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

Contents

A Proofs and Proposition **A2**

B Control Variables and Summary Statistics **A5**

C Comparison of IEM and PredictIt **A7**

D Lagging or Leading the Independent Variable **A8**

E Additional Analyses **A10**

F Effect of Congressional Turnover Probabilities Across Administrations **A16**

G The Effect on Extensive Margin of Procurement Contracts **A19**

H Sub-agency Politicization and the Number of Appointees Over Time **A20**

I Exploring a Non-Linear Relationship **A21**

J Full Results **A23**

K Competitive Contracting and Efficiency **A31**

L Heterogeneous Effects by Congress's Willingness to Constrain Agencies' Actions **A32**

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 increases 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

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

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 2021). 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, most commonly used for Senior Executive Service (SES) positions. 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$\times$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	538,245	.73	1	.43	0	1
Electoral Turnover Probabilities	490,614	0.44	0.42	0.18	0	1
Connected Firms' Relative Efficiency	528,741	-.04	-.03	.12	-1.00	1.44
Proportion of Connected Firms	536,592	.50	.61	.26	0	1
Sub-agency Politicization	525,227	.00	.00	.02	0	.66
log(Number of Opposition Party's Firms)	536,592	2.06	2.07	1.12	0	4.59
log(Initial Contract Amount)	531,045	12.18	12.32	1.81	-4.60	22.45
Competition with Fixed Cost	538,245	.65	1	.47	0	1
Legislator & District Characteristics Where Contracts Are Performed:						
1st Dimension DW-Nominate	477,314	-.03	-.26	.41	-.69	.93
Appropriations, or Ways and Means Member	477,314	.26	0	.44	0	1
House Appropriations Subcommittee Chair	477,314	0.01	0	0.11	0	1
Senate Appropriations Subcommittee Chair	477,314	0.14	0	0.35	0	1
Seniority	477,314	5.93	5	4.42	1	28
Majority Party Member	477,314	.50	1	.49	0	1
Female	477,314	.22	0	.41	0	1
Black	477,314	.13	0	.34	0	1
Latino	477,314	.04	0	.20	0	1
Battle Ground States in Next Presidential Election	538,245	.20	0	.40	0	1
Battle Ground States in Previous Presidential Election	538,245	.25	0	.43	0	1
Characteristics of Firm's Receiving Contracts:						
Veteran Owned	538,245	.04	0	.21	0	1
Small Owned	538,245	.38	0	.48	0	1
Minority Owned	538,245	.07	0	.25	0	1
8(a) Program Participant	538,245	.03	0	.17	0	1
Historically Underutilized Business Zone	538,245	.01	0	.13	0	1

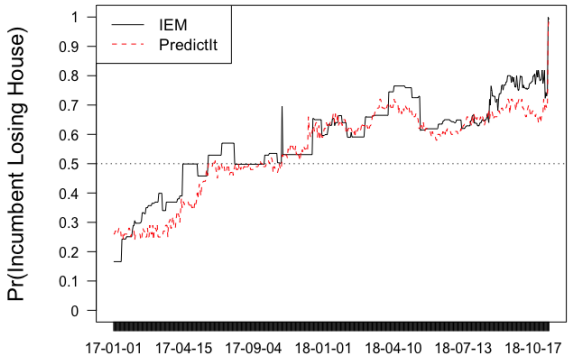
Table B2: Summary Statistics of Industry×Government-Level Variables

	Mean	Median	SD	Min	Max	N
Proportion of Connected Firms	4,646	.56	.68	.30	0	1
Connected Firms' Efficiency	3,951	.01	.02	.15	-1.00	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

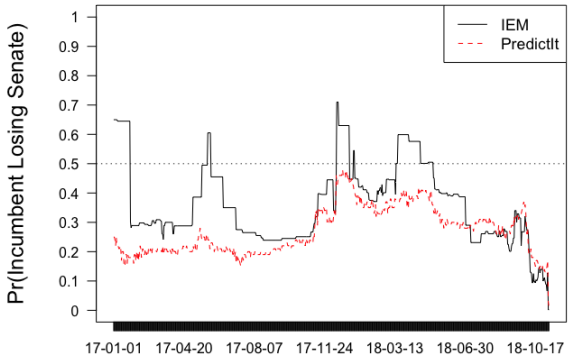


Table C1: Replicating Table 1 and 2 in the Main Text Using PredictIt Data

Outcome =	Pr(Providing Competitive Contracts)	log(Initial Contract Amount)	Competitive and Fixed Cost
Electoral Turnover	0.14***	-0.18	0.12***
Probabilities	(0.04)	(0.26)	(0.02)
Control	Y	Y	Y
Observations	399,806	394,861	399,806
Mean Outcome	0.72	12.10	0.64
Clusters	1,135	1,135	1,135
Adj R^2	0.22	0.58	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 (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency	-0.01	0.31***
at 10th Percentile (=-017)	(0.06)	(0.06)
Connected Firms' Efficiency	0.00	0.16***
at 90th Percentile (= 0.19)	(0.05)	(0.05)

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)$_t$	0.12^{***}	0.16^{***}	0.17^{***}	0.14^{***}
	(0.03)	(0.03)	(0.04)	(0.03)

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)$_t$	-0.03	-0.01	0.01	0.06*
	(0.02)	(0.02)	(0.02)	(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***	0.08***	0.08**	0.03
	(0.02)	(0.02)	(0.03)	(0.02)

E Additional Analyses

Table E1: The Effect on Competitive Bidding with a Single Bidder

Outcome =	Pr(Providing Competitive Contracts with Single Bidder)
Electoral Turnover Probabilities	0.06
	(0.07)
Control	Y
Observations	403,915
Mean Outcome	0.25
Clusters	1,135
Adj R^2	0.16

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

Table E2: Another Placebo Test

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probabilities	0.13***
	(0.03)
Electoral Turnover Probabilities * 113th Congress	-0.14***
	(0.05)
Effect of Electoral Turnover Probabilities Under the 113th Congress	-0.01
	(0.03)
Control	Y
Observations	518,634
Mean Outcome	0.72
Clusters	1,801
Adj R^2	0.23

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

Table E3: The Effect of Electoral Turnover Probabilities by Days Until Election Day

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probabilities	0.18***
	(0.05)
Electoral Turnover Probabilities * Days Until Election Day	0.0002*
	(0.0001)
Days Until Election Day	-0.0004**
	(0.0001)
Control	Y
Observations	403,915
Mean Outcome	0.72
Clusters	1,135
Adj R^2	0.22

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

Figure E1: The Effect of Electoral Turnover Probabilities by Days Until Election Day

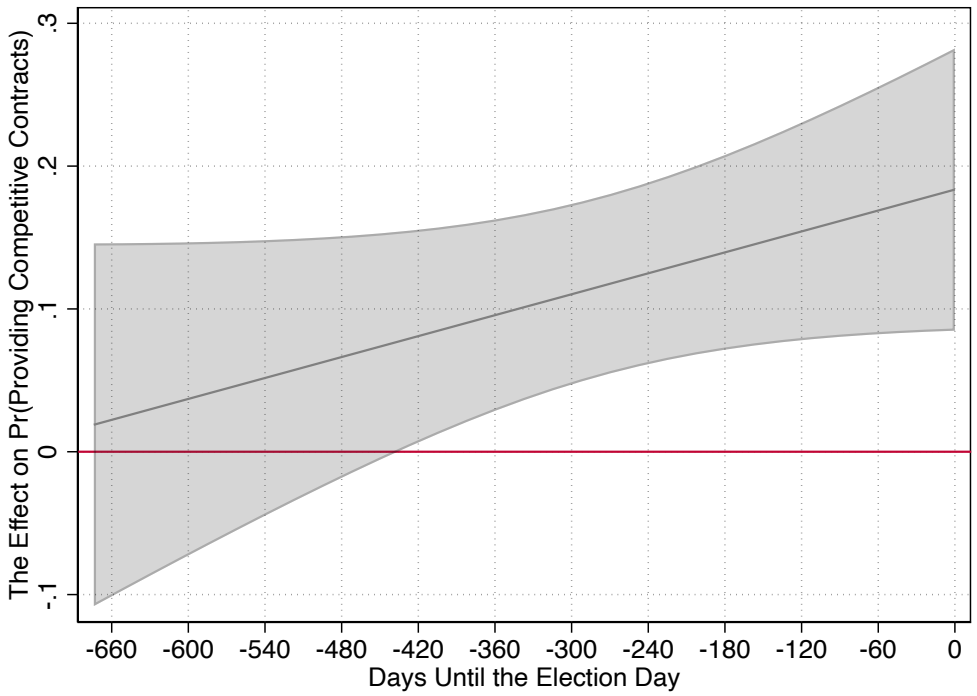


Table E4: Heterogeneous Effects Using 50% Threshold for Political Connection

	The Proportion of Connected Firms	
	10th Percentile (=0.5)	90th Percentile (=0.94)
Connected Firms' Efficiency at 10th Percentile (=-0.07)	0.05	0.22***
	(0.05)	(0.04)
Connected Firms' Efficiency at 90th Percentile (= 0.22)	0.02	0.10***
	(0.07)	(0.03)

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

Table E5: Heterogeneous Effects Using 70% Threshold for Political Connection

	The Proportion of Connected Firms	
	10th Percentile (=0.08)	90th Percentile (=0.5)
Connected Firms' Efficiency at 10th Percentile (=-0.38)	0.19***	0.00
	(0.05)	(0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.12)	0.19***	0.14**
	(0.05)	(0.06)

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

Table E6: Heterogeneous Effects Using 80% Threshold for Political Connection

	The Proportion of Connected Firms	
	10th Percentile (=0.03)	90th Percentile (=0.29)
Connected Firms' Efficiency at 10th Percentile (=-0.34)	0.11***	0.10*
	(0.04)	(0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.16)	0.14***	0.12**
	(0.04)	(0.05)

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

Table E7: Heterogeneous Effects Using 90% Threshold for Political Connection

	The Proportion of Connected Firms	
	10th Percentile (=0.02)	90th Percentile (=0.22)
Connected Firms' Efficiency at 10th Percentile (=-0.39)	0.12***	0.20***
	(0.04)	(0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.08)	0.08**	0.11
	(0.03)	(0.06)

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

Table E8: Alternative Explanation on Bunching Below the Simplified Acquisition Threshold

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probabilities	0.11***
	(0.03)
Control	Y
Observations	466,583
Mean Outcome	0.72
Clusters	1,136
Adj R^2	0.22

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

Table E9: Heterogeneous Effects of Congressional Turnover Probabilities on Bunching Below the Threshold

	The Proportion of Connected Firms	
	10th Percentile (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency at 10th Percentile (=-0.17)	-0.00	0.22***
	(0.05)	(0.04)
Connected Firms' Efficiency at 90th Percentile (= 0.19)	0.02	0.14***
	(0.04)	(0.04)

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

Table E10: 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
	(0.01)	(0.01)
Control	N	Y
Observations	10,144,160	9,328,633
Mean Outcome	0.78	0.78
Clusters	1,141	1,141
Adj R^2	0.47	0.52

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

Table E11: Heterogeneous Effects of Congressional Turnover Probabilities Using Contracts Below the Simplified Acquisition Threshold

	The Proportion of Connected Firms	
	10th Percentile (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency	-0.06***	0.05**
at 10th Percentile (=-0.17)	(0.02)	(0.01)
Connected Firms' Efficiency	-0.02	-0.01
at 90th Percentile (= 0.19)	(0.02)	(0.01)

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

Table E12: Heterogeneous Effects of Congressional Turnover Probabilities on log(Initial Contract Amount)

	The Proportion of Connected Firms	
	10th Percentile (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency	0.03	-0.49*
at 10th Percentile (=-0.17)	(0.33)	(0.29)
Connected Firms' Efficiency	0.20	-0.25
at 90th Percentile (= 0.19)	(0.20)	(0.22)

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

Table E13: Heterogeneous Effects of Congressional Turnover Probabilities on Competitive Contracts with Fixed Costs

	The Proportion of Connected Firms	
	10th Percentile (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency at 10th Percentile (=-0.17)	-0.03	0.25***
	(0.05)	(0.04)
Connected Firms' Efficiency at 90th Percentile (= 0.19)	-0.01	0.17***
	(0.05)	(0.03)

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

Table E14: 'Connected firms' efficiency' based on the median efficiency scores

	The Proportion of Connected Firms	
	10th Percentile (=0.15)	90th Percentile (=0.85)
Connected Firms' Efficiency at 10th Percentile (=-0.12)	0.01	0.22***
	(0.06)	(0.05)
Connected Firms' Efficiency at 90th Percentile (= 0.13)	0.00	0.19***
	(0.05)	(0.04)

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 F1, 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 differs 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	0.22***
	(0.05)
Electoral Turnover Probability × Year 2010	-0.18**
	(0.07)
Electoral Turnover Probability × Year 2017	-0.13**
	(0.08)
Electoral Turnover Probability × Year 2018	-0.06
	(0.08)

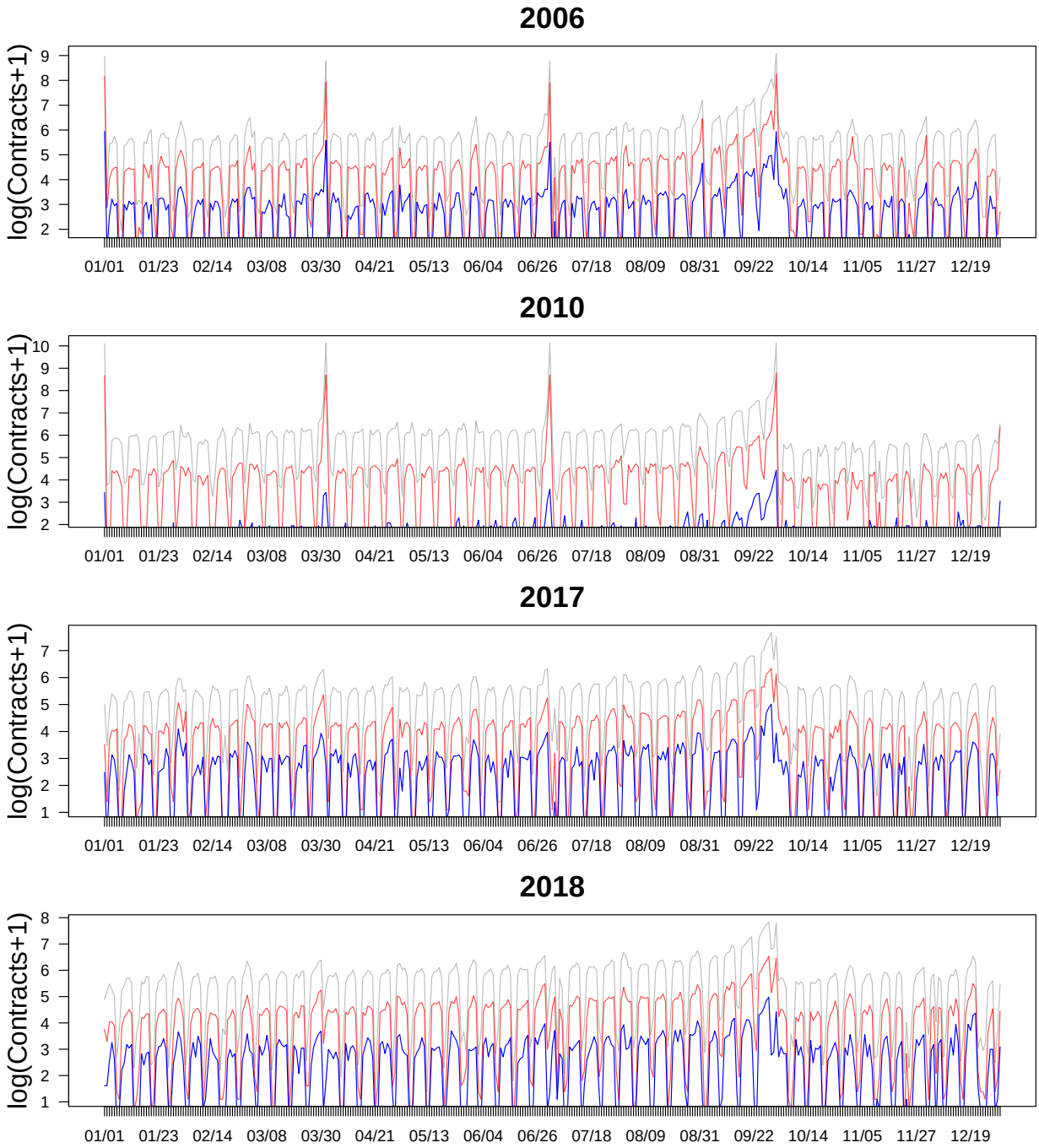
Notes: Standard errors clustered by date. * p<0.10, ** p<0.05, *** p<0.01.

Table F2: Calculated Effects of Congressional Turnover Probabilities Across Years

Outcome =	Pr(Providing Competitive Contracts)
Effect in 2006	0.22**
	(0.05)
Effect in 2010	0.04
	(0.06)
Effect in 2017	0.08**
	(0.03)
Effect in 2018	0.16**
	(0.07)

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

Figure F1: 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.



G The 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 dataset where the 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 Tables G1 and G2, suggest that an increase in congressional turnover probabilities generates uncertainties that lead 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**	-0.013**
	(0.004)	(0.005)
Connected Firms' Efficiency at 90th Percentile (= 0.18)	-0.009**	-0.015****
	(0.004)	(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*	-0.016*
	(0.010)	(0.008)
Connected Firms' Efficiency at 90th Percentile (= 0.18)	-0.014	-0.021**
	(0.010)	(0.009)

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

H Sub-agency Politicization and the Number of Appointees Over Time

For the years 2010 and 2018, Office of Personnel Management (OPM) data is available for March, June, September, and December. While I use the OPM data in March to control for sub-agency politicization in the main regression model, I use data from 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, sub-agency polarization increased over time. Table H2 shows that in the year 2018, when the incumbent party was winning the midterm election, sub-agency polarization declined somewhat 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***	0.93***	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.

I Exploring a Non-Linear Relationship

Conventional approaches to estimating non-parametric regression models, such as local linear polynomial estimation or kernel regularized least squares, are difficult to use with multiple fixed effects. Given that there is no readily available software to implement non-parametric regression with multiple fixed effects, I take an alternative approach by using a piece-wise linear regression. The idea is to segment the range of future congressional turnover probabilities into several intervals and estimate the effect of future congressional turnover probabilities separately in a given interval. To do so, I interact the independent variable of future congressional turnover probabilities with indicator variables for each interval, using the same set of control variables and fixed effects in the main regression model (1).

Tables I1, I2, and I3 show the effect of future congressional turnover probabilities given the range of future congressional turnover probabilities. Focusing particularly on Table I3, columns (1) and (4) suggest that the effect is largest if future congressional turnover probabilities are closer to either 0 or 1. This is because these ranges coincide with periods closer to election day, when government officials become more certain of changes in electoral outcomes (see Table E3 and Figure E1). Moreover, if we compare columns (2) and (3) in Table I3, the results suggest that the effect is larger if future congressional turnover probabilities are above 0.5. This is intuitive since as the probabilities increase above 0.5, agencies are more likely to be concerned that the opposition Congress is going to be in power after midterm elections.

Table I1: Non-Linear Effects of Electoral Turnover Probabilities

	Range of Electoral Turnover Probabilities	
	(1) [0,0.5)	(2) [0.5,1]
Effect of Electoral Turnover Probabilities on Competitive Contracting	0.09	0.21***
	(0.05)	(0.05)

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

Table I2: Non-Linear Effects of Electoral Turnover Probabilities

	Range of Electoral Turnover Probabilities		
	(1) [0.33)	(2) [0.33,0.66)	(3) [0.66,1]
Effect of Electoral Turnover Probabilities on Competitive Contracting	0.23** (0.10)	0.11*** (0.03)	0.15 (0.13)

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

Table I3: Non-Linear Effects of Electoral Turnover Probabilities

	Range of Electoral Turnover Probabilities			
	(1) [0,0.25)	(2) [0.25,5)	(3) [0.5,0.75)	(4) [0.75,1]
Effect of Electoral Turnover Probabilities on Competitive Contracting	0.50** (0.21)	0.03 (0.04)	0.24*** (0.05)	0.10 (0.13)

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

J Full Results

Table J1: Full Results for Table 1 in the Main Text

	Main Sample		Placebo Test Using the 113th Congress
	(1)	(2)	(3)
Electoral Turnover	0.11***	0.13***	-0.01
Probability	(0.03)	(0.03)	(0.02)
Connected Firms'		-0.06***	-0.21***
Relative Efficiency		(0.01)	(0.05)
Proportion of		-0.01	-0.27
Connected Firms		(0.02)	(0.05)
Sub-agency		-0.60***	0.02
Politicization		(0.15)	(0.42)
log(Number of Opposition		-0.00	-0.01
Party's Firms)		(0.00)	(0.02)
1st Dimension		0.00***	0.07***
DW-Nominate		(0.00)	(0.01)
Appropriations, or		-0.00**	-0.02***
Ways and Means Member		(0.00)	(0.00)
Seniority		-0.00	-0.00
		(0.00)	(0.00)
Majority Party		0.00***	-0.06***
Member		(0.00)	(0.01)
Female		0.00	-0.01***
		(0.00)	(0.00)
Black		-0.01***	0.01**
		(0.00)	(0.00)
Latino		-0.00***	0.01
		(0.00)	(0.00)
Veteran Owned		0.03***	0.01
		(0.00)	(0.00)

Small Owned		0.09***	0.06***
		(0.00)	(0.00)
Minority Owned		0.01***	0.01**
		(0.00)	(0.00)
8(a) Program		-0.26***	-0.24***
Participant		(0.00)	(0.01)
Historically Underutilized		0.03***	0.10***
Business Zone		(0.00)	(0.01)
Battle Ground States in		0.00	0.00
Next Presidential Election		(0.00)	(0.00)
Battle Ground States in		0.00	0.01**
Previous Presidential Election		(0.00)	(0.00)
House Appropriations		-0.03***	0.07***
Subcommittee Chair		(0.00)	(0.00)
Senate Appropriations		0.00	0.01***
Subcommittee Chair		(0.00)	(0.00)
Linear Fiscal		0.00*	0.00
Year Trend		(0.00)	(0.00)
Control	N	Y	Y
Observations	490,063	403,915	114,525
Baseline Mean Outcome	0.74	0.72	0.72
Clusters	1,141	1,135	666
Adj R^2	0.20	0.22	0.33

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

Table J2: Full Results for Table K1 in the Main Text

Outcome =	log(Initial Contract Amount)	Competitive and Fixed Cost
	(1)	(2)
Electoral Turnover Probability	-0.19	0.12***
	(0.20)	(0.03)
Connected Firms' Relative Efficiency	-0.05	-0.06**
	(0.05)	(0.02)
Proportion of Connected Firms	0.17	0.00
	(0.17)	(0.02)
Sub-agency Politicization	1.23***	-0.20*
	(0.43)	(0.15)
log(Number of Opposition	-0.02	-0.00*
Party's Firms)	(0.02)	(0.00)
1st Dimension DW-Nominate	-0.13***	0.01***
	(0.01)	(0.00)
Appropriations, or	0.07***	0.00
Ways and Means Member	(0.02)	(0.00)
Seniority	0.00	-0.00
	(0.00)	(0.00)
Majority Party	0.08***	0.00***
Member	(0.01)	(0.00)
Female	0.03***	0.00
	(0.00)	(0.00)
Black	0.09**	-0.01***
	(0.03)	(0.00)
Latino	0.03	0.00
	(0.03)	(0.00)
Veteran Owned	-0.05**	0.03***
	(0.02)	(0.00)
Small Owned	-0.23***	0.11***
	(0.02)	(0.00)
Minority Owned	-0.09***	0.01***
	(0.01)	(0.00)
8(a) Program Participant	-0.00	-0.22***

	(0.01)	(0.00)
Historically Underutilized	0.00	0.04***
Business Zone	(0.01)	(0.00)
Battle Ground States in	0.07***	0.00
Next Presidential Election	(0.02)	(0.00)
Battle Ground States in	0.01	0.00
Previous Presidential Election	(0.02)	(0.00)
House Appropriations	-0.04	-0.02***
Subcommittee Chair	(0.03)	(0.00)
Senate Appropriations	-0.00	0.00***
Subcommittee Chair	(0.01)	(0.00)
Linear Fiscal Year Trend	-0.00***	0.00*
	(0.00)	(0.00)
Control	Y	Y
Observations	398,930	403,915
Baseline Mean Outcome	12.33	0.65
Clusters	1,135	1,135
Adj R^2	0.58	0.29

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

Table J3: Heterogeneous Effects of Congressional Turnover Probabilities

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probability	-0.03
	(0.06)
Proportion of Connected Firms	-0.13***
	(0.04)
Connected Firms' Efficiency	0.06
	(0.09)
Electoral Turnover Probability×Proportion of Connected Firms	0.28***
	(0.10)
Electoral Turnover Probability×Connected Firms' Efficiency	0.09
	(0.12)
Proportion of Connected Firms×Connected Firms' Efficiency	-0.14
	(0.17)
Electoral Turnover Probability×Proportion of Connected Firms	-0.39*
×Connected Firms' Efficiency	(0.23)
Sub-agency Politicization	-0.61***
	(0.15)
log(Number of Opposition	-0.00
Party's Firms)	(0.00)
1st Dimension DW-Nominate	0.00***
	(0.00)
Appropriations, or	-0.00**
Ways and Means Member	(0.00)
Seniority	-0.00
	(0.00)
Majority Party	0.00***
Member (0.00)	
Female	0.00
	(0.00)
Black	-0.01***
	(0.00)
Latino	-0.00***
	(0.00)

Veteran Owned	0.03***
	(0.00)
Small Owned	0.09***
	(0.00)
Minority Owned	0.01***
	(0.00)
8(a) Program Participant	-0.26***
	(0.00)
Historically Underutilized	0.03***
Business Zone	(0.00)
Battle Ground States in	0.00
Next Presidential Election	(0.00)
Battle Ground States in	0.00
Previous Presidential Election	(0.00)
House Appropriations	-0.03***
Subcommittee Chair	(0.00)
Senate Appropriations	0.00
Subcommittee Chair	(0.00)
Linear Fiscal Year Trend	0.00
	(0.00)
Control	Y
Observations	403,915
Mean Outcome	0.72
Clusters	1,135
Adj R^2	0.22

Table J4: Full Results for Table L1

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probability	0.00
	(0.04)
Ideological Divergence Between	-0.04***
the Agency and Future Opposition Congress	(0.01)
Electoral Turnover Probability×Ideological Divergence	0.18***
Between the Agency and Future Opposition Congress	(0.03)
Connected Firms' Efficiency	-0.06***
	(0.02)
Proportion of Connected Firms	-0.00
	(0.02)
Sub-agency Politicization	-0.51***
	(0.14)
log(Number of Opposition	-0.00
Party's Firms)	(0.00)
1st Dimension DW-Nominate	0.00***
	(0.00)
Appropriations, or	-0.00**
Ways and Means Member	(0.00)
Seniority	-0.00
	(0.00)
Majority Party	0.00**
Member	(0.00)
Female	0.00
	(0.00)
Black	-0.01***
	(0.00)
Latino	-0.00***
	(0.00)
Veteran Owned	0.03***
	(0.00)
Small Owned	0.09***

	(0.00)
Minority Owned	0.01**
	(0.00)
8(a) Program Participant	-0.26***
	(0.00)
Historically Underutilized	0.02***
Business Zone	(0.00)
Battle Ground States in	0.00
Next Presidential Election	(0.00)
Battle Ground States in	0.00
Previous Presidential Election	(0.00)
House Appropriations	-0.03***
Subcommittee Chair	(0.00)
Senate Appropriations	0.00
Subcommittee Chair	(0.00)
Linear Fiscal Year Trend	0.00
	(0.00)
Control	Y
Observations	403,915
Clusters	1,135
Baseline Outcome	0.72

K Competitive Contracting and Efficiency

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 amounts, which is a combination of the price of the good and the quantity of the good initially purchased.[1] Second, 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 K1 shows the results using these two alternative dependent variables. My results suggest a one standard deviation (0.22) increase in electoral turnover probabilities leads a $19 * 0.22 = 4.18\%$ decrease from the baseline level of the initial contract amount (12.33) where electoral turnover probability is 0, although the overall effect is statistically insignificant.[2] Moreover, there is a $(12 * 0.22)/0.65 = 4.06\%$ increase from the baseline level of the likelihood of competitive contracts with fixed cost structures (0.65) where electoral turnover probability is 0.

Table K1: An Increase in Probability of Congressional Turnover Leads to an Increase in Agencies' Provision of Lower-Cost Contracts

Outcome =	log(Initial Contract Amounts)	Competitive and Fixed Cost
	(1)	(2)
Electoral Turnover Probability	-0.19	0.12***
	(0.20)	(0.03)
Control	Y	Y
Observations	398,930	403,915
Baseline Mean Outcome	12.33	0.65
Clusters	1,135	1,135
Adj R^2	0.58	0.29

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

1. The final contract amounts 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 might not be a good proxy for the cost of the contract.

2. Table E12 shows that effects on the initial contract amounts are significant if we examine heterogeneous effects of electoral turnover.

L Heterogeneous Effects by Congress's Willingness to Constrain Agencies' Actions

A crucial assumption underlying my theoretical argument is that Congress can compel agencies to abandon their prior policy choices. However, in practice, there may be variations in Congress's willingness to monitor and constrain agencies' actions. The effect of congressional turnover probabilities would be stronger when agencies expect that the future opposition Congress has a greater willingness to force agencies to abandon existing contracts.

To tap into such agencies' expectation, I exploit the ideological divergence (convergence) between the agency and the future opposition Congress (current unified government). The opposition Congress would be willing to conduct oversight on ideologically opposed agencies, which would overburden these agencies (McGrath 2013; Lowande and Potter 2021). Moreover, the future opposition Congress would target ideologically opposed agencies since these agencies would have been more inclined to engage in presidential opportunism for their ideologically aligned president (Napolio 2023).

To measure the ideological divergence between the agency and the future opposition Congress, I use the data on agencies' ideological scores from Clinton and Lewis (2008). The scores range from -2.01 to 2.21, with 2.21 being the most conservative agency. Since agencies would be uncertain about the exact ideological score of the future opposition Congress, I construct a binary variable. For the 109th and 115th Congress, when the future opposition Congress would be the Democratic party, the variable for the ideological divergence is 1 if the agency's ideological score is above the median (0.35), otherwise it is 0. For the 111th Congress when the future opposition Congress would be the Republican party, the variable for the ideological divergence is 1 if the agency's ideological score is below the median, otherwise it is 0.

Table L1 presents the results of the regression model where I interact the congressional turnover probabilities with the ideological divergence indicator, using the same set of control variables as in the model (1). The results indicate that the effect of future congressional turnover probabilities is stronger for agencies that are ideologically opposed to the future opposition Congress. Additionally, these ideologically opposed agencies are less likely to engage in competitive contracting under unified government.

Table L1: Heterogeneous Effect by the Ideological Divergence between the Agency and Future Congress

Outcome =	Pr(Providing Competitive Contracts)
Electoral Turnover Probability	0.00
	(0.03)
Ideological Divergence Between	-0.06***
the Agency and Future Opposition Congress	(0.01)
Electoral Turnover Probability×Ideological Divergence	0.18***
Between the Agency and Future Opposition Congress	(0.02)
Observations	403,737
Clusters	1,135
Baseline Outcome	0.72

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

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