

# Political Information in Bureaucratic Policymaking

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## Abstract

This dissertation is about ordinary people's input on policies made by bureaucrats. Most new policies in the United States are made by bureaucrats, and most comments that federal agencies receive on their draft policies come from ordinary people who were inspired by an interest-group campaign. Yet leading theories of bureaucratic policymaking neither explain nor account for these occasional bursts of civic engagement. I make three main contributions:

First, drawing on scholarship on social movements, interest group behavior, and lobbying, I identify three distinct reasons for lobbying organizations to mobilize ordinary people. Each logic suggests a different observable pattern of public engagement, and I analyze millions of public comments on thousands of agency rules to develop the first systematic measures of public engagement in bureaucratic policymaking.

Second, building on theories of political oversight, I theorize that mass engagement in bureaucratic policymaking may alert elected officials to political opportunities and risks, affecting oversight behavior. I assess this argument by analyzing correspondence between Members of Congress and bureaucrats on proposed rules with and without mass engagement.

Third, I integrate these intuitions about outside lobbying and oversight into a broader theory of how mass mobilization may affect policy by producing potentially influential political information. I suggest four causal mechanisms by which lobbying may influence bureaucrats. Thus far, theories of rulemaking have focused on the power of technical information, where insider lobbying is most likely to matter and outside lobbying is least likely to matter. As a result, political scientists have largely overlooked mass engagement. This gap suggests that incorporating theories of social movement influence may advance bureaucratic politics scholarship and that bureaucratic politics may be fertile ground for testing social movement theory. To address this gap, I use my new measures of mass engagement and oversight to assess the effect of political information on rulemaking and rules.

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## Summary

Much of the law governing the United States is made by agencies, not by Congress. Like Congress, agencies occasionally receive input from a large number of ordinary people, but leading theories of bureaucratic policymaking neither explain nor account for these occasional bursts of civic engagement. How, if at all, should scholars incorporate mass engagement into models of bureaucratic policymaking? To better understand the role of ordinary people in bureaucratic policymaking, I develop theories of why mass engagement occurs and how it may affect policy. To assess these theories, I tackle three related empirical questions: (1) Why does it occur?, (2) How does it affect the oversight behaviors of agencies' political principals?, and (3) Does mass engagement in bureaucratic policymaking affect policy?

**Part 1. Why do agencies (occasionally) get so much mail?** Why do some rules receive many comments from ordinary people and some do not? Answering this question requires a theory explaining variation in mass engagement. Because the vast majority of comments are inspired by interest-group campaigns, finding their cause requires a method to link comments to the lobbying coalitions that mobilized them. To link individual comments to the more sophisticated lobbying efforts they support, I use text reuse and Bayesian classifiers to identify clusters of similar comments, reflecting formal and informal coalitions. I theorize that lobbying coalitions' resources, opportunities, and public support explain variation in mass engagement and that it will fit one of three patterns: (1) Coalitions that perceive an opportunity to influence policy and have sufficient resources to do so will "go public" when they are disadvantaged in insider politics but have more public support than opposing coalitions. More public support yields more engagement, more effort per comment, and contagion beyond those mobilized directly. (2) Coalitions with less support may "counter-mobilize" with proportionally smaller effects. (3) Finally, coalitions may mobilize for reasons unrelated to the policy at hand, yielding similar mass engagement but with little sophisticated lobbying. Measures of mass engagement include (1) comments per coalition, (2) effort per comment, (3) share of comments per coalition mobilized indirectly (i.e. the potential for conflict spread). Next, I test whether variation in engagement explains variation in oversight behavior (part 2) and policy outcomes (part 3).

**Part 2. Does mass engagement affect political oversight?** The political information signaled by mass engagement may serve as a "fire alarm," altering principals to oversight opportunities or "warning signs" altering them to political risks. When a coalition mobilizes successfully, elected officials ought to be more likely to engage on their behalf and less likely to engage against them. To assess these hypotheses, I count the number of times Members of Congress engage the agency before, during, and after comment periods on rules where lobbying organizations did and did not go public. I then use text analysis to compare legislators' sentiments and rhetoric to that used by each coalition. Dependent variables include (1) the number of comments from Members of Congress on the rule (2) the share of supportive congressional comments, (3) the similarity of words in comments from the coalition and Members of Congress.

**Part 3. Does mass engagement affect rulemaking and rules?** I theorize that the effects of political information on policy depend on the extent to which the strategic environment allows change and how political information is processed, both directly within agencies and indirectly through other actors (e.g. Members of Congress) whose appraisals matter to bureaucrats. The main dependent variable is change in the rule text. I systematically identify changes between draft and final rules, parse these differences to identify meaningful policy changes, and compare them to demands raised in comments to measure which coalition got their way. However, assessing policy change is difficult. Thus, I also use other measures of agency responses to lobbying efforts.

# 1 Introduction

Large democracies face two big problems. First, they are vulnerable to fleeting passions and demagogues. To combat this, many decisions are left to experts who, ideally, exercise judgment loosely guided by the public. Second, everyone cannot vote on every decision. Thus, power is delegated to representatives (who then delegate it to deputies), create temporary mini-publics, and solicit input from those most affected or moved by a public decision.<sup>1</sup> Most policy is then made by bureaucrats, supposedly guided indirectly through elected representatives and directly by limited public input (mostly limited to more contentious policy debates).

With the rise of the administrative state, U.S. federal agencies have become a major site of policy-making and political conflict. West and Raso (2013) estimate that upward of 90% of legally binding U.S. federal policy is now written by agencies. Agency rules are revised much more frequently than statutory law (Wagner et al. 2017) and in the years or decades between legislative enactments, federal agencies make legally-binding rules interpreting and reinterpreting old statutes to address emerging issues and priorities. Examples are striking: The effect of the Dodd-Frank Wall Street Reform and Consumer Protection Act was largely unknown until the specific regulations were written, and it continues to change as these rules are revised. Congress authorizes billions in farm subsidies and leases for public lands, but who gets them depends on agency policy. In the decades since the last major environmental legislation, agencies have written thousands of pages of new environmental regulations and thousands more changing tack under each new administration. These revisions significantly shape lives and fortunes. For example, in 2006, citing the authority of statutes last amended in the 1950s, the Justice Department’s Bureau of Prisons proposed a rule restricting eligibility for parole. In 2016, the Bureau withdrew this rule and announced it would be requiring fewer contracts with private prison companies, precipitating a 50% loss of industry stock value. Six months later, a new attorney general announced these policies would again be reversed, leading to a 130% increase in industry stock value. Rulemaking clearly matters.

Less clear, however, is how the new centrality of agency rulemaking fits into a democracy. In addition the bureaucracy’s complex relationships with the president and Congress, agencies have complex and poorly understood relationships with the public and advocacy groups. Relationships with constituent groups may even provide agencies with a degree of “autonomy” from their official principals (Carpenter 2001).

Processes like public comment periods, where agencies must solicit public input on draft policies, are said to produce valuable technical information (Yackee 2006; Nelson and Yackee 2012), oversight opportunities (Balla 1998; McCubbins and Schwartz 1984), and democratic legitimacy (Croley 2003; Rosenbloom

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<sup>1</sup> As imagined by Dahl (1989), mini-publics are representative, selected at random, and deliberative. Besides juries, however, randomly selected deliberative bodies are rare. Instead, citizens more often engage in government decisions when given opportunities to opt-in, such as hearings, petitions, and public comment periods. These mechanisms of engagement generate a different, more contentious flavor of public input than the discourse imagined by scholars who focus on deliberation.

2003). There is no normative consensus on how to rank or merge these goals (Wilson 1967, 1989; Carriagan 2017). Procedures requiring agencies to solicit public input and the justification of these procedures cite all three aims. For example, these various goals are evident in the Administrative Conference of the United States (ACUS) Proposed Recommendation on Public Engagement in Rulemaking, which asserts that “The opportunity for public engagement is vital to the rulemaking process, permitting agencies to obtain more comprehensive information, enhance the legitimacy and accountability of their decisions, and enhance public support for their rules” (ACUS 2018). Public comment periods are purported to simultaneously produce technical information, accountability to elected officials, and responsiveness to public demands.

Yet, legitimacy, accountability, public support, and, especially, collecting information depend not just on the opportunity to engage but actual engagement (Herz 2018), and we know surprisingly little about the vast majority of public comments (i.e. those submitted by ordinary people as part of a public pressure campaign) and the role that this kind of input may or may not play in rulemaking.<sup>2</sup> The contentious politics that inspire the majority of public comments have no place in leading models of bureaucratic policymaking and have largely been ignored by political scientists.

Instead, models focus on how agencies either learn about policy problems, negotiate or avoid accountability to various principals, or balance interest-group demands.<sup>3</sup>

Foundational scholarship on rulemaking by Furlong and Kerwin (2004), Furlong (1997, 1998), and Kerwin and Furlong (2011) focuses on interest group lobbying. To the extent scholars address the input of ordinary people at all, both existing theory and empirical scholarship suggest skepticism that it matters. (By “ordinary” people, I simply mean people who are not professional policy-influencers, not that these politically-engaged people are demographically representative of the broader public.) Empirical scholarship finds that economic elites and business groups dominate American politics in general (Gilens and Page 2014) and rulemaking in particular. While some are optimistic that requirements for agencies to solicit and respond to public comments on proposed rules allow “civil society” to provide public oversight (Michaels 2015; Metzger 2010), most studies find that participants in rulemaking often represent elites and business interests (Seifter 2016; Crow, Albright and Koebele 2015; Wagner, Barnes and Peters 2011;

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<sup>2</sup> But see Yackee (2015), who surveys commenters, finding that members of the public believe their comments matter, even though powerful groups have more influence; Cuéllar (2005), who examines public input on three rules, finding that ordinary people made up the majority of commenters, which, he argues, “shows at least some potential demand among the mass public for a seat at the table in the regulatory process”; Moore (2017), who identifies several key predictors of which rules receive more comments; and Balla et al. (2018) and Potter (2017a), who find mass comment campaigns driving significant participation of ordinary people in EPA rulemaking.

<sup>3</sup> On learning, see Kerwin and Furlong (2011) and empirical studies by Yackee (2012), Cook (2017), (Gordon and Rashin 2018), and Walters (2019). See Gailmard and Patty (2017) and Libgober (2018) for information-based models where comments reveal information to the agency.

On accountability to elected officials, see Furlong (1997), Nou and Stiglitz (2016), Potter (2017b), Woods (2018), and Yackee and Yackee (2009). See Gailmard and Patty (2012) for a review of formal models of oversight. Especially relevant to my analysis of the effects of mass mobilization on oversight, Potter (2014) develops a signaling model where agencies propose and principals veto rules depending, in part, on their beliefs about interest group preferences.

On interest group balancing see Yackee and Yackee (2006), Yackee (2006), and Kerwin and Furlong (2011). A key assumption of Libgober’s (2018) model is that bureaucrats have a distribution of preferences over interest group positions, about which they are uncertain unless groups reveal their preferences through commenting.

West 2009; Yackee and Yackee 2006; Yackee 2006; Golden 1998; Haeder and Yackee 2015; Cook 2017).

From a strategic perspective, agency officials are not directly accountable to voters. And even if organized groups do supplement congressional and judicial checks on executive power, the groups that participate in rulemaking represent only certain (if any) segments of the public and may not represent them well (Seifter 2016). Scholars are thus skeptical about rulemaking as a site for collective action the ability of most people to participate. As a result, mass comment campaigns are dismissed as epiphenomenal to bargaining with principals or interest groups. Indeed, almost all empirical studies of rulemaking discard unsophisticated comments from ordinary people, as evident from a comprehensive review of scholarship on “The Politics of Rulemaking” by Yackee (2018), who finds skepticism about citizen comments but no direct studies of mass comment campaigns. Without systematic understanding and study of public participation, it is difficult to adjudicate debates about how processes like public comment periods may enhance or undermine various democratic ideals.

This scholarly oversight is surprising given that most people are only aware of rulemaking when it is the target of a high-profile mass mobilization campaign.<sup>4</sup> While most rules receive little attention, the ease of online mobilizing and commenting has, like other forms of participation (Boulianne 2018), created exponential increases in the number of rules in which thousands and even millions of people engage (see Figure 2; note that comments per rule are on a logarithmic scale).<sup>5</sup> Occasionally, a large number of people are paying attention. These bursts of civic participation may affect rulemaking (Coglianese 2001), but this intuition has yet to be tested.

The general failure to explain or account for mass engagement in rulemaking is also striking in light of how agencies advertise public comment periods as an opportunity for a voice in government decisions.<sup>6</sup> Big red letters across the top of the Regulations.gov homepage solicit visitors to “Make a difference. Submit your comments and let your voice be heard” (Figure 1). A blue “Comment Now!” button accompanies a short description of each draft policy and pending agency action. Another invitation at the bottom of the page reads “Participate today!” Public commenting on proposed agency rules is described as “an important part of democracy” (WSJ 2017), the “often held out as the purest example of participa-

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<sup>4</sup> Some of the most contentious recent public controversies involve bureaucratic policymaking. For example, along with 50 thousand protesters in Washington D.C., the State Department Received 1.2 million comments on the Environmental Impact Statement for the Keystone Pipeline. Similarly, along with the thousands of protesters supporting the Standing Rock Sioux protest to the Dakota Access Pipeline, the Army Corps of Engineers received hundreds of thousands of comments. Alongside protest actions that included shutting down many websites, the Federal Communications Commission’s open internet rule received 22 million comments. While some of these comments appear to be fake, the scale of public engagement is remarkable given how little attention political scientists have paid to it. Fake public comments also raise the question of why an organization would bother to generate fake public input if it did not matter, as its omission from theories of bureaucratic policymaking would seem to imply.

<sup>5</sup> Proposed rules that have attracted the most public attention have been published by the Federal Communications Commission (FCC, omitted from this plot), the Environmental Protection Agency (EPA), the Department of Interior (DOI), the Bureau of Ocean Energy Management (BOEM), the Consumer Financial Protection Bureau (CFPB), and Fish and Wildlife Service (FWS).

<sup>6</sup> I focus on public comments in rulemaking, but the theories and methods here may also apply to other kinds of political engagement such as through social media or protests as well as to other political decisions, including state-level rulemaking. Social media engagement may be especially important if agencies implement the recommendations of ACUS (2018) that “Agencies should consider using social media before or in connection with direct final rulemaking to quickly identify whether there are significant or meaningful objections” (p. 34).

Figure 1: Regulations.gov Solicits Public Comments on Draft Agency Rules

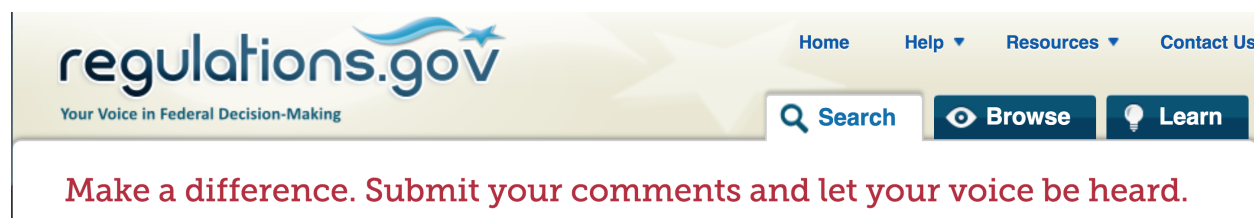
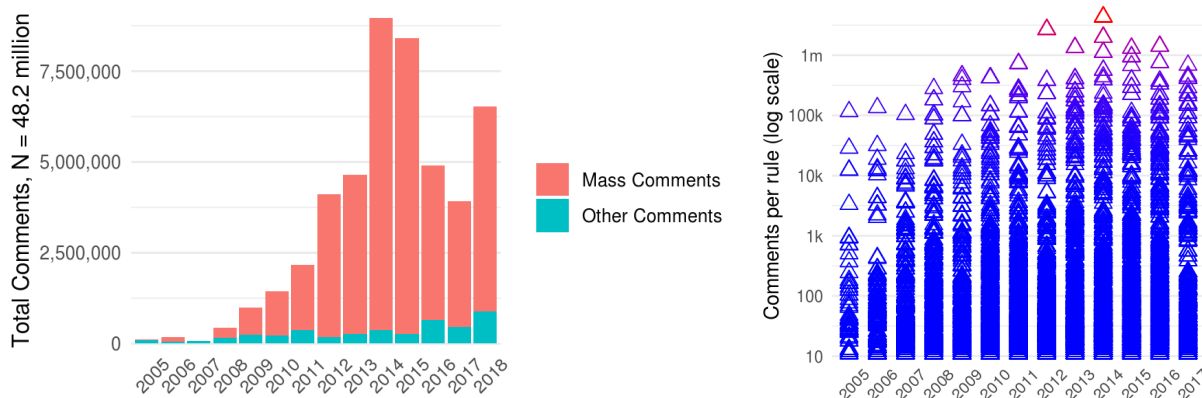


Figure 2: Comments on Proposed Rules per Year (left) and per Rule (right) posted on regulations.gov



tory democracy in actual American governance” (Herz 2016). Rossi (1997) finds that “courts, Congress, and scholars have elevated participation [in rulemaking] to a sacrosanct status...greater participation is generally viewed as contributing to the democracy.” Yet despite much debate about the theoretical import and possible reforms, the bulk of public comments have yet to be studied.

While “ordinary” members of the public may occasionally provide novel and useful technical information to expert bureaucrats, such sophisticated means of influencing policy are out of reach for the vast majority of people. Thus, to investigate the potential role of ordinary people in bureaucratic politics I look elsewhere—not because ordinary people never provide novel and useful technical information, but because this is simply not how most people attempt to influence policy nor, I argue, how we should expect them to have influence.

Most public comments are, in fact, of the flavor suggested by the solicitations on Regulation.gov—ordinary people voicing opinions on a proposed policy. They do not provide useful technical information or specific demands like the interest group comments that have thus far captured the attention of political scientists. If they add information to rulemaking it is a different, more political flavor of information. Indeed as Figure 2 shows, every year since 2008, most people who comment on draft regulations have done so as a result of an interest group’s campaign.<sup>7</sup> Public engagement in rulemaking is highly clustered

<sup>7</sup>At least with respect to agencies participating in regulations.gov. See sections 2.2 and 2.2.4 for my definition and methods for identifying mass comments

on a few rules made salient by these campaigns. It is plausible that, at least some of the time, such campaigns aim to influence policy. It is also plausible the thousands of people engaging on a few proposed rules may alter the politics of these policy processes, but this hypothesis remains untested. Indeed, we have much to understand about the causes and effects of these campaigns before we in a position to ask if they offer a mechanisms for social movements to influence policy.

The kind of politics created by mass engagement has a few notable features. It is contentious; most ordinary people are not engaging in deliberation, they are simply making demands. However, processes like public comment periods channel contentious demands into institutionalized policy processes rather than undermining them. Mass commenting may also, in a sense, expand participation.<sup>8</sup> Surely, those who opt in are far from representative of the broader public (Verba and Nie 1987), but it is difficult to argue that they are not more representative than the handful of political insiders who participate in most policy processes. If the usual participants have “an upper-class accent” as Schattschneider (1942) put it, adding thousands more voices may dilute this bias. Mass engagement in rulemaking thus presents a novel context to examine the consequences of broader engagement in typically insider-dominated policymaking and the ways in which public participation may condition how political decisions are made.

**Incorporating mass engagement into theories of bureaucratic policymaking.** How, if at all, should scholars incorporate mass engagement into models of bureaucratic policymaking? I argue that mass engagement produces potentially valuable political information about the coalition that mobilized it. Thus, depending on how agencies process political information, “going public” may occasionally be an effective strategy for organizations to influence policy, both directly and indirectly.

**Dissertation outline.** Does mass engagement in bureaucratic policymaking affect policy? This question drives my project. However, two questions must be answered first: (1) Why does it occur? and (2) How does it affect political oversight? These questions drive two initial empirical chapters. Thus, my analysis has three steps. First, I theorize that activists’ opportunities and strategies and latent public opinion drive engagement. Second, I theorize that variation in mass engagement will lead to variation in political oversight. Third, I theorize that mass engagement may affect rulemaking both directly, and indirectly via its affect on political oversight.

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<sup>8</sup> If defining “political participation” as “acts aimed at influencing governmental decisions (Verba and Nie 1987: p. 2), signing a petition or mass comment clearly counts. However, some consider true participation to be deliberative, which mass commenting clearly is not. Other requirements, that participation is “genuine,” “informed,” or “reasoned” are more difficult to assess. Normative theorists may debate whether deliberation among a small number of people is preferable to a large number of people simply expressing their preferences, but empirically, public participation in bureaucratic policymaking is much more the latter.



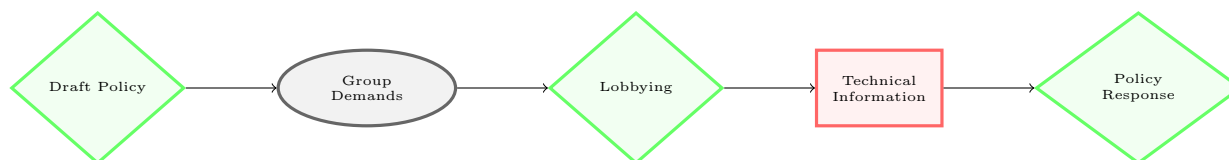
## 2 Part 1: Mass mobilization → Political information

### 2.1 Why agencies (occasionally) get so much mail

This section builds a theory to explain variation in mass engagement. I argue that we should observe different patterns of engagement depending on whether an organization launches a mobilization campaign as an outside lobbying tactic, to counter such a campaign, or for reasons other than influencing policy. In the next section, I develop methods to measure these patterns. In short, these measures capture similar statistics to questions posed by Verba and Nie (1987: p. 9): “How much participation is there, what kind is it, and from what segments of society does it come?”

However, as noted above, scholars of bureaucratic policymaking have focused on the sophisticated lobbying efforts of powerful interest groups such as business coalitions. A key insight from this scholarship is that technical information is the currency of insider lobbying. Figure 3 illustrates the classic causal model of insider lobbying that describes most rulemakings. However, mass engagement has no place in this model. I aim to fill this gap.

Figure 3: The Classic Model of Interest Group Lobbying in Bureaucratic Policymaking



#### 2.1.1 Defining mass engagement

Political scientists often define civic engagement as writing to government officials, signing petitions, attending hearings, attending protests, or donating to a political campaign (Verba and Nie 1987). While donating is more common in electoral politics, activists frequently target agency policymaking with letter-writing campaigns, petitions, protests, and mobilizing people to attend hearings.

Following the conventional terms “mass comment campaign” and “public engagement,” I call the general phenomenon “mass engagement” resulting from a “mass mobilization campaign” in order to distinguish the magnitude of civic engagement. By mass engagement, I mean that thousands of people beyond professional policy influencers engage. In my empirical context of agency rulemaking, I define mass engagement as more than 1000 public comments or 100 identical comments, plausibly indicating a mobilization effort.<sup>9</sup>

<sup>9</sup>Note; this differs from the Environmental Protection Agency’s definition of mass comment campaign as two or more identical comments. In the results below, I use an intermediate category—“small batch”—comments to describe identical comments numbering less than 100

Contrary to the common assumption that this emerges organically, it is almost always mobilized by an organization that also engages in sophisticated lobbying or in coordination with such an organization. As Sant’Ambrogio and Staszewski (2018) conclude “The ‘mass comments’ occasionally submitted in great volume in highly salient rulemakings are one of the more vexing challenges facing agencies in recent years. These comments are typically the result of orchestrated campaigns by advocacy groups to persuade members or other like-minded individuals to express support for or opposition to an agency’s proposed rule.” To better understand this vexing challenge, I offer a framework for assessing the causes of mass engagement. I argue that organizations may mobilize large numbers of people for three reasons with observable implications for observed patterns of mass engagement and theoretical implications for predicted effects on policy.

### 2.1.2 Types of campaigns

The outcomes of mass mobilization depend, in part, on the aims of a campaign. I group campaigns by which of three distinct aims they pursue: (1) to win concessions by going public, (2) to disrupt a perceived consensus, or (3) to go down fighting. Going public and disrupting a perceived consensus are forms of proactive and reactive outside lobbying, respectively. Here, going down fighting describes any situation where the organization does not expect to influence policy but mobilizes for other reasons.

**Going public.** Coalitions “go public” when they believe that expanding the scope of conflict gives them an advantage.<sup>10</sup> As these are the coalitions that believe they have more intense public support<sup>11</sup>, mass engagement is likely to skew heavily toward this side. Indeed, Potter (2017a) finds that advocacy group-driven campaigns mobilize far more people on average than industry-driven campaigns. Additionally, many people may be inspired indirectly (e.g. through news stories) or to engage with more effort (e.g. writing longer comments) than people mobilized by the side with less public support. This is important because political information may be especially influential if decisionmakers perceive a consensus.<sup>12</sup>

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<sup>10</sup> “Going public,” “outside lobbying” or an “outside strategy” contrasts with insider lobbying. It is used by Presidents (Kernell 2007), Members of Congress (Malecha and Reagan 2012), interest groups (Walker 1991; Dür and Mateo 2013), Lawyers, and Judges (Davis 2011). For example, organizations may use phone banks, targeting strategies, and direct-mail techniques to drum-up and channel public support (Cooper 1985).

<sup>11</sup> This strategy is likely to be used by those disadvantaged (those Schattschneider (1975) calls the ‘losers’) with less public attention. Rulemaking with little public attention is the norm and nearly all scholarship on rulemaking in political science thus focuses on interest-group and inter-branch bargaining, rather than public opinion and social movements.

<sup>12</sup> For example, consensus among interest groups (Golden 1998; Yackee 2006), especially business unity (Yackee and Yackee 2006; Haeder and Yackee 2015), predicts policy change, though it is not clear if this is a result of strategic calculation, a perceived obligation due to the normative power of consensus (e.g. following a majoritarian logic (Mendelson 2011)), or simply that unified demands are easier to process than opposing demands.

**Hypothesis 1a:** *Lobbying coalitions mobilize mass engagement when they perceive the attentive public is on their side, have sufficient resources, and perceive an opportunity to influence policy.*

The key part of this hypothesis is that mobilizing is correlated with public support. The converse, that organizations mobilize when they have less public support, could also be true. For example, business groups who are already advantaged in low salience rulemaking may decide to further leverage their superior resources to mobilize support in order to alter a bad reputation or bolster claims that they represent more than their private interest. If mobilization most often takes this form, this would be evidence against Hypothesis 1a and Schattschneider’s argument that it is the disadvantaged who seek to expand the scope of the conflict.

The latter parts of Hypothesis 1a regarding sufficient resources and political opportunity are merely scope conditions. Most organizations that are disadvantaged in low-salience rulemaking also lack resources to launch a mass mobilization campaign. If an organization does not perceive a lobbying opportunity, it would be incorrect to call mobilization a lobbying strategy. Many factors may contribute to perceived political opportunities. For example, Moore (2017) finds that agencies that use high levels of expertise (as defined by Selin (2015)) receive fewer comments, possibly because mobilizing organizations perceive these rules to be less open to influence.

**Disrupting a perceived consensus.** Second, because the impression of consensus is powerful, when a coalition goes public, an opposing coalition may countermobilize. As this is likely a coalition with less intense public support and its aim is merely to a lack of consensus, I expect such campaigns to engage fewer people, less effort per person, and yield a smaller portion of indirect engagement.

**Hypothesis 1b:** *When a lobbying coalition with more intense public support mobilizes successfully in response to an opportunity to influence policy, opposing coalitions with less public support are more likely to counter-mobilize, but at a proportionally smaller scale.*

The first part of Hypothesis 1b would be undermined if lobbying organizations with less public support are no more likely to engage in outside lobbying when their opposition does so. Potter (2017a) found industry groups were no more likely to advocate for rules to be strengthened, weakened or withdrawn.

The second part of this hypothesis, that countermobilization is proportionally smaller, rests on the intuition that the scale and intensity of public engagement is moderated by preexisting support for the proposition that people are being asked to support. It is possible that the “potentially mobilized” segments of the public are unrelated to public support prior to being

Figure 4: Mass mobilization campaign by the Sierra Club collects contact information

**Left Screenshot (10:28 PM):**

That's right: the agency tasked with protecting our environment is actually trying to put a two-year delay on new methane pollution standards that protect our communities from dangerous pollution and climate disruption. The only people benefitting from a freeze on EPA methane standards are corporate polluters and their allies. The head of the EPA is supposed to represent the best interests of the American people – not the worst actors in the oil and gas industry.

**This is unacceptable. Tell the EPA that they're supposed to protect our communities not help the oil and gas industry pollute them.**

Progress bar: 1 ————— 2

First Name:  Last Name:

Email:  Zip:

By clicking continue, you will also receive periodic communications from the Sierra Club. You can unsubscribe at any time.

**Continue**

**Right Screenshot (10:30 PM):**

By providing your mobile number you consent to receive cell phone and text communications from Sierra Club and its affiliated entities concerning environmental news and action opportunities.

**Your Message**

**Subject**

Don't delay the methane pollution standards.  
Docket EPA-HQ-OAR-2010-0505

**Message**

I oppose any delay in the implementation of methane pollution standards. Staying these protections will put our environment and public health at risk. If anything, the EPA should strengthen methane pollution safeguards. We depend on the EPA to protect us from harmful pollution that makes it harder to breathe, aggravates asthma, and fills our air with toxic compounds. The EPA must fulfill its mission to "protect human health and the environment" by

**Add a Personal Message**

**Send My Message**

contacted by the campaign, for example, if mobilization is driven more by partisan identities than issue preferences.

**Going down fighting.** Finally, campaigns may target supporters rather than policymakers. Sometimes organizations “go down fighting” to fulfill supporters’ expectations. I use “going down fighting” as shorthand for campaigns aimed only at fulfilling member, donor, or supporter expectations and related logics that are internal to the organization, including member retention or recruitment, fundraising, or satisfying a board of directors. For example, as Figure 4 shows, the Sierra Club uses campaigns to collect contact information of supporters and potential members. In this case, given the executive-branch transition between 2010 when the rule was initiated and 2017 when it was delayed, the Sierra Club may have had little hope of protecting methane pollution standards, but for members of the public who wanted to voice their opinion, the Sierra Club created an easy way to do so, as long as users consent to “receive periodic communication from the Sierra Club.”

While such campaigns may engage many people, they are unlikely to affect policy or to inspire countermobilization. I expect such campaigns to occur on rules that have high partisan salience (e.g. rules following major legislation passed on a narrow vote), rules that propose large shifts on

Table 1: Observable differences in engagement across types of mass-mobilization campaigns

	Inside	Outside		
	Technical information	Number of comments	Effort	Contagion
Going public	High	High	High	High
Disrupting	High	Low	Low	Low
Going down fighting	Low	High	High	High

policy issues dear to member-funded public interest groups, or rulemaking started shortly after presidential transitions when executive-branch agendas shift more quickly than public opinion.

**Hypothesis 1c:** *When a lobbying coalition with more intense public support successfully mobilizes for reasons other than influencing policy, opposing coalitions with less public support are not more likely to counter-mobilize.*

Going public and going down fighting may be difficult to distinguish in the observed public response. Indeed, members of the public may poorly understand the different chances of success in each case. However, lobbying organizations do likely know their chances of success and should thus invest less in sophisticated insider lobbying under the going down fighting strategy. Having identified cases where coalitions engage in large public campaigns without corresponding investment in sophisticated lobbying, we can assess whether countermobilization is indeed less likely in these cases. Table 1 specifies the general pattern of engagement, that each of the three reasons behind mass-comment campaigns suggests.

As Table 1 suggests, the relevant statistic distinguishing patterns is the *relative* number of each type of comment on each side on a given rulemaking docket. Even among rules targeted by campaigns, salience varies significantly and thus “high” and “low” numbers of comments will differ across rules. Importantly, even campaigns that achieve very low public response rates appear in these data. Because campaigns aim to collect thousands of comments, it is implausible that even the most unpopular position would achieve no supportive responses. For example, while Potter (2017a) found Poultry Producers averaging only 319 comments per campaign. While this is far from the Sierra Club’s average of 17,325 comments per campaign, it is also far from zero.

**Public and private goods.** While coalitions may form around various material and ideological conflicts, those most likely to be advantaged by going public or going down fighting are public interest groups—organizations primarily serving an idea of the public good rather than the

material interests of their members.<sup>13</sup> Thus, I theorize that mass mobilization is most likely to occur in conflicts of public versus private interests or public versus public interests (i.e. between coalitions led by groups with distinct cultural ideals or desired public goods), provided they have sufficient resources to run a campaign. If true, one implication is that mass mobilization will systematically run counter to concentrated business interests where they conflict with the values of public interest groups with sufficient resources to mobilize.

**Hypothesis 1d:** *Public interest group coalitions mobilize more often than business-driven coalitions.*

Hypothesis 1d posits a conditional logic of mass mobilization. If outside lobbying were purely determined by resources, business-driven coalitions would often dominate, as they do elsewhere. However, I argue, because outside lobbying can alter the decision environment, those who have the advantage in the usual rulemaking process (where a more limited set of actors participate) have little incentive to expand the scope of the conflict.

### 2.1.3 Types of public engagement

I classify supporters into three types that help describe key pieces political information. I illustrate these types in the context of public comments. Comments that are exact copies of a form letter are akin to petition signatures from supporters who were engaged by a campaign to comment with minimal effort. Commenters that also take time to add their own text indicate more intense preferences. Finally, commenters who express solidarity in similar but distinct phrases indicate they were engaged indirectly, perhaps by a news story or a social media post about the campaign, as campaign messages spread beyond those originally targeted.<sup>14</sup> Because the success of a mobilization effort is moderated by public support, broader public interest group coalitions ought to mobilize more people, more effort per person, and more people indirectly for the same amount of mobilization effort (e.g. spending or solicitations).

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<sup>13</sup>Potter (2017a) similarly distinguishes “advocacy groups” from “industry groups.” Berry (1999) calls these groups “citizen groups” and emphasizes conflict over cultural issues. While some public interest groups focus on conservative or progressive cultural issues, like religious education, immigration, or endangered species, many are more focused on the public provision or protection of public goods such as national parks, consumer product safety standards, air quality, drinking water, and public safety.

One exception may be types of membership organizations that are both broad and often focused on material outcomes for their members such as labor unions. Potter (2017a) puts unions in the “Industry” category. I take a different approach based on the coalition with whom such groups lobby. If a union lobbies alongside businesses, I classify this as a private interest-drive coalition. If a union lobbies with public interest groups on public health or safety issues, I classify this as a public interest.

<sup>14</sup>It is possible that some people in this latter category engage purely on their own initiative, but any impact they have likely comes from their alignment with a coalition. Furthermore, as I show below, wholly original comments are rare.

**Hypothesis 1e:** *Public interest group coalitions mobilize more successfully than business-driven coalitions. Indicators of success include (1) the number of comments supporting a coalition (2) the effort per comment (3) the number of comments mobilized indirectly.*

The size of each group thus offers political information to policymakers, including coalition resources, the intensity of sentiment, and potential for conflict to spread. The first two types signal two kinds of intensity or resolve. First, they show the mobilizers' willingness to commit resources to the issue. Second, costly actions show the intensity of opinions among the mobilized segment of the public (Dunleavy 1991). The number of people engaged by a campaign is not strictly proportional to an organization's investment. The less people care, the more it costs to mobilize them. The third type indicates potential contagion. Indications that messages spread beyond those originally targeted may be especially powerful (Kollman 1998).

Information about organizational resolve, the intensity of public demands, and contagiousness are thus produced, but such political information will only influence decisions if these signals are processed in a way that captures this information and relays it to decisionmakers. These organizational processes may vary significantly across agencies.

#### 2.1.4 Incorporating political information into models of lobbying in rulemaking

If all campaigns best fit the "going down fighting" type, then scholars are right to dismiss them. Below, I set these campaigns aside and elaborate on why mass mobilization may often be best understood as a tactic aimed at influencing policy.

An organization's ability to expand the scope of conflict by mobilizing a large number of people may occasionally be a valuable political resource. In contrast to scholars who focus on the deliberative potential of public comment processes, I focus on public engagement as a tactic aimed at gaining power, either by leveraging powerful ideas or engaging actors with the institutional power to shape decisions. Scholars who do understand mobilization as a tactic (Furlong 1997; Kerwin and Furlong 2011) have thus far focused on organizations mobilizing their membership. I include a campaign's broader audience and its potential to grow, more akin to the concept of an attentive public (Key 1961) or issue public (Converse 1964).

Appeals to the government are almost always couched in the language of public interest, even when true motivations are obviously private (Schattschneider 1975). When lobbying during rulemaking, groups often make suspect claims to represent broad segments of the public (Seifter 2016). If agency staff do not trust an organizations' representational claims, engaging actual

people may be one of the few credible signals of a broad base of support. Furthermore, if organizations claim to represent people beyond their official members, reforms requiring groups to disclose information about their funding and membership (Seifter 2016) only go part way to assess groups' claims to represent these broader segments of the public. Indeed, if advocacy group decisions are largely made by D.C. professionals, these advocates themselves may be unsure how broadly their claims resonate until potentially-attentive publics are actually engaged.

Theorists may debate whether signing a petition of support without having a role in crafting the appeal is a meaningful voice or whether petitions effectively channel public interests, but, at a minimum, engaging a large number of supporters may help broader interests to distinguish themselves from truly narrower ones. It suggests that the organization is not “memberless” (Skocpol 2003) in the sense that they are able to demonstrate some verifiable public support.<sup>15</sup>

Here I build on three insights. First, Furlong (1997) and Kerwin and Furlong (2011) identify mobilization as a tactic. The organizations that they surveyed reported that forming coalitions and mobilizing large numbers of people are among the most effective lobbying tactics. Second, Nelson and Yackee (2012) identify political information as a potentially influential result of lobbying by different business coalitions. While they focus on mobilizing experts, Nelson and Yackee (2012) describe a dynamic that can be extended to mass commenting:

“strategic recruitment, we theorize, mobilizes new actors to participate in the policy-making process, bringing with them novel technical and political information. In other words, when an expanded strategy is employed, leaders activate individuals and organizations to participate in the policymaking process who, without the coordinating efforts of the leaders, would otherwise not lobby. This activation is important because it implies that coalition lobbying can generate new information and new actors—beyond simply the ‘usual suspects’—relevant to policy decision makers. Thus, we theorize consensus, coalition size, and composition matter to policy change.”

I argue that, with respect to political information, this logic extends to non-experts. The number and distribution of ordinary supporters may matter because it suggests a *public* consensus. Instead of bolstering *scientific* claims, a perceived public consensus bolsters *political* claims. Third, Furlong (1998), Yackee (2006), and others distinguish between direct and indirect forms interest group influence in rulemaking. This distinction is especially important for political information, which may have most influential through indirect channels, such as through elected officials. In

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<sup>15</sup> Public support can be faked or inflated using “astroturf” tactics but as I argue below, such campaigns ought to have observably different patterns of engagement.



short, to understand how groups lobby in rulemaking, we must understand mass mobilization as a tactic aimed at producing political information that may have direct and indirect impacts on policymaking.

Rauch (2016) suggests that agencies reform the public comment process to include opinion polls. I build from a similar intuition that mass comment campaigns currently function like a poll or, more accurately, a petition, capturing the intensity of preferences among a segment of the public—i.e. how many people are willing to take the time to engage.<sup>16</sup> Self-selection may not be ideal for representation, but opt-in participation—whether voting, attending a hearing, or writing a comment—still provides political information. Mobilizing citizens and generating new political information are key functions of interest groups in a democracy (Mansbridge 1992; Mahoney 2007).

Importantly, campaigns inform agencies about the distribution and intensity of opinions that are often too nuanced to estimate *a priori*. Many rules may lack analogous public opinion polling questions, making mass commenting a unique source of political information. Indeed, as is true about public opinion on many specific policy issues (Hutchings 2003), most members of the public and their elected representatives may only learn about the issue and take a position as a result of a public pressure campaign. I thus consider public demands to be a latent factor in my model of policymaking (Figure 5). Public demands shape the decisions of groups who lobby in rulemaking. If they believe the attentive public is on their side, groups may attempt to reveal this political information to policymakers by launching a mass mobilization campaign. The public response to the campaign depends on the extent that the attentive public is passionate about the issue.

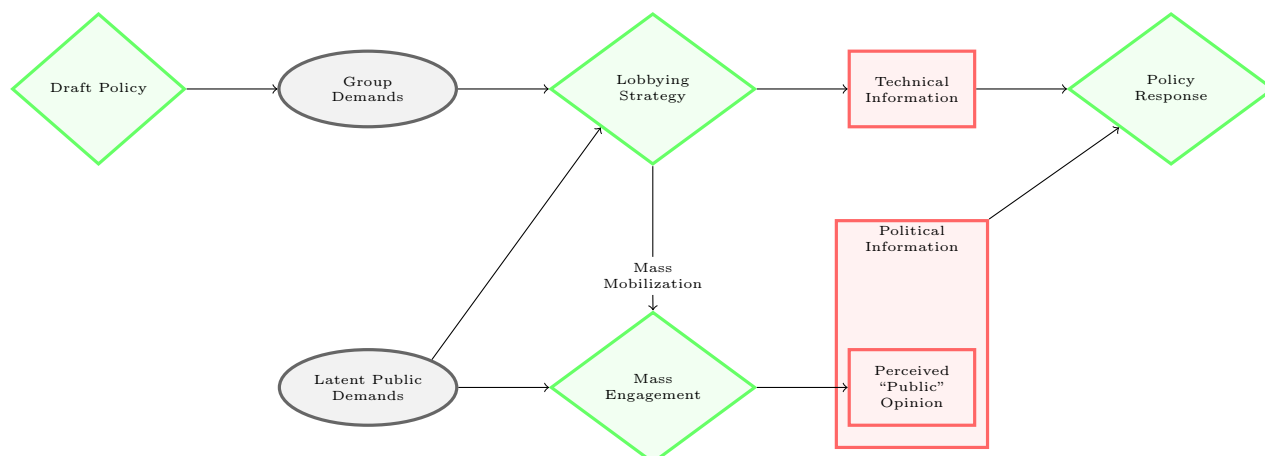
Figure 5 amends the Classic Model of interest group lobbying (Figure 3) to incorporate the above intuitions. In addition to providing technical information, for example through sophisticated comments, an organization may mobilize supporters. The more support a group has, the more successful this effort will be. Large-scale engagement may produce several types of relevant political information. The most direct and obvious is the expressed “public opinion” that policymakers observe.<sup>17</sup>

As noted, the causal process visualized in Figure 5 only operates under certain conditions. As suggested above, one of those conditions is that mobilization is aimed at influencing policy.

<sup>16</sup> For example, a campaign by the World Wildlife Federation provided language explicitly claiming to have public opinion on their side. Their model comment stated that “Along with 80% of the American people, I strongly support ending commercial trade in elephant ivory in the US.” This suggests that mass comment campaigns aim to signal information about public opinion.

<sup>17</sup> I address other types of political information that mass engagement may create elsewhere. For an expanded model, see Figure 12 in the Appendix.

Figure 5: Incorporating Mass Engagement and Political Information into Models of Lobbying



## 2.2 Measuring mass engagement and political information

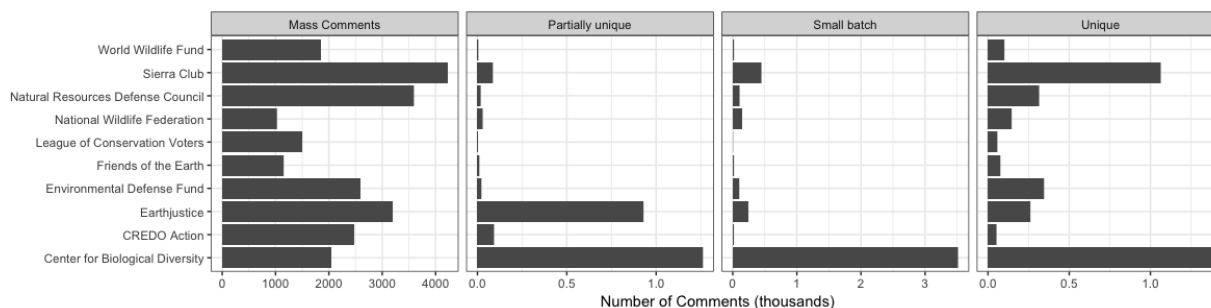
In this section, I develop methods to attribute mass comments to the campaigns that mobilized them and measure the intensity of preferences expressed. To link individual comments to the more sophisticated lobbying efforts they support, I use text reuse and topic models to identify clusters of similar comments, reflecting formal and informal coalitions. Comments with identical text (if any) indicate which groups and coalitions ran a mass comment campaign. Within each campaign, I measure the intensity and potential for the movement to grow. To measure intensity, I examine the ratio of high-effort and low-effort comments. To measure potential to grow, I measure the number of comments mobilized indirectly by the campaign (i.e. those that support a campaign but do not include text provided by the campaign). The result is several new measures that paint a picture of mass commenting.

### 2.2.1 Who lobbies?

Previous studies of rulemaking stress the importance of coalitions (Yackee and Yackee 2006). Scholars have measured coalitions of organized groups but have yet to be able to attribute citizen comments to the coalition that mobilized them.

**Data.** I collected a corpus of approximately 70 million comments via the regulations.gov API. Approximately 50 million of these comments were on proposed rules (about 16,000 proposed rules from 144 agencies from 2005 to 2018). I then linked these comments to other data on the rules from the Unified Agenda and Office of Information and Regulatory Affairs Reports on draft rules sent to them for review. Summary statistics for these data are in the Appendix.

Figure 6: Top mobilizers of comments posted to regulations.gov



Unfortunately, metadata on the authors of comments and their organizational affiliations are inconsistent and incomplete. As this information is key to identifying influential actors, improving these data was a significant data-organization task. First, I identified organizations responsible for mobilizing 100 or more comments with repeated text, either identical text or partially unique texts that contain shared language.<sup>18</sup> I then searched comment texts for mentions of these organizations’ names to complete missing information on the mobilizing organization. The top 100 mobilizing organizations mobilized between 55 thousand and 4.2 million comments. Figure 6 shows the top organizers of comments posted to regulations.gov.

Having identified who is participating in rulemaking, the next step is to identify who is lobbying together.

### 2.2.2 Who lobbies together?

The Oceana coalition framed its mass mobilization effort to curb the Bureau of Ocean Energy Management’s 2017 Proposed Offshore Oil and Gas Leasing Program as a “petition signed by 67,275 self-proclaimed United States residents,” suggesting that organizations consider these efforts as akin to petitions. In the same statement, Oceana also claimed the support of “more than 110 East Coast municipalities, 100 Members of Congress, 750 state and local elected officials, and 1,100 business interests, all of whom oppose offshore drilling,” suggesting that claims of public and elected official support aim to provide similar kinds of political information.

When actors sign onto the same comment, it is clear that they are lobbying together. However, various businesses, advocacy groups, and citizens often comment separately even when they aligned. The comment process is open to anyone and it is often not worthwhile for all actors to

<sup>18</sup>Specifically, I identify comments that are not identical but share a 10-word (or “10-gram”) string using a moving window function looping over each possible pair of texts to identify matches. For more about this method and comparisons with related partial matching methods such as the Smith-Waterman algorithm, see Casas, Denny and Wilkerson (2017) and Judge-Lord (2017)

coordinate their messages. Thus, in addition to mapping text re-use, I adapt several statistical models (k-means clustering and Bayesian classifiers) of text to classify comments into coalitions. I cluster documents by the frequency with which they use different words. Being classified together does not mean that the documents all address exactly the same distribution of substantive issues, just that they use similar words relative to the full set of documents. I start by modeling all comments on each rule (collapsing identical comments to one document) with two and three topics, which I will then inspect to see how well the comments of named organizations were classified. If the two topic model most sensibly describes the conflict, I label these clusters “pro” and “con.” If the three-topic model more sensibly describes the conflict, I label these clusters as “pro, con, other.” If neither fits well, I increase the number of clusters as needed.

### 2.2.3 Measuring the volume, intensity, and potential contagion of public engagement.

I measure variation in engagement in three ways, corresponding to the three types of comments described above.

**Volume.** First, I measure the total number of comments on the rule. As commenting results from multiple processes: a coalition deciding to lobby at all, a coalition deciding to mobilize, and response to the campaign the distribution contains many cases where groups may have had success mobilizing but never reached the choice of whether to mobilize or not. Perhaps they were unaware of the draft rule. Once the decision to mobilize has been reached and made, the response to mobilizing is a count process. Thus, I expect the count of comments across rules to follow a zero-inflated negative binomial distribution.

**Effort.** I measure effort per comment by the number of words people write, omitting any text longer than 10 words that is not unique, usually because it was provided by a mobilizing organization. For example, using the form shown in Figure 4, the Sierra Club mobilized more than 47,710 people to submit exactly the same text on the delay of the methane pollution rule, but 7,452 people also took the time to write a personalized comment in addition to the text provided. However, we may not observe people who have low levels of passion for the issue because they either do not cross the effort threshold required to comment or opt to write nothing more than the form letter. I consider the low end of the distribution of words to be truncated.

**Contagion.** Mass-comment campaigns have wildly different results. Some gather a clean 10,000 copies of (signatures on) the same comment and call their work done. Others “go viral”—

inspiring a mess of further engagement where the original messages are translated through social media posts and news stories. To identify people who were plausibly mobilized indirectly by a campaign, I count the number of people who use similar distribution of words to that of the form letter but fewer than 10 words matching any other comment. This is regular count process.

### 2.2.4 Patterns of public engagement in rulemaking

**Most comments result from mass-comment campaigns.** Figure 7 shows all comments posted on regulations.gov over time by whether they are exact or partial copies of another comment or not. While some agencies classify all duplicate comments as mass comments, I call comments that have between 2 and 99 identical copies, “medium batch” because such comments may reflect coordinated efforts among interest groups that do not include a public pressure strategy that involves mobilizing ordinary people. Here “mass comments” are comments that have either 100 or more identical copies or were uploaded in bulk batches of at least 100. This restrictive definition of what counts as mass engagement captures comments that were certainly mobilized by a campaign. As Figure 7 shows the vast majority of comments are mobilized by mass commenting campaigns. In other words, most comments are from ordinary people.

The right pane of Figure 7 shows results from a sample of several million comments for which I have digitized texts. Many of these comments appear to support proposed agency rules, as was the case with both the do not call and mercury rule examples. A rough measure of support (whether the comment text includes “support” or “oppose”) shows that many more comments mention support, until 2018, when there is a fairly dramatic reversal in the share of comments mentioning “support” compared to those mentioning “oppose” (Figure 7). This may be a function of the changing regulatory agenda due to the change in presidential administration.

Figure 7: Comments on Draft Rules Posted to Regulations.gov 2006-2018

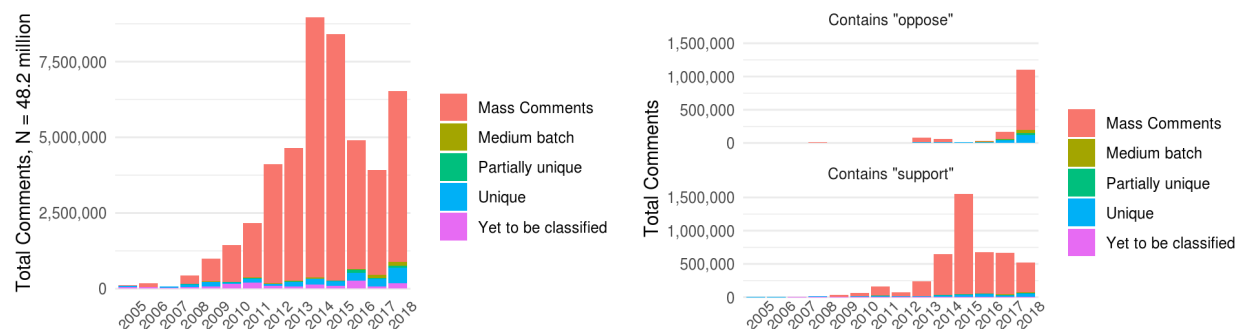
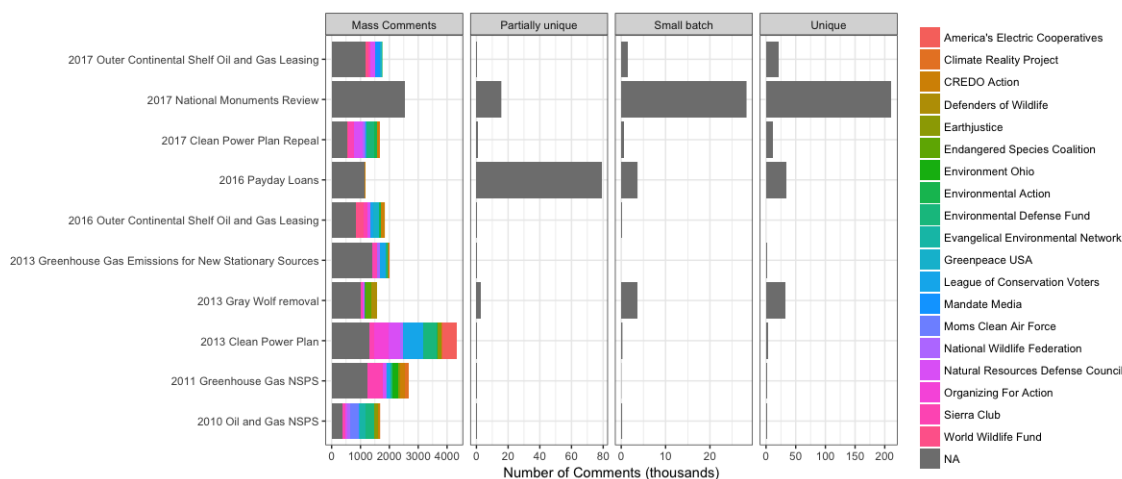


Figure 8: Top 10 Dockets Receiving the Most Comments on regulations.gov and the top 20 Mobilizers



**Most comments occur on a small number of salient rules.** Approximately a third of public comments posted to regulations.gov were received on just ten dockets.

**A coalition of public-interest organizations mobilize most comments.** As Figure 8 shows, the most prolific mobilizers are environmental groups. On 5 out of the top 10 dockets (here including rulemaking and non-rulemaking dockets), a similar coalition of groups mobilized the majority of public comments. In part, this is because the Environmental Protection Agency produces a large share of the substantive rules posted to regulations.gov. However, it is notable that, on the top ten dockets, 19 of the top 20 mobilizers generally lobby together. America's Energy Cooperatives, an industry association, stands out as the lone mobilizer on behalf of material interest for its members. Notably, it only mobilized significantly on the Clean Power Plan but not on the subsequent Clean Power Plan repeal.

### 3 Part 2: Political information → Oversight

#### 3.1 Why mass engagement may affect political oversight

When George W. Bush replaced Bill Clinton as president, career bureaucrats at the Federal Trade Commission knew that this meant a change in policy priorities. Many rulemaking projects initiated under the Clinton administration were likely to be withdrawn or put on hold. They also knew that the new administration wanted to be perceived as advancing a new policy agenda, not merely undoing Clinton-era regulations. Entrepreneurs within the agency saw a political window of opportunity to initiate a new regulatory agenda aimed at curbing a growing volume

of telemarketing calls. This initiative seemed likely to be popular with voters but, even with a supportive president, would be difficult to advance over the objections of the telemarketing industry whose campaign donations had earned them many powerful allies in Congress. Agency officials report being pessimistic about the FTC’s telemarketing effort succeeding over opposition from Congress.

When the draft “Telemarketing Sales Rule” (also known as the “Do Not Call” rule) was published, however, public support and engagement were overwhelming. The rule received thousands of supportive comments from frustrated members of the public who were encouraged to comment by advocacy groups like the Consumer Federation of America. Agency officials report that the volume of public response not only encouraged the agency and the administration but, more importantly, “scared off” Members of Congress who the industry was relying on to kill or reverse the rule. Once it became clear that the public was paying attention and sufficiently mobilized to act on the issue, elected officials became much less willing to take unpopular positions supporting industry donors. Instead, Congress ended up codifying the agency’s authority to implement the Do Not Call regulations with legislation the following year.

The story of the Do Not Call rule suggests that public engagement in rulemaking may occasionally be influential because it affects the behavior of elected officials who have the power to provide key support or opposition to a proposed rule.

**Political oversight.** Political oversight of bureaucracies has long concerned both practitioners and theorists. Political scientists often model the relationship between elected officials and bureaucrats as a principal-agent problem. For example, an agency may have a preferred policy but, upon observing the preferences of principals, may change the rule or delay its publication to avoid being reversed (Potter 2017*b*). While it is widely accepted that agency officials must take the positions of their principals into account, the mechanisms by which this occurs and the empirical conditions for political control are debated.

Because I focus on influence in the period between publication of draft and final rules, I focus on information about principals’ preferences revealed to the agency in this period. Oversight during rulemaking is a form of ex-post control (Epstein and O’Halloran 1994), in this case after the proposed rule is published. Figure 9 shows a version of the classic model of principal influence in rulemaking. Upon learning content of a draft rule, an official with power over the agency may choose to signal their demands to the agency. There is an ongoing debate among scholars over how political oversight operates—i.e. how the observable behaviors of principals actually inform

Figure 9: The Classic Model of Principal-Agent Oversight in Bureaucratic Policymaking



agency decisions.

McCubbins, Noll and Weingast (1987) suggest two oversight mechanisms. Principals may proactively attend to agency activities, like a “police patrol” or they may rely on bureaucrats’ fear of sanction when attentive interest groups alert principals about agency activities, more like a “fire alarm.” Administrative procedures like mandatory public comment periods thus offer opportunities for direct oversight and to be alerted to oversight opportunities.

### 3.1.1 Incorporating political information into models of political oversight

In addition to interest groups directly alerting elected officials to oversight opportunities as in the “fire alarm” model, the political information signaled by mass engagement may serve as a serve as a “warning sign,”—altering elected officials to political risks *or*, conversely, to encourage the agency to hold course (what might better be described as a “beacon” attracting positive attention and credit claiming opportunities. In the case of the FTC’s “Do Not Call” rule and subsequent legislation, mass engagement functioned more as a “warning” and a “beacon,” effectively enabling and empowering rather than restraining the agency as the classic “fire alarm” concept suggests.

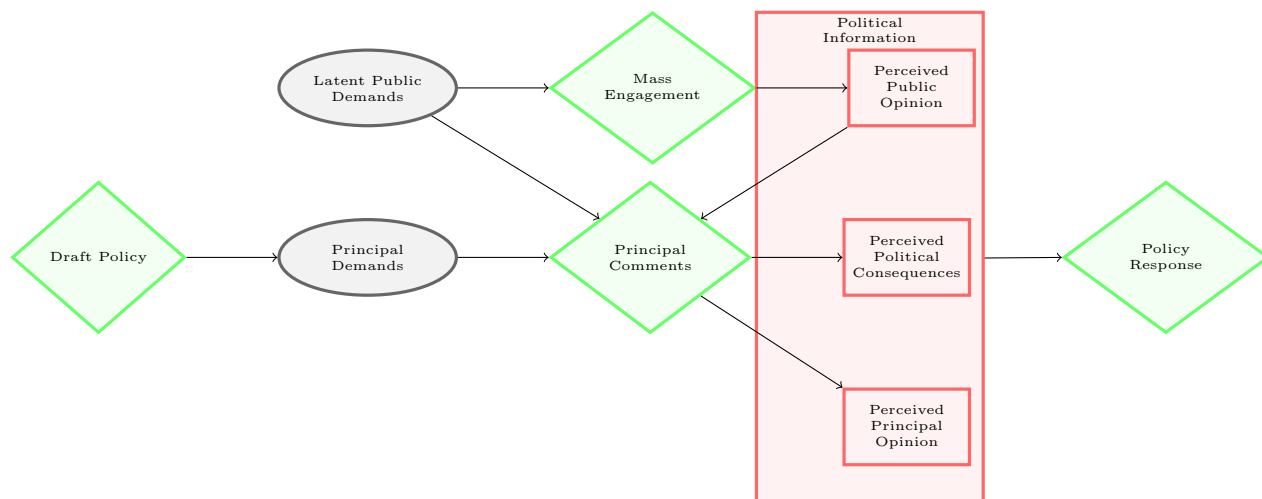
Mass engagement in bureaucratic policymaking may affect the behavior of an agency’s principals because the shadow of public sanction hangs over elected officials (Arnold 1979; Mayhew 2000). Moore (2018) finds that agencies that receive more comments per rule are also subject to more congressional hearings. When the public is more attentive, it is more important for officials to take popular positions and avoid unpopular ones. Thus, when a coalition goes public, especially if it generates a perceived consensus in expressed public sentiments, elected officials ought to be more likely to intervene on their behalf and less likely to intervene against them.

**Hypothesis 2:** *Elected officials’ advocacy is moderated by mass engagement. Elected officials are more likely to engage in rulemaking in support of positions supported by the majority of comments and less likely to engage in opposition to the majority of comments.*

If hypothesis 2 is correct, it would suggest an addendum to Hall and Miler’s (2008) finding that legislators are more likely to engage in rulemaking when they have been lobbied by a like-



Figure 10: Incorporating Mass Engagement and Political Information into Models of Political Oversight



minded interest group. When interest groups lobby elected officials to engage in rulemaking, they may be more likely to engage when aligned with the majority of commenters than when opposed to them (Hypothesis 2). If elected officials learn from political information, they will be even more likely to engage when lobbied by a coalition that includes public interest groups running a mass-comment campaign, and less likely when lobbied by a coalition dominated by private interests opposed by a large mass comment campaign.<sup>19</sup>

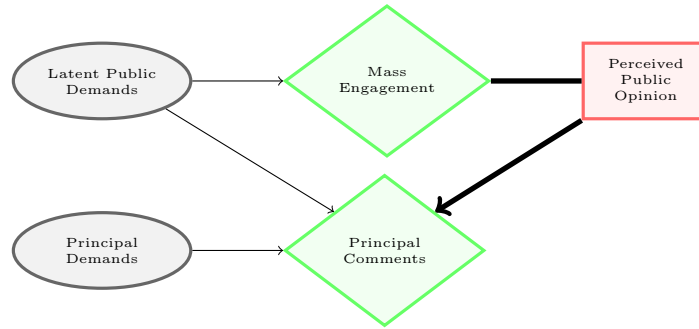
Figure 10 builds on the classic model of political oversight in two ways. First, it suggests that the public and private comments by elected officials are a particularly relevant oversight behavior and a mechanism by which bureaucrats learn and update beliefs about their principals demands. Second, it suggests that such oversight behaviors may be affected by mass engagement because of the impressions of public opinion (i.e. the political information) it creates.

### 3.2 Assessing effects on elected officials' oversight behavior

To assess the hypothesis that mass engagement affects the engagement of political principals, I examine the relationship between mass commenting and the behavior of Members of Congress, while attempting to control for other reasons that Members of Congress may comment on a proposed rule. The bold arrow in figure 11 indicates the key relationship in this step.

<sup>19</sup>Of course, if Members of Congress receive signals about the distribution of comments from their districts, the distribution of opinions in their district constituency may be more important. Figure 4, shows that the Sierra Club requires zip code information from commenters, so mass-mobilizers may often send such signals to elected officials.

Figure 11: Modeling the Relationship between Mass Engagement and Political Oversight



I measure the dependent variables, legislator attention and support, several ways. First, I count the number of times Members of Congress engage the agency across rules and before, during, and after comment periods on rules where lobbying organizations did and did not go public. By engaging the agency, I mean that Members of Congress raise a rule in hearings, committee reports, and personal letters that members send to the agency. Next, I use text analysis to compare the sentiment and rhetoric used by legislators to that used by each coalition. Using texts has several major advantages over other measures of congressional attention and sentiment such as partisanship (Yaver 2016; Lewis 2008), changes in budget size, or the length of appropriations reports (Bolton and Thrower 2015). Unlike partisanship, it is issue-specific and does not require assumptions about agency partisanship. While budget changes may reflect real costs, the many reasons that budgets change make it difficult to attribute changes to particular agency actions. The length of appropriations subcommittee reports may indicate the amount of attention committees pay to an agency but they do not vary significantly over time and do not indicate whether committee attention is positive or negative.

Specifically, dependent variables include:

Model 1) Comments from Members of Congress on the rule (total, those mentioning mass comments, and those mentioning organizations in the coalition), Each  $\sim$  zero-inflated negative binomial.

Model 2) Share of mentions supporting the coalition,  $\sim$  beta.

Model 3) Rhetorical similarity between comments from the coalition and Members of Congress.

Dependent variables 1-2 are one observation per coalition per rule. Model 3 is one observation per comment from a Member of Congress. The key explanatory variables of interest are the measures of mass engagement created in step 1 (how many and what types of comments). One

challenge will be controlling for rule salience, which may affect both public and legislator attention (indeed, both are endogenous to rule salience). Another challenge will be controlling for latent public opinion, which may often, but not exclusively, be revealed to legislators through mass engagement.

## 4 Part 3: Political information $\rightarrow$ Policy

### 4.1 Why mass engagement may affect rulemaking and rules

In 2011 the Environmental protection agency proposed two regulations to limit mercury emissions from coal and oil-fired power plants. Among other issues, the Environmental Protection Agency (EPA) solicited “comments on whether there would be a basis for considering area sources to be significantly different from major sources,” “on the adequacy of the restrictions associated with bypass conditions regarding maintaining LEE status” and “on the proposed revisions concerning [equations’ 1a and 1b] usefulness in calculating the maximum potential emissions rate from an emissions averaging group” (EPA 2011). LEE status is not defined in the notice soliciting comments, and equations 1a and 1b are surely inaccessible to most citizens. Yet these two proposed rules received 942,483 comments.

One comment, from the United States Council of Catholic Bishops, read: “While we are not experts on air pollution, our general support for a national standard to reduce hazardous air pollution from power plants is guided by Catholic teaching, which calls us to care for Gods creation and protect the common good and the life and dignity of human persons, especially the poor and vulnerable.” Bishops are not known to closely follow power plant regulations. Their moral authority was mobilized by activists who wanted stricter regulation of mercury and wanted to demonstrate public support of this position.

In the official, legally-required response to comments, the EPA did not discuss public opinion, obligations to care for the environment, dignity, or the poor. Instead, the EPA asserted that mercury levels are a matter of science, not a matter of justice. But the EPA did implicitly assert a definition of the public good when it used studies of mercury’s aggregate public health effects on the U.S. population to set emissions standards.<sup>20</sup> Then, as required by the Supreme Court, it

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<sup>20</sup>As Wagner (1995) notes, “agencies exaggerate the contributions made by science...in order to avoid accountability for the underlying policy decisions. Wagner goes on to find that “While the APA mandates a process for public involvement, it provides almost no protections to ensure that agencies will explain the substantive bases for highly complex or technical rulemakings in a way that the lay public can readily understand and challenge” (1656) and that “Mischaracterization of the entire standard-setting endeavor as resolvable by science results in significant obstacles to democratic participation” (1674). Similarly, Harvey Brooks (1984) notes that “The modern nation risks being no longer recognizable as a democracy, either representative or plebiscitary, if more and more policy areas are excluded from public participation because of the technical

justified the same standards with cost-benefit analysis in a revised proposed rule, concluding that for every dollar spent to comply with the regulation, the U.S. public receives up to nine dollars in health benefits (EPA 2007). If this is how decisions are made, why would citizen opinions matter?

#### 4.1.1 Political information and influence in rulemaking

In this section, I integrate the above arguments about interest group lobbying and political oversight to offer a broader model of influence in rulemaking that highlights the political information available to policymakers. As suggested above, such information occasionally arises from contentious debate and civic mobilization and may influence elected officials' oversight behaviors.

If we appreciate agency policymaking as a site of contentious politics, mechanisms emerge by which mass mobilization may affect both the strategic environment and ideological perspectives of those who write agency rules. These mechanisms remain under-theorized and untested. I aim to begin to fill this gap by outlining four mechanisms by which political information may influence bureaucratic policymaking. Bureaucrats have both strategic and normative reasons for updating policy decisions in light of new political information. The effects of political information on policy thus depend on the strategic context that may or may not offer opportunities for influence. It also depends on cognitive and institutional processes that may or may not incorporate political information.

I argue that if mass mobilization indirectly affects the strategic environment it does so by signaling grass-roots political power to elected officials and if mass mobilization directly affects agency policymaking it does so by evoking norms rooted in organizational identities and reputations. Like the vast majority of letter-writers, Catholic Bishops contribute little to the technical aspects of epidemiology, mercury regulations, or cost-benefit analysis. If they influence agency policymaking, it is by signaling a threat of political backlash or by persuading bureaucrats directly that moving policy in a certain direction is the appropriate thing for the agency to do. The next two subsections address these indirect and direct mechanisms in more depth. A third discusses why we may still observe mobilization in the absence of influence.

**Opportunity.** First, the influence of political information depends on the extent to which the strategic environment allows change. A core concept in social movement scholarship is the “political opportunity” or “opportunity structure” (Mcadam 2017) such as division among elites

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complexity.”

(Tarrow 1994). In my case, a division among elites could be divergent principals among an agency’s political principals or powerful business interest groups. With respect to division among business interests, this aligns with findings from studies of rulemaking that find that consensus among businesses increases their influence in rulemaking (Yackee and Yackee 2006; Nelson and Yackee 2012). However, the role of divided government is less clear. Yackee and Yackee (2009) find that divided government decreases the frequency of rulemaking. However, this does not mean that it reduces the potential for groups to influence those rules that are produced.

Policy process scholars use a similar concept of “window” for policy change where advocates have an opportunity to align politics with certain identified problems and solutions (Kingdon and Thurber 1984). All rulemaking processes create opportunities, however small, to shape the new status quo, loosely bounded by the problems the process was initiated to solve, a set of policy solutions considered legitimate, and a constellation of political forces.

**Information processing.** Second, influence depends on how political information is processed, both directly within agencies and indirectly through other actors (e.g. Members of Congress) whose appraisals matter to bureaucrats.

#### 4.1.2 Mechanisms by which groups may influence bureaucratic policymaking

Why might mass mobilization matter? The literature on bureaucracy offers two types of explanations rooted in either strategic behavior or organizational processes and norms. Political scientists often focus on strategic context. Public administration and management scholars focus on organizational logics and identities.

New information may affect agency strategy directly or indirectly. New scientific or legal information spurs revision of calculations about cost and benefits or the likelihood of being reversed in court. New political information spurs bureaucrats to update their beliefs about levels of support among certain populations or their elected representatives and thus the likely political consequences of a decision. Indirectly, it may alert elected officials to political risks and opportunities, thus reshaping an agency’s strategic environment.

While scholars often focus on the top right cell of Table 2, the influence of political information is to be found in the other three cells. Political scientists have focused on strategic factors—either on how lobbying provides technical information that directly influences agency decisions (as reviewed in section 2.1) or on how oversight indirectly constrains them (as reviewed in section 3.1). Mass engagement is only likely to affect the later.

Table 2: Mechanisms by which new information may influence bureaucratic policymakers

	Shifting Strategic Incentives	Highlighting Norms in Institutional and Cognitive Processes
Direct	Technical information (H3a) (e.g. inputs to benefit-cost analysis)	Attentive “public” opinion (H3b) (public service/responsiveness/direct democracy)
Indirect	Likely retribution and reward (H3c) (e.g. future budgets, careers, support)	Elected official opinion (H3d) (accountability/representative democracy)

New technical information that is relevant to understanding the effects of proposed policy (e.g. inputs to benefit-cost analysis such as the cost or benefits for regulated businesses) may directly affect technocratic decisions. New political information that is relevant to the likelihood of political support, sanction, or reversal may indirectly affect bureaucrats’ strategic calculations.

Political information may also affect bureaucrats’ normative evaluations. These effects may be direct (e.g. the weight that norms of direct democracy give to limited public input) or indirect (the weight that norms of accountability give to elected officials’ input). The strength of norms of direct and indirect accountability to public demands may vary across agencies with levels of political insulation and responsiveness.

**Hypothesis 3a:** *Weak: Agencies respond to sophisticated comments. Strong: Agencies only respond to sophisticated comments (i.e. political information has no effect).*

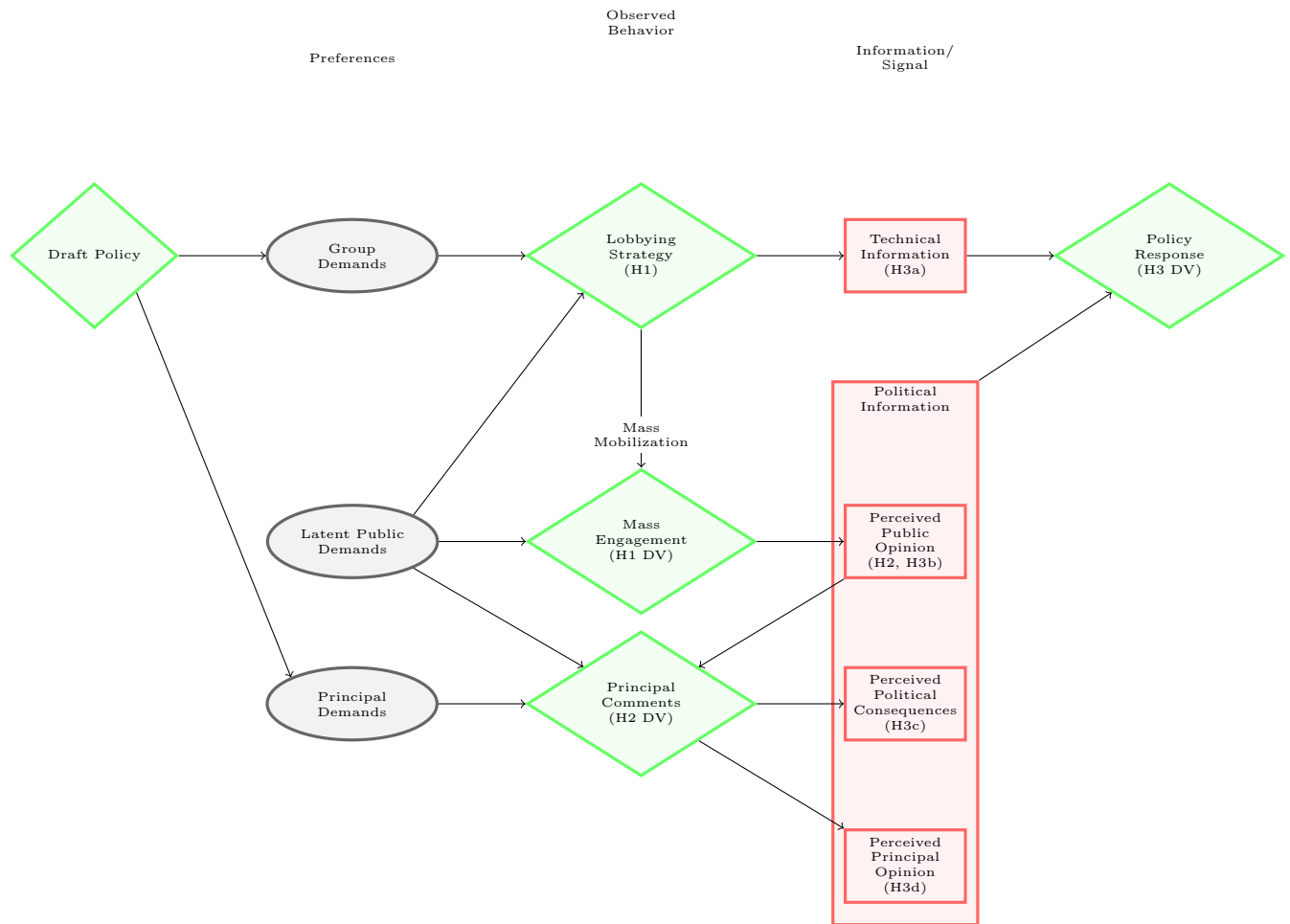
**Hypothesis 3b:** *Weak: Agency responses to sophisticated comments are moderated by perceived public opinion as expressed in mass comments. Strong: Agencies responses to sophisticated comments are moderated only by perceived public opinion as expressed in mass comments (i.e. not by elected officials).*

**Hypothesis 3c:** *Weak: Agency responses to sophisticated comments are moderated by perceived elected official opinion. Strong: Agencies responses to sophisticated comments are moderated only by perceived elected official opinion (i.e. not by mass comments directly or by especially influential elected officials).*

**Hypothesis 3d:** *Weak: Agency responses to sophisticated comments are moderated by strategically important elected officials’ opinions. Strong: Agencies responses to sophisticated comments are moderated only by strategically important elected officials’ opinions.*

**3b: Direct effects on information processing and normative evaluations:** In addition to strategic calculations, mass engagement may shift how information is processed and evaluated,

Figure 12: The Role of Mass Commenting and Political Information in Bureaucratic Policymaking



both institutionally and cognitively. By focusing policymakers attention on certain aspects of policy decisions, mass engagement may affect who is involved in these decisions and how they are framed (Rinfret 2011).

Institutionally, higher comment volume may engage a larger and more politically-oriented set of staff and consultants. Cognitively, expanding the scope of conflict highlights the political aspects of a decision, perhaps mobilizing cognition focused more on norms of public service or partisan ideology than on strategic or technical rationality. In both cases, campaigns re-frame decisions as political and provide information that is especially relevant if processed through such a frame.

The source, number, and content of comments all provide political information. Each side may offer frames for interpreting these facts and others. If framed as the opinion of the public

or as expressing valid public interests, such a frame may shape how officials think about the appropriate course of action for a public servant or a partisan concerned with the popularity of agency decisions.

Organizational theory suggests additional mechanisms by which mass mobilization may influence bureaucratic decisions more directly. Here the causal process involves mobilizing norms and ideas right and wrong rooted in individual and institutional identity. Because concepts of mission, reputation, and the validity of claims are intertwined, these mechanisms are difficult to precisely define. Nevertheless, scholars have identified several types of direct influence. One important factor in decision making is personal and institutional reputation (Carpenter 2001). This can take several forms. For example, individuals trained as scientists and agencies that cultivate reputations for producing valid science may be persuaded by rigorous scientific claims. Similarly, individuals who identify strongly as public servants and agencies with reputations for public responsiveness may be persuaded by claims about public or “stakeholder” opinion (Meier and O’Toole 2006). In general, claims that resonate with the problems an agency has been tasked with solving and the means it has to solve those problems are likely to be well received.

Even, perhaps especially, when positions expressed through contentious politics are not majoritarian, these tactics may communicate political information that is not represented through electoral politics (Gillion 2012, 2013). Campaigns may also frame minority groups as deserving of special attention and protection.

**3c: Indirect effects on the strategic calculations** The White House has several tools to influence agency decisions (Yackee and Yackee 2009; Simon 1954). These include executive orders (Mayer 1999), appointments (Doherty, Lewis and Limbocker 2014; Lewis 2008; Wood, Moran and Weingast 1988), budgets (Whittington and Carpenter 2003), and review of proposed policies (Haeder and Yackee 2015; Acs and Cameron 2013).

Congress also has several tools to influence agency decisions. These include the power of the purse (Fenno 1986; Bolton and Thrower 2015), oversight, and new legislation. Some research suggests that this constraint is larger under divided government (Yackee and Yackee 2009) and that under divided government Congress tends to divide power among multiple agencies (Farhang and Yaver 2016). The anticipation of judicial review makes courts relevant to rulemaking. Some rules are also made under court-imposed settlement or with judicial deadlines. Judicial opinions may also call on Congress to act (Yaver 2017). Despite these mechanisms and because of conflicts among them, agency staff maintain significant power over agency decisions. For example,



Congress is less assured of compliance when power is divided (Yaver 2016).

Legal scholars' case studies of specific rulemaking process offer an additional relevant body of research. Coglianese (1997) finds that litigation is a common extension of rulemaking. Indeed, unlike legislative lawmaking, rulemaking takes place in the shadow of judicial review (Rossi 2001). Stakeholders may challenge a rule in court on a variety of procedural grounds as well as on statutory interpretation. This scholarship suggests those who succeed in rulemaking are those with the resources and experience to succeed in court. Costly mass comment campaigns could be signaling the ability and willingness to spend resources to challenge the rule in court.

Mass mobilization may signal political risks or benefits of engaging in agency policymaking to members of Congress and the White House. It also may signal to the agency that activists have the capacity to sustain pressure through the policy process (Coglianese 2001). Thus, mass mobilization may act as a signal of political power that reshapes rule-writers' beliefs about their strategic context. These beliefs about consensus may then shape rulemaking and rules.

In the U.S. context, agencies are accountable to the president, Congress, and courts. Many rules receive little attention from these other institutions, but all three significant powers to reward, sanction, or reverse agency actions (Yaver 2016). If mass engagement affects the behavior of these actors, it alters the strategic context in which bureaucrats make decisions. Mass mobilization may also signal a coalition's *potential* to influence the responses to agency action from the White House, Congress, or courts.

For example, the number, geographic distribution, size, and proportion of businesses who lobby against a rule, may provide information about how much money and which of their political principals may be invested in attacking a rule. Similarly, the number of people who engage in a rulemaking and the intensity of engagement may provide information about how much support or scrutiny an agency is likely to receive from certain political principals.

As activist campaigns may be less predictable than business lobbying, civic mobilization may provide even more information about constellations of support or opposition and the intensity of these policy demanders. If the information leads bureaucrats to update their understanding of the constellations of interests, their intensity, and the power and resources of each coalition, it may affect their strategic response.

Bureaucrats care about the consequences of their actions, both for themselves for their agency's mission. Their success and power depend on the support of a political coalition that includes elected officials (Carpenter 2001). West (2004) theorizes that the primary mechanism by which mass-commenting matters is to alert political principals. Members of Congress, especially, may

usually be unaware of rulemaking (Nou and Stiglitz 2016). Conversely, as the story of the Do Not Call rule illustrates, campaigns may “scare off” elected officials who otherwise would have weighed in, threatening consequences, such as legislation that reverses the rule (personal communication with former agency director). Reshaping strategic incentives may shift how rulewriters weigh commenter demands.

**3d: Indirect influence through elected officials:** To the extent that elected officials’ demands guide agency decisionmaking—i.e. to the extent that agency decisions are shaped by norms of accountability in representative democracy—campaigns may be influential by inspiring elected officials to produce new political information. When elected officials take a position publicly or in a private letter to an agency, such political information may have normative force beyond simply simple strategic calculations.

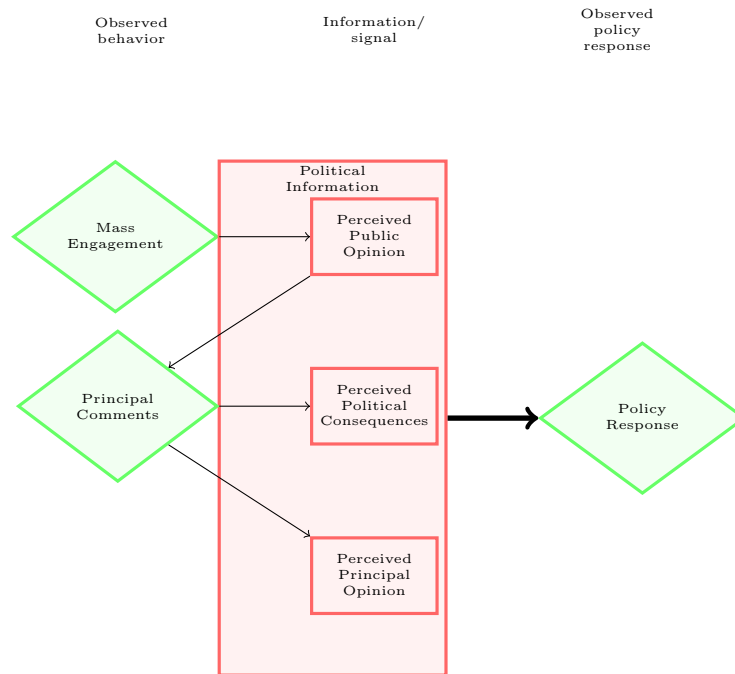
**Capacity to process information.** The impact of any kind information on policy decisions depends on the capacity to process this type of information. It is possible that many agencies lack the capacity to process political information embedded in mass comments. Some may simply discard this information (Mendelson 2011). The expected influence of mass engagement thus depends on how information is processed, which I expect to vary significantly across agencies.

## 4.2 Assessing effects on rulemaking and rules

The main dependent variable here is changes in rule text. However assessing policy change is difficult. Thus, I also use other measures of agency responses to lobbying efforts. Agencies may or may not change draft policies or may speed up or delay finalizing them. They write lengthy justifications of their decisions in response to some demands but not others. They may or may not extend the comment period. Measuring actual changes in policy text is more difficult. I aim to use automated methods to systemically identify changes between draft and final rules, parse these textual differences to identify meaningful policy changes, and compare them to demands raised in comments to measure which coalition got their way. Observing policy influence, especially in the final stages of policymaking is difficult. Given the momentum of political agendas and the fact that much is determined before draft rules are made public, changes are often on the margins. But such marginal victories are also the aim of business and other interest groups. Additionally, my theory suggests that influence is likely only in cases where mass mobilization is (1) aimed at influencing policy and (2) not accurately anticipated by policymakers. Measuring these will also

be difficult.

Figure 13: Modeling the Relationship between Political Information and Policy Change



Observational studies of policy decisions are almost always frustrated by the fact that decisionmakers rationally anticipate the actions of those who would influence them, rendering this influence difficult to observe. Thus I expect to observe larger effects in cases where mobilization or the level of engagement achieved was not anticipated by agency staff. However, as long as rulewriters do not perfectly anticipate mass engagement, it should have observable, if depressed, effects. Thus, without accounting for anticipation, any effects I uncover are likely to be underestimates, making the methods described above a conservative tests.

My method of identifying whether a rule seems to move in the direction requested is similar to leading existing methods—Yackee and Yackee (2006) measure whether commenters requested for more or less regulation—and superior to self-reported influence (Furlong 1997).

I aim to discover latent coalitions by textual similarity (having removed all sentences quoting the agency’s draft rule and call for comments), parse policy demands, and estimate relative probabilities that a policy change favors a given coalition. I then model the relationship between my measures of policy success and coalition size, intensity, and contagion and assess mechanisms by which political information may influence agency decisions.

**Changes in rule texts** Existing measures of who gets their way in rulemaking are blunt—hand-coding texts on a few pre-defined and simplified categories such as “pro- or anti-regulation.” This is well motivated by theory, but in practice, it is often unclear whether a policy, on its face, increases or decreases government regulation. Another drawback of the hand-coding approach is that one must often read each comment and compare it to the rule change to identify influential groups. I use computational text-analysis tools to address these concerns.

I measure the extent to which the text of a policy becomes more similar or less similar to the text of each public comment.

One way to think about this is that this change represents an increase in utility for those lobbying for the change. Purposeful actors got what they asked for and presumably reap the rewards. All dimensions of disagreement collapse to the latent dimension of utility. Taking a broader view of politics offers a less parsimonious, but more direct interpretation. Changes in law may deliver utility, but more precisely they reflect ideas. These may be ideas about “who gets what, when, and how,” but also about identities, aspirations, possibilities, whose opinions matter, and who constitutes the political community, which may be difficult to reduce to a single dimension. Focusing on costs and benefits alone risks overlooking much of the ideological and interpretive work lawmaking does in constructing political communities, possibilities, and norms. Public comments in rulemaking, like other forms of policymaking, may often be about more than self-interest.

Policy disagreements are disagreements about words that give governmental force to ideas. Information is an important currency for those trying to influence policy and that rhetoric and framing can affect perceptions of facts and policies. Policy learning can be seen as an updating of where one stands, an updating of beliefs about the what is true about the world and, most specifically, an updating about which words (and thus ideas) ought to be law. Importantly, policymakers are constantly learning about new problems, facts, and policy ideas about which they had no prior position. Thus new dimensions of disagreement are created every time claims are advanced about new problem definitions, new facts, and new ideas for what the law ought to say.

Estimating spatial ideal points is a leading way of estimating what actors want, especially when we only observe a series of votes. The quantity of interest is what kind of policy actors ideally want, and because voting only tells us whether one is for or against a policy text, we need multiple observations in which an actor (or others who plausibly share their position) falls on each side to begin to narrow down their ideological distance from any given policy. To get multiple

observations, we must assume that a number of proposed policies can be placed as different points on the same underlying dimension of disagreement. When it is persuasively argued that a number of these underlying issue dimensions more or less collapse to an even more general dimension, we further increase our observations and thus the information we have about each actor regarding that more general dimension.

When, rather than up or down votes, we have the text of what each actor wanted, we have much more information about where they stand in relation to a policy text. Indeed, instead of needing to uncover more general latent dimensions and estimate actors' positions on them, we directly observe the quantity of interest: the substance, direction, and magnitude of the disagreement in each case. We can cluster these disagreements to make more general statements about the broader nature of disagreements and relative policy positions, but, unlike with voting data, this reduction is not necessary to know the extent to which actors are getting what they want as we can directly observe how much outcome texts incorporate various actors' expressed ideal language. Flattening proposed changes in texts to  $n$  dimensions where  $n$  is fewer than the number of unique demands made by all actors may help descriptively, but is not required analytically. For example, we may reduce textual policy demands to left and right ideologies or preferences for more or less government, and doing so can be descriptively useful, but it is neither necessary nor helpful for answering the question of whose ideas end up in law.

Importantly, my project does not attempt to answer what actors want in general, *a priori* of any policy proposal. Without some reference point (existing policy, for example) what actors want may be impossible to define. I assess what commenters want *given* a proposed policy. What commenters request may not be a sincere representation of their ideal policy, but it is plausibly what they really want given what they believe is possible. While this may be insufficient for estimating ideal points, it is sufficient for measuring who gets what they ask for.

A finding that the words one actor suggested be added to a policy were twice as likely to appear in the final policy compared to the draft is a powerful and intuitive description of where power to shape policy resides.<sup>21</sup>

**Measuring the extent commenters got what they asked for** Participants may ask for two general kinds of things: They ask for specific changes to identified parts of the text or they may ask for a broad shift in emphasis, what Jones and Baumgartner (2005) call a policy image. For example, on the same Clean Power Plan rule, some may ask the Environmental

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<sup>21</sup>This is, perhaps, even more powerful than saying that the policy tended to shift toward their ideal point on some latent dimension, where the exact content anchoring the ideal point and the dimension are at least slightly ambiguous.

Protection Agency to make specific changes to two sentences having to do with the classification of power plants. Others may ask for broad re-framing to focus less on economic costs and more on environmental equity and the effects of pollution on children (Rinfret 2011). Many commenters do both. I thus leverage two key pieces of information from the rulemaking record: The text comments and the change from the draft rule to the final. Both approaches require the same initial steps. To identify how exactly the rule changed from draft to final, I use text reuse methods to identify what is the same and has been added or subtracted. The result of these two steps is the changes requested by commenters and textual change in the rule.

To identify the adoption of specific demands, I use the same text reuse methods to identify any matches between textual changes in the rule and the changes requested by commenters. If final rules include the specific phrases suggested in comments, this is evidence that these commenters got some of what they asked for. The significance of this kind of relationship between texts could be measured by how many words were copied, weighted by the forcefulness of these words. For example, I could create a dictionary of legally-significant words such as “shall, “must, “enforcement, and “standard. and weight textual alignment scores accordingly. Text reuse can be measured for individual commenters and averaged over coalitions.

To identify the adoption of demands for broader shifts in policy image and emphasis, I propose a relational topic modeling approach. In contrast to the single topic model used to classify commenters into coalitions, this approach assumes that each text is a mixture over a number of topics. Each word token in a document is assigned to exactly one topic. Words and thus documents have distributions over topics. The extent to which distribution of topics that changed from the draft to the final is similar to the distribution in comments may be seen as a measure of whether the commenter got what the kind of change in policy emphasis they asked for.<sup>22</sup>

**Relating comments to overall rule changes** Next I combine topic modeling approaches with text reuse methods, allowing better measurement not just of what is discussed but the topic distributions of what is being added, cut, copied, or otherwise receiving special attention. Of course, all topic models focus on the relationship between text, but by making some of the text

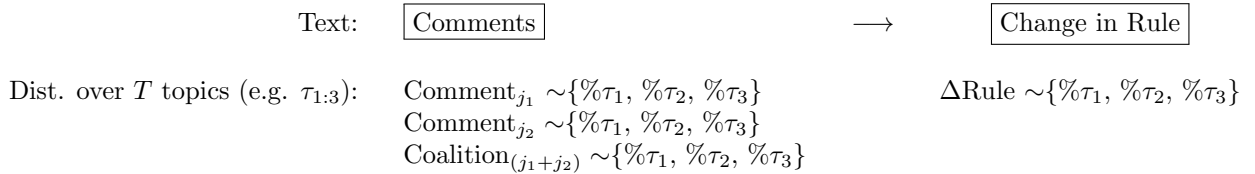
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<sup>22</sup> Some rulemaking processes also have a commenting period before the draft policy is published. In these cases, commenters respond to an Advanced Notice of Proposed Rulemaking (ANPRM). A similar approach can be used in these processes with the key difference that similarities between comments and the draft rule (now the outcome text), either in specific text fragments or general topic distribution, take on a different meaning. Instead of representing changes to a policy text, it may represent common understandings of what policy already was or had to be on this topic. Changes in the final rule more plausibly represent differences in what policy could be. With respect to the ANPRM and proposed rule, it is more difficult to infer that the same result would not have occurred without their comments. While such counterfactual inference is not my purpose and both measure the same core phenomena of the words actors want becoming policy, interpretation of what this means must attend to this difference.

units themselves a relationship between texts with text reuse methods, the topic model takes a “difference in difference” (e.g. what was added or deleted) form. Much of the rule content is retained from one version to the next, but some content changes. We want to know how these changes relate to the changes proposed by sophisticated comments.

To measure the relationship between comments and policy change, I draw on the *Latent Dirichlet Allocation* (LDA: Blei et al. 2003) model. Unlike the model used to estimate coalition membership, this is a mixed-member model. In LDA, each document can be represented as a vector of topic proportions, i.e. what fraction of the words in that document belong to each topic (Blei et al. 2003). For example, in a model of a rulemaking under the Environmental Protection Agency’s Clean Power Plan, “climate,” “adaptation,” “carbon,” and a dozen other words may co-occur and indicate a topic about climate change. The words, “clean”, “air,” and “health” may also co-occur and have relatively high frequencies in a topic that seems to be about air quality. The change in the rule from NPRM to Final Rule and each comment would have a  $\pi$  proportion of words belonging to the *climate change* topic ( $\% \tau_{Climate} = \pi_{Climate}$ ). This may be a relatively high portion for Climate Action Coalition comments and a low portion for American Lung Association comments ( $\pi_{Climate,CAC} > \pi_{Climate,ALA}$ ) compared to the air quality topic, which may be the opposite ( $\pi_{AirQuality,CAC} < \pi_{AirQuality,ALA}$ ). If the rule changes to focus more on climate change from draft to final rule ( $\pi_{Climate,\Delta EPA} > \pi_{AirQuality,\Delta EPA}$ ), the Climate Action Coalition may be seen as more successful than the American Lung Association with respect to the broad emphasis of the regulation. This offers a new way to capture what Jones and Baumgartner (2005) call *attention allocation*, the changing weights on policy images and issues: in this case, what the Environmental Protection Agency ought to do.

Figure 14: The Latent Dirichlet Model (LDA)



I focus on draft-to-final rule change by selecting only the text that was added or subtracted. This can be thought of as a versioning problem where the agency updates the rule. To focus on what changed, I excluded sentences that appear verbatim in the NPRM. I use the Smith-Waterman alignment algorithm (developed for identifying DNA matches and commonly used in plagiarism software) to identify sections of text that are close matches. Wilkerson (2015)

successfully employs this approach to identify content copied from various bills in the legislative processes leading to the Affordable Care Act.

The percent of each topic  $\tau$  within each document  $j$  is estimated as  $\pi_{j,\tau}$  where:

$$\begin{aligned}\tau_{i,j}|W_{i,j} &\sim \text{Multinomial}(\pi_{w_{i,j}}) \\ \pi_j &\sim \text{Dirichlet}(\alpha) \\ W_{i,j} &\sim \text{Multinomial}(\rho_{\tau,w}) \\ \rho_{\tau,w} &\sim \text{Dirichlet}(\beta)\end{aligned}$$

We observe the total number of unique words  $(w_1, \dots, w_W)$  in the vocabulary of all documents and  $w_{i,j}$  is the word observed at the  $i$ th token in document  $j$ . All texts are “tokenized” by giving each word<sup>23</sup> a unique index  $i$ . If token  $i$  belongs to topic  $\tau$ , then the probability that the token is word  $w$  is the topic-specific probability  $\pi_{\tau,w}$ . At the document level,  $\pi_{\tau,j}$  is the estimated proportion of topic  $\tau$  for document  $j$ .

$T$ ,  $\alpha$ , and  $\beta$  are defined.  $T$  is the number of topics  $(\tau_1, \dots, \tau_T)$  where  $\tau_{i,j}$  is the topic of the  $i$ th token in document  $j$ . Each token comes from exactly one topic.  $\alpha$  is the parameter of the prior on the per-document topic distributions, and  $\beta$  is the parameter of the prior on the per-topic word distributions.  $\rho_{\tau,w}$  is the distribution over  $w$  words in each topic  $\tau$ , i.e. the probability of drawing the  $w$ th word of the vocabulary for topic  $\tau$ .

The result is a quantitative measure of the alignment between suggestions made in comments and text added or subtracted from the draft to final rule. A similar approach can estimate the relationship between ANPRM comments and the draft rule text, omitting the draft-to-final text reuse step. Credible intervals for these comment and topic-specific alignment scores can be calculated from posterior distributions.

## 5 Conclusion

This research will add to our understanding of how bureaucratic policymaking fits with the practice of democracy. If input solicited from ordinary people has little effect on policy outcomes, directly or indirectly, it may be best understood as providing a veneer of democratic legitimacy on an essentially technocratic and/or elite-driven process. The legitimacy of bureaucratic poli-

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<sup>23</sup>For topic estimation, I use single words, but tokenizing may be done by sentence or by any n-gram string of characters or words.



cymaking is said to depend on the premise that rulemaking provides an outlet for public voice (Croley 2003; Rosenbloom 2003). Yet, it is not just the opportunity to engage, but actual engagement that matters, and we lack an empirical base necessary to evaluate whether any legitimacy the public comment process may provide is deserved. If mass engagement does shape agency decisions, a new research program will be needed to investigate who exactly these campaigns mobilize and represent.

## 6 Appendix

Figure 15: Rules ranked by number of comments posted to regulations.gov

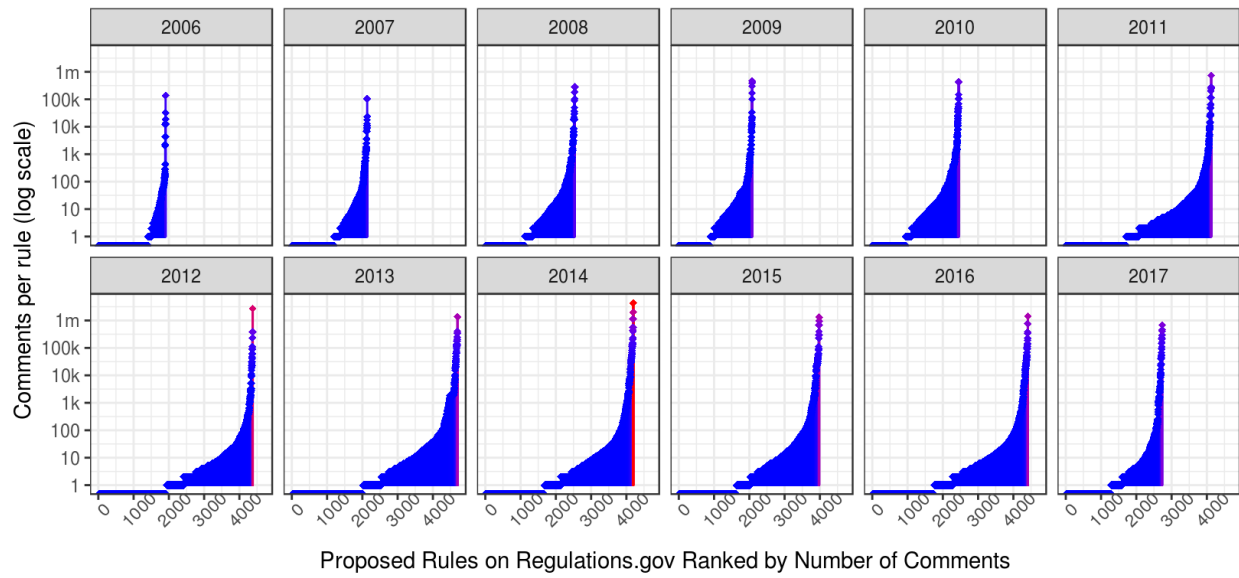


Figure 16: Major and non-major rules on regulations.gov

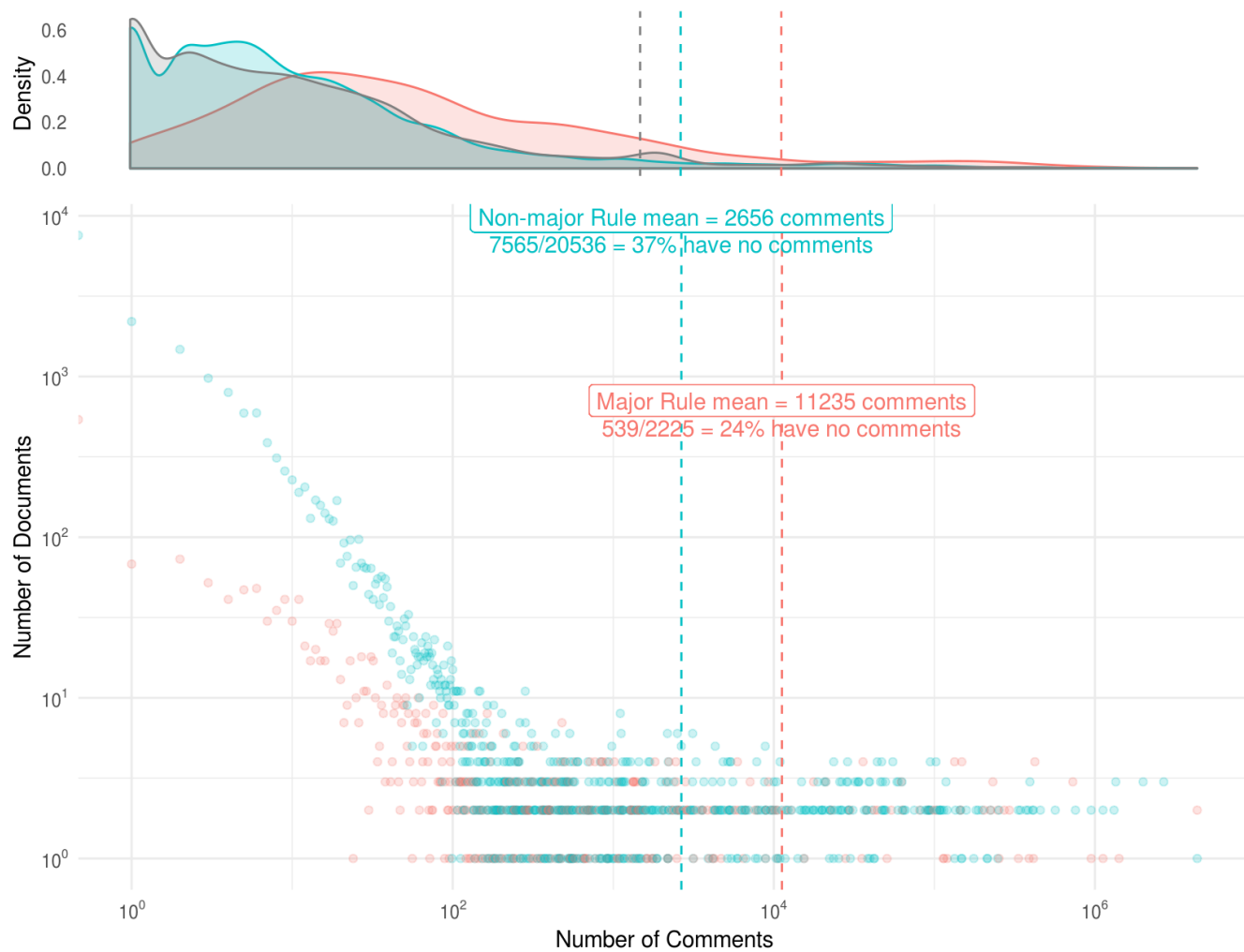
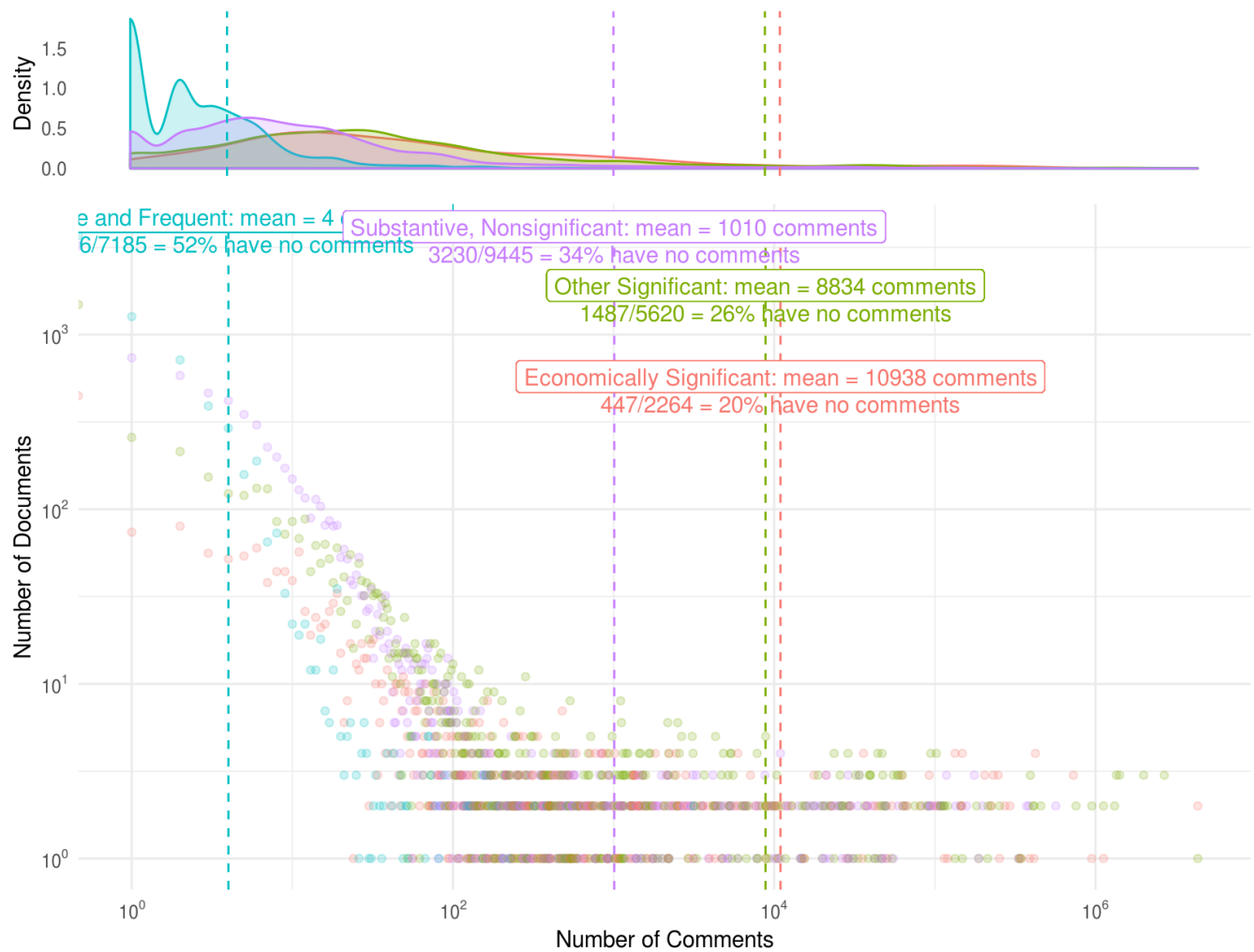


Figure 17: Rules on regulations.gov by priority level



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