Electoral Turnover and Government Efficiency: Evidence from Federal Procurement[*]

Kyuwon Lee[†]

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Abstract

Conventional accounts suggest that executive agencies expecting their power to wane due to electoral turnover have incentives to insulate their preferred policies through inefficient bureaucratic procedures. This argument assumes that overturning existing policies is difficult via formal means, but does not consider that Congress has informal means to do so in numerous policy areas. In those areas, forward-looking agencies might rather craft their policies to accommodate the future Congress's preferences so that their policies survive after the electoral turnover. I evaluate these incentives using data on federal contracts in the United States. I find that as the probability of congressional turnover increases, federal agencies under unified government are more likely to award lower-cost contracts through competitive bidding in the expectation that the future Congress might overturn non-competitive contracts given to firms politically connected to the president. My findings challenge the dominant perspective that electoral turnover necessarily degrades bureaucratic performance.

1 Introduction

In competitive democracies, "coalition drift"—wherein a new governing coalition implements policies that differ from the ones preferred by old governing coalitions (Horn and Shepsle 1989; Shepsle 1992)—is a constant threat to those in power. The conventional wisdom holds that, in response to the possibility of coalition drift, political actors who are currently advantaged may endeavor to lock in their preferred policies before their political dominance erodes. Such attempts are common in the United States government. For example, before Joe Biden's inauguration, President Donald Trump and his political appointees filled vacancies on scientific panels, pushing to complete rules that would weaken environmental standards to hamstring Biden's policy options (Shear 2020).

In the case of executive agencies engaging in lock-in strategies, a critical assumption is that it is difficult for future Congresses (or administrations) to overturn the existing policy or law under the separation of powers system (e.g., Moe 1989, p.274). But the veracity of this premise is based, to a large extent, on formal procedures of reversal and neglects informal means that may permit adversaries to overturn, or at least curtail, existing policies. For example, Congress frequently direct agencies what (not) to do by issuing detailed instructions in committee reports. Although these instructions are not legally binding, agencies might do well to accommodate Congressional preferences if Congress can use non-statutory means, such as hearings and oversight, to punish agencies' non-compliance (Acs 2019; Bolton 2021). What is needed, then, is a more comprehensive account of how agencies might respond to the threat of coalition drift when their adversaries have informal means to overturn policies.

In an electorally competitive environment where a favored policy might be overturned by Congress later, executive branch officials expecting electoral turnover might not consider lock-in an effective strategy since their preferred policies might be short-lived after the turnover and the reversal by Congress is costly. Instead, they might craft their policies to reflect preferences of the future Congress so that these moderated policies survive after the electoral turnover. To the extent

that those future Congresses care about government performance, this shift in agencies' behavior can enhance efficiency, especially if executive branch officials would have preferred inefficient particularistic policies in the absence of any threat to their political dominance.

In this paper, I evaluate these incentives in the context of federal procurement. In the United States, the federal government spends more than $400 billion annually on procurement, and government procurement accounts for nearly 10-15% of GDP (Bosio and Djankov 2020). Federal agencies procure goods and services from private contractors, but their strategies are constrained by the president and Congress's preferences. Notably, the president, as the head of the executive branch, exerts dominant influence on agencies' action via political appointments, leading agencies to provide non-competitive, higher-cost contracts to firms politically connected to the president (Dahlström, Fazekas, and Lewis 2020; Fazekas and Kocsis 2020). These contracts are likely to be of lower quality and adversely affect citizen welfare (Schoenherr 2019). A recent example is the Trump administration's procurement of ventilators from Philips at the beginning of the COVID-19 outbreak. A 2020 investigation discovered that the Trump administration failed to negotiate a lower price with Philips and extended the contract despite Philips' repeated failure to deliver ventilators by its agreed timeline, wasting more than $500 million (Higgins-Dunn 2020).

I focus on the situation where federal agencies under unified government—when the incumbent president's influence is most substantial due to one party controlling both the executive and legislative branches—internalize the president's preference and may prefer to award non-competitive contracts to firms politically connected to the president. This creates a situation where contracts may be given to unqualified, inefficient firms that would have lost in a competitive procedure. At the same time, the agency also cares about procurement efficiency on the margin. Given the setting, I examine how the anticipation of congressional turnover in the upcoming midterm election leads agencies to award contracts that accommodate the future opposition Congress's preferences instead of non-competitive contracts given to the president's connected firms. To explore how and conditions under which federal agencies do so, I develop a two-period game where, in each period, the agency proposes a procurement plan, and Congress approves the procurement outcome.

Congressional election takes place at the beginning of the second period.

The model shows that if federal agencies under unified government expect that congressional turnover is more likely in the upcoming election, they are less likely to provide non-competitive contracts to inefficient firms connected to the president. Instead, they make these firms go through competitive procedure with other firms to award lower-cost contracts. This is due to their expectation that once the opposition party controls Congress after the midterm election, it may scale back the existing procurement contracts won by inefficient firms with high contract prices. The model also implies that agencies do not face such a trade-off if the president's connected firms are efficient and, thus, they have little incentive to change their procurement decisions in response to congressional turnover probabilities. In this case, providing non-competitive contracts to the president's efficient firms is a benign form of particularistic spending that does not seriously degrade the quality of government services.

To test my arguments empirically, I use federal procurement contract data under three periods of unified government expecting the midterm election during 2005-2006, 2009-2010, and 2017-2018. I also use the data from election prediction markets. I merge these datasets to examine how day-to-day changes in perceived congressional turnover probabilities affect federal agencies' procurement decisions. Last, I use firms' campaign contributions data and Compustat data to test heterogeneous effects by firms' political connections and efficiency of producing goods.

My empirical findings are threefold: First, as the probability of congressional turnover increases, agencies are more likely to provide lower-cost contracts through competitive bidding, conditional on contracts being made. Substantively, a one standard deviation increase in the probability of congressional turnover (0.22) leads to a 4.2% increase in the likelihood of competitive contracts. Second, an increase in the likelihood of competitive bidding due to an increase in congressional turnover probabilities subsequently yields lower-cost contracts, proxied by initial contract amount and fixed cost structures (Krause and Zarit 2021). Third, consistent with my theory, the shift in behavior is more prominent in industries where agencies expect contracts to be overturned by the future Congress: Where a high proportion of the president's connected firms compete

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for procurement and where these connected firms are relatively inefficient.

This paper makes three contributions. First, the theory I advance identifies the strategies of political actors in response to the possibility of coalition drift if the existing policies can be overturned in the future. My findings suggest that the conventional lock-in strategies to counter coalition drift might not be feasible given congressional constraint. Second, my arguments present a nuanced picture of how political connections skew the government's resource allocations. On the one hand, federal agencies continue to deliver particularistic benefits to the president's connected firms. On the other, electoral turnover combined with the separation of powers can incentivize agencies to engage less in particularistic government spending even when the president's influence is most substantial. Last, more generally, my findings challenge the dominant perspective in the political economy literature that electoral turnover degrades bureaucratic performance. Existing studies document that electoral turnover adversely affects bureaucratic performance due to newly elected politicians replacing existing bureaucrats (Akhtari, Moreira, and Trucco 2022), lame-duck governments lacking incentives to monitor bureaucrats after their election loss (Toral 2022), or incumbent politicians crippling the bureaucratic capacity to constrain future politicians' policy choices (Acemoglu, Ticchi, and Vindign 2011; Huber and Ting 2021; Suryanarayan 2022). Other studies examine the disruption in bureaucratic personnel due to electoral turnover (Doherty, Lewis, and Limbocker 2019; Colonnelli and Edoardo Teso 2020; Bolton, Figueiredo, and Lewis 2021). This paper focuses on agencies' decisions in response to anticipated electoral turnover and shows that consideration for future electoral turnover can lead to efficient bureaucratic performance.

2 Background

2.1 Coalition Drift and Political Control on Agencies' Policy Making

Under the separation of powers system, one way in which Congress can lock in their preferred policies against coalition drift is to pass legislation that creates insulated and inefficient bureaucracies (Horn and Shepsle 1989; Moe 1989). Such organizational structures ensure that even after their

political creator loses power, the agency will continue to implement policies enacted by the creator without being interrupted by the next political power. Moreover, the president and Congress under unified government may speed up the rulemaking process so that their preferred policies take effect before the political transitions of the president or Congress (Gersen and O'Connell 2008; O'Connell 2011; Macdonald and Mcgrath 2019). Federal agencies can further speed up or delay the rulemaking process given their ideological alignment with the incumbent president and Congress (Potter 2017). Such practices inevitably generate inefficiencies since policies might not be implemented when most needed.[1]

Conventional accounts of lock-in strategies assume that it is difficult to overturn existing policies or laws via formal means under the separation of powers system. For example, if Congress wants to change statutes to constrain agencies' actions, they need supermajorities to overcome a presidential veto threat and filibuster in the Senate. The difficulty in passing legislation suggests that once laws are passed, they will be in place for a long period unless another dominant political group assumes power. Moreover, it is difficult or impossible to overturn finalized rules via the regulatory and legislative processes. To do so, agencies must undergo a new rulemaking process, which can take several years. Its ability to do so is also severely restricted by the judicial review that agencies must "supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance."[2] The Congressional Review Act (CRA), signed in 1996, allows Congress to overturn a regulation via simple-majority resolution within 60 legislative days after its reported promulgation, but its narrow time window suggests that Congress might not have sufficient time to repeal many rules implemented by the previous administration.

While the extant work assumes the durability of policies under the separation of powers system, they do not sufficiently consider that Congress can informally direct agencies' actions in numerous policy areas, thereby overturning existing policies. Such congressional control over agencies

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1. Similar to the lock-in argument, there exist other studies on how politicians expecting electoral loss may attempt to implement the civil service reform as an insurance to improve outcomes if they lose power. These studies suggest that electoral turnover could contribute to better bureaucratic performance. See, Ting et al. (2013) and Huber and Ting (2021).

2. See, *Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Co.* 1983, p.42.

is visible in agencies' discretionary spending, where Congress can use statutory means like limitation riders (MacDonald 2010), or non-statutory means like appropriations committee reports accompanying appropriations laws (Bolton 2021; Bolton and Thrower 2022). Although Congress's informal instructions are not legally binding, Congress's reversal power comes from its ability to use hearings and oversight (Kriner and Schwartz 2008; Parker and Dull 2009; Kriner and Schickler 2016). With oversight and hearings, Congress can threaten to increase agencies' workloads or put them under public criticism, which incentivizes agencies to comply with Congress's demands (Acs 2019; Bolton 2021).

Given that forward-looking agencies would adjust their policymaking in anticipation that Congress might overturn their policies in the future, we would seldom observe instances where Congress explicitly directs agencies' policy making. As one legislator stated, "I do not have to use hearings as a formal threat because the executive already knows that the threat exists. This is just understood. It seldom has to be discussed explicitly" (Ogul 1976, p.161). This suggests that Congress's reversal power could be more extensive than what is unambiguously observed.

Few papers seriously consider how political actors respond to the risk of coalition drift if their adversaries can overturn their policies later. One exception is De Figueiredo (2002), who argues that in a two-party parliamentary system where legislative durability is less likely, elected officials are less likely to insulate bureaucracies and more likely to cooperate when electoral uncertainty is greatest. My work argues that overturning policies may also be easily implemented under the separation of powers, and examines how unelected government officials make their policymaking decisions in anticipation of electoral turnover. A second exception is Acs (2019), who shows that during divided government immediately following unified government, agencies are more likely to withdraw their rulemaking proposals, anticipating congressional reversals. The work focuses on situations where agencies cannot commit to moderating rules to cater to future Congress's demands. On the other hand, I examine how federal agencies under unified government moderate their policies based on their expectation of future electoral turnover probabilities, leading to less policymaking disruption during political transitions.

2.2 Federal Procurement

Federal agencies, the president, and Congress each have a distinct role in the federal procurement process. Federal agencies make decisions about procuring goods and services. The president, as the head of the executive branch, controls political appointments and, thus, can induce federal agencies to internalize his preference and reflect it in their discretionary allocation of federal funds (Larcinese, Rizzo, and Testa 2006; Berry, Burden, and Howell 2010; Dynes and Huber 2015; Kriner and Reeves 2015) and federal procurement (Gordon 2011; Dahlström, Fazekas, and Lewis 2020).[3] Last, Congress has the ability to scale back agencies' procurement decisions.

The federal procurement process can be characterized as federal agencies making procurement decisions and Congress approving those decisions. Both career bureaucrats and political appointees within the agency can initiate the process of procuring a good, and who has more control over the procurement process depends on the agency structure (Krause and Zarit 2021). If agencies decide to procure a good, they choose whether to extend existing contracts or initiate new procurement processes.

The agency can extend existing contracts on a fiscal-year basis. The contractor cannot overturn the agency's decision not to extend the contract.[4] Existing contracts can be broadly categorized into either indefinite delivery orders or definitive contracts. Indefinite delivery orders specify only a minimum or maximum quantity of supplies that should be purchased within a fixed period. On the other hand, definitive contracts are one-time agreements for the purchase of goods or services under specified terms and fixed quantities. Although definitive contracts specify fixed quantities, federal regulations allow significant discretion to the agency to make contract modifications on amounts and deadlines (Brogaard, Denes, and Duchin 2020).

If agencies initiate a new procurement process, they decide whether to procure goods via a competitive or non-competitive process. If agencies choose a non-competitive process, they choose

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3. While recent studies put more emphasis on the president's dominant influence on discretionary spending, there also exist studies that document that individual legislators or congressional committees, to some degree, can have an influence on federal procurement (Goldman, Rocholl, and So 2013; Tahoun 2013; Brown and Huang 2020; Brogaard, Denes, and Duchin 2020) or federal outlays (Berry and Fowler 2016).

4. See, *Aspen Helicopters, Inc. v. Department of Commerce*, GSBCA No. 13258, 99-2 BCA ¶30, 581 (1999).

a specific contractor and submit documents justifying why the contract should be given to the contractor. The documents are approved by higher-level officials or political appointees within the agency and can be justified as "only one responsible source and no other supplies or services will satisfy agency requirements" based on the Federal Acquisition Regulation (FAR). If agencies choose a competitive procedure, they announce a public invitation for bids on the government website (http://sam.gov) and interested firms submit their bids during the solicitation period. Procurement officers then choose the winner among bidders. These new contracts typically last for one year and can be extended afterward on a fiscal-year basis.

The durability of procurement contracts is contingent on whether Congress approves the contracts. Generally, Congress approves the agency's procurement budget via the appropriations process. Specifically, Congress provides agencies with detailed instructions to implement some procurement plans but not others. For instance, Alinger (2007) finds that of the 72 provisions in the FY2006 appropriations bills, 41 provisions limit the pool of firms participating in the procurement processes. Moreover, the FY2021 report for energy and water-related agencies states that the agency spends no less than $15,000,000 for Advanced Reactor Concepts Industry Awards and $25,000,000.[5] Another FY2021 report for the Department of Homeland Security states that Congress prohibits the obligation of funds until the agency submits detailed expenditure plans for funds made available for "US Customs and Border Protection–Procurement, Construction, and Improvements."[6]

3 Model

To fix ideas, I present a model of how federal agencies make procurement decisions in response to the possibility of future electoral turnover. The model has two periods $t = 1, 2$. I will suppress the time subscript if it is redundant. Players are a firm connected to the president (F), an agency (B) and a Congress (C). Congress can be of two types: the one connected to the president

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5. See, Energy and Water Development and Related Agencies Appropriations Bill, 2022, Pub. L. No. 117-98, p.134 (2021).
6. See, Department of Homeland Security Appropriations Bill, 2022, Pub. L. No. 117-87 (2021).

("aligned Congress") and the one connected to the opposition party ("opposition Congress"). If it is an aligned Congress, this is equivalent to having unified government. Likewise, having the opposition Congress implies divided government. Since this paper focuses on how federal agencies under unified government make procurement decisions in the expectation of future congressional turnover, Congress is aligned in period 1. At the beginning of period 2, an election takes place and the opposition wins Congress with probability ϕ.

There is a single good to be purchased by the agency in each period. The extent to which the agency/aligned Congress and opposition Congress value the good is denoted respectively by v_B and v_O.[7] For instance, v_B represents how much the president and his party value procuring a military weapon for national security. At the beginning of each period, there is a status quo contract that the agency can choose to buy the good; the status quo contract has either market price $\theta_M > 0$ or the connected firm's price $\theta_F > 0$. The market price represents the price of the good that is determined from the competitive market excluding the firm F. θ_F represents how inefficient the connected firm is at producing the good and is common knowledge.[8]

Each period begins with the agency choosing whether to procure the good or not. If the good is not procured, everyone receives a payoff of 0 in that period. If the agency chooses to procure the good, he then chooses whether to choose the status quo, propose a new non-competitive contract given to the connected firm F, or a new competitive procedure. Choosing a new contract incurs the administrative cost $\kappa \in (0, 1]$ on the agency.[9]

To focus on the political incentives created by the threat of congressional turnover, my model abstracts away from the agency problem between the president and agency, and assumes that the president constrains the agency's procurement options. Since the president cares mostly about his connected firm getting the procurement contract, the agency cannot choose to provide a new non-

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7. For simplicity, the agency and aligned Congress have the same v_B and utility function.
8. Most federal procurement is about buying manufactured goods, which can also be sold in private markets. I assume that firms' capacity of producing goods is stable in the short term and does not change much due to temporal circumstances. If I incorporate uncertainties in firms' production costs into the model, the main results are similar but become more complicated.
9. For simplicity, I do not differentiate the cost of starting a new non-competitive and competitive contract.

competitive contract to other non-connected firms that can offer market price θ_M.[10] However, the agency has an option to maintain the status quo contract with the market price since the president would allow him to do so given the cost of starting a new procurement process.

Here, I black box the competitive procedure, but retain one crucial aspect of competition: In expectation, competition drives down cost. I model this by assuming that if the agency chooses a competitive contract, the minimum of θ_M and θ_F is chosen.

After the procurement outcome is made, Congress observes the cost of the contract and decides whether to approve the outcome or not. If Congress does not approve, everyone receives 0 in that period. If Congress approves, the agency pays the price to the firm that receives the contract and players receive a payoff for that period.

The sequence of the model is as follows:

1. The agency decides to procure the good or not. If he decides to procure the good, he chooses between the status quo, a new non-competitive contract, and a new competitive contract.

2. Congress chooses whether to approve the procurement outcome or not. If Congress approves, the agency pays the firm that receives the contract.

3. At the beginning of period 2, an election takes place. Steps 1-2 are repeated in period 2.

The agency's and aligned Congress's per-period payoffs consider both the procurement efficiency and the connected firm receiving the contract. The agency and aligned Congress assign $\alpha \in [0,1)$ to their utility of making F receive the contract. α represents the extent to which the agency is politicized and is controlled by the president. Therefore, the per-period payoff is

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U_B = \begin{cases} \alpha + v_B - \theta_F - \kappa \cdot \mathbb{1}_{\{new\}} & \text{if contract has } \theta_F \\ v_B - \theta_M - \kappa \cdot \mathbb{1}_{\{new\}} & \text{if contract has } \theta_M \\ 0 & \text{if Congress disapproves} \end{cases}
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10. If such a constraint does not exist, the agency might choose between giving a non-competitive contract to the president's connected firm or non-connected firm. In this case, we would seldom observe a change in provision of competitive contracts in response to congressional turnover probabilities.

where $\mathbb{1}_{\{new\}}$ is an indicator function that is 1 if the agency chooses a new contract, otherwise 0. For simplicity, I assume $v_B > \max\{\theta_M + \kappa - \alpha, \theta_F + \kappa\}$ and $v_O \geq \theta_M$. Doing so excludes uninteresting cases where the agency does not procure the good at all, or the opposition Congress does not approve the contract from the rest of the market that could compete with the connected firm. The agency's utility of making F get the contract captures a setting in which agencies provide particularistic benefits to specific firms or constituents hired by the firms. The opposition Congress's payoff only concerns the difference between v_O and the procurement contract price.[11]

4 Results

The equilibrium solution concept is a subgame perfect Nash equilibrium, which I solve via backward induction. Starting with the aligned/opposition Congress's decision to approve the procurement outcome in period 2, there are two cases to consider: First, the connected firm's price θ_F is below the opposition Congress's valuation of good v_O that the connected firm is relatively efficient; and second, θ_F is greater than v_O that the connected firm is relatively inefficient. In the first case, where $\theta_F \leq v_O$, both the aligned and opposition Congresses always approve the outcome since all prices are sufficiently low. Given that Congress always approves, if the status quo is θ_F in period 2, the agency chooses between the status quo and a new competitive contract. If the status quo is market price θ_M in period 2, the agency chooses between the status quo and a new non-competitive contract.

In contrast to $\theta_F \leq v_O$, in the case of $\theta_F > v_O$, the aligned and opposition Congress act differently: The aligned Congress always approves the outcome, whereas the opposition Congress does not approve the outcome with θ_F because it is so inefficient, but approves the one with θ_M. Given the constraint by the opposition Congress, the agency in period 2 makes different procurement decisions that he would not have made under the aligned Congress: He always chooses a contract that leads to the outcome with θ_M.

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11. For simplicity, the model does not assume the existence of the firm connected to the opposition Congress, but that can be easily incorporated into the model.

Given the period-2 outcome, the aligned Congress in period 1 always approves the contract. Thus, the agency in period 1 makes the decision based on electoral turnover probability ϕ and the continuation value of that decision. A straightforward result is that the agency's decision in period 1 would be unresponsive to ϕ if $\theta_F \leq v_O$ given that both the aligned and opposition Congresses do not constrain the agency's choice. On the other hand, if $\theta_F > v_O$, the aligned and opposition Congresses in period 2 impose different constraints and, therefore, the agency's procurement choice in period 1 depends on ϕ. Let $\overline{\alpha}_1^F(\phi) = (\kappa - \phi\kappa - 2\theta_F + \phi\theta_F + 2\theta_M - \phi\theta_M)(\phi - 2)$ be the cutoff of α, given electoral turnover probability ϕ, below which the agency chooses a new competitive procurement in period 1, otherwise chooses the status quo with price θ_F. Let $\overline{\alpha}_1^M(\phi) = \max\{(-\kappa - \phi\kappa - 2\theta_F + \phi\theta_F + 2\theta_M - \phi\theta_M)(\phi - 2), \theta_F - \theta_M + 2\phi\kappa\}$ be the cutoff of α above which the agency chooses a new non-competitive procurement in period 1, otherwise chooses the status quo with price θ_M.

Proposition 1 summarizes the period-1 outcome. The proofs and equilibrium of the game are fully described in Appendix A. The results suggest that the agency in period 1 is more likely to increase competitive contracts as congressional turnover becomes more likely, but this is conditional on the connected firm being more inefficient than other firms in the market. This is because the opposition Congress would not approve the contract won by the inefficient and connected firm. This decreases the agency's long-term payoff of providing a contract to the connected firm in period 1, leading him to provide a competitive contract instead.

Proposition 1. *In period 1, let $\overline{\alpha}_1^F(\phi)$ be the value of α for which the agency is indifferent between the status quo with connected firm's price θ_F and initiating the competitive procedure, and $\overline{\alpha}_1^M(\phi)$ be the one between a new non-competitive contract and the status quo with market price θ_M. Both $\overline{\alpha}_1^F(\phi)$ and $\overline{\alpha}_1^M(\phi)$ increase in the probability of congressional turnover ϕ if and only if $\theta_F > v_O$. Otherwise, they are independent of ϕ.*

Figure 1 displays this intuition graphically. The shaded area in Figure 1 (a) shows that as the electoral turnover probability ϕ increases from 0 to 1, the agency's likelihood of providing a new competitive contract increases if the status quo is the connected firm's price. The shaded area

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in Figure 1 (b) shows that the agency's likelihood of providing a new non-competitive contract decreases if the status quo is the market price.

Figure 1: The Period-1 Outcome. $\kappa = 0.25$ and $v_O = \theta_M = 0.5$. $\overline{\alpha}_1^F(\phi)$ and $\overline{\alpha}_1^M(\phi)$ denote cutoffs of α given electoral turnover probability ϕ and the status quo price. *SQ* denotes the status quo, *NC* a new non-competitive contract, and *C* a new competitive contract.

(a) SQ Is The Connected Firm's Price θ_F **(b)** SQ Is The Market Price θ_M
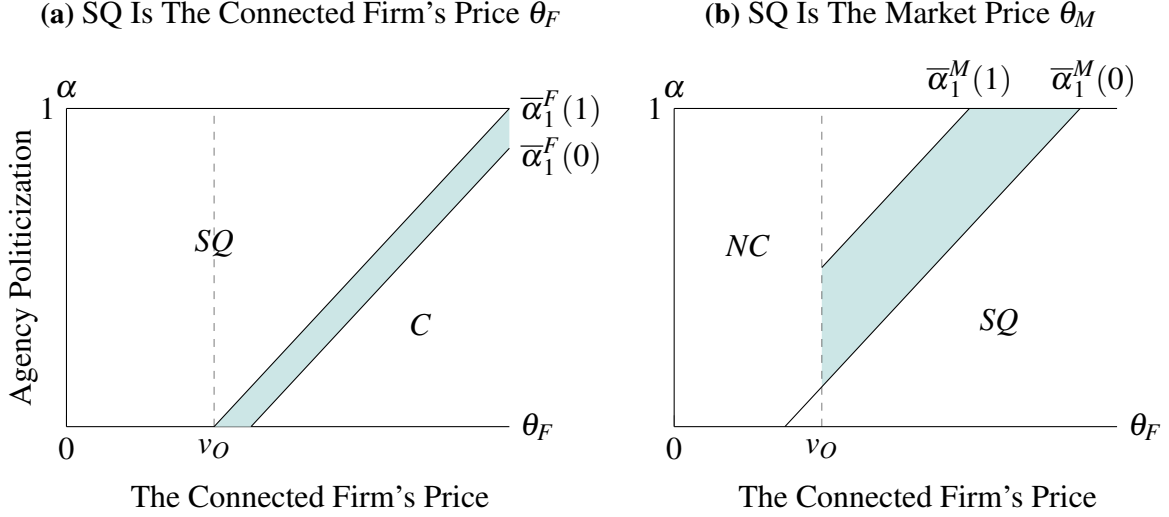
5   Empirical Hypotheses and Data

Below I present several hypotheses from Proposition 1 that can be empirically tested on the available data. Hypothesis *H1* encapsulates the central theoretical prediction. Hypothesis *H2* concerns heterogeneous effects of electoral turnover probabilities.

H1: As the probability of congressional turnover increases, federal agencies are more likely to choose a competitive procedure, conditional on contracts being made.

H2: Agencies' responsiveness to congressional turnover probabilities is higher in industries where (a) there is a high proportion of the president's connected firms competing for procurement and (b) these connected firms are more inefficient than other competing firms.

While *H2*(b) is the model's prediction in Proposition 1, *H2*(a) concerns the situation where the model setup is more likely to be applied given the data. Given that my model examines whether agencies choose to provide contracts to the president's connected firms, agencies would be less responsive to electoral turnover probabilities in industries where there are few connected firms to receive contracts in the first place.[12]

My theoretical framework suggests that as the electoral turnover probability increases, agencies make inefficient firms connected to the president participate as bidders for competitive contracts instead of providing them with non-competitive contracts. I cannot directly test such a claim on bid participation since the contract data does not provide the list of bidders for competitive contracts. While the contract data has information about the contract's winner, using only contracts won by the president's connected firms to examine the effect of electoral turnover probabilities would generate post-treatment bias by censoring competitive contracts that they lost. Nonetheless, with hypothesis *H2*, I can empirically test heterogeneous effects of electoral turnover probabilities on the likelihood of competitive bidding, conditional on contracts being awarded, by the level of firms' political connections and inefficiency at the industry level.

To test my empirical predictions, I use the federal procurement contract data covering the 109th Congress (2005-2006), 111th Congress (2009-2010), and 115th Congress (2017-2018). These are periods of unified government expecting the midterm election. I obtained the data from the Federal Procurement Data System (`www.usaspending.gov`). I focus on newly signed contracts during the period of study. Following the existing literature, I focus on contracts with dollar amounts above the simplified acquisition threshold since procurement laws are less strict under the threshold (FAR 13.003).[13]

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12. Alternatively, the proportion of connected firms in industries can be parameterized in the model as the probability of connected firms being chosen to compete with the status quo price if the appointee chooses a competitive procedure. However, the revised model generates a prediction that may be opposite of *H2*(a). Therefore, if the revised model better represents the procurement process, we might be less likely to observe a shift in agencies' procurement decisions in anticipation of electoral turnover.

13. The threshold for simple acquisitions in the FAR based on 'base and all options value' was $100,000 before October 1, 2010, and $150,000 after that.

5.1 Changes in Perceived Probability of Congressional Turnover

I use the Iowa Electronic Markets (IEM) data to tap into the public's perceived probability of the incumbent party winning or losing the upcoming midterm elections. These markets are "winner-take-all" markets where payoffs go to contracts on the winner of elections, and scholars consider the prices of these contracts to be estimates of the electoral turnover probabilities (Wolfers and Zitzewitz 2006). Similar to sophisticated investors in prediction markets, senior officials in federal agencies are likely to gather information on events that can affect future electoral turnover since the fate of their policies hinges on upcoming electoral outcomes.

While there are other election prediction markets, IEM has the most comprehensive data spanning many years with open access.[14] For each date when the IEM data are available, I estimate the probability of congressional turnover for the 2006, 2010, and 2018 midterm elections with the price of contracts that predicts the loss of the incumbent president's party at the given date. Figure 2 shows estimated daily congressional turnover probabilities for the 2006 House, 2010 House, and 2018 Senate elections. I only consider either House or Senate elections for each electoral cycle, given that for each of those cycles, only one chamber was seriously contested.

If investors make their decisions based on the available information, outbreaks of unanticipated incidents, such as wars or lower-than-expected economic recovery, may lead to drastic changes in prediction market prices. While I claim that unanticipated events affect agencies' procurement decisions through changes in electoral turnover probabilities, these events also might directly affect procurement decisions via changing industry conditions. However, even if such a direct effect exists, we would have no reason to expect that heterogeneity in that effect would match that anticipated in *H2*.

I match the congressional turnover probabilities of each date to procurement contracts data based on the date on which contracts were signed. For the period between the election day and

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14. PredictIt, which was launched in November 2014 by Victoria University of Wellington, also shares prediction market data with researchers. In Figure C1 in the Appendix, I compare IEM and PredictIt data for 2018 midterm elections. Moreover, I show in Table C1 and C2 in the Appendix that my results remain the same even if I use PredictIt data instead of IEM to calculate congressional turnover probabilities for the year 2018.

the end of the year, I assign 0 as the probability of congressional turnover for the 2006 and 2010 elections and 1 for the 2018 election. Missing data between two dates were imputed using the average of the probabilities of the two adjacent dates.

Figure 2: Election Price Markets for the 2006, 2010, and 2018 Elections

(a) 2006 House Election

(b) 2010 House Election

(c) 2018 Senate Election
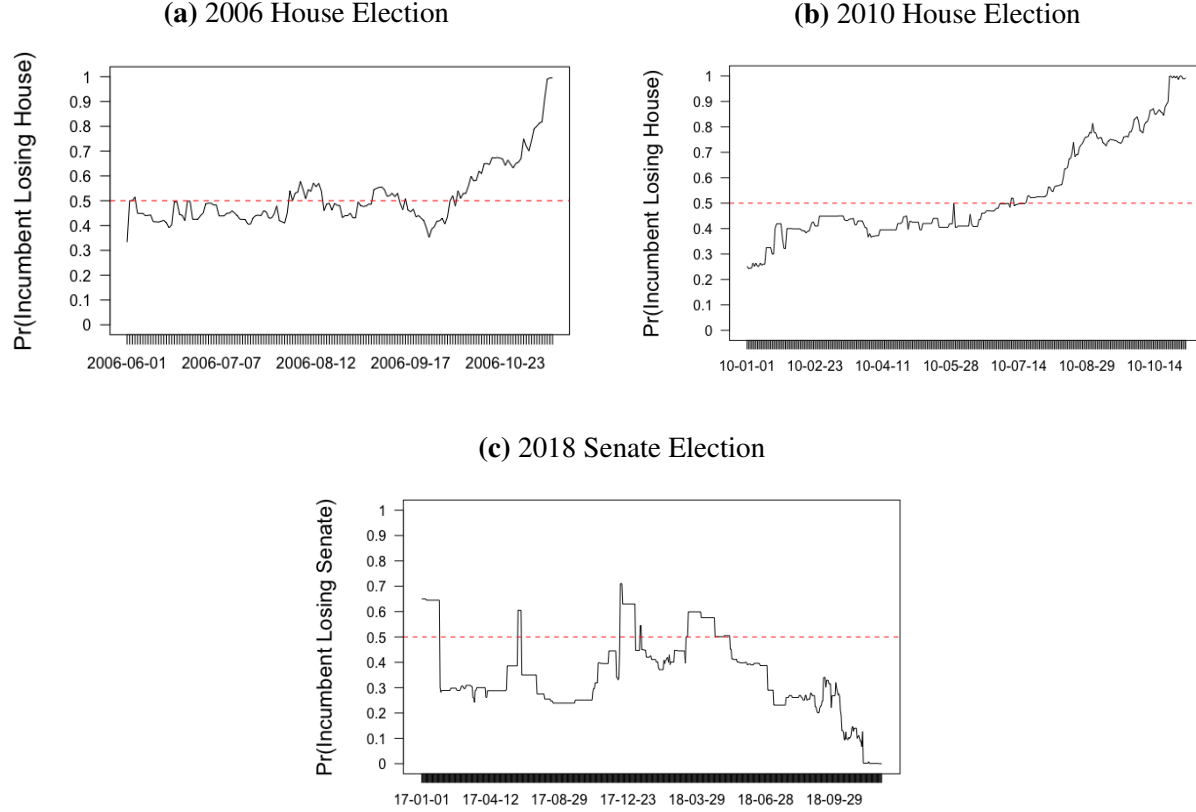
The advantage of using election prediction prices is that we can examine how short-term changes in perceived electoral turnover affect federal agencies' decisions on procurement contracts. If federal agencies' procurement decisions significantly change within a short period in response to electoral turnover probabilities, we can interpret that as agencies' deliberate deviation from or reversion to otherwise optimal procurement procedures based on industry market situations; the purpose of the deviation is to provide a political favor to the president's connected firm. A caveat is that changes in election prices might be correlated with other time-varying events. In a later section, I show that this concern is not warranted.

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5.2 Identifying Firms' Political Connections Across Industries

To identify how many politically active firms compete for federal procurement in which industries and period, I first define the scope of industries. Based on the description of goods and services provided by the contract, I define 'product or service code (PSC)' as industries. For example, in 2018, there were 2226 unique numbers of PSC codes, such as 'Fruits and Vegetables' and 'Drugs and Biologicals.'[15]

Next, I collect the data on campaign donations for the 2004, 2008, and 2016 presidential and congressional elections, which were held prior to unified government. Firms and trade associations are labeled as politically active firms at the beginning of unified government if they made campaign donations in that election. If politically active firms contributed more than 60% of their total campaign money to the president's party in a given election, I label them as the president's connected firms.[16] Identifying political connections based on campaign contributions is consistent with empirical findings that the president engages more with interest groups that contributed to his party (Miller 2022).

Last, for each industry in a given unified government, I count how many politically active firms compete for procurement contracts at the beginning of unified government. Firms are considered to be competing for procurement in a given industry×unified government if these firms won at least one procurement contract in that industry during the five years prior to the beginning of unified government. For instance, if a firm received at least one contract in a given industry during the period 2000-2004, the firm is considered to have competed for procurement at the beginning of the 109th Congress (2005-2006). I chose five years as the threshold given that it is long enough to identify firms interested in competing for federal procurement.

I construct a variable *proportion of connected firms*, which calculates the proportion of the president's connected firms among all politically active firms in a given industry at the beginning

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15. PSC codes are used by federal agencies, whereas NAICs are self-reported industry classifications used in private-sector markets. PSC codes are more granular than NAICS codes. Many procurement contracts have missing information regarding NAICs, whereas very few have missing information regarding PSC codes.

16. If I instead use 50% as the threshold, I yield similar results. Heterogeneous effects become weaker since I include firms that are not strongly aligned with the president's party. Table E1 in the Appendix shows the results.

of unified government.

5.3   Estimating the Relative Efficiency of the President's Connected Firms

To estimate the level of firms' efficiency in producing goods and services, I use data from Compustat to estimate firm×year total factor productivity ('efficiency score') using the approach of Ackerberg, Caves, and Frazer (2015).[17] If the firm's efficiency score is high in a given year, this means that the firm can produce more outputs with the same amount of labor and capital inputs.

Based on the firm×year-level efficiency data, I calculate the 3-year average efficiency scores of politically active firms at the beginning of unified government. For instance, a firm's 3-year average efficiency score for the 109th Congress is the average of the firm's efficiency score in the years 2002, 2003, and 2004. Using firms' 3-year average efficiency scores, I calculate the average efficiency scores of the president's connected firms for each industry at the beginning of unified government. I also calculate the average efficiency scores of politically active firms that are not connected to the president's party. I use the latter group of firms as a reference group to determine whether the president's connected firms are relatively more inefficient than other competing firms in a given industry. I do not use firms that are not politically active as a reference group since there are systemic differences between politically active and inactive firms: Politically active firms are usually larger and, therefore, have higher efficiency scores.

I construct a variable 'connected firms' efficiency' at the industry×unified government level by subtracting the average efficiency scores of politically active firms not connected to the president from the average efficiency scores of the president's connected firms. In Table E9 in the Appendix, I show that results are similar if I construct the variable *connected firms' efficiency* using the median efficiency scores of the president's connected firms and politically active firms not connected to the president.

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17. Compustat data does not have information for all firms, and there is no available information for trade associations. Information on only about 75% of firms in my sample is available on Compustat.

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6 Results

6.1 Congressional Turnover Induces Competition

The regression model (1) tests hypothesis *H1* on whether an increase in the probability of electoral turnover impacts federal agencies' likelihood of providing competitive procurement contracts:

$$Competition_{jibd} = \alpha_i + \delta_b + \gamma_t + \beta_1 * Pr(ElectoralTurnover)_d + X_{jibd} \qquad (1)$$

where j is contract, i is industry, b is sub-agencies that procure the good, c is Congress, t is year-month, and d is date. For agencies, I focus on sub-agencies that award procurement contracts based on the information on 'awarding sub-agency code' in the contract data. I include industry, agencies, and year-month fixed effects to control for time-invariant industry and agency characteristics and temporal shocks.[18] $Competition_{jibd}$ is a binary indicator that is 1 if the contract j that was signed on date d underwent the competitive procedure; otherwise, 0.[19] I expect β_1 to be positive.

I focus on whether contracts have gone through the competitive procedure, but not on whether contracts actually had more than one bidder. About 11% of competitive contracts in my data have only one bidder. Although these contracts do not seem competitive outcome-wise, competition for lower costs did occur for these contracts. Firms that want to participate in competition for contracts estimate their production costs, and if they discover that their production cost is too high that their expected payoff from participating in competition does not outweigh the cost of preparing the bid proposal, they may decide not to submit their bids (Samuelson 1985). In this case, a bidder who participated in competitive contracts is the one with relatively lower production cost compared to its competitors and decided to submit its bid.

I examine how the election turnover probability on date d affects which types of contracts

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18. I do not include procurement ID fixed effects in the main regression model because one firm can own multiple procurement IDs. Including ID fixed effects, thus, increases the robustness of my results but at the expense of adding too many fixed effects and making estimates much smaller.

19. Based on the information from 'extent competed' in the contract data, this includes full and open competition, full and open competition after exclusion of sources, follow on to competed action, and competitive delivery order.

are signed on date d. A caveat for this approach is that the date when federal agencies sign a contract with a contractor ("signature date") does not coincide with the date when federal agencies propose whether to undergo a competitive or non-competitive procedure to choose a contractor ("solicitation date"). In fact, the solicitation date precedes the signature date. If the solicitation date and signature date do not differ much that federal agencies quickly award most contracts after proposing the procurement procedure, there is no need to lag the independent variable. In the Appendix D, I discuss this issue in detail.

As controls, I add the variable of the fiscal year cycle, which is 0 at the beginning of the fiscal year (October 1st) and 364 at the end of the fiscal year (September 30th). Many agencies rush to spend their expiring budget at the end of the fiscal year (Liebman and Mahoney 2017), and this may lead to an increase in non-competitive procurement contracts. The list of other control variables are explained in Appendix B.

Table 1 shows the results for hypothesis *H1*. Column (2) indicates that if the electoral turnover probability increases by one standard deviation (0.22), the likelihood of federal agencies' provision of competitive procurement contracts increases by $15 * 0.22 = 3.1$ percentage points. This implies a $3.1/0.73 = 4.2\%$ increase from the baseline level of the likelihood of competitive contracts (0.73) where electoral turnover probability is 0.[20]

Table 1: Congressional Turnover Probability and the Provision of Competitive Procurement Contracts

	(1)	(2)
Electoral Turnover Probability	0.13***	0.15***
	(0.03)	(0.04)
Control	N	Y
Observations	526,289	418,457
Baseline Mean Outcome	0.73	0.71
Clusters	1,309	1,302
Adj R^2	0.21	0.23

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

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20. The baseline level is estimated from the pooled regression model of the competition indicator on electoral turnover probability.

One concern is that there could be other time-varying events that correlate with changes in electoral turnover probabilities and affect agencies' procurement decisions. First, by including the fiscal year trend in the model, I rule out the possibility that electoral turnover probabilities have the same time trend as the fiscal year cycle. Second, changes in electoral turnover probabilities may coincide with lame-duck periods after the election. The incumbent president during this period may put less effort into monitoring agencies' behavior or rush to make his connected firms receive more procurement contracts. Either way, lame-duck incentives are more likely to make agencies provide non-competitive contracts at the end of unified government. Such lame-duck effects do not coincide with the trend of electoral turnover probabilities in the 2006 and 2010 House elections (Figure 2a and 2b): Given that the president's party was expected to lose in these elections, this would have led agencies to increase competitive procurement contracts near the end of years 2006 and 2010. In Figure 3, I show that after the midterm election, there is no drastic increase in (1) the total number of non-competitive contracts and (2) the number of non-competitive contracts given to the president's connected firms at the end of election years, although the number of contracts increases as the end of the fiscal year approaches. As an additional robustness check, I examine whether the effect of congressional turnover probabilities differs across administrations in Appendix F.

6.2 Competitive Contracting and Efficiency

While my findings support hypothesis *H1* that an increase in congressional turnover probabilities leads to an increase in competitive contracts, it does not establish greater efficiency by itself. Ideally, I would check whether competitive bidding yields lower-cost contracts and, therefore, an improvement in procurement efficiency. This would entail using information on the unit price of goods in the contract. Unfortunately, these data are not available. Therefore, I use two alternative variables to proxy for lower-cost contracts. First, I use the initial contract amount, which is a combination of the price of the good and the quantity of the good initially purchased.[21] Sec-

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21. The final contract amount can differ from the initial contract price due to modifications. Given the characteristics of delivery orders that agencies can use them to supply the quantity of goods multiple times, the final contract amount

Figure 3: Daily Number of Contracts. Grey Lines denote the number of contracts signed on the given date, red lines denote the number of non-competitive contracts signed on the given date, and blue lines denote the number of non-competitive contracts given to the president's connected firms on the given date.
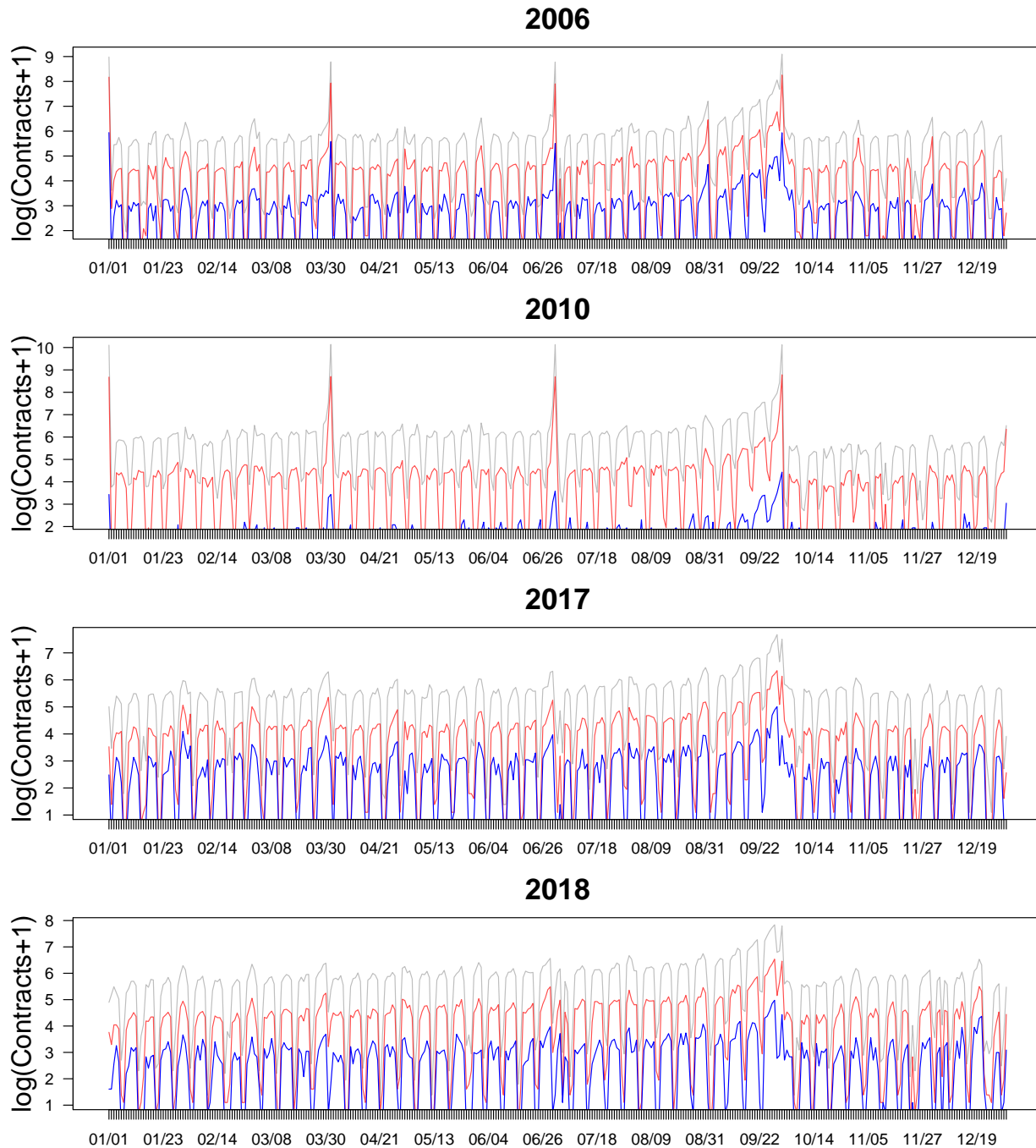
ond, I follow Krause and Zarit (2021) and treat competitive contracts with fixed cost structures as lower-cost contracts. Federal procurement regulations prioritize fixed cost structures over variable cost structures since the former incurs little ex-post additional costs to the agency (FAR 16.202). I create an indicator variable equal to 1 if the contract underwent the competitive procedure and has fixed cost structures, and zero otherwise. Table 2 shows the results using these two alternative dependent variables. As anticipated, my results suggest a $22 * 0.22 = 5.2\%$ decrease from the baseline level of the initial contract amount (12.33) where electoral turnover probability is 0, although the effect is statistically insignificant;[22] and a $(14 * 0.22)/0.65 = 4.7\%$ increase from the baseline level of the likelihood of competitive contracts with fixed cost structures (0.65) where electoral turnover probability is 0.

Table 2: An Increase in Probability of Congressional Turnover Leads to an Increase in Agencies' Provision of Lower-Cost Contracts

Outcome =	log(Initial Contract Amount)	Competitive and Fixed Cost
	(1)	(2)
Electoral Turnover Probability	-0.24	0.14***
	(0.19)	(0.04)
Control	Y	Y
Observations	413,293	418,457
Baseline Mean Outcome	12.33	0.65
Clusters	1,302	1,302
Adj R^2	0.57	0.29

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

6.3 Heterogeneous Effects by Industry Condition and Efficiency

To test hypothesis *H2* on heterogeneous effects, I interact congressional turnover probabilities with variables *proportion of connected firms* and *connected firms' efficiency*. Table E2 in the Appendix shows the full results of the triple interaction model. Table 3 uses the results of the interaction

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might not be a good proxy for the cost of the contract.

22. Table E7 shows that when it comes to heterogeneous effects of electoral turnover, effects on the initial contract amount are significant.

model to calculate the effect of congressional turnover probabilities in four types of industries, categorized based on the 10th and 90th percentile of *proportion of connected firms* and *connected firms' efficiency*, respectively. Results support my theoretical expectation: In industries where the proportion of the president's connected firms is high and where these firms are relatively inefficient, the likelihood of providing competitive contracts increases by about $21 * 0.22 = 4.6$ percentage points if the electoral turnover probability increases by one standard deviation. This indicates a $4.6/0.67 = 6.8\%$ increase from the baseline level of the likelihood of competitive contracts (0.67) where electoral turnover probability is 0, *proportion of connected firms* is 0.87, and *connected firms' efficiency* is -0.20.[23]

Table 3: Heterogeneous Effects of Congressional Turnover Probabilities

	Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency at 10th Percentile (=−0.20)	0.04 (0.05)	0.25*** (0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.18)	0.07 (0.05)	0.17*** (0.05)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

6.4 Alternative Explanations

One alternative explanation for my findings is that agencies strategically adjust the amount of these non-competitive contracts so that they are just below the simplified acquisition threshold. Agencies might do so to avoid monitoring by the future Congress since federal regulations give broader discretion to procurement officers for contracts below the threshold to reduce administrative costs. To see whether this explanation on contract bunching is driving my results, I include contracts with amounts \$20,000 less than the simplified acquisition threshold to my sample, and run the

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23. The baseline level is estimated from the pooled regression model of the competition indicator on electoral turnover probability, *proportion of connected firms*, and *connected firms' efficiency*.

same regression models.[24] Table E3 and E4 in the Appendix show that the effect of congressional turnover probabilities do not change, which suggests that there is no contract bunching below the threshold in response to electoral turnover probabilities. Another possibility is that agencies split non-competitive contracts given to the president's connected firms so that the amount of these split contracts are below the simplified acquisition threshold. Such a practice is implausible since it is strictly prohibited by federal regulations (FAR 13.003(c)(2)) and suspicion of split purchases frequently results in audit processes.[25] In Table E5 and E6 in the Appendix, I run analyses on contracts with amount below the simplified acquisition threshold, excluding set-aside contracts for small businesses. Results show that changes in congressional turnover probabilities do not lead to an increase in agencies' provision of non-competitive contracts below the threshold.

The next alternative explanation is that in response to an increased probability of congressional turnover, agencies provide more competitive contracts but ensure that the president's connected firms always win these contracts. Agencies can do so by creating administrative hurdles (e.g., solicitation periods, bid preparation costs) and allowing only connected firms to submit bids. Such a strategy would benefit the president and his connected firms without improving procurement efficiency. To show that my findings are explained by an increase in procurement efficiency but not by this alternative explanation, I replicate Table 3 using two alternative measures of lower-cost contracts, which are the initial contract amount and contracts with the competitive procedure and fixed cost structures. I show in Table E7 and E8 in the Appendix that the results are similar to Table 3, which suggests that an increase in electoral turnover probabilities leads to higher procurement efficiency.

Next, there is an implicit assumption underlying my argument that timing of procuring goods is not flexible. If the agency has discretion to change the timing when certain goods can be purchased, they might defer providing non-competitive contracts to the president's donors in response

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24. $20,000 is an arbitrary threshold to capture contract bundling just below the threshold. I exclude set-aside contracts for small businesses below the threshold since federal regulations encourage set-aside contracts for small businesses with dollar amounts below the simplified acquisition threshold.

25. See, e.g., audits by the Department of Veterans Affair (https://www.va.gov/oig/pubs/VAOIG-15-05519-377.pdf).

to an increase in congressional turnover probabilities to wait to see what happens later. This account considers extensive margin of procurement contracts and is observationally equivalent to my argument on intensive margin ("What is the likelihood that agencies choose competitive procedure conditional on contracts being made?"). To the extent that there is no significant efficiency loss from agencies delaying the procurement of goods within a short time frame, this alternative account does not undermine the implications of my argument that the threat of electoral turnover enhances government efficiency: Agencies are not signing inefficient contracts that would degrade procurement efficiency, which, from the perspective of citizens, could be worse than not procuring the good. In Appendix G, I show that the alternative account on the extensive margin is not driving my results.

My findings might also be explained by agencies pulling back from providing non-competitive contracts to firms not connected to the president until the political climate becomes more favorable after the congressional turnover. However, such an explanation is implausible since congressional turnover does not change who proposes the procurement plans. As described in my model setup, agencies under the president's political pressure would have difficulties providing a new competitive contract to firms not connected to the president even after the congressional turnover. Moreover, if this explanation were to hold, the effect of electoral turnover probabilities should be larger in industries where there is a high proportion of firms not connected to the president.

Last, my findings might be driven by the president losing control over his political appointees as the probability of congressional turnover increases. Political appointees might think that the president would lack the capacity to punish them later under divided government, leading them to shirk. However, the president still controls political appointments after congressional turnover and could replace appointees easily, bypassing the Senate confirmation (Kinane 2021). I additionally check in Appendix H whether the ratio of political appointees within the sub-agencies changes in accordance with electoral turnover probabilities or decreases as the end of unified government approaches, and show that these are not the case.

7 Conclusion

Conventional accounts suggest that executive agencies expecting their power to wane due to electoral turnover have incentives to insulate their preferred policies through cumbersome and inefficient bureaucratic procedures. This argument assumes that future Congresses (or administrations) will find it difficult or impossible to overturn existing policies via formal means, but does not consider that Congress may have informal means to do so in numerous policy areas. In those areas, forward-looking agencies might make their policies reflect the future Congress's preferences so that their moderated policies survive after the electoral turnover.

I evaluate this intuition in the context of federal procurement, where politicized agencies under unified government may provide non-competitive, higher-cost contracts to firms politically connected to the president in the absence of any threat to their political dominance. Using data on over 10 million federal contracts and exploiting daily price changes in election prediction markets, I find that as the probability of congressional turnover increases, agencies under unified government provide more lower-cost contracts through competitive bidding. Consistent with my theory, this shift in behavior is more prominent in industries where agencies expect contracts to be overturned by the future Congress: Where a high proportion of the president's connected firms compete for procurement and where these connected firms are relatively inefficient.

The case I examine in this paper concerns federal agencies' decision making in government procurement in response to congressional turnover. What remains to be examined is how agencies also respond to presidential turnover, which leads to changes in future agencies' preferences. In addition, Congress and the president can respond to anticipated electoral turnover in policy areas where they have decision making authority. Congress can change the statute to constrain administrative policy making and the president can fill vacant positions or control rulemaking through the Office of Management and Budget (OMB). Future research could address these cases to improve our understanding of the broader implications of electoral turnover on government efficiency.

References

Acemoglu, Daron, Davide Ticchi, and Andrea Vindign. 2011. "Emergence and Persistence of Inefficient States." *Journal of the European Economic Association* 9 (2): 177–208.

Ackerberg, Daniel A., Kevin Caves, and Garth Frazer. 2015. "Identification Properties of Recent Production Function Estimators." *Econometrica* 83 (6): 2411–2451.

Acs, Alex. 2019. "Congress and Administrative Policymaking: Identifying Congressional Veto Power." *American Journal of Political Science* 63 (3): 513–529.

Akhtari, Mitra, Diana Moreira, and Laura Trucco. 2022. "Political Turnover, Bureaucratic Turnover and the Quality of Public Services." *American Economic Review* 112 (2): 442–493.

Alinger, Mason C. 2007. "The impact of procurement provisions in appropriations act on the federal acquisition system." *Public Contract Law Journal* 36 (4): 583–628.

Berry, Christopher R., Barry C. Burden, and William G. Howell. 2010. "The President and the Distribution of Federal Spending." *American Political Science Review* 104 (4): 783–799.

Berry, Christopher R., and Anthony Fowler. 2016. "Cardinals or Clerics? Congressional Committees and the Distribution of Pork." *American Journal of Political Science* 60 (3): 692–708.

Bolton, Alexander. 2021. "Gridlock, Bureaucratic Control, and Nonstatutory Policymaking in Congress." *American Journal of Political Science:* 1–17.

Bolton, Alexander, John M. de Figueiredo, and David E. Lewis. 2021. "Elections, Ideology, and Turnover in the US Federal Government." *Journal of Public Administration Research and Theory* 31 (2): 159–174.

Bolton, Alexander, and Sharece Thrower. 2022. *Checks in the Balance: Legislative Capacity and the Dynamics of Executive Power.* Princeton, New Jersey: Princeton University Press.

Bosio, Erica, and Simeon Djankov. 2020. "How large is public procurement?" *World Bank* (February 5). Accessed April 19, 2022. https://blogs.worldbank.org/developmenttalk/how-large-public-procurement.

Brogaard, Jonathan, Matthew Denes, and Ran Duchin. 2020. "Political Influence and the Renegotiation of Government Contracts." *The Review of Financial Studies.*

Brown, Jeffrey R., and Jiekun Huang. 2020. "All the president's friends: Political access and firm value." *Journal of Financial Economics* 138:451–431.

Colonnelli, Emanuele, and Mounu Prem an Edoardo Teso. 2020. "Patronage and Selection in Public Sector Organizations." *American Economic Review* 110 (10): 3071–3099.

Dahlström, Carl, Mihály Fazekas, and David Lewis. 2020. "Partisan Procurement: Contracting with the United States Federal Government, 2003-2015." *American Journal of Political Science*.

De Figueiredo, Jr., Rui J.P. 2002. "Electoral Competition, Political Uncertainty, and Policy Insulation." *American Political Science Review* 96 (2): 321–333.

Doherty, Kathleen M., David E. Lewis, and Scott Limbocker. 2019. "Executive Control and Turnover in the Senior Executive Office." *Journal of Public Administration Research and Theory* 29 (2): 159–174.

Dynes, Adam M., and Gregory A. Huber. 2015. "Partisanship and the Allocation of Federal Spending: Do Same-Party Legislators or Voters Benefit from Shared Party Affiliation with the President and House Majority?" *American Political Science Review* 209 (1): 172–186.

Fazekas, Mihály, and Gábor Kocsis. 2020. "Uncovering High-Level Corruption: Cross-National Corruption Proxies Using Government Contracting Data." *British Journal of Political Science* 50 (1): 155–164.

Gersen, Jacob, and Anne Joseph O'Connell. 2008. "Deadlines in Administrative Law." *Legislative Studies Quarterly* 156:923–990.

Goldman, Eitan, Jörg Rocholl, and Jongil So. 2013. "Politically Connected Boards of Directors and The Allocation of Procurement Contracts." *Review of Finance* 17 (5): 1617–1648.

Gordon, Sanford C. 2011. "Politicizing Agency Spending Authority: Lessons from a Bush-era Scandal." *American Political Science Review* 105 (4): 717–734.

Higgins-Dunn, Noah. 2020. "House report accuses Trump administration of 'waste, fraud or abuse' in U.S. ventilator contract." *CNBC* (July 31). Accessed July 31, 2020. https://www.cnbc.com/2020/07/31/coronavirus-house-report-accuses-trump-administration-of-waste-fraud-or-abuse-in-us-ventilator-contract.html.

Horn, Murray J., and Kenneth A. Shepsle. 1989. "Commentary on 'Administrative Arrangements and Political Control of Agencies': Administrative Process and Organizational Form as Legislative Responses to Agency Costs." *Virginia Law Review* 75 (2): 499–508.

Huber, John D., and Michael M. Ting. 2021. "Civil Servie and Patronage in Bureauracies." *Journal of Politics* 83 (3): 902–916.

Kinane, Christina M. 2021. "Control without Confirmation: The Politics of Vacancies in Presidential Appointments." *American Political Science Review* 115 (2): 599–614.

Krause, George A., and Matthew Zarit. 2021. "Selling Out? Contingent Politicization and Contracting Risk in U.S. Federal Procurements, 2001-2016." *Journal of Political Institutions and Political Economy* 2 (4): 509–535.

Kriner, Douglas L., and Andrew Reeves. 2015. "Presidential Particularism and Divide-the-Dollar Politics." *American Political Science Review* 109 (1): 155–171.

Kriner, Douglas L., and Eric Schickler. 2016. *Investigating the President: Congressional Checks on Presidential Power.* Reprint ed. Princeton, NJ: Princeton University Press.

Kriner, Douglas L., and Liam Schwartz. 2008. "Divided Government and Congressional Investigations." *Legislative Studies Quarterly* 33 (2): 295–321.

Larcinese, Valentino, Leonzio Rizzo, and Cecilia Testa. 2006. "Allocating the U.S. Federal Budget to the States: The Impact of the President." *Journal of Politics* 68 (2): 447–456.

Liebman, Jeffrey, and Neale Mahoney. 2017. "Do Expiring Budgets Lead to Wasteful Year-End Spending? Evidence from Federal Procurement." *American Economic Review* 107 (11): 3510–3549.

MacDonald, Jason A. 2010. "Limitation Riders and Congressional Influence over Bureaucratic Policy Decisions." *American Political Science Review* 104 (4): 766–782.

Macdonald, Jason A., and Robert J. Mcgrath. 2019. "A Race for the Regs: Unified Government, Statutory Deadlines, and Federal Agency Rulemaking." *Legislative Studies Quarterly* 44 (2): 345–381.

Miller, David. 2022. "The President Will See Whom Now? Presidential Engagement with Organized Interests."

Moe, Terry M. 1989. "The Politics of Bureaucratic Structure." In *Can the Government Govern?,* edited by John Chubb and Paul Peterson, 267–329. Washington, DC: Brookings Institution.

O'Connell, Anne Joseph. 2011. "Agency Rulemaking and Political Transitions." *Nothewestern University Law Review* 105 (2): 471–534.

Ogul, Morris S. 1976. *Congress Oversees the Bureaucracy: Studies in Legislative Supervision.* 1st ed. Pittsburgh, PA: University of Pittsburgh Press.

Parker, David C.W., and Matthew Dull. 2009. "Divided We Quarrel: The Politics of Congressional Investigations, 1947-2004." *Legislative Studies Quarterly* 34 (3): 319–345.

Potter, Rachel Augustine. 2017. "Slow-Rolling, Fast-Tracking, and the Pace of Bureaucratic Decisions in Rulemaking." *Journal of Politics* 79 (3): 841–855.

Samuelson, William F. 1985. "Competitive bidding with entry costs." *Economic Letters* 17 (1): 53–57.

Schoenherr, David. 2019. "Political Connections and Allocative Distortions." *Journal of Finance* 74 (2): 543–586.

Shear, Michael D. 2020. "Trump Using Last Days to Lock In Policies and Make Biden?s Task More Difficult." *New York Times* (November 21). Accessed April 19, 2022. https://www.nytimes.com/2020/11/21/us/politics/trump-biden-transition.html.

Shepsle, Kenneth A. 1992. "Bureaucratic Drift, Coalition Drift, and Time Consistency." *Journal of Law, Economics, and Organization* 8 (1): 111–118.

Suryanarayan, Pavithra. 2022. "Status politics hollows out the state: Evidence from Colonial India."

Tahoun, Ahmed. 2013. "Politically Connected Boards of Directors and The Allocation of Procurement Contracts." *Review of Finance* 17 (5): 1617–1648.

Ting, Michael M., Olle Folke, Shigeo Hirano, and James Snyder. 2013. "Elections and Reform: The Adoption of Civil Service Systems in the U.S. States." *Journal of Theoretical Politics* 27 (2): 363–387.

Toral, Guillermo. 2022. "Turnover: How electoral accountability disrupts the bureaucracy and service delivery."

Wolfers, Justin, and Eric Zitzewitz. 2006. "Interpreting Prediction Market Prices as Probabilities."

Supporting Information for
Electoral Turnover and Government Efficiency: Evidence from Federal Procurement

Contents

A Proofs and Proposition

The equilibrium solution concept is a subgame perfect Nash equilibrium, which I solve via backward induction. Starting with the aligned/opposition Congress's decision to approve the procurement outcome in period 2, there are two cases to consider: First, connected firm's price θ_F is below the opposition Congress's valuation of good v_O that the connected firm is relatively efficient; and second, θ_F is greater than v_O that the connected firm is relatively inefficient. In the first case where $\theta_F \leq v_O$, both the aligned and opposition Congresses always approve the outcome since all prices are sufficiently low. Given that Congress always approves, if the status quo is θ_F in period 2, the agency chooses between the status quo and a new competitive contract. The agency's period-2 payoff of choosing the status quo is $\alpha + v_B - \theta_F$. The agency's period-2 payoff of choosing a new competitive contract is $\alpha + v_B - \theta_F - \kappa$ if $\theta_F \leq \theta_M$, otherwise $v_B - \theta_M - \kappa$. Therefore, the agency always prefers the status quo if $\theta_F \leq \theta_M$. On the other hand, if $\theta_F > \theta_M$, the agency in period 2 chooses the status quo with θ_F if doing so yields a higher payoff than choosing a new competitive contract. Re-arranging the inequality yields

$$\alpha \geq \theta_F - \theta_M - \kappa = \overline{\alpha}_2^F \tag{1}$$

Now suppose the status quo is market price θ_M in period 2. The agency then chooses between the status quo and a new non-competitive contract. The period-2 payoff of choosing the status quo is $v_B - \theta_M$. The payoff of choosing a new non-competitive contract is $\alpha + v_B - \theta_F - \kappa$. The agency chooses a new non-competitive contract if doing so yields higher payoff than the status quo. Re-arranging the inequality yields

$$\alpha \geq \theta_F - \theta_M + \kappa = \overline{\alpha}_2^M \tag{2}$$

Compare these results under $\theta_F \leq v_O$ with the case where $\theta_F > v_O$. In the latter case, the aligned and opposition Congresses act differently: The aligned Congress always approves the outcome, so the agency's procurement decision in period 2 is the same as (1) and (2). In contrast, the opposition Congress does not approve the outcome with θ_F because it is so inefficient, whereas it approves the one with θ_M. Given the constraint by the opposition Congress, the agency with α greater than $\overline{\alpha}_2^F$ and $\overline{\alpha}_2^M$ makes different procurement decisions that he would not have made under the aligned Congress: He always chooses a new competitive contract if the status quo has price θ_F and the status quo if the status quo has price θ_M, both of which leads to the outcome with θ_M. The opposition Congress's decision does not constrain the agency with $\alpha \leq \overline{\alpha}_2^F$ since he always prefer the outcome with θ_M in the first place.

Given the period-2 outcome, the aligned Congress in period 1 always approves the contract.

Thus, the agency in period 1 makes the decision based on electoral turnover probability ϕ and the continuation value of that decision. A straightforward result is that the agency's decision in period 1 would be unresponsive to ϕ if $\theta_F \leq v_O$ or $\alpha \leq \overline{\alpha}_2^F$. In these situations, both the aligned and opposition Congress do not constrain the agency's choice. On the other hand, if $\theta_F > v_O$ and $\alpha > \overline{\alpha}_2^F$, the aligned and opposition Congresses in period 2 impose different constraints and, therefore, the agency's procurement choice in period 1 depends on ϕ.

If $\theta_F > v_O$ and $\alpha > \overline{\alpha}_2^F$, first suppose that the status quo in period 1 has price θ_F. In this case, the agency with α greater than $\overline{\alpha}_2^M$ always prefers the status quo regardless of ϕ, whereas the agency with $\alpha \in [\overline{\alpha}_2^F, \overline{\alpha}_2^M]$ is responsive to ϕ. If the agency with $\alpha \in [\overline{\alpha}_2^F, \overline{\alpha}_2^M]$ chooses the status quo in period 1, his payoff over two periods is

$$\alpha + v_B - \theta_F + (1-\phi)(\alpha + v_B - \theta_F) + \phi(v_B - \theta_M - \kappa) \tag{3}$$

On the other hand, if the agency in period 1 with $\alpha \in [\overline{\alpha}_2^F, \overline{\alpha}_2^M]$ chooses a new competitive contract, his total payoff is $2(v_B - \theta_M) - \kappa$. The agency in period 1 chooses the status quo with price θ_F if doing so yields a higher payoff. Re-arranging the inequality yields

$$\alpha \geq \frac{\kappa - \phi\kappa - 2\theta_F + \phi\theta_F + 2\theta_M - \phi\theta_M}{\phi - 2} = \overline{\alpha}_1^F(\phi) \tag{4}$$

where $\overline{\alpha}_1^F(\phi)$ is the cutoff of α, given electoral turnover probability ϕ, below which the agency chooses a new competitive procurement in period 1, and otherwise chooses the status quo with price θ_F. An increase in ϕ lowers the cutoff $\overline{\alpha}_1^F(\phi)$ by decreasing the agency's payoff of choosing the status quo in (3): As ϕ increases, more weight is put on $v_B - \theta_M - \kappa$ than $\alpha + v_B - \theta_F$, where the former is lower than the latter. Substantively, the shift suggests that as ϕ increases, choosing the status quo with θ_F in period 1 does not lead to the connected firm receiving the contract in period 2 and incurs the additional costs of needing to negotiate a new contract in period 2.

Next, suppose the status quo contract in period 1 has price θ_M. If the agency in period 1 with $\alpha > \overline{\alpha}_2^F$ chooses the status quo, his expected payoff over two periods is

$$\begin{cases} 2(v_B - \theta_M) & \text{if } \alpha \in [\overline{\alpha}_2^F, \overline{\alpha}_2^M] \\ v_B - \theta_M + (1-\phi)(\alpha + v_B - \theta_F - \kappa) + \phi(v_B - \theta_M) & \text{if } \alpha > \overline{\alpha}_2^M \end{cases} \tag{5}$$

If the agency chooses a new non-competitive contract, his payoff is $\alpha + v_B - \theta_F - \kappa + (1-\phi)(\alpha + v_B - \theta_F) + \phi(v_B - \theta_M - \kappa)$. The agency in period 1 chooses a new non-competitive contract if doing so yields a higher payoff. Re-arranging the inequality yields

$$\alpha \geq \max\{\frac{-\kappa - \phi\kappa - 2\theta_F + \phi\theta_F + 2\theta_M - \phi\theta_M}{\phi - 2}, \theta_F - \theta_M + 2\phi\kappa\} = \overline{\alpha}_1^M(\phi) \tag{6}$$

A3

where $\overline{\alpha}_1^M(\phi)$ is the cutoff of α above which the agency chooses a new non-competitive procurement in period 1, and otherwise chooses the status quo with price θ_M.

Proposition 2 summarized the equilibrium of the game.

Proposition 2. In period 1, let $\overline{\alpha}_1^F(\phi)$ be the cutoff of α at which the bureaucrat is indifferent between the status quo with θ_F and a new competitive contract, given electoral turnover probability ϕ. Let $\overline{\alpha}_1^M(\phi)$ be the cutoff of α at which the bureaucrat is indifferent between a new non-competitive contract and the status quo with θ_M, given ϕ. $\overline{\alpha}_1^F(\phi)$ and $\overline{\alpha}_1^M(\phi)$ increase in ϕ if $\theta_F > v_O$, otherwise are unresponsive to ϕ.

1. Suppose that in period 2, the aligned Congress wins the election. If the status quo in period 2 has price θ_F, the bureaucrat's procurement decisions in period 2 are as follows:

$$
\begin{cases}
\text{chooses a new competitive contract} & \text{if } \alpha \leq \theta_F - \theta_M - \kappa = \overline{\alpha}_2^F \\
\text{chooses the status quo with } \theta_F & \text{if } \alpha > \overline{\alpha}_2^F
\end{cases}
$$

   If the status quo in period 2 has θ_M, the bureaucrat's procurement decisions in period 2 are as follows:

$$
\begin{cases}
\text{chooses the status quo with } \theta_M & \text{if } \alpha \leq \theta_F - \theta_M + \kappa = \overline{\alpha}_2^F \\
\text{chooses a new non-competitive contract} & \text{if } \alpha > \overline{\alpha}_2^F
\end{cases}
$$

   The aligned Congress always approves the procurement outcome.

2. Suppose that in period 2, the opposition Congress wins the election. If $\theta_F \leq v_O$, the bureaucrat's procurement decision and the opposition Congress's approval decision are the same as those under the aligned Congress. The opposition Congress always approves the outcome. If $\theta_F > v_O$, the bureaucrat always chooses a new competitive contract if the status quo price is θ_F and chooses the status quo if the status quo price is θ_M. The opposition Congress only does not approve the procurement outcome with price θ_F.

B Control Variables and Summary Statistics

As controls, I include variables *proportion of connected firms* and *connected firms' efficiency*. I also include variables related to other model parameters. First, I include *AgencyPoliticization$_{bt}$* that measures the extent to which the sub-agency is politicized in a given year. Following the existing literature, I calculate the proportion of appointees in each sub-agency (Dahlström, Fazekas, and Lewis 2020). The numerator includes all Schedule C, non-career Senior Executive Service officers, and those on the executive (EX) pay scale in a given sub-agency; the denominator is the number of employees in a given sub-agency under the supervisor 2 code of the Office of Personnel Management's Central Personnel Data File. Second, to proxy the opposition party's valuation of procured goods, I include the variable on the number of the opposition party's connected firms competing for federal procurement at the industry×unified government level. Firms are considered to be the opposition party's firms if they donated more than 60% of their total campaign donations to the opposition party in the election prior to the unified government.

I also include variables indicating whether the firm is minority-owned, veteran-owned, small in size, a participant of the 8(a) program that helps firms owned by socially and economically disadvantaged individuals, or is in the historically underutilized business zone. Last, I include characteristics of the congressional district where the contract performance primarily occurs. These characteristics are the House representative's first-dimension DW-nominate score, membership on the Appropriations, and Ways and Means Committees, House Appropriations Subcommittee chair, seniority, majority party member, gender, and race. I also include variables on whether the contract is performed in battleground states in the previous and upcoming elections or in states where senators are appropriations subcommittee chairs.

Table B1: Summary Statistics of Contract-Level Variables

	N	Mean	Median	SD	Min	Max
Competition	574,463	.73	1	.44	0	1
Electoral Turnover Probabilities	526,832	0.46	0.42	0.22	0	1
Connected Firms' Efficiency	544,254	-.05	-.06	.14	-2.01	1.44
Proportion of Connected Firms	572,657	.50	.61	.26	0	1
Sub-agency Politicization	560,538	.00	.00	.02	0	.66
log(Number of Opposition Party's Firms)	572,663	2.03	2.07	1.12	0	4.59
log(Initial Contract Amount)	566,897	12.22	12.32	1.80	-4.60	22.45
Competition with Fixed Cost	574,463	.65	1	.47	0	1
Legislator & District Characteristics Where Contracts Are Performed:						
1st Dimension DW-Nominate	488,990	-.03	-.26	.41	-.69	.93
Appropriations, or Ways and Means Member	508,646	.26	0	.44	0	1
House Appropriations Subcommittee Chair	508,646	0.01	0	0.11	0	1
Senate Appropriations Subcommittee Chair	508,646	0.14	0	0.35	0	1
Seniority	508,646	5.94	5	4.42	1	28
Majority Party Member	508,646	.50	1	.49	0	1
Female	508,646	.22	0	.41	0	1
Black	508,646	.13	0	.34	0	1
Latino	508,646	.04	0	.20	0	1
Battle Ground States in Next Presidential Election	574,461	.20	0	.40	0	1
Battle Ground States in Previous Presidential Election	574,461	.25	0	.43	0	1
Characteristics of Firm's Receiving Contracts:						
Veteran Owned	574,461	.04	0	.21	0	1
Small Owned	574,461	.37	0	.48	0	1
Minority Owned	574,461	.07	0	.25	0	1
8(a) Program Participant	574,461	.03	0	.17	0	1
Historically Underutilized Business Zone	574,461	.01	0	.13	0	1

Table B2: Summary Statistics of Industy×Government-Level Variables

	Mean	Median	SD	Min	Max	N
Proportion of Connected Firms	4,703	.55	.68	.30	0	1
Connected Firms' Efficiency	3,061	-.01	0	.18	-2.01	1.44

C   Comparison of IEM and PredictIt

Figure C1: Comparison Between IEM and PredictIt in 2018 Elections

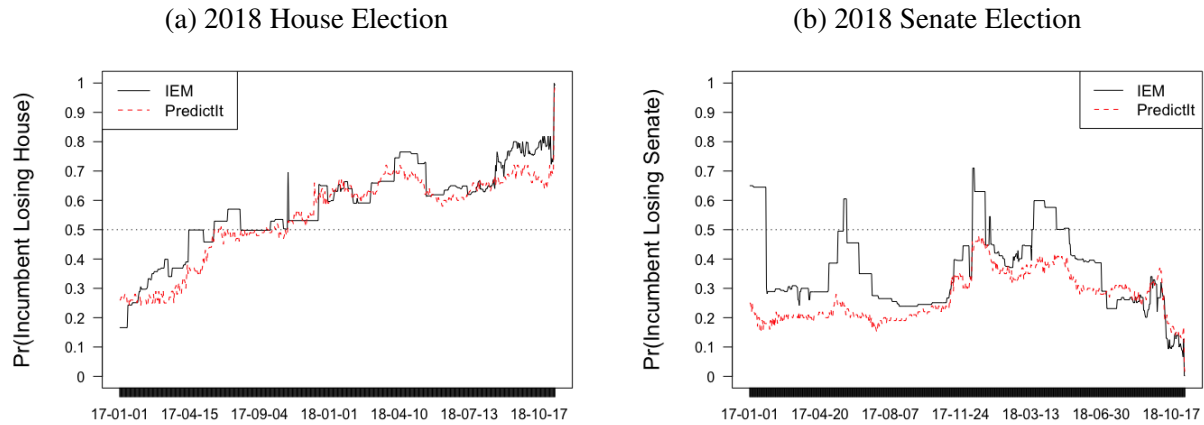(a) 2018 House Election

(b) 2018 Senate Election

Table C1: Replicating Table 1 and 2 in the Main Text Using PredictIt Data

Outcome =	Pr(Providing Competitive Contracts)	log(Initial Contract Amount)	Competitive and Fixed Cost
Electoral Turnover	0.17***	-0.24	0.15***
Probabilities	(0.05)	(0.27)	(0.05)
Control	Y	Y	Y
Observations	418,457	413,298	418,457
Mean Outcome	0.72	12.10	0.64
Clusters	1,302	1,302	1,302
Adj R^2	0.23	0.57	0.29

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table C2: Replicating Table 3 Using PredictIt Data

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency	0.03	0.32***
at 10th Percentile (=-0.20)	(0.05)	(0.07)
Connected Firms' Efficiency	0.07	0.18**
at 90th Percentile (= 0.18)	(0.05)	(0.07)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

D   Lagging or Leading the Independent Variable

The examination of contracts in my sample shows that 82% are delivery order contracts, which would have a small gap between the solicitation date and signature date. All delivery orders are created under parent agreements that were negotiated further in the past via competitive or non-competitive procedure. From the existing parent agreements, it is a relatively quick process to create a child delivery order contract. On the other hand, definitive contracts are more likely to have a gap between the solicitation and signature dates. To check whether this is the case, I first run the regression model by lagging the independent variable only for definitive contracts by 10, 20, 30, and 40 days. Then, I run the model by lagging the independent variable for all contracts by 10, 20, 30, and 40 days. If there is a systemic difference between delivery orders and definitive contracts, lagging the independent variable only for definitive contracts may yield higher coefficient estimates. The results in Table D1 show that the effect becomes larger if I lag the independent variable only for definitive contracts by 10, 20, and 30 days. On the other hand, Table D2 shows that if I lag the independent variable for all contracts, the effect becomes smaller, which suggests that there is no significant lag in agencies' responsiveness to electoral turnover probabilities for delivery order contracts.

To additionally show that my results are consistent with leading the independent variable by a small time margin, I run the regression model by leading the independent variable by 10, 20, 30, and 40 days. Bureaucrats or political appointees of the agency, as government insiders, could acquire election-relevant information earlier than investors in prediction markets. If their perceptions of congressional turnover probabilities precede those of investors, we would observe the leading effect of the independent variable. Results are shown in Table D3 in the Appendix. The results show that the effect is still significant even when I lead the independent variable by 10 or 20 days, and becomes smaller and less significant if I lead the independent variable by 30 or 40 days.

Table D1: Lagging Effect of Electoral Turnover Probabilities Only for Definitive Contracts

	Electoral Turnover Probabilities			
	(1)	(2)	(3)	(4)
Outcome =	$t-40$	$t-30$	$t-20$	$t-10$
Pr(Providing Competitive Contracts)$_t$	0.13***	0.18***	0.19***	0.16***
	(0.03)	(0.03)	(0.04)	(0.04)

Table D2: Lagging Effects of Electoral Turnover Probabilities for All Contracts

	Electoral Turnover Probabilities			
	(1)	(2)	(3)	(4)
Outcome =	$t-40$	$t-30$	$t-20$	$t-10$
Pr(Providing Competitive Contracts)$_t$	0.01	0.06	0.03	0.08**
	(0.02)	(0.04)	(0.03)	(0.03)

Table D3: Are There Lead Effects of Electoral Turnover Probabilities?

	Electoral Turnover Probabilities			
	(1)	(2)	(3)	(4)
Outcome =	$t+10$	$t+20$	$t+30$	$t+40$
Pr(Providing Competitive Contracts)$_t$	0.11***	0.07***	0.07**	0.02
	(0.03)	(0.02)	(0.03)	(0.02)

E   Additional Analyses

Table E1: Heterogeneous Effects Using 50% Threshold for Political Connection

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
at 10th Percentile (=-0.20)	-0.09	0.23***
	(0.08)	(0.04)
Connected Firms' Efficiency	-0.06	0.14***
at 90th Percentile (= 0.18)	(0.10)	(0.04)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E2: Heterogeneous Effects of Congressional Turnover Probabilities

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probability	0.02
	(0.05)
Proportion of Connected Firms	-0.11***
	(0.04)
Connected Firms' Efficiency	-0.01
	(0.06)
Electoral Turnover Probability×Proportion of Connected Firms	0.20**
	(0.08)
Electoral Turnover Probability×Connected Firms' Efficiency	0.12
	(0.08)
Proportion of Connected Firms×Connected Firms' Efficiency	-0.07
	(0.11)
Electoral Turnover Probability×Proportion of Connected Firms	-0.37**
×Connected Firms' Efficiency	(0.15)
Control	Y
Observations	418,457
Mean Outcome	0.72
Clusters	1,302
Adj R^2	0.23

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E3: Alternative Explanation on Bunching Below the Simplified Acquisition Threshold

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover	0.13***
Probabilities	(0.03)
Control	Y
Observations	485,743
Mean Outcome	0.72
Clusters	2,568
Adj R^2	0.22

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E4: Heterogeneous Effects of Congressional Turnover Probabilities on Bunching Below the Threshold

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency	0.02	0.23***
at 10th Percentile (=-0.20)	(0.04)	(0.04)
Connected Firms' Efficiency	0.06	0.15***
at 90th Percentile (= 0.18)	(0.04)	(0.04)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E5: The Effect of Congressional Turnover Probabilities Using Contracts Below the Simplified Acquisition Threshold

Outcome =	Pr(Providing Competitive Contracts)	
	(1)	(2)
Electoral Turnover Probability	0.00	-0.00
	(0.00)	(0.00)
Control	N	Y
Observations	11,263,703	10,322,654
Mean Outcome	0.78	0.78
Clusters	6,628	4,459
Adj R^2	0.47	0.52

Notes: Standard errors clustered by industry×government. * p<0.10, ** p<0.05, *** p<0.01.

Table E6: Heterogeneous Effects of Congressional Turnover Probabilities Using Contracts Below the Simplified Acquisition Threshold

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency	-0.08	0.06
at 10th Percentile (=-0.20)	(0.05)	(0.04)
Connected Firms' Efficiency	-0.04	-0.00
at 90th Percentile (= 0.18)	(0.06)	(0.01)

Notes: Standard errors clustered by industry×government. * p<0.10, ** p<0.05, *** p<0.01.

Table E7: Heterogeneous Effects of Congressional Turnover Probabilities on log(Initial Contract Amount)

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency	0.08	-0.50**
at 10th Percentile (=-0.20)	(0.28)	(0.21)
Connected Firms' Efficiency	0.12	-0.35*
at 90th Percentile (= 0.18)	(0.18)	(0.20)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E8: Heterogeneous Effects of Congressional Turnover Probabilities on Competitive Contracts with Fixed Costs

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency	0.01	0.24***
at 10th Percentile (=-0.20)	(0.05)	(0.05)
Connected Firms' Efficiency	0.04	0.17***
at 90th Percentile (= 0.18)	(0.05)	(0.05)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table E9: 'Connected firms' efficiency' based on the median efficiency scores

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency at 10th Percentile (=-0.12)	0.05 (0.05)	0.22*** (0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.13)	0.08 (0.05)	0.18*** (0.05)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

F Effect of Congressional Turnover Probabilities Across Administrations

As a robustness check, I examine whether the effect of congressional turnover probabilities differs across administrations. First, I expect that the effect of electoral turnover probabilities would be stronger in years when midterm elections are held. This is because the durability of contracts signed in those years is more likely to depend on the future Congress's preference after the electoral turnover. Second, the effect of congressional turnover probabilities is more pronounced under Republican administrations. As shown in the year 2010 of Figure 3, this is attributable to the fewer number of firms politically connected to the Democratic party.

To test my intuitions, I interact congressional turnover probabilities with the categorical variable of years, using the same set of control variables and fixed effects in the main regression model (1). Table F1 shows the results of the interaction model where the baseline is the year 2006, and F2 shows the calculated effect of congressional turnover probabilities based on the interaction model. The interaction terms for years 2010 and 2017 in Table F1 are significant, and estimates in Table F2 suggest that the effect of congressional turnover probabilities differ across years. As anticipated, the effect is weaker in 2010 when a Democratic president was in power. Moreover, the effect is weaker in the non-election year 2017 than in 2018.

Table F1: Effects of Congressional Turnover Probabilities Across Years

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probability	0.27***
	(0.08)
Electoral Turnover Probability×Year 2010	-0.22**
	(0.10)
Electoral Turnover Probability×Year 2017	-0.19**
	(0.09)
Electoral Turnover Probability× Year 2018	-0.08
	(0.13)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table F2: Calculated Effects of Congressional Turnover Probabilities Across Years

Outcome =	Pr(Providing Competitive Contracts)
Effect in 2006	0.27**
	(0.13)
Effect in 2010	0.04
	(0.06)
Effect in 2017	0.07*
	(0.04)
Effect in 2018	0.18**
	(0.08)

Notes: Standard errors clustered by date. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

G Effect on Extensive Margin of Procurement Contracts

The alternative account suggests that an increase in the congressional turnover probability on a given date decreases the number of non-competitive contracts signed on that date, but not the number of competitive contracts. To check whether this is the case, I construct industry×subagency×date-level data based on my sample. I run regression models on the new data set where dependent variables are the logged transformation of the number of non-competitive and competitive contracts signed on a given date at the industry×subagency level. The right side of the regression model is the same as the one used to test *H2* except that control variables on contract characteristics are excluded. The results, shown in Table G1 and G2, suggest that an increase in congressional turnover probabilities generates uncertainties that leads agencies to become less willing to sign contracts in general, but not particularly non-competitive contracts. Therefore, the alternative account does not drive my results.

Table G1: An Increase in Probability of Congressional Turnover Decreases the Total Number of Non-Competitive Contracts

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency at 10th Percentile (=-0.20)	-0.009** (0.004)	-0.013** (0.005)
Connected Firms' Efficiency at 90th Percentile (= 0.18)	-0.009** (0.004)	-0.015**** (0.005)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table G2: An Increase in Probability of Congressional Turnover Decreases the Total Number of Competitive Contracts

	The Proportion of Connected Firms	
	10th Percentile (=0.14)	90th Percentile (=0.87)
Connected Firms' Efficiency at 10th Percentile (=-0.20)	-0.018* (0.010)	-0.016* (0.008)
Connected Firms' Efficiency at 90th Percentile (= 0.18)	-0.014 (0.010)	-0.021** (0.009)

Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

H   Sub-agency Politicization Over Time

For years 2010 and 2018, the Office Personnel Management (OPM) data is available for March, June, September, and December. While I use the OPM data in March to control for the sub-agency politicization in the main regression model, I use data in other months to examine changes in the level of sub-agency politicization over time. Table H1 shows that in the year 2010 when the incumbent party was losing the midterm election, the sub-agency polarization has increased over time. H2 show that in the year 2018 when the incumbent party was winning the midterm election, the sub-agency polarization has declined a bit over time.

Table H1: Sub-agency politicization over time in the year 2010

	Sub-agency Politicization		
	(1)	(2)	(3)
Outcome =	September	June	March
Sub-agency politicization in December	0.88***	0.92***	0.72***
	(0.01)	(0.01)	(0.01)
Adjusted R^2	0.97	0.98	0.93

Notes: The unit of analysis is sub-agency. * p<0.10, ** p<0.05, *** p<0.01.

Table H2: Sub-agency politicization over time in the year 2018

	Sub-agency Politicization		
	(1)	(2)	(3)
Outcome =	September	June	March
Sub-agency politicization in December	0.87***	0.90***	1.07***
	(0.01)	(0.01)	(0.01)
Adjusted R^2	0.97	0.96	0.95

Notes: The unit of analysis is sub-agency. * p<0.10, ** p<0.05, *** p<0.01.

References

Dahlström, Carl, Mihály Fazekas, and David Lewis. 2020. "Partisan Procurement: Contracting with the United States Federal Government, 2003-2015." *American Journal of Political Science*.