Supporting Information
(online only)

Congressional Oversight Revisited:
Politics and Procedure in Agency Rulemaking

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A Overview of our Data Approach

Our approach to developing estimates of proposal and status quo locations for the Environmental Protection Agency's (EPA) proposed rules rests on coding public comments from members of Congress and Fortune 500 firms. Doing this involved many data processing and coding decisions, which we lay out in detail here. Because our data are scraped from `www.regulations.gov`, they reflect the publicly available docket provided by the agency.

Data Processing and Coding Steps

1. Scrape `www.regulations.gov` API for all public comments received by the EPA between 2007–2017 (inclusive).

2. Identify the subset of comments submitted by members of Congress and Fortune 500 firms. Probable matches were extracted by searching text fields for all scraped metadata using keywords. The list of firms was taken from Bonica (2016). This produced over 6,000 probable matches out of 417,053 public comments on EPA rulemaking dockets.

3. Cull probable matches by hand. This produced 940 comments from members of Congress (including non-voting members representing U.S. territories), and 1,098 firm comments. Note that many member comments included multiple signatories, which are counted as individual responses, so the total number of participating members is much higher. See Table SI-1 for a list of the members and firms that most frequently participated in EPA rulemakings.

4. Randomly sample and have each author code 100 firm comments, which are more complex and harder to classify than MC comments. Intercoder reliability for substantive position on the status quo and proposal were 0.64 and 0.65, respectively (Cohen's κ), indicating moderate–good agreement.

5. Code remaining comments by hand, according to process and definitions below. All comments were randomly split (50/50) between the two authors for coding.

6. Match commenters with CF scores.

7. Estimate status quo and policy locations; see Section B below.

Coding Public Comments

Public comments were hand-coded in two steps. First, we evaluated whether the comment contained a substantive request (*Substance*, see definition (1) below), whether the comment contained a procedural request (*Procedure*, see definition (2) below), or both. Second, for substantive comments, we then evaluated the commenter's position on the status quo and the commenter's position on the agency's proposal. In general, translating comments to a three-point Likert-type scale was fairly consistent across coders and straightforward.

(1) *Substance*: comment includes a request for the agency to amend the policy in the proposed rule. These include requests that ask the agency to "take into account" the comments of particular constituents, or those that forward the substantive comments of other parties, including but not limited to, private citizens, trade groups, public interest groups, as well as local and state officials. Substance comments can express three general views about both the proposal and the existing status quo policy:

   * "The level of regulation is too lax." For comments on the status quo, the commenter indicates that something more needs to be done. In the case of the EPA, often that current regulations provide insufficient protections to the environment and public health. For proposal comments, the commenter appreciates the initial step taken by the proposal, but encourages the agency to go farther.

   * "The level of regulation is about right"; For comments on the status quo, the commenter indicates that they are happy with the current level of regulation. In the case of the EPA, often commenter states that current regulations provide sufficient protections to the environment and public health. For proposal comments, the commenter often encourages the agency to promulgate the rule "as-is", or with minor amendments.

   * "The level of regulation is too onerous"; For comments on the status quo, the commenter indicates that the current level of regulation is already too burdensome on states or private firms. In the case of the EPA, often that current regulations provide more than sufficient protections to the environment and public health. For proposal comments, the commenter encourages the agency to withdraw the proposed rule or substantially revise it because of the additional burdens it will place on industry.

(2) *Procedure*: comment includes a request for the agency to take some action or to alter the rulemaking

process (rather than the content of the rule itself). This includes, but is not limited to:

* requests for additional hearings in particular states or districts;
* requests for extensions to the public comment period, including those that do not specify a particular extension length;
* requests for documentation or responses to questions;
* requests for policy briefings or in-person meetings; and
* requests for the agency to perform additional analyses.

Matching Commenters to CF Scores

For members of Congress, the process of matching actors to their ideology is straightforward since it is possible to map members directly to their CF score for a particular congress. For firms, however, the process involved additional steps, because Bonica does not offer scores for Fortune 500 companies per se. Instead, his scores cover individuals working in Fortune 500 firms. To develop a firm-specific score, we follow the approach that Chen and Johnson (2015) use to generate an ideology score for bureaucratic agencies based on the political giving of top agency officials. Specifically, we use a weighted average of political giving by the firm's upper management, where the weights are based on the amounts each individual contributed. This skews the scores toward individuals higher up in the firm hierarchy, who are more likely to earn more and give more.

CF Scores v. Alternatives

Our analysis reports regulatory proposal locations based (in part) on campaign-donation based measures of ideology (Bonica, 2013). The critical assumption is that the decision to give to one candidate over another is informative about individual preferences. We rely on these measures for several reasons. They help to improve the precision of our estimates, because they expand the number of potential commenters beyond sitting lawmakers. They have also been validated using survey-based measures of policy preferences (Bonica, 2019) and are highly correlated with roll-call based measures of ideology. Moreover, they have been leveraged to understand the ideological orientation of individuals beyond elected officials (e.g. bureaucrats, doctors, and lawyers), which suggests that their use as an anchor for Fortune 500 firms is warranted.

Miscellaneous Processing and Coding Rules

* Letters signed by multiple signatories (common in congressional comments) count as individual comments.

* *Substance* and *Procedure* are not mutually exclusive, but are exhaustive categories.

Table SI-1: Frequent Commenters on EPA Rules

	Commenter	Proportion of Total	Number of Comments	CF Score
Congress	Marsha Blackburn (R-TN)	0.00	11	1.08
	Blaine Luetkemeyer (R-MO)	0.01	12	1.03
	Jason Smith (R-MO)	0.00	11	1.00
	Joe Barton (R-TX)	0.01	12	0.98
	David Vitter (R-LA)	0.01	12	0.96
	James Inhofe (R-OK)	0.01	15	0.96
	Roy Blunt (R-MO)	0.01	12	0.90
	Sam Graves (R-MO)	0.01	12	0.88
	Mike Rogers (R-MI)	0.01	12	0.86
	Ed Whitfield (R-KY)	0.01	13	0.65
Firms	DTE Energy	0.03	23	0.52
	American Electric Power	0.06	46	0.41
	Dominion Resources	0.04	29	0.39
	Ameren	0.03	27	0.35
	FirstEnergy	0.06	47	0.28
	Dow Chemical	0.03	26	0.27
	Progress Energy	0.02	18	0.24
	Duke Energy	0.05	42	0.13
	Xcel Energy	0.03	27	-0.27
	Waste Management	0.03	21	-0.53

B Estimating Status Quo and Proposal Locations

To measure the location of the status quo, we leverage the substantive comments from MCs and Fortune 500 firms. For a given policy, we reduce the response to a three-point Likert scale based on the definition of a substantive comment (see above). When paired with estimates of the legislator's ideal point, this directional information can be used to approximate the current spatial position of the policy. This method was developed by Richman (2011) (see also Battista, Peress and Richman, 2013) to test competing theories of lawmaking.

The basic procedure is:

1. Predict substantive comment with measure of legislator preference using an ordinal probit. For the analyses reported in text, we use CF scores (Bonica, 2013). However, 1^{st}-dimension common space DW-NOMINATE scores (Poole and Rosenthal, 2000) produce substantially similar result, but they are less precisely estimated because they provide no measure of the preferences of firms.
2. Estimate predicted probability of "regulation about right" response.
3. Assign status quo position as the CF score with the maximum predicted probability.
4. Repeat 1–3 with 1,000 bootstrapped replicates to obtain standard errors.
5. Repeat 1–4 for each status quo.

We then repeat this entire process to identify the location of the policy proposal for every proposed rule in our dataset.

Table SI-2 reports diagnostic information by policy area. CF scores correctly predict between 54% and 100% of comments on rules, depending on the model. In general, sufficient variation in position and preferences determines the relative precision of spatial policy estimates—rather than strict increases in the number of comments. Notably, this is on par with the diagnostic values reported in Richman (2011), suggesting that public comments provide similar information to NPAT survey responses.

One potential concern is that the strategic decision to comment surely influences the sample of comments available for coding. Some of these scenarios introduce potential bias, others do not. It is possible, for example, that commenters satisfied with the proposal have reduced incentives to comment.

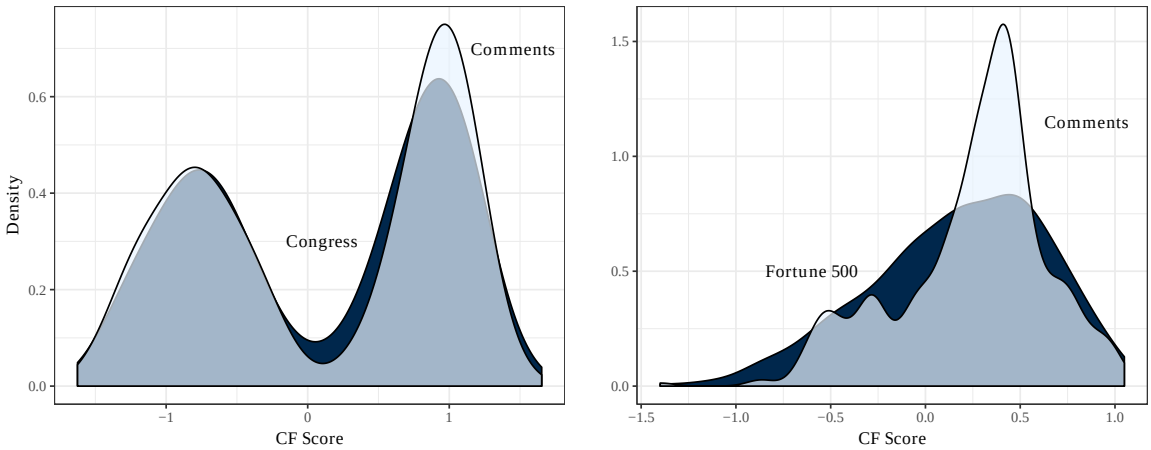
In this situation, so long as dissatisfied commenters on both sides of the proposal comment, our approach will provide a reasonable estimate of the policy position. Suppose, however, that commenters for whom the proposal is an improvement over the status quo (though not ideal) have similar reduced incentives. In this case, our approach will classify the proposal as more extreme than it actually is. This underscores an additional justification for binning the key independent variable, as we do in Table SI-5.

An example illustrates our general approach. In June of 2010 the EPA proposed to regulate, for the first time, how electric utilities disposed of coal ash. The agency received more than 400,000 comments on the proposal, including 44 from Fortune 500 firms and 609 from members of Congress.[1] Among firms, 26 indicated the proposed regulation was too restrictive, while 13 indicated it was about right. Among members of Congress, 172 comments joined the majority of firms in claiming the proposal was too liberal, while 359 comments supported the proposal "as-is." An additional 74 members of Congress indicated that the rule was too lenient—the EPA had not gone far enough in regulating coal ash. In Congress, these comments mapped onto familiar ideological divisions, with the vast majority of Republicans (and a few moderate Democrats in "coal country") signing joint letters opposing the proposal and labeling it part of a "war on coal." As shown in the upper left quadrant of Figure **??** in the main paper, our estimation procedure shows that this proposal was moderately liberal, in line with what one might expect from the positions taken by these actors. The proposal did not satisfy the most liberal Democrats, but was a dramatic improvement over the status quo—which was extremely conservative, given the fact that coal ash had until then, escaped regulation.

Figure SI-1 reports the distributions of the universe of potential participants and participants who submitted comments. Although more conservative commenters (i.e., those with higher CFscores) tend to participate more often, we have complete coverage of the distribution of commenters—with the lone exception of a few extreme liberal firms. This provides further support for the validity of our approach.

[1]Several MCs signed onto multiple joint letters to the agency. Because we treat signatures on joint letters as individual comments (see our earlier coding rules), it is possible to arrive at a figure that exceeds the number of members serving in the House and the Senate.

Figure SI-1: Ideological Distribution of Congressional and Firm Commenters



Note: Dark blue areas indicate the distribution of CFscores for MCs (left) and Fortune 500 (right). Light blue areas indicate the distribution of commenters on EPA rules.

Table SI-2: Diagnostics for Estimated Proposal and Status Quo Positions

	Proposal				Status Quo			
Proposed Rule Title	N	p_β	% Correct	Position	N	p_β	% Correct	Position
Repeal of Greenhouse Gas Emission Guidelines for EGUs (2017)	12.00		1.00	1.11	12.00		1.00	-2.00
Agricultural Worker Protection Standard Revisions: Pesticides	71.00		1.00	0.80				
Renewable Fuel Standard (2014)	59.00	0.40	0.98	0.40	59.00	0.40	0.98	0.40
Requirements for Cooling Water Intake Structures (Phase I)	236.00	0.35	0.98	-2.00	236.00	0.04	0.88	2.00
Revisions and Additions to Motor Vehicle Fuel Economy Label	55.00	0.85	0.98	-2.00	55.00	0.71	0.94	-2.00
Renewable Fuel Standard Delay (2014)	37.00	0.99	0.97	2.00	37.00	0.99	0.97	-2.00
Standards of Performance: New Residential Heaters	54.00	0.29	0.96	-2.00	54.00	0.80	0.85	2.00
National Ambient Air Quality Standards for Ozone (2014)	240.00	0.00	0.96	-2.00	238.00	0.00	0.92	2.00
Effluent Limitations Guidelines and Standards for Steam Power Plants	17.00	0.60	0.94	-2.00	17.00	0.60	0.94	2.00
Title V Greenhouse Gas Tailoring Rule	15.00	0.43	0.93	-2.00	15.00	0.35	0.53	1.25
National Ambient Air Quality Standards for Particulate Matter	44.00	0.21	0.93	-0.67	44.00	0.21	0.93	0.67
Coal NESHAP	103.00	0.00	0.93	-2.00	103.00	0.00	0.87	2.00
Boiler NESHAP (2010)	14.00	0.33	0.93	-2.00	14.00	0.26	0.79	2.00
Waters of the US (2014)	376.00	0.00	0.92	-2.00	376.00	0.00	0.94	2.00
Performance and Emission Standards for EGUs (2012)	12.00	0.66	0.92	2.00	12.00	0.11	0.58	0.49
NESHAP for Cement Manufacturing (2005)	30.00	0.00	0.90	-2.00	30.00	0.00	0.87	0.86
Performance and Emission Standards for EGUs (2014)	20.00	0.24	0.90	-2.00	20.00	0.05	0.75	2.00
Oil and Natural Gas Performance and Emission Standards	19.00	0.45	0.90	2.00	19.00	0.36	0.95	-2.00
Tier 3 Motor Vehicle Emission and Fuel Standards	58.00	0.00	0.86	-1.30	58.00	0.00	0.90	2.00
Carbon Emission Standards for EGUs	29.00	0.16	0.86	-2.00	29.00	0.03	0.72	2.00
Mandatory Reporting of Greenhouse Gases	13.00	0.88	0.85	2.00	13.00	0.26	0.69	-2.00
Federal Implementation Plans: Fine Particulate Matter and Ozone (2010)	48.00	0.19	0.83	-1.68	48.00	0.05	0.65	1.11
Greenhouse Gas Emission Guidelines for EGUs	16.00	0.65	0.81	-2.00	16.00	0.11	0.75	2.00
National Ambient Air Quality Standards for Ozone (2010)	58.00	0.00	0.79	-2.00	58.00	0.00	0.64	0.64
NESHAP for Cement Manufacturing (2009)	36.00	0.00	0.78	-2.00	36.00	0.00	0.78	2.00
Reconsideration of NSPS and EG for Solid Waste Incineration (2010)	18.00	0.00	0.78	0.01	18.00	0.02	0.78	2.00
Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases	26.00	0.04	0.77	-1.19	26.00	0.01	0.69	0.79
Mandatory Reporting of Greenhouse Gases (2009)	56.00	0.00	0.75	-0.92	56.00	0.14	0.55	2.00
Renewable Fuel Standards for BioDiesel (2016)	51.00	0.00	0.74	1.29	51.00	0.87	0.78	1.60
Identification of Non-Hazardous Secondary Materials	44.00	0.06	0.70	-2.00	44.00	0.69	0.66	-2.00
Boiler MACT (2015)	10.00	0.21	0.70	-1.07	10.00	0.20	0.50	0.54
Mandatory Reporting of Greenhouse Gases (2010)	10.00	0.17	0.70	-0.36	10.00	0.64	0.60	1.80
Light-Duty Vehicle Emissions and CAFE Standards	10.00	0.49	0.70	-2.00	10.00	0.75	0.90	2.00
Federal Implementation Plans: Fine Particulate Matter and Ozone (2009)	14.00	0.83	0.64	-2.00	14.00	0.41	0.71	1.33
Renewable Fuel Standard (2009)	11.00	0.77	0.64	2.00				
Disposal of Coal Combustion Residuals from Electric Utilities	637.00	0.00	0.57	-0.53	637.00	0.00	0.84	2.00
Revision of Waters of the US (2017)	210.00	0.34	0.55	-1.01				
Renewable Fuel Standards for BioDiesel (2015)	13.00	0.75	0.54	1.67	13.00	0.72	0.54	-1.21
Boiler MACT (2003)					26.00	0.44	0.69	0.77
Boiler MACT (2010)					17.00	0.83	0.65	2.00
NSPS and EG for Solid Waste Incineration (2010)					19.00	0.35	0.84	2.00
National Ambient Air Quality Standards for Ozone (2007)					33.00	0.84	0.94	2.00
Water Quality Standards for Florida's Lakes					11.00	0.52	0.64	-2.00

Table SI-3: Descriptive Statistics about Comments on EPA Proposed Rules, 2007–2017

Proposed rule title	Total comments	Member comments		F500 comments	
		Procedural	*Substantive*	*Procedural*	*Substantive*
Boiler MACT (2015)	13,404	0	1	0	9
Boiler NESHAP (2010)	42,057	0	0	0	14
Carbon Emission Standards for EGUs	4,341,442	0	0	2	20
Coal NESHAP	728,813	0	0	0	0
Disposal of Coal Combustion Residuals from Electric Utilities	422,974	5	289	5	20
Effluent Limitations Guidelines and Standards for Steam Power Plants	204,489	0	0	3	15
Federal Implementation Plans: Fine Particulate Matter and Ozone (2009)	42,470	0	1	2	26
Federal Implementation Plans: Fine Particulate Matter and Ozone (2010)	98	0	1	0	12
Greenhouse Gas Emission Guidelines for EGUs	62,826	0	0	2	13
Identification of Non-Hazardous Secondary Materials	20,330	1	21	0	20
Light-Duty Vehicle Emissions and CAFE Standards	169,245	0	0	0	8
Mandatory Reporting of Greenhouse Gases (2009)	17,652	0	5	1	41
Mandatory Reporting of Greenhouse Gases (2010)	57	0	0	0	9
Mandatory Reporting of Greenhouse Gases	54,138	0	0	0	12
National Ambient Air Quality Standards for Ozone (2010)	67,933	4	39	0	12
National Ambient Air Quality Standards for Ozone (2014)	439,840	13	145	0	16
National Ambient Air Quality Standards for Particulate Matter	231,363	0	43	0	1
NESHAP for Cement Manufacturing (2005)	12,269	1	22	1	2
NESHAP for Cement Manufacturing (2009)	33,220	3	32	0	0
Oil and Natural Gas Performance and Emission Standards	252,744	0	0	2	15
Performance and Emission Standards for EGUs (2012)	2,682,626	0	0	0	9
Performance and Emission Standards for EGUs (2014)	1,996,986	1	3	0	14
Proposed Endangerment Findings for Greenhouse Gases	397,020	27	10	1	13
Reconsideration of NSPS and EG for Solid Waste Incineration (2010)	94	0	11	0	7
Renewable Fuel Standard (2014)	343,705*	1	55	0	1
Renewable Fuel Standard Delay (2014)	343,705*	0	35	0	0
Renewable Fuel Standards for BioDiesel (2015)	675,700	0	4	0	9
Renewable Fuel Standards for BioDiesel (2016)	756,524	0	37	0	10
Requirements for Cooling Water Intake Structures (Phase I)	63,460	0	139	2	24
Revisions and Additions to Motor Vehicle Fuel Economy Label	8,175	0	53	0	3
Standards of Performance: New Residential Heaters	7,927	3	40	0	0
Tier 3 Motor Vehicle Emission and Fuel Standards	109,318	0	48	0	5
Title V Greenhouse Gas Tailoring Rule	457,561	0	0	0	14
Waters of the US (2014)	1,123,388	119	305	2	12

Notes: The total comments column indicates the number of comments associated with each individual proposed rule document on `www.regulations.gov`. The comments from Members and F500 firms may not sum to the totals listed in Table SI-2, since not all comments had valence on the status quo and the proposal dimensions.

*For these two proposals, the agency did not distinguish between the total public comments received on the initial proposal and the subsequent proposal to delay the proposal's implementation.

Monte Carlo Simulations and Non-response Bias

We follow Richman (2011) by conducting a simulation study to address the possibility of non-response bias. Compared with Richman's use of Project Votesmart's National Political Awareness Test (NPAT), nonresponse bias is less of a systematic issue in data on regulatory comments. Nonresponse in the NPAT data is correlated with conservatism, as conservative members are less likely to respond to the survey. Further, nonresponse bias is exacerbated over time as sitting members of Congress became less likely to respond to Votesmart. Commenting behavior on EPA rules exhibits neither trend. Moreover, the inclusion of Fortune 500 firms somewhat attenuates the potential for nonresponse bias conditioned on ideology, as these actors have a stable incentive to be heard on these proposals across administration and across time.

To investigate the potential for nonresponse bias, we simulate an ordinal, 3-point Likert commenting scale in response to a proposed rule ($Proposal$) in our cross-section of roughly 1,000 potential commenters (both MCs and Firms). We assume the response is conditioned by commenter CFscores. For our analysis, we allow the strength of this relationship (β), as well as the size of window between the "Too Liberal|About Right" and "About Right|Too Conservative" cutpoints ($Window$), to vary. We use the observed distribution of CFscores. We simulate non-response by sampling from these data, assuming a given number of comments (N) and that the likelihood of commenting is driven by some association with ideology (β_{NR})—both of which, we also allow to vary. We follow our procedure for estimating the status quo in this sub-sample. We then obtain bias estimates by taking the difference between the true proposal and the estimate from the simulated comments. For each set of parameter values, we run 500 Monte Carlo simulations to obtain estimates of bias and its standard error. To exhaust potential sources of bias, this procedure was repeated for 4,000 unique combinations of ranges of values for β, β_{NR}, N, $Proposal$, and $Window$.

The results are reassuring and in line with Richman's validation procedure. One strong possibility was that preferences drive both the likelihood of commenting and the content of comments, and that this would cause us to systematically under- or over-estimate proposals' ideological extremity. As Figure SI-2 suggests, β_{NR}—whether positive, or negative—has no association with bias. This suggests, for example, that if our sample of comparatively liberal proposals from the Obama administration incentivized more conservative commenters, the proposal estimate would not be affected. In a supplementary analysis, we also allowed the pattern of non-response to vary by actor type {Member of Congress, Firm}. The results in Figure SI-2 were robust. Not surprisingly, our analysis also showed that as the relationship between preferences and comment content (β) weakens, the potential for bias increases. This justifies a robustness check that weights by the predictive power of commenter preferences. We perform these robustness checks

in Section D of the SI below.

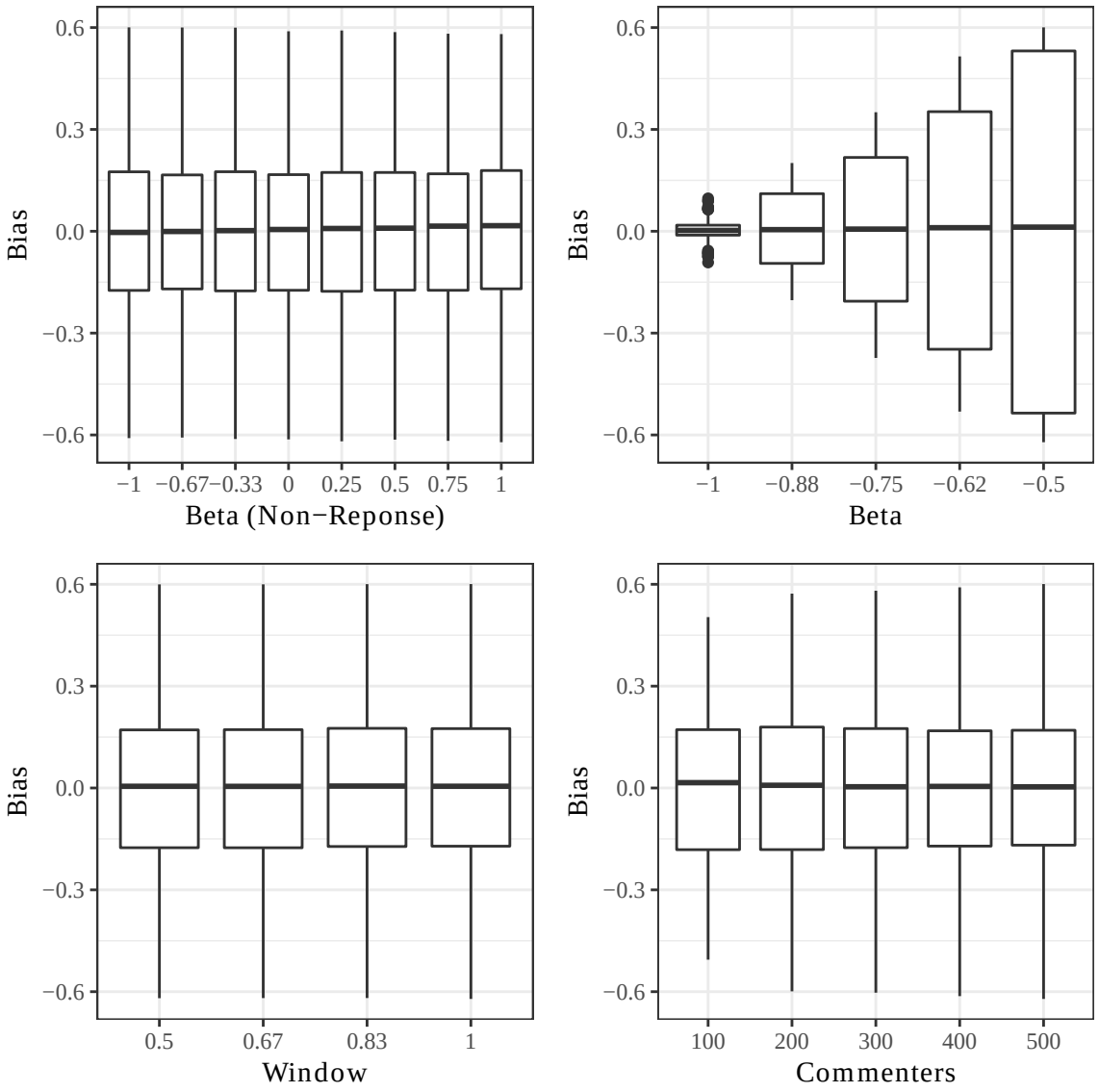


Figure SI-2: Bias Patterns in Simulated Commenting Behavior

C Relationship Between Comment Period Extensions and Delay

In the text, we make the case that that procedural delays—such as extensions to the public comment period—are likely to be associated with slowing down the rulemaking process, even if they do not have that effect in every case. In this section, we provide empirical evidence to demonstrate the plausibility of this assumption.

Specifically, we collected data on EPA proposed rules that were reviewed by the Office of Information and Regulatory Affairs (OIRA) between 2007 and 2017. For each proposed rule, we counted the time between the publication of the proposal and the publication of the final rule,[2] and then coded whether or not the initial public comment period had been extended. As shown in Table SI-4, proposed rules that experienced an extended public comment period took, on average, an additional 311 days to complete compared to proposed rules without an extension, a difference that is statistically significant. (Notably, the extensions to the comment periods themselves typically only added an additional 15 to 30 days to the comment period.)

Table SI-4: Comment Period Extensions and Time to EPA Rule Completion

		Mean Days to Finalization[a]	**Difference?**[b]
All rules	No comment period extension	445.1	311*
	Comment period extension	756.1	
Economically significant rules only	No comment period extension	578.3	81.9
	Comment period extension	660.2	

Note: Table entries include values for 227 "significant" EPA proposed rules (i.e, those reviewed by the Office of Information and Regulatory Affairs under Executive Order 12,866) published between 2007 and 2017. Source data are from `www.reginfo.gov` and have been individually reviewed and verified with documents at `www.regulations.gov`.
a. This column shows the mean number of days from the publication of the proposed rule to the publication of the final rule for proposed rules that, respectively, had a comment period extension and those that did not.
b. This column shows the difference in days to finalization between those proposed rules that had a comment period extension and those that did not. Asterisks indicate that the difference is statistically significant at the $p < .05$ level or greater.

Of course, it could well be the case that only proposed rules that are more difficult or controversial have extensions to the public comment period, suggesting that these rules would have taken longer to complete anyway. Ideally, we would like to know the counterfactual scenario for each proposed rule—how it would have fared with and without a procedural delay. Since we are unable to observe this counterfactual,

[2]We omitted any proposed rule that has yet to be finalized.

we take a second best approach and attempt to "control" for the overall importance of the proposed rule. The bottom half of Table SI-4 shows the same analysis for economically significant rules only (i.e., those that have an annual economic impact of $100 million or more). Here, again the results show that extensions are associated with an additional 82 days to rule finalization, although likely owing to the relatively small subset of proposals under study ($N = 48$), this effect is not statistically distinguishable.

D Estimation Results

Table SI-5: Congress and Industry Participation in EPA Rulemaking, 2007-2017

	Congress		Firms		All	
	Procedure	*Substance*	*Procedure*	*Substance*	*Procedure*	*Substance*
Aligned (with proposal)	–	–	–	–	–	–
Nearly Aligned	−0.001	−0.008	−0.0005	0.009	−0.00002	−0.001
	(0.002)	(0.004)	(0.003)	(0.007)	(0.0003)	(0.002)
Slight Disagreement	0.005	0.023	0.001	0.005	0.001	0.009
	(0.003)	(0.007)	(0.004)	(0.007)	(0.001)	(0.003)
Moderate Disagreement	0.020	0.038	0.002	0.008	0.002	0.016
	(0.006)	(0.007)	(0.005)	(0.010)	(0.001)	(0.003)
High Disagreement	0.029	0.083	−0.004	−0.003	0.004	0.042
	(0.002)	(0.004)	(0.001)	(0.006)	(0.000)	(0.002)
Committee	0.0003	0.028			0.0004	0.014
	(0.001)	(0.006)			(0.0002)	(0.003)
Chair	−0.005	−0.016			−0.001	−0.009
	(0.001)	(0.007)			(0.000)	(0.004)
Ranking Member	0.033	0.046			0.004	0.020
	(0.037)	(0.026)			(0.004)	(0.011)
Senate	0.002	−0.004			0.0003	−0.002
	(0.002)	(0.004)			(0.0002)	(0.002)
Firm					−0.002	−0.026
					(0.000)	(0.002)
N	6,115	12,728	5,599	15,779	20,208	36,140
Proposed Rules	11	23	11	31	19	34
Congress FE	✓	✓	✓	✓	✓	✓
Rule FE	✓	✓	✓	✓	✓	✓

Note: Reports marginal changes in the probability (holding other variables at their means) of each type of oversight based on logistic regression. The unit of analysis is commenter-rule; robust standard errors clustered by commenter are in parentheses. The unconditional probability of submitting a procedural comment is 0.7%, whereas it is 5% for substantive comments.

Table SI-6: Congress and Industry Participation in EPA Rulemaking, 2007-2017 (LPM)

	Congress		Firms		All	
	Procedure	*Substance*	*Procedure*	*Substance*	*Procedure*	*Substance*
Aligned (with proposal)	–	–	–	–	–	–
Nearly Aligned	0.006	−0.011	−0.0004	0.008	0.003	−0.001
	(0.006)	(0.007)	(0.004)	(0.006)	(0.002)	(0.004)
Slight Disagreement	0.014	0.036	0.002	0.003	0.009	0.015
	(0.007)	(0.009)	(0.004)	(0.006)	(0.003)	(0.004)
Moderate Disagreement	0.052	0.060	0.002	0.007	0.018	0.025
	(0.006)	(0.007)	(0.005)	(0.006)	(0.002)	(0.004)
High Disagreement	0.063	0.116	−0.002	−0.004	0.030	0.069
	(0.008)	(0.009)	(0.010)	(0.015)	(0.003)	(0.005)
Committee	0.001	0.048			0.001	0.032
	(0.006)	(0.007)			(0.003)	(0.004)
Chair	−0.025	−0.043			−0.015	−0.033
	(0.034)	(0.040)			(0.016)	(0.025)
Ranking Member	0.103	0.093			0.062	0.069
	(0.034)	(0.040)			(0.016)	(0.025)
Senate	0.008	−0.009			0.004	−0.007
	(0.005)	(0.006)			(0.002)	(0.004)
Firm					−0.013	−0.041
					(0.002)	(0.002)
R^2	0.148	0.256	0.001	0.010	0.077	0.128
N	6,115	12,728	5,599	15,779	20,208	36,140
Proposed Rules	11	23	11	31	19	34
Congress FE	✓	✓	✓	✓	✓	✓
Rule FE	✓	✓	✓	✓	✓	✓

Note: Reports linear probability estimates. The unit of analysis is commenter-rule; robust standard errors clustered by commenter are in parentheses.

Table SI-7: Congress and Industry Participation in EPA Rulemaking, 2007-2017 (Continuous)

	Congress		Firms		All	
	Procedure	*Substance*	*Procedure*	*Substance*	*Procedure*	*Substance*
Distance (Continuous)	0.006	0.023	0.001	−0.002	0.001	0.011
	(0.001)	(0.002)	(0.001)	(0.003)	(0.0002)	(0.001)
Committee	0.000	0.027			0.00003	0.013
	(0.001)	(0.006)			(0.0002)	(0.003)
Chair	−0.005	−0.015			−0.001	−0.008
	(0.001)	(0.007)			(0.0002)	(0.004)
Ranking Member	0.023	0.035			0.003	0.016
	(0.027)	(0.023)			(0.003)	(0.009)
Senate	0.002	−0.004			0.0003	−0.002
	(0.002)	(0.004)			(0.0002)	(0.002)
Firm					−0.002	−0.027
					(0.0003)	(0.002)
N	6,115	12,728	5,599	15,779	20,208	36,140
Proposed Rules	11	23	11	31	19	34
Congress FE	✓	✓	✓	✓	✓	✓
Rule FE	✓	✓	✓	✓	✓	✓

Note: Reports marginal changes in the probability (holding other variables at their means) of each type of oversight based on logistic regression. The unit of analysis is commenter-rule; robust standard errors clustered by commenter are in parentheses. The unconditional probability of substantive comment is 5%, whereas it is 0.7% for procedural comments.

Table SI-8: Robustness Checks Incorporating Preference and Proposal Uncertainty, 2007-2017

	Weighted[a] 1^{st} stage only		Weighted[b] 1^{st} & 2^{nd} stage (log # givers)		Weighted[c] 1^{st} & 2^{nd} stage (% correctly predicted)	
	Procedure	*Substance*	*Procedure*	*Substance*	*Procedure*	*Substance*
Weighted Distance (Continuous)	0.010	0.020	0.010	0.022	0.010	0.022
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Committee	0.0004	0.020	-0.0001	0.021	0.0002	0.021
	(0.002)	(0.004)	(0.003)	(0.004)	(0.002)	(0.004)
Chair	–	-0.018	–	-0.017	–	-0.002
		(0.012)		(0.012)		(0.011)
Ranking Member	0.014	0.023	0.016	0.027	0.014	0.020
	(0.008)	(0.010)	(0.009)	(0.011)	(0.008)	(0.011)
Senate	0.003	-0.004	0.004	-0.004	0.003	-0.007
	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
Firm	-0.017	-0.049	-0.018	-0.050	-0.018	-0.051
	(0.003)	(0.004)	(0.003)	(0.005)	(0.003)	(0.005)
N	19,111	36,140	19,111	36,140	19,111	36,140
Proposed Rules	19	34	19	34	19	34
Congress FE	✓	✓	✓	✓	✓	✓
Rule FE	✓	✓	✓	✓	✓	✓

Note: Note: Reports marginal changes in the probability (holding other variables at their means) of each type of oversight based on logistic regression. The unit of analysis is commenter-rule; robust standard errors clustered by commenter are in parentheses.

a: These models include weights for the first stage probit observations. Weights are based on the logged number of givers in the CF-scores used to estimate the underlying proposal locations. This approach takes the uncertainty of the underlying preferences estimates into account. We report a continuous (rather than discrete) measure of ideological distance, since weighting and then binning the measure into discrete units produced only trivial differences.

b: These models include the first stage weights from *a* above, as well as weights in the second stage based on the logged number of givers used to estimate the underlying proposal locations. This approach takes the uncertainty of the underlying preferences estimates into account.

c: These models include the first stage weights from *a* above, as well as weights in the second stage based on the proportion of responses correctly predicted in the first stage probit. This approach accounts for the uncertainty regarding preference estimates as well the uncertainty about the location of the agency's proposal.

Table SI-9: Divided Government and Participation in EPA Rulemaking, 2007-2017

	Congress		Firms		All	
	Procedure	*Substance*	*Procedure*	*Substance*	*Procedure*	*Substance*
Divided Government	0.075	0.021	0.002	0.032	−0.0001	0.016
	(0.034)	(0.010)	(0.004)	(0.018)	(0.001)	(0.006)
Aligned (with proposal)	–	–	–	–	–	–
Nearly Aligned	−0.001	−0.008	−0.001	0.009	−0.000002	−0.001
	(0.002)	(0.004)	(0.003)	(0.007)	(0.0003)	(0.002)
Slight Disagreement	0.005	0.023	0.001	0.005	0.001	0.009
	(0.003)	(0.007)	(0.004)	(0.007)	(0.001)	(0.003)
Moderate Disagreement	0.020	0.038	0.002	0.008	0.002	0.016
	(0.006)	(0.007)	(0.005)	(0.010)	(0.001)	(0.003)
High Disagreement	0.029	0.083	−0.004	−0.003	0.004	0.042
	(0.011)	(0.012)	(0.001)	(0.012)	(0.002)	(0.006)
Committee	0.0003	0.028			0.00004	0.014
	(0.001)	(0.006)			(0.0002)	(0.003)
Chair	−0.005	−0.016			−0.001	−0.008
	(0.001)	(0.007)			(0.0002)	(0.004)
Ranking Member	0.033	0.046			0.004	0.022
	(0.037)	(0.026)			(0.004)	(0.011)
Senate	0.002	−0.004			0.0003	−0.002
	(0.002)	(0.004)			(0.0002)	(0.002)
Firm					−0.002	−0.026
					(0.0003)	(0.002)
N	6,115	12,728	5,599	16,288	20,208	36,140
Proposed Rules	11	23	11	31	19	34
Congress FE	✓	✓	✓	✓	✓	✓
Rule FE	✓	✓	✓	✓	✓	✓

Note: Table includes controls for divided government, showing that consistent with past work divided government is generally associated with increasing oversight. However, the results with respect to ideological distance are unaffected by the inclusion of this control.
Cells show marginal changes in the probability (holding other variables at their means) of each type of oversight based on logistic regression. The unit of analysis is commenter-rule; robust standard errors clustered by commenter are in parentheses. The unconditional probability of submitting a procedural comment is 0.7%, whereas it is 5% for substantive comments.

Table SI-10: Environmental Lobbying and Firm Participation in EPA Rulemaking, 2007-2017

	Procedure	*Substance*
Aligned (with proposal)	–	–
Nearly Aligned	−0.001	0.012
	(0.003)	(0.008)
Slight Disagreement	0.001	0.005
	(0.004)	(0.007)
Moderate Disagreement	0.001	0.006
	(0.005)	(0.011)
High Disagreement	−0.004	−0.003
	(0.001)	(0.012)
Enviro & Energy Lobbying	0.012	0.069
	(0.004)	(0.012)
N	3,945	11,458
Proposed Rules	11	32
Congress FE	✓	✓
Rule FE	✓	✓

Reports the marginal change in the probability of public comment based on logistic regression; the unit of analysis is commenter-rule; robust standard errors clustered by commenter in parentheses. Enviro & Energy Lobbying is the proportion of a firm's lobbying spending in a given year that were devoted to environmental and energy policy issues, according to LobbyView (Kim, 2018).

E Legislator Capacity and Procedural Oversight

Part of the argument we make is that legislators with higher capacity should be more likely to raise procedural points. By capacity, we simply mean direct access to the kind of knowledge required to conduct oversight. This access means there will be variation across legislators in the cost of procedural and substantive oversight. To asses this expectation empirically, we collected data on the personal staffs of the members of Congress in our dataset.

Specifically, we gathered annual data on the size and expertise of each member's staff. For the House, these data were taken directly from the Statements of Disbursement for the U.S. House of Representatives. Senate data are taken from cleaned Legistorm records and a direct transcription of the Secretary of the Senate. Because these data are published on different schedules (quarterly for the House and semiannually for the Senate) all unique staffers are included in the annual count. From this we derive two related measures. First, our key independent variable is *Staff Tenure*, which is the median number of years of experience for staffers employed within a member-office during a given year. This variable ranges from 0 to 11 (mean = 2.4, s.d. = 1.6). Second, because tenure values may be skewed for members with very large or very small staffs, we include *Staff Size* as a control variable in the models that follow. This variable is the number of unique staffers working for the member during the average pay period of a given year. It ranges from 0.25 to 51 (mean = 18.7, s.d. = 7.8).

The results that follow demonstrate that members with more experienced staffs are likely to engage in both procedural and substantive oversight when they are strongly opposed to the agency's proposal. Table SI-11 shows the marginal effects associated with Figure 4 in the paper. Figure SI-3 replicates Figure 4 but includes a "both" option in the multinomial logit model, to account for cases wherein members submitted both a substantive and a procedural comment (not necessarily in the same letter). Finally, Table SI-12 replicates the models in Table SI-11, but in a logit model specification that allows us to incorporate fixed effects at the rule and congress levels.

The results are robust across all of these specifications, and suggest three takeaways. First, across the ranges of values the probability of submitting a substantive comment always exceeds the probability of submitting a procedural comment. Second, only at the highest level of ideological conflict are experienced staff associated with an increase in the likelihood of substantive commenting; at all other levels, there is no relationship or experienced staff may actually *discourage* members from engaging in substantive oversight. Third, only at highest two levels of ideological conflict does the probability of submitting a procedural comment meaningfully increase in staff tenure.

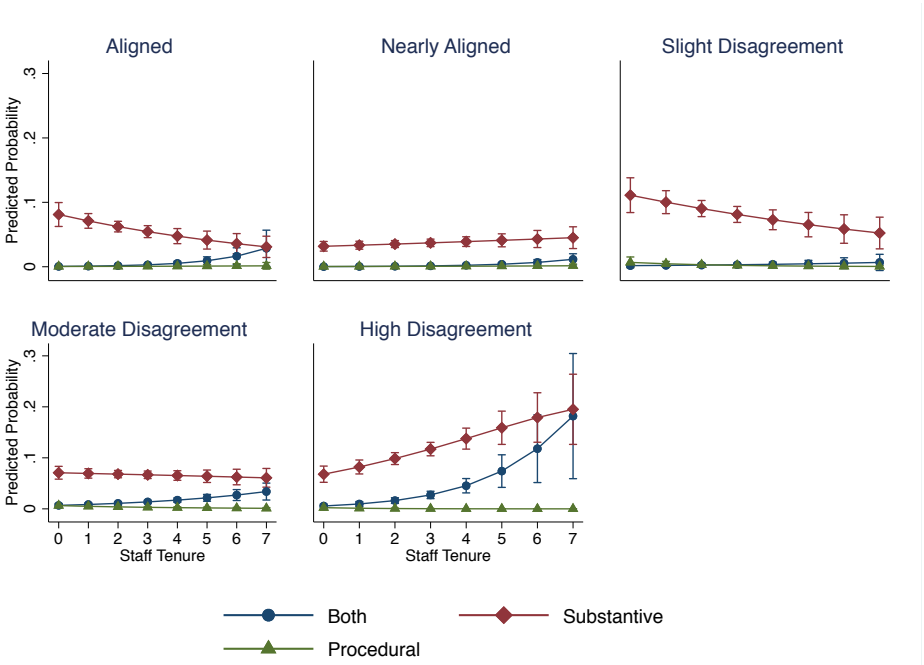
One potential concern with these results is whether *Staff Tenure* is conceptually distinct from member seniority. However, there is little correlation between this variable and our measures of serving on the oversight committee ($\rho = 0.04$) or being the chair ($\rho = 0.02$) or ranking member ($\rho = 0.04$) of that committee. There is, however, a small correlation between *Staff Tenure* and being in the Senate ($\rho = 0.24$) , but this makes sense since more experienced staffers will be drawn to the Senate, where the professional rewards are greater.

Table SI-11: Conditional Effects of Staff Experience and Ideological Alignment on Type of Congressional Oversight, 2007-2017

	Procedure	*Substance*
Aligned (with proposal)	–	–
Nearly Aligned	-0.002	-0.050
	(0.003)	(0.008)
Slight Disagreement	0.029	0.017
	(0.021)	(0.012)
Moderate Disagreement	0.032	-.0090
	(0.015)	(0.009)
High Disagreement	.026	-0.010
	(0.017)	(0.009)
Staff Tenure	.003	-0.009
	(0.001)	(0.003)
Staff Tenure × Aligned (with proposal)	–	–
Staff Tenure × Nearly Aligned	-0.0003	0.012
	(0.006)	(0.004)
Staff Tenure × Slight Disagreement	-0.003	0.003
	(0.001)	(0.004)
Staff Tenure × Moderate Disagreement	-0.002	0.007
	(0.001)	(0.004)
Staff Tenure × High Disagreement	-0.0001	0.018
	(0.001)	(0.004)
Committee	0.0004	0.035
	(0.001)	(0.006)
Chair	-0.005	-0.020
	(0.001)	(0.012)
Ranking Member	0.013	0.023
	(0.014)	(0.018)
Senate	0.0005	0.031
	(0.001)	(0.008)
Staff Size	0.0001	0.002
	(0.0001)	(0.0003)
N	18,435	
Proposed rules	35	

Note: Reports marginal changes in the probability (holding other variables at their means) of each type of oversight based on multinomial logistic regression with three potential choices: no comment, procedural comment, or substantive comment. The base category is "no comment." The unit of analysis is Member of Congress-rule; robust standard errors clustered by commenter are in parentheses.

Figure SI-3: Mulitnomial Model Including "Both" Option



Note: This figure replicates Figure 4 in the paper, but includes a fourth "both" option. Specifically, plots represent predicted probabilities generated from a multinomial logistic model with four discrete categories: "No Comment," "Substantive comment only," "Procedural comment only," and "Both substantive and procedural." The base category is "no comment." The x-axis represents the median years of experience on the Hill for a Member's staff; to ease readability, this axis excludes the upper and lower 1% values of *Staff Tenure*.

Table SI-12: Fixed Effects Logistic Models of Staff Experience and Ideological Alignment on Type of Congressional Oversight, 2007-2017

	Procedure	*Substance*
Aligned (with proposal)	–	–
Nearly Aligned	0.009	-0.011
	(0.021)	(0.016)
Slight Disagreement	0.064	0.047
	(0.019)	(0.017)
Moderate Disagreement	0.090	0.063
	(0.012)	(0.014)
High Disagreement	0.071	0.059
	(0.019)	(0.016)
Staff Tenure	0.011	-0.003
	(0.003)	(0.005)
Staff Tenure × Aligned (with proposal)	–	–
Staff Tenure × Nearly Aligned	-0.004	-0.002
	(0.004)	(0.006)
Staff Tenure × Slight Disagreement	-0.016	-0.004
	(0.006)	(0.006)
Staff Tenure × Moderate Disagreement	-0.014	-0.003
	(0.004)	(0.006)
Staff Tenure × High Disagreement	-0.006	0.015
	(0.005)	(0.006)
Committee	0.003	0.054
	(0.006)	(0.007)
Chair	–	-0.054
		(0.022)
Ranking Member	0.046	0.049
	(0.022)	(0.023)
Senate	0.014	0.005
	(0.007)	(0.012)
Staff Size	0.0003	0.0001
	0.0005	(0.001)
N	5,761	12,108
Proposed rules	9	19
Congress FE	✓	✓
Rule FE	✓	✓

Note: Reports marginal changes in the probability (holding other variables at their means) of each type of oversight based on logistic regression for each type of oversight. The unit of analysis is Member of Congress-rule; robust standard errors clustered by commenter are in parentheses.

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