is interesting to see a big difference between the percentage of EEO contractors who are counselors or investigators. In terms of counselors, the percentage of contracting use is about 15 percent. When it comes to investigators, the percentage of EEO contractors is about 89 percent. This tells us that federal agencies tend to use contracting out especially for conducting investigations that need a much higher skill set.

[Insert table 2 about here]

In testing the hypotheses with suggested models, a correlation matrix offers preliminary snapshots of the association between contracting use and two performance measures (see table 3). Contracting use is significantly and negatively correlated with timeliness and average costs of completing milestones of DCP tasks. The results of the fractional response GLM estimations as presented in table 4 do not support for hypothesis that agencies have more contracting use in DCP tasks tend to have better performance measured in timeliness of completing DCP tasks. When contracting use is indicated as a continuous variable in model I, there is a significant and negative relationship between contracting use and timeliness, not supporting Hypothesis 1a. If a

percentage of contracting use for DCP tasks increases, the proportion of timely completed DCP tasks will be decreased. The results of model II where the high percentage of contracting use group (i.e., *High Contracting Use*) is compared with the low percentage of contracting use group (i.e., *Low Contracting Use*), are also consistent with the previous findings of model I. When model II including contracting use as a categorical variable is tested separately, the findings present that *High Contracting Use* agencies are more likely to have untimely completed DCP tasks compared to *Low Contracting Use* agencies (see table 4).

[Insert tables 3 & 4 about here]

Table 5 reports the marginal effects from the fractional response GLM estimations which offer more substantial findings. The marginal effect indicates that a one-unit increase of contracting use (i.e., one percentage point) decreases 0.16 percentage points in timeliness of completing DCP tasks at the mean values of all predictors (see table 5). In other words, a ten-percentage point increase of contracting use will result in a 1.6 percentage point decrease in the proportion of timely completed DCP tasks. Focusing on the extreme cases, the marginal effects from the model II indicate that agencies that use contractors at the highest rates decrease the probability of having timely completed tasks (i.e., timeliness) by twelve percentage points compared to the reference group agencies that use contractors at the lowest rates.

[Insert table 5 about here]

The results of the OLS regression analysis are shown in tables 6. Table 6 reports the regression results when we set both timeliness and average costs of completing milestones as agency performance measure of DCP tasks. While it is not the primary goal of using OLS for timeliness measure, it is worth mentioning that the OLS regression results are consistent with the previous findings of the fractional logit estimation using a GLM: a significant and negative association between the timeliness and contracting use.

With respect to the OLS regression models on average costs, the results show that contracting use is significantly and negatively related to average costs (see table 6). Because lower average costs are better (e.g., saving more costs), the results of regression analysis for average costs need to be interpreted inversely. The findings indicate that agencies using more contractors experience lower average costs of completing DCP tasks. Thus, this result implies that agencies using more contracting are more likely to have better performance in DCP tasks measured in average costs, which supports Hypothesis 1b. The results of model II regression on average costs offer a more direct comparison between *High Contracting Use* agencies and *Low Contracting Use* agencies. Overall, the results echo the main findings shown in model I. In detail, it is indicated that agencies which are placed in top 25 percent of contracting use are likely to have lower average costs compared to the ones placed in bottom 25 percent of contracting use.

[Insert table 6 about here]

Discussion and Conclusion

The goal of this study is to examine the influence of contracting out on agency performance in DCP tasks that is difficult to measure. This study offers mixed but intriguing findings on the effects of contracting use on agency performance in DCP tasks measured in two proxy metrics: timeliness and average costs. In terms of timeliness, the findings show that there is a negative association between contracting use and timeliness as performance measure of DCP tasks. By contrast, the results support the hypothesis that there is a positive relationship between contracting use and performance in DCP tasks measured in average costs. Regardless of the direction of the associations, the difference of performance in DCP tasks between high contracting use agencies and low contracting use agencies appears clearly, showing robustness of the results. This study is important in that contracting performance for complex human resource management services pursuing DCP values that are difficult to measure and observe is empirically tested by using proxy measures.

The findings therefore convey meaningful contributions to the literature on contracting performance for complex services. In particular, this study looks at contracting cases for human resource management services for DCP values whose outcomes are not easily measured. The results provide strong evidence that contracting for DCP tasks appears to be effective in terms of cost savings. This is consistent with what traditional contracting out theories have expected and argued, the use of contracting out is beneficial to cut down some costs. However, the findings on performance of DCP tasks measured in timeliness imply that agencies possessing more in-house

agency employees may do a better job, reemphasizing how difficult governments hold contractors accountable for performance in complex tasks.

In investigating the unexpected negative relationship between contracting out and timeliness performance measure, there is a possible reason that accounts for this negative association. Contractors might not thoroughly consider completing their case or job in a timely manner when it is not clearly specified in their contracts. In most price lists suggested by contract vendors, the main incentives are either case-based or time-based. Either of them is not the best incentive design that promotes contractors to complete their work as early as they can. For example, in a case-based incentive design, contractors are motivated to finish their cases regardless of timeliness. In a time-based one, they have no strong incentives to complete the cases as soon as possible because they are paid based on their time spent. Here we particularly look at the case of contracting for EEO services which have an exact time line set by law. Even in this case, the results of the study imply that hiring more contractors for DCP tasks may not be a suitable choice for agencies to increase the rate of the timely completed work, unless the timely completion of the work is considered in incentive designs.

This study provides empirical evidence of the impact of contracting out on performance of DCP tasks by focusing on quantitative analysis. That said, it is limited to revealing the performance mechanism of the EEO discrimination complaint procedure by considering a more nuanced context. Also, the analysis is still not causal because there might be some selection bias issues in why an agency choose to contract out, selecting specific contractors, and in allocating complaint cases between contractors and agency employees if an agency has both. Therefore, future research could add more qualitative components to elucidate contextual explanations on how federal agencies select contractors and how cases are being selected or assigned to the EEO

employees and the EEO contractors. The finding of the study might be more robust if it could analyze sufficient qualitative data through more contract documents or interviews with EEO contractors and agency EEO employees. For example, future studies could contain interviews with EEO contractors and agency employees, asking which factor might hinder better performance in the discrimination complaint process. These qualitative analyses would be useful to show the dynamics of contracting out performance in depth.

Nevertheless, the main contributions of this study are twofold. First, this study extends the literature on contracting performance for complex services by integrating the literature on performance measurement in DCP tasks into the contracting studies. While most previous studies have examined contracting cases for traditional services and products that are relatively easily measured, it has not been fully considered how contracting for complex services needs to be dealt with. This study gives some insights to the contracting literature by offering the use of proxy or alternative metrics to assess contracting performance in DCP tasks that are difficult to directly measure. In particular, this study uses timeliness and costs of completing specific milestones that must be met to accomplish mission-extrinsic and DCP values. Second, this research contributes to the literature on contracting out, by providing empirical evidence on the effect of contracting out on non-traditional outcomes of DCP tasks with using proxy measures. In the current literature, few studies examine whether contracting out affects such non-traditional outcomes, partially because the implementation of privatization assumes that performance outcomes are measurable and observable. The results of the study offer an interesting finding on contracting performance in DCP tasks, showing that that contracting out for complex and difficult-to-measure tasks is effective for saving costs of completing tasks but not for providing timely completed tasks.

In conclusion, these results deepen our understanding of the effect of contracting use on performance in DCP tasks. Given the paucity of empirical evidence, it is worthwhile to examine whether the use of contracting out affects performance of DCP tasks that are not easily measured. Testing the hypotheses in the context of the EEO discrimination complaint procedure, we find that contracting has mixed effects on non-traditional performance of DCP tasks. The analysis of the study somewhat supports what contracting theories and studies have argued. But the findings further the discussion, suggesting that contracting needs more sophisticated contract designs particularly when the outcomes are not easy to measure and observe.

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Table 1. Summary of Variables and Survey Items/Calculations

Variable	Survey Item(s)/Calculation(s)
Dependent Variables	
Performance	<p>Timeliness: The average of the three following:</p> <ul style="list-style-type: none"> • The proportion of timely completed/ended counseling (excluding remands) • The proportion of timely completed investigations • The proportion of timely merit final agency decisions (FADs) without administrative judge (AJ) decision <p>Average Costs: The average costs of investigations (inversely).</p>
Independent Variable	
Contracting Use	<p><u>Model I (continuous variable)</u> The percentage of EEO contractors = $100 * (\text{The number of EEO contractors} / \text{A total number of EEO workforce})$</p> <p><u>Model II (four dummy variables based on the quartiles)</u> Low Contracting Use = from the min to Q1 (base group) Low/Medium Contracting Use = from Q1 to Q2 Medium/High Contracting Use = from Q2 to Q3 High Contracting Use = from Q3 to max</p>
Control Variables	
Staff expertise	<p>Weighted average of the EEO staff training hours (in six points) = $(\text{The number of new staff receiving no training}) * 1 +$ $(\text{The number of new staff receiving more than 8 hours and less than 32 hours}) * 2 +$ $(\text{The number of new staff receiving more than or equal to 32 hours}) * 3 +$ $(\text{The number of experienced staff receiving no training}) * 4 +$ $(\text{The number of experienced staff receiving more than 8 hours and less than 32 hours}) * 5 +$ $(\text{The number of experienced staff receiving more than or equal to 32 hours}) * 6$ / Total number of EEO staff</p>
Task complexity	<p>The proportion of unresolved cases in the ADR process = $1 - (\text{The number of completed ADR cases with settlements with benefits or no formal complaint filed} / \text{The number of accepted into ADR program})$</p>
Independence of EEO director	<p>“Does the EEO director report to the agency head?” (Yes=1, No=0)</p>
Types of agency mission	<p>10 dummy variables (financial regulation, science and research, energy and environment, public health, economic development, oversight, law enforcement, social support, national security, and all other agencies).</p>
Workforce (ln)	<p>$\log(\text{The number of employees of the agency})$</p>
Year	<p>Year dummy variables from 2013 to 2016 (Base year= 2013)</p>

Table 2. Descriptive Statistics

Variables	N	Mean	SD	Min	Max
Timeliness	356	0.664	0.178	0.232	1
Average Costs	356	2662.511	1485.646	93.285	9857.67
Contracting Use	356	49.985	33.890	0	100
Staff Expertise	356	4.862	0.362	2.5	6
Task Complexity	356	0.520	0.227	0	1
Independence of EEO Director	356	0.593	0.492	0	1
Workforce (ln)	356	8.808	1.284	6.333	12.528

Table 3. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Timeliness	1					
(2) Average Costs	0.0354	1				
(3) Contracting Use	-0.1866*	-0.2995*	1			
(4) Staff Expertise	0.1051*	-0.0294	0.1002	1		
(5) Task Complexity	0.0745	-0.0781	0.1420*	0.0303	1	
(6) Workforce (ln)	-0.1172*	0.1766*	-0.3290*	-0.0081	-0.1560*	1

Note: * $p < 0.05$

Table 4. Fraction Response Generalized Linear Regression Results (Dependent Variable: Timeliness)

VARIABLES	(1) Model I	(2) Model II
Contracting Use (Continuous)	-0.00712*** (0.00136)	- -
Low/Medium Contracting Use	- -	-0.266** (0.123)
Medium/High Contracting Use	- -	-0.534*** (0.116)
High Contracting Use	- -	-0.550*** (0.133)
Staff expertise	0.190* (0.107)	0.188* (0.107)
Task complexity	0.162 (0.200)	0.118 (0.202)
Independence of EEO director	-0.023 (0.088)	-0.003 (0.087)
Workforce (ln)	-0.087** (0.038)	-0.081** (0.039)
Constant	0.523 (0.617)	0.484 (0.632)
Observations	356	356
Agency FE	Agency Mission	Agency Mission
Year FE	YES	YES
Log pseudolikelihood	-155.3	-155.4

Note: Unstandardized coefficients are reported. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses. The reference group for *Contracting Use* variable is Category 0: Low. Agency missions are controlled in the regression model but not reported.

Table 5. Marginal Effects from the Fraction Response Generalized Linear Regression Models

VARIABLES	Timeliness			
	Model I		Model II	
	dy/dx	SE	dy/dx	SE
Contracting Use (Continuous)	-0.0016	0.0003	-	-
Low/Medium Contracting Use	-	-	-0.0588	0.0272
Medium/High Contracting Use	-	-	-0.1181	0.0255
High Contracting Use	-	-	-0.1216	0.0294
Staff expertise	0.0420	0.0237	0.0417	0.0236
Task complexity	0.0358	0.0441	0.0261	0.0447
Independence of EEO director	-0.0051	0.0194	-0.0006	0.0193
Workforce (ln)	-0.0191	0.0083	-0.0178	0.0085

Note: dy/dx for factor levels is the discrete change from the base level.

Table 6. OLS Regression Results

VARIABLES	Timeliness		Average Costs	
	(1) Model I	(2) Model II	(3) Model I	(4) Model II
Contracting use (Continuous)	-0.00151*** (0.000287)	-	-10.12*** (2.526)	-
Contracting use (Low/Medium)	-	-0.0545** (0.0259)	-	-504.3** (229.8)
Contracting use (Medium/High)	-	-0.116*** (0.0253)	-	-380.5 (256.5)
Contracting use (High)	-	-0.115*** (0.0281)	-	-1,020*** (228.7)
Staff expertise	0.0435* (0.0247)	0.0430* (0.0248)	96.31 (211.6)	71.49 (211.9)
Task complexity	0.0320 (0.0436)	0.0227 (0.0443)	-45.66 (315.3)	68.72 (304.6)
Independence of EEO director	-0.00465 (0.0197)	-0.000419 (0.0197)	-129.7 (178.4)	-142.2 (176.7)
Workforce (ln)	-0.0186** (0.00851)	-0.0173** (0.00868)	144.2** (64.86)	134.8* (69.22)
Constant	0.614*** (0.140)	0.606*** (0.144)	2,067* (1,181)	2,181* (1,193)
Observations	356	356	356	356
Adjusted R-squared	0.183	0.173	0.150	0.150

Note: Unstandardized coefficients are reported. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses. The reference group for *Contracting Use* variable is Category 0: Low. Agency missions are controlled in the regression model but not reported.