Good Intentions Gone Bad?
Small Business Set Asides in U.S. Federal Government R&D Contracting

Introduction

Small businesses play a critical role in the U.S. economy— for example, this sector employed nearly 56.8 million people or 48% of the private workforce in 2013\(^1\). To provide these businesses with an equal opportunity to bid on, win and be awarded government contracts, section 15(g)(1) of the Small Business Act requires that at least 23% of the total value of all contracts awarded by the U.S. federal government be “set aside” exclusively for small businesses. This initiative, which is known as the Small Business Set Asides policy, is one of the many ways through which the U.S. federal government implements affirmative action. In the past five years, the U.S. federal government has been consistently awarding more than $350 million annually in contracts to small businesses (Source: https://smallbusiness.data.gov/).

Small businesses play a pivotal role in meeting the Research and Development (R&D) needs of the U.S. federal government. In FY 2017, the U.S. federal government’s budget for R&D activities stood at $152.33 billion, which is an increase of $6.19 billion (4.2\%) over the FY 2016 R&D budget of $146.13 billion (Source: https://fas.org/sgp CRS/misc/R44516.pdf). Increasingly, federal agencies are partnering more and more with small businesses to execute their R&D initiatives. For example, the share of R&D contracts awarded by the Department of Defense (DoD) to small businesses rose from 10\% in 2009 to 17\% in 2015 (Hunter et al. 2016). During this period, the share of R&D contracts awarded by DoD to its five “large prime” vendors declined from 57\% in 2009 to 33\% in 2015 (Hunter et al. 2016). A similar trend has been observed in the award of R&D contracts by three other federal agencies, namely the Department of Energy, NASA and the Department of Health and Human Services. With the Set Asides policy deliberately increasing the participation of small businesses in meeting federal government’s R&D requirements and the Congress taking strict measures to strengthen federal contracting practices (GAO 2017), understanding how Set Asides policy influences the

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\(^1\) https://www.sba.gov/sites/default/files/advocacy/United_States.pdf
performance metrics of R&D contracts is a consequential and contemporary line of inquiry.

Earlier studies have examined how Set Asides policy influences the manner in which suppliers are selected by the Government to deliver a specific set of goods and services to the public (for e.g. see Hyndman and Parmeter 2015, Nakabayashi 2013). The key focus here has been to examine how an affirmative action policy of the government, like the Set Asides policy, impacts the contractor selection process. In contrast, our study looks at how suppliers who are selected through the Set Asides policy affect the accomplishment of contractual objectives.

Specifically, we first examine whether R&D contracts awarded through the Set Asides policy perform any differently than those that are awarded without any restrictions. Further, since contract type (whether fixed price or time and materials) serves as an important mechanism for the client to exercise control over the vendor during contract execution, we study how this variable moderates the relationship between Set Asides status and the performance of a R&D contract. Finally, we note that contractor experience is a critical factor that can be used by a client to mitigate adverse selection issues (Gefen et al. 2008). This motivates us to study how prior contractor experience in handling federal R&D contracts moderates the relationship between the Set Asides status and performance of the contract.

Data and Method

The threshold-based nature for awarding Set Asides contracts allows the employment of a Regression Discontinuity Design (RDD) framework to study the causal effect of this policy on the performance of R&D contracts. Specifically, when a contract’s value is between $3,500 and $150,000, the likelihood for it to be set aside for small businesses is higher. Above $150,000, the contracting officer has greater freedom in awarding a contract through full and open competition. Our identification strategy is based on the intuition that contracts with a value of $149,500 (below the threshold) will not be very systematically different from contracts with a value of $150,500 (above the threshold). We use a two-stage IV-LATE (Instrumental Variable-Local Average Treatment Effect) approach to investigate whether Set Asides R&D contracts perform
differently from R&D contracts that are not awarded through the Set Asides policy. The analysis is performed on a sample of 74,095 R&D contracts awarded between January 2007 and November 2017 by various agencies of the U.S. federal government.

Results
The analysis finds that contracts awarded through the Set Asides policy tend to perform better on cost and schedule performance when compared to contracts which are not awarded as a part of this policy. That is, Set Asides contracts experience lower schedule and cost overruns when compared to non-Set Aside contracts. We argue that federal government contracts may be the key source of income for many smaller firms, motivating them to work harder towards fulfilling contractual obligations and lead to better performance outcomes. We also draw upon managerial attention theory (Aveni and MacMillan 1990, Halac and Prat 2016) to argue why contracts awarded to smaller firms through the Set Asides policy may have better performance outcomes.

Regarding the moderation effects, we observe that the use of time and materials contracts weakens the negative relationship between Set Asides status and contract performance. That is, the use of time and materials contracts increases the delay time and magnitude of cost overruns for Set Asides contracts. This finding suggests that the use of time and materials payments for Set Asides contracts can introduce moral hazard problems, resulting in performance issues during contract execution. However, no moderating effects of prior experience in handling federal R&D contracts is found. These results are robust to three different bandwidth ranges (viz. $100,000-$200,000; $100,000-$250,000 and $100,000-$300,000) of contract value around the threshold of $150,000. In sum, we find empirical evidence to show that contract type can be employed as an effective mechanism to reduce any moral hazard issues (Snir and Hitt 2004) that may occur during the execution of R&D contracts awarded through the Set Asides policy. However, we do not find any evidence to show that prior experience of a contractor in handling R&D contracts can help the client to mitigate any adverse selection issues which may arise because of adhering to the Set Asides policy.
References


