CHAPTER 3

Conceptual Framework and Hypothesis

This paper posits and tests a conceptual argument linking three categories of characteristics with services contract performance: (1) the complexity of the service being contracted; (2) contract-management capacity on the part of the buyer; and (3) the extent of the relationship history between the buyer and the contractor. By explicitly discussing all three characteristics, the argument captures the inherent challenges of services contracting—both those pertaining to the buyer and those applicable to individual vendors. Since the Federal Procurement Data System (FPDS) does not contain direct measures of these variables, the paper will introduce proxies for each under the relevant hypotheses.

SERVICE COMPLEXITY

There are three broad ways in which the concepts related to the inherent complexity of the underlying service, and its related transaction costs, can introduce challenges to contract performance. First, it may raise the technical expertise required from acquisition officials. A simple service, such as lawn mowing, can be easily specified and overseen, while a more complicated service, such as aircraft maintenance, requires a higher level of understanding and assurance, as important problems might not be immediately visible. Second, service complexity increases the challenge of specifying the service in clear and comprehensive terms. When acquiring new services (or ones that otherwise involve significant uncertainty), acquisition officials and contractors cannot simply rely on the initial performance work statement to deliver a successful outcome. Rather, they must be able to flexibly incorporate changing conditions or new information. This greater requirement for partnership asks more of both buyer and vendor and leaves significant room for disagreement and conflicting interests. Third, the service may involve investments that do not easily translate into other work, which can make both the customer and the contractor more dependent on one another. In both cases, this complexity makes the work more demanding and, all else being equal, therefore raises the risk of negative contracting outcomes.

> H_1: As service complexity increases (decreases), the likelihood of cost ceiling breaches and terminations increases (decreases) and the likelihood of exercised options decreases (increases).

The paper employs two labor-based measures to attempt to capture service complexity. Service contracting inherently emphasizes labor and measures of pay, and the number of employees is a metric that can be relevant across disparate forms of services contracting.

The first measure is the average salary for the North American Industrial Classification System (NAICS) detailed industry that the contract is classified under. There can be different reasons for higher salaries, but one of them is the difficulty of the work and the experience and education required.

> H_{1A}: As average *detailed industry salary* increases (decreases), the likelihood of cost ceiling breaches and terminations increases (decreases) and the likelihood of exercised options decreases (increases).

The second measure is more specific to service contracting: average cost per employee. The average cost is calculated based on averages for the given product or service code, although the study team hopes to incorporate direct contract-level measures where available in future iterations. It employs an existing government metric, the invoice rate, that approximates how much the government is charged annually for each comparable full-time employee supporting a service contract. A service contract with a large number of lower-paid staff would have a lower invoice rate, for instance, than one that employed a small number of experts or that had extensive capital costs. Similarly, a service contract that provides contracting personnel only, for work in government facilities and using government equipment, would have a lower invoice rate than a comparable contract that also promises a full package of services and charges overhead for the infrastructure in place to help deliver them. In the latter case, these non-personnel expenses may indicate a service with greater asset specificity. As with average salary, this hypothesis assumes that scarcer labor or labor acquired at a greater premium, all else being equal, indicates a more complex service.

> H_{1B}: As the service code invoice rate increases (decreases), the likelihood of cost ceiling breaches and terminations increases (decreases) and the likelihood of exercised options decreases (increases).

CONTRACT-MANAGEMENT CAPACITY

Contract-management capacity can manifest in a variety of forms, including assessment, contract-formulation capacity, evaluation, and ability to sustain a public-private partnership. The literature already demonstrates the importance of this capacity, in particular for the more complex services discussed for H_1.

> H_2: As a contracting office's contract-management capacity increases (decreases), the likelihood of cost ceiling breaches and terminations decreases (increases) and the likelihood of exercised options increases (decreases).

The first measure of contract-management capacity considered here aligns with process implementation capacity and is the only one that the FPDS reports on directly: performance-based services acquisition (PBSA). Defined in 48 Code of Federal Regulations §37.601 (2019), PBSA tracks multiple measures relevant to public-private partnership governance, including the foundation of how the contract is defined. Performance-based services acquisition "[d]escribes the requirements in terms of results required rather than the methods of performance of the work."[56] Other characteristics included measurable performance standards, plans for monitoring, and the potential for monetary adjustments depending on the quality of the output.

> H_{2A}: As the contract office proportion of performance-based services acquisition increases (decreases), the likelihood of cost ceiling breaches and terminations decreases (increases) and the likelihood of exercised options increases (decreases).

[56] General Services Administration (GSA), GSA Federal Procurement Data System-Next Generation (FPDS-NG) Data Element Dictionary (Washington, DC: 2020), 55, https://www.fpds.gov/downloads/Version_1.5_specs/FPDSNG_DataDictionary_V1.5.pdf.

For the other assessments of contract-management capacity, specific measures employed by prior surveys and case studies are not available within the FPDS, and headcount data for contracting officers is not publicly available at the contracting office level. To capture this important but elusive variable, this paper therefore employs a measure that scales based on the contracting office's history. This approach assumes that the throughput with a given type of product or service code correlates with the development of technical expertise. As covered in the prior section, complexity and expertise requirements can vary greatly from one category to another, and a contracting office may have high capacity in one area that would not translate to a new area.

> H_{2B}: As the contract office service code experience increases (decreases), the likelihood of cost ceiling breaches and terminations decreases (increases) and the exercised options increase (decrease) for that service.

PAIRED HISTORY

The last characteristic discussed follows naturally from observing the importance of partnership, trust, and the ability to handle difficult problems and uncertainty together: the relationship between the contractor and buyer. The literature suggests that a perfectly written contract is no guarantee of, nor substitute for, effective collaboration. In the absence of data directly pertaining to trust, this hypothesis focuses on the history of interaction that provides the opportunity to build a deeper relationship.

> H_3: As the extent of the history between the contracting office and vendor increases (decreases), the likelihood of cost ceiling breaches and terminations for that partnership decreases (increases) and the likelihood of exercised options increases (decreases).

The first measure is the number of past years of the relationship between the contracting office and the contractors, with a single transaction between the two in a given fiscal year enough to qualify that year as part of a continuing relationship. The second measure is the number of actions on the vendor's contracts with that office. Contract action counts vary wildly from contract to contract, but even if the obligated amount per action is small, they still represent more opportunities for interaction for the office and contractor and thus may serve as a proxy for communication.

> H_{3A}: As the number of paired years a vendor has contracted with an office increases (decreases), the likelihood of cost ceiling breaches and terminations for that partnership decreases (increases) and the likelihood of exercised options increases (decreases).

> H_{3B}: As the number of paired actions a vendor has performed for an office increases (decreases), the likelihood of cost ceiling breaches and terminations for that partnership decreases (increases) and the likelihood of exercised options increases (decreases).