Making Policy About Distributive Justice: The Environmental Justice Movement's Impact on Agency Rulemaking

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Abstract

Political movements shape policy agendas, often reframing policy debates in distributive justice terms. To examine how this affects policymaking, I assess the aggregate impact of environmental justice advocacy on U.S. federal policy from 1993 to 2020 using a new dataset of 13,179 draft and final rule pairs from 40 agencies and 42 million public comments on these rules. I find that when groups raise distributive justice concerns, final rules more often change to address these concerns. Supporting theories about how institutions affect receptivity to issue frames, agencies with processes for addressing environmental justice are more responsive. The scale of mobilization also matters; when larger coalitions raise environmental justice concerns, policy texts are more likely to change. However, within the movement, elite organizations have more lobbying success. These findings suggest that policymaking is systematically affected by which groups make distributive justice claims, their alignment with institutional biases, and the levels of public pressure they mobilize.

Keywords: Pressure groups, agency rulemaking, environmental justice, agenda democracy, issue framing, policy change

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1 Introduction

Political movements like the civil rights and environmental movements have played a critical role in shaping policy agendas and advancing landmark statutes. Likewise, a lack of movement pressure is a leading explanation for the failure of policy efforts to address issues like climate change (Skocpol, 2013). Yet the effects of movements on policy are difficult to measure and rarely assessed systematically across institutions and over time. This is especially true for policymaking in the bureaucracy, where most U.S. law is now made. Leading models of bureaucratic policymaking have no role for organizations channeling movement demands or mobilizing public pressure. As a result, quantitative scholarship has largely overlooked the effects of organized public pressure on policy agendas and texts for the thousands of policies that U.S. government agencies make every year.

This paper develops and tests theories about how organizations that channel movement demands and mobilize public pressure may shape policymaking. While substantive policy change is often the ultimate aim, shaping how issues are framed can be decisive (Woodly, 2015). Marginalized groups or their allies must often get policymakers to see issues in distributive justice terms before their policy demands are perceived as relevant or legitimate. To do so, groups often highlight inequalities in the status quo and mobilize public support for distributive justice demands.

For example, when the US Environmental Protection Agency (EPA) initially drafted regulations on mercury pollution in 2002, they were calibrated to protect the average US resident, despite activists calling attention to how mercury affects some communities much more than others—i.e., concerns over distributive justice. After groups representing communities with higher than average exposure to mercury raised equity concerns and mobilized large coalitions of supporters, the regulations were subsequently revised to better protect populations with high mercury exposure.[1] Tracing the evolution of discourse through policy processes like the development of mercury regulations shows how mobilizing around distributive justice claims can affect substantive policy. It also shows how issue definitions are hotly contested and rarely addressed by government agencies in ways that satisfy activists.

I argue that movement pressure can reshape policy agendas and policymaking processes by re-framing policy debates in distributive justice terms and mobilizing public pressure around these frames. This paper focuses on these two tactics: efforts to re-frame policy in distributive justice terms and efforts to mobilize large coalitions to demonstrate quantitative relevance. Because organizations mobilizing around distributive justice rhetoric vary in their relationships with the people they claim to represent, I argue that how public pressure

[1] Appendix A.2 traces the evolution of EPA's mercury regulations in more detail.

affects policy depends on the quality of surrogate representation (Mansbridge, 2003). I thus investigate who is using these pressure tactics and assess their impact on both policy discourse and substantive policy changes by measuring changes in both the words and legal requirements of agency rules.

To examine how groups shape policy agendas through distributive justice demands, I assess the impact of thousands of campaigns linked to the environmental justice (EJ) movement. The EJ movement offers a broad but tractable scope for analysis and highlights the distributive politics of agency rulemaking. EJ concerns focus on unequal access to healthy environments and protection from harms caused by things like pollution and climate change (Bullard, 1993). The EJ issue frame emerged in local campaigns against toxic waste sites and farmworker exposure to pesticides (Čermakapek, 1993) and began appearing in federal policy documents in the 1980s (GAO, 1983). Taylor (2012) describes a fusion of the American Indian Movement, Chicano movement, farmworker movement, civil rights movement, and union organizing:

> People of color [raised] social justice concerns such as self-determination, sovereignty, human rights, social inequality, loss of land base, limited access to natural resources, and disproportionate impacts of environmental hazards and linked them with traditional working-class environmental concerns such as worker rights and worker health and safety to develop an environmental justice agenda. (p. 1)

Like other movements, the EJ movement illustrates how groups attempt to use a particular way of framing policy issues (in this case, a particular phrase) as a vehicle to advance a policy agenda. By asserting issue frames, movement advocates shape the facts, narratives, and interests deemed worthy of consideration (Woodly, 2015). Because the phrase is closely linked to movement advocacy and evokes certain ideas and policy demands, systematic data on how policy documents address (or fail to address) EJ allow empirical tests of theories about when government officials will respond to claims raised by activists. Insofar as the diverse groups and campaigns calling for environmental justice represent a movement, the aggregate impact of all of these campaigns on policy is one measure of this movement's impact.

The policy venues I focus on include all federal agencies that make policy explicitly addressing EJ. Tracing language addressing EJ through policy processes reveals the mechanisms by which advocates succeed or fail to influence policy. If draft policies do not mention EJ concerns, but advocacy groups raise EJ concerns and policymakers (agency officials) then address those claims in the final policy, this may be evidence that public pressure matters. Likewise, when draft policies *do* address EJ, if groups comment on it and then policymakers

change how the final policy addresses EJ, this may be evidence that public pressure matters.

I assess the impact of organizations and campaigns linked to the EJ movement in several ways, including quantitative text analysis and hand-coding commenter demands and policy change. I measure change in 13,179 policy processes using the text of draft and final rules. I then measure distributive justice claims and the scale of public pressure using over 42 million public comments submitted on these draft rules. For a sample of 150 rules, I hand-code lobbying success—the extent to which the commenter got what they asked for—for nearly all comments, including over 10,000 comments submitted by organizations.

I find that when public comments raise EJ concerns, these concerns are more likely to be addressed in policy documents. Quantitative text analysis of all rules published by 40 agencies from 1993 to 2020 shows that policy texts were more likely to change when groups raised distributive justice claims and when they mobilized larger coalitions, even under administrations explicitly hostile to their cause. The number of comments mobilized (both overall and by EJ advocates specifically) is positively correlated with agencies adding language addressing EJ to policies where the draft policy did not mention EJ. Sections of policies that did address EJ are also more likely to change when comments raise EJ concerns. Agencies that most frequently address EJ are also most responsive to comments raising EJ concerns, likely because these agencies house policymakers most familiar with the EJ frame and thus likely to have institutional and cognitive processes primed to be most receptive to EJ concerns. This finding supports theories of policy receptivity related to the priming power of issue frames (Entman, 2007).

The relationship between groups raising distributive justice and policy change depends on who is organizing. Overall, I find that major national advocacy groups are using EJ rhetoric for generic environmental purposes more than the place-based groups that started this movement. In a mix of cooperation and co-optation, the "big greens" sometimes deploy their organizing power in partnership with EJ group campaigns and other times merely adopt the rhetoric.

Evidence from a set of over 10,000 hand-coded public comments suggests that substantive policy change is rare and almost entirely associated with the lobbying of corporations and national advocacy organizations. Hand-coding all commenter demands on a random sample of rulemaking processes, I find that local EJ community groups and tribal governments are among the types of organizations least likely to have their substantive policy demands met. Substantive policy change is much more likely when public interest law organizations raise EJ concerns. The EJ movement has meaningfully shaped policy agendas, but the substantive effects on policy depend on how national advocacy groups represent movement demands to policymakers.

Taken together, these findings suggest that public pressure can systematically re-frame policy debates. Demands to address distributive justice issues and the scale of pressure to address those demands are both associated with policymakers adopting distributive justice language. Changes in law, however, do not always flow from getting policymakers to engage with distributive justice claims. Instead, the capacity to mobilize large numbers of people and achieve policy goals lies primarily with large national advocacy organizations.

2 Theory: Distributive Justice Claims as Policy-relevant Information

2.1 Movements and Policy Change

Social movement pressure is a major driver of policy change (McAdam, Tarrow and Tilly, 2001; Cress and Snow, 2000; Weldon, 2002, 2011). This is especially true for policies that redistribute wealth or other privileges. "From the very beginning, redistributive policies have been associated with social classes and social movements" (Lowi and Nicholson, 2015, p. 88). Institutions that redistribute power are generally established and maintained by policies advanced by social movement pressure (Wilson, 1989). The organizational forms that mobilize and channel movement pressure—called social movement organizations by those who study their organization and advocacy organizations or pressure groups by those who study their effects—are essential features of modern U.S. politics (Baumgartner and Leech, 1998) and lawmaking (Coglianese, 2001).

While movement emergence and development is better-studied than policy impact (see reviews by Meyer, 2004; Andrews and Edwards, 2004; McAdam, 2017), a growing body of scholarship is overcoming challenges in measuring movement pressure and linking it to policy change. Protests, petitions, and advocacy campaigns can be effective mechanisms for minority interests to communicate preferences to policymakers when electoral mechanisms fail to do so (Weldon, 2011; Carpenter, 2021). Policymakers learn and take informational cues from political behaviors like protests (Gillion, 2013; Gause, 2022; Wasow, 2020).

Beyond informing policymakers of public preferences, advocacy campaigns can change the scope of the policy agenda (Jones, Theriault and Whyman, 2019) and how policy issues are understood by policymakers (Thurston, 2018). Issue definition matters because the mobilization or suppression of conflicts allocates power—"antagonists can rarely agree on what the issues are because power is involved in the definition" (Schattschneider, 1975). Changes in issue definition frequently precede major policy changes (Baumgartner and Jones, 1993). By (re)defining issues in policy debates, movement organizations move discourse

"from the general public sphere into the political public sphere, where binding policy decisions are made" (Woodly, 2015, p.21). Thus, to assess the success of campaigns, we must study "not merely whether they changed policy or laws in the short run, but whether they shifted agendas and discourse" (Carpenter, N.d.).

By aggregating people affected by policy and calling attention to disparate effects, movement organizations "raise the salience of issues, help citizens to see and articulate collective grievances, and mobilize across political venues for policy change." (Thurston, 2018, p. 24). Carpenter (2021) finds similar potential for petitions to serve as a channel to raise "new claims" and influence policy beyond elections, presenting "another model of aggregation, where numerical minorities could still make a case of quantitative relevance" (p. 479). Numbers matter for protests, petitions, and advocacy campaigns—regardless of whether they represent a majority—because they affect which claims policymakers see as relevant and requiring their attention. Indeed, the most common way that policy advocates fail occurs when policymakers simply ignore them (Baumgartner, 2009).

Despite well-developed theorizing and empirical work on certain policy issues, especially landmark policies like the Civil Rights Act (e.g., Gillion, 2013), systematic evidence on the relationship between movement pressure and policy change faces methodological challenges. In addition to challenges with measuring advocacy and influence in consistent ways across policy fights, there are issues with case selection (Leech, 2010). If scholars focus on issues characterized by robust advocacy and recent or impending policy change—the influence of advocacy campaigns may be overstated. Conversely, the high-salience cases that scholars often select may be the cases where advocacy success is least likely (Lowery, 2013). In short, selecting on the dependent variable limits our understanding of the influence of advocacy campaigns. While large-scale and longitudinal studies have become more common (e.g., Hojnacki et al., 2012), systematic impact across the thousands of non-landmark policies that governments make every year is rarely the dependent variable.

In contrast, policy-focused environmental justice scholars tend to examine the effects of policies rather than the effects of activism on the policy process. For example, Bullock and van der Ven (2018) show that policies affect exposure to pollution, and Liang (2017) finds that states with more anti-immigrant policies also have more lax monitoring of regulatory compliance in Latinx neighborhoods. Pellow (2016) dubs work documenting unequal outcomes the "first generation" of EJ scholarship, with a "second generation" developing critiques and studies of EJ activism through the lens of critical theory, incorporating insights from critical race theory, feminist theory, and social movement scholarship and focusing more on movement dynamics than impact on policy.

The few empirical environmental justice studies that look at both the inputs and outputs

of the policy process have thus far focused more on inequalities in geographies or enforcement than in the policymaking processes. Abel, Salazar and Robert (2015) find that poorer and less White states have more developed EJ policies. Konisky and Reenock (2017) find that regulatory enforcement is correlated with political mobilization around EJ issues. Particularly relevant to the present analysis, Lester, Allen and Hill (2001) find that activists repeatedly succeeded in legitimizing their claims and getting EJ concerns on the political agenda but largely failed to push through legislation, in part due to conflicts between grassroots and national advocacy groups (p. 52) and Harrison (2019) documents how some agency officials advance EJ reforms while others resist them.

I build on this work to systematically address the effects of EJ movement pressure on specific policy documents across agencies and presidential administrations. To develop hypotheses about how groups mobilizing around distributive justice claims may affect rulemaking, I turn to the literature on bureaucratic policymaking. While this literature has largely focused on the lobbying activities and influence of political insiders, I argue that theories about the power of technical and political information can be extended to study the kinds of claims raised by EJ advocates.

2.2 Technical Information: The Currency of Lobbying

Dominant theories of bureaucratic policymaking have little room for distributive justice claims or pressure campaigns. Instead, they focus on how expert officials learn about policy problems and solutions (Kerwin and Furlong, 2011) and achieve their goals within constraints imposed by other branches (Carpenter, 2001; Potter et al., 2019). Leading formal models are information-based models where sophisticated lobbying groups affect policy by revealing new information to the agency (Gailmard and Patty, 2017; Libgober, 2020), and empirical studies support the conclusion that technical information is the currency of lobbying in rulemaking (Cook, 2017; Gordon and Rashin, 2018; Walters, 2019; Yackee, 2012).

Agency rulemaking is an especially technocratic and legalistic form of policymaking that explicitly privileges scientific and legal facts as the appropriate basis for decisions. Procedural requirements to consider relevant information incentivize lobbying groups to overwhelm agencies with complex technical information, making rulemaking obscure to all but the most well-informed insiders (Wagner, 2010). Influence in rulemaking generally requires resources and technical expertise (Yackee, 2019).

The result is that rulemaking is dominated by sophisticated and well-resourced interest groups capable of providing new technical or legal information. Empirical scholarship finds that economic elites and business groups dominate U.S. politics in general (Gilens and Page, 2014; Hertel-Fernandez, 2019) and rulemaking in particular (Crow, Albright and Koebele,

2015; Wagner, Barnes and Peters, 2011; West, 2009; Yackee and Yackee, 2006; Haeder and Yackee, 2015; Cook, 2017; Libgober and Carpenter, 2018; Carpenter et al., 2021). I thus expect groups with more technical and legal resources to more often get the policy changes they request, i.e., have greater lobbying success. For example, trade associations should have greater lobbying success than nonprofit public interest groups. Among nonprofits, large advocacy organizations should have more lobbying success than smaller groups.

Hypothesis 1. Groups with more technical and legal resources have greater lobbying success.

The *Differential Influence Hypothesis* (1) is an organization-level hypothesis. Tests must be comparisons across organizations. My remaining hypotheses are policy-level hypotheses.

2.3 Political Information: Why Distributive Justice Claims May Affect Policy

While organizations that channel movement demands into the policy process do engage in fights over technical reports and scientific studies, the information that activists provide is often more overtly political.

Despite biases toward groups with more technical and legal resources, I argue that information about a policy's disparate effects is a form of political information, potentially alerting policymakers to new concerns and asserting new issue frames. Like levels of public attention and pressure, the framing power distributive justice claims can be a political resource, potentially allowing groups to change policymakers' perceptions of the decisions they face, the range of appropriate actions, and the political consequences of their decisions.

However, scholarship on bureaucratic policymaking presents competing intuitions about the effects of distributive justice claims and mass mobilizing in rulemaking. Below, I distill four hypotheses—two about distributive justice claims and two about public pressure. I posit each hypothesis in the direction that political information does affect rulemaking while also noting competing intuitions that predict null effects.

Information About a Policy's Disparate Effects The politics and outcomes of policymaking depend on how the relevant groups are defined (Lowi, 1964). While specific *data* on disparate impacts of policy may require expertise (Ganz and Soule, 2019), anyone can highlight a community of concern or potential distributive effects of a policy. Identifying communities of concern is a political statement that does not require technical expertise. Just as policy tends to move when coalitions mobilize diverse experts (Nelson and Yackee, 2012) and interests (Dwidar, 2022*a*), mobilizing beyond the "usual suspects" may introduce new claims from new actors about how the communities that a policy may benefit or harm should be constructed.

The political construction of relevant groups depends on who participates and the identities they mobilize or effectively claim to represent. As Yackee (2019) and others note, high information costs mean that individuals rarely participate. Instead, groups claim to represent various constituencies.

Informing policymakers about how a policy affects a particular set of stakeholders is a common lobbying tactic. Distributive justice claims assert that a particular group deserves specific attention and demand that the policymaker account for how that group may be impacted, both of which may require revisions to the policy. Instead of bolstering *technical* claims, comments that focus on a policy's disparate impacts bolster *political* claims about who counts and even who exists as a distinct, potentially affected group deserving policymakers' attention. Before (and, indeed, because) policies socially construct groups whose lives it aims to affect (Schneider and Ingram, 1993), the political construction of policy-relevant groups through the policy process foregrounds some conflicts and suppresses others.

By raising distributive justice concerns, commenters draw attention to who a policy may affect, i.e., the distribution of policy impacts. Definitions and categories of affected groups may present officials with new, policy-relevant information. If so, when comments on a draft agency rule raise distributive justice concerns, text addressing distributive justice may be more likely to be added or changed in the final rule.

Hypothesis 2. Policymakers are more likely to change whether or how policies address distributive justice when commenters raise distributive justice concerns.

Receptivity The power of groups to affect policy depends on their recognition by formal and informal institutions. All organizations systematically privilege some policy problems, solutions, and types of information over others. As Schattschneider (1975) famously put it, "organization is the mobilization of bias" (Schattschneider, 1975, p. 71). All organizations elevate some conflicts and suppress others, including government agencies.

Bureaucracies are specialized institutions built to make and implement certain kinds of policies based on certain goals and types of facts. Each agency has distinct norms and epistemic communities (Carpenter, 2001; Harrison, 2019). Some may see an issue as "environmental," where others do not. For example, vehicle emissions may be discussed more as an "environmental" issue at the Environmental Protection Agency (EPA) and as a "safety" issue at the Department of Transportation. Likewise, some officials may see disparate impacts that demand consideration, whereas other officials with different norms and training see such disparities as less relevant. For example, policy fights over pesticide regulation at the EPA may often be framed in EJ terms, leading to analyses of the distribution of harms to different types of farmworkers. In contrast, pesticide-related policy at the Department of

Agriculture may focus more on crop yields than human health and be much less likely to be framed in distributive justice terms. In short, the contextual nature of "common sense" (Woodly, 2015) may lead some policymakers to see their policy area as more related to EJ than others and thus be more receptive to commenters' concerns.

Hypothesis 3. Policymakers who more frequently address distributive justice concerns will be more responsive to commenters raising those concerns.

The *Policy Receptivity Hypothesis* (3) implies that some agencies may be more receptive to certain kinds of lobbying—for example, claims about distributive justice—than others. Specifically, agencies with a higher share of previous rules addressing environmental justice will be more responsive to commenters raising environmental justice concerns.

2.4 Political Resources: Why Pressure May Affect Policy

Whether agency officials address distributive justice may depend on their broader political environment, including the overall levels of public attention or public pressure.

Coalition Size The organizations that Furlong (1997) and Kerwin and Furlong (2011) surveyed believed that forming coalitions and mobilizing large numbers of people were effective lobbying tactics. Organizations surveyed by English (2019) also reported being organized into coalitions. The size of lobbying coalitions (the number of organizations lobbying together) predicts lobbying success (Dwidar, 2022*b*,*a*; McKay and Yackee, 2007; Nelson and Yackee, 2012; Yackee and Yackee, 2006).

Hypothesis 4. Policymakers are more likely to change whether or how policies address concerns when more organizations raise them.

Hypothesis 4 predicts that agency rules are more likely to add or change text addressing environmental justice when more organizations mention environmental justice in comments.

Public Attention While previous research has focused on how organizations mobilize their members and other organizations, this understanding of mobilization as a lobbying tactic may extend to a campaign's broader audience, more akin to the concept of an attentive public (Key, 1961) or issue public (Converse, 1964). An organization's ability to expand the scope of conflict by mobilizing a large number of people can be a valuable political resource (Schattschneider, 1975), and public pressure campaigns expand the scope of conflict (Potter, 2017). Public engagement and mobilization can thus be a tactic to gain power.

Because many politically active groups are "memberless" or run by professionals who lobby with little input from their members (Baumgartner and Leech, 1998; Skocpol, 2003; Schlozman, Verba and Brady, 2012), evidence of an actual constituency offers political information. Petition signatures and form letters are among the only ways a pressure group can demonstrate an engaged, issue-specific constituency on whose behalf they claim to advocate.

Finally, the "fire alarm" role that interest groups play in the policy process (McCubbins and Schwartz, 1984) may have different effects when sounding the alarm involves "going public." Expanding the scope of conflict by mobilizing public attention to rulemaking may thus shift policymakers' attention away from the technical information and arguments provided by the "usual suspects" and toward the distributive effects of policy. If the scale of public attention affects the policy process, policy may be more likely to change when more people comment on a draft policy.

Hypothesis 5. Policymakers are more likely to change whether or how policies address distributive justice when they receive more public attention—for example, more public comments.

2.5 Competing Intuitions: Why Distributive Justice Advocacy May Not Affect Policy

Competing intuitions and other prior studies oppose the *Distributive Justice Claims Hypotheses* (2), the *Receptivity Hypothesis* (3), the *Coalition Size Hypotheses* (4), and the *Public Attention Hypothesis* (5). First, contrary to Hypothesis 2, business commenters are influential, and public interest groups are not (Yackee and Yackee, 2006; Haeder and Yackee, 2015). Because EJ claims often conflict with business interests, such claims may be especially disadvantaged.

Second, contrary to Hypotheses 2, 3, 4, and 5, formal models (Libgober, 2020) and empirical scholarship (Wagner, 2010) on lobbying in rulemaking emphasize the importance of *novel* information—things unknown to agency experts. Claims about distributive justice and repetition of such claims by more organizations do not provide new technical information. Contrary to Hypothesis 3, information-based formal models also imply that policymakers familiar with EJ concerns may be *least* likely to respond to EJ concerns because they anticipate these concerns—EJ concerns are not novel to them. If so, agencies that rarely consider EJ may be more easily influenced by commenters who present novel information or concerns. These policymakers may be less likely to have preempted EJ critiques in the draft policy.

Third, contrary to Hypotheses 4 and 5, policymakers may be more likely to anticipate EJ concerns when they are more salient to interest groups. This would mean that rules where a

large number of commenters raise EJ concerns may be the *least* likely to change whether or how EJ is addressed because policymakers are more likely to have already considered these issues and stated their final position in the draft rule. Likewise, more overall public attention may indicate policy processes that were already salient before they were targeted by a public pressure campaign. Anticipating public scrutiny, policymakers may be more likely to have stated their final position in the draft policy. If this is the case, policies with more public comments should be *less* likely to change.

Finally, contrary to 5, public attention could also be unrelated to policy change, meaning that policymakers neither anticipate nor respond to public attention in writing or revising policy documents. A null effect is most consistent with leading formal models of bureaucratic policymaking, where the scale of public attention is absent. Moreover, empirical research has concluded that public comments from advocacy groups (Yackee and Yackee, 2006) and pressure campaigns (Balla et al., 2020) have no effect on rulemaking.

3 Data and Methods

3.1 The Environmental Justice Frame

The environmental justice frame has several convenient properties for studying the policy impact of political movements. First, discourse around policies framed as environmental issues is inconsistently racialized (unlike civil rights and immigration policies) and inconsistently focused on *distributions* of costs and benefits (unlike debates over taxes and spending, for example). Indeed, White environmentalists often frame environmental policy as public good provision, thereby deemphasizing distributive conflict. This means that policies may or may not be framed in EJ terms. Despite policy almost always having disparate impacts, an "environmental" frame often creates a human-environment distinction and shifts attention to non-human objects such as air, water, food, or landscapes and away from the distribution of access to them or protection from them when they are contaminated. By focusing on distributions of costs and benefits, EJ analyses differ from the more utilitarian or preservationist analyses that dominate White environmental activism and policymaking (Harrison, 2019).

Second, compared to other ideas around which people mobilize, "environmental justice" is a fairly distinctive phrase. Most people who use this term share a broad definitional foundation. Even attempts to reframe the term (e.g., to focus on class more than race or jobs more than health) come about as dialectical responses to the term's historical uses. Thus, when "environmental justice" appears in a text, it is rarely a coincidence; its appearance can be attributed to the movement or reactions to it.

Third, this phrase appears frequently when the idea is discussed. There are few syn-

onyms. Groups raising equity concerns on environmental issues commonly use the phrase "environmental justice." Those who use narrower, related terms—including the older frame of "environmental racism" and the newer frame of "climate justice"—almost always mention "environmental justice" as well.

Finally, the term is relevant to rulemaking in particular due to President Clinton's Executive Order 12898—"Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"—directing all agencies to consider EJ implications of their actions and policies. Executive Orders or statements from agency heads in every administration have since interpreted and reinterpreted parts of E.O. 12898, all with direct implications for rulemaking. Despite this Executive Order, not all draft or final rules address EJ. Those that do, however, tend to cite E.O. 12898 and use the phrase "environmental justice." For the same reason, commenters who critique draft rules also cite E.O. 12898 and use this language. Again, this is true both for movement activists and reactionary efforts to redefine the term.

While there is no formal legal requirement for agencies to comply with E.O. 12898 (and, as Figure 1 shows, they rarely do), the legal salience of the phrase "environmental justice" means that advocates attempting to frame policies in distributive terms tend to use this distinctive phrase, and agencies also tend to use it if they respond to these concerns.

3.2 Data: Policy Texts and Public Comments

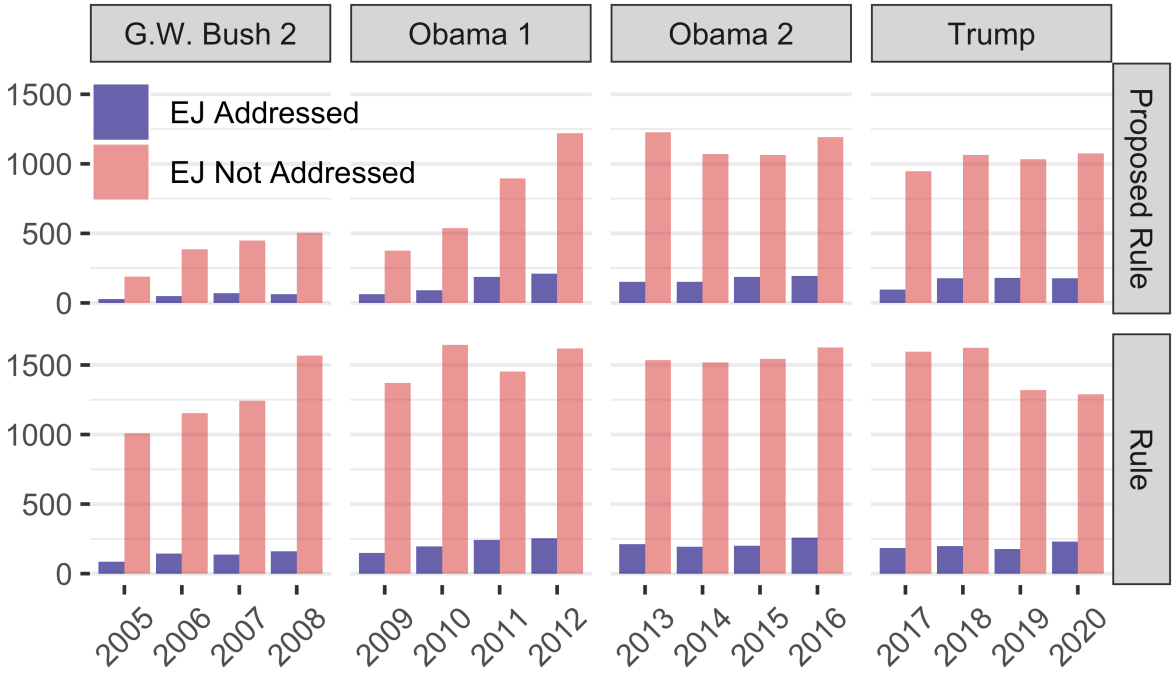
To examine the impact of EJ advocacy and public pressure campaigns on policy documents, I collect the text of all draft rules, public comments, and final rules from regulations.gov. Then, I select rulemaking documents from 1993 to 2020 from agencies that published at least one rule explicitly addressing EJ. This yields 26,670 rulemaking dockets from 40 agencies; 13,179 of these have both a proposed and final rule, allowing me to assess change in relation to comments.[2]

Despite E.O. 12898, Figure 1 shows that most draft and final rules do not mention "environmental justice." The number of policies that take EJ into account (rather than just mentioning the E.O. 12898) is even lower (Gauna et al., 2001; Revesz, 2018). Interestingly, the total number of final rules and the percent of the total addressing EJ have remained relatively stable for the period where regulations.gov data are complete (after 2005).[3] Figure 1 shows that from 2006 to 2020, these agencies published between 1,300 and 1,885 final rules per year, of which less than 15 percent addressed EJ.

Figure 2 shows the number of rulemaking dockets over time by whether they ultimately

[2]Some final rules are published without a draft, and some proposed rules are withdrawn or never finalized.
[3]See Appendix Figure 13 for the full time period.

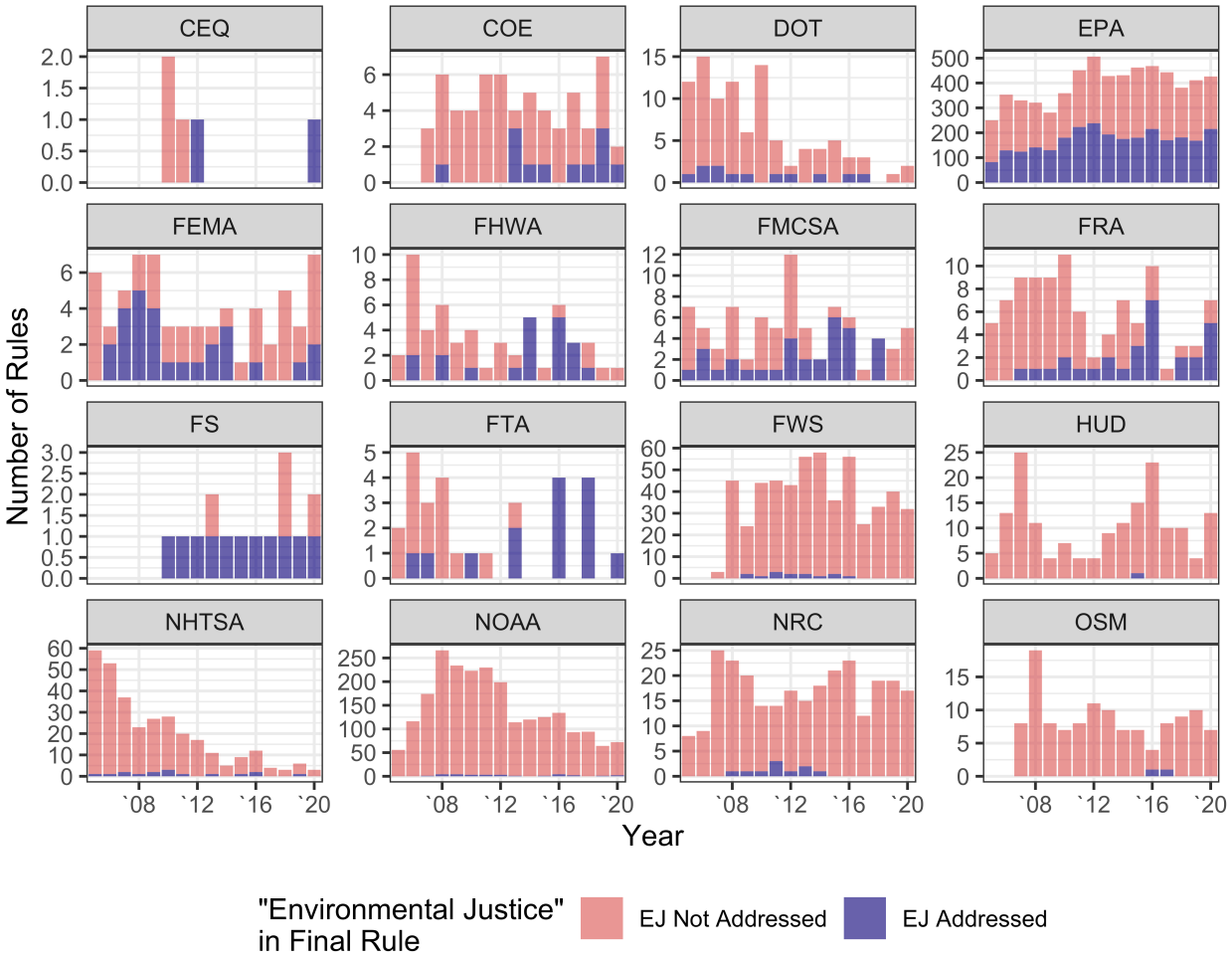
Figure 1: Proposed and Final Rules by Whether They Address Environmental Justice



addressed EJ at agencies that either published more than ten rules addressing EJ or received over 100 comments raising EJ concerns. Even at the EPA, where most policies are clearly framed as "environmental" issues, only about half of final rules address EJ (the upper-right plot in Figure 2). Many agencies that make policies with apparent EJ effects rarely address EJ (e.g., the Office of Surface Mining [OSM] and Pipeline and Hazardous Materials Safety Administration [PHMSA]). At no agency did a majority of rules address EJ overall.

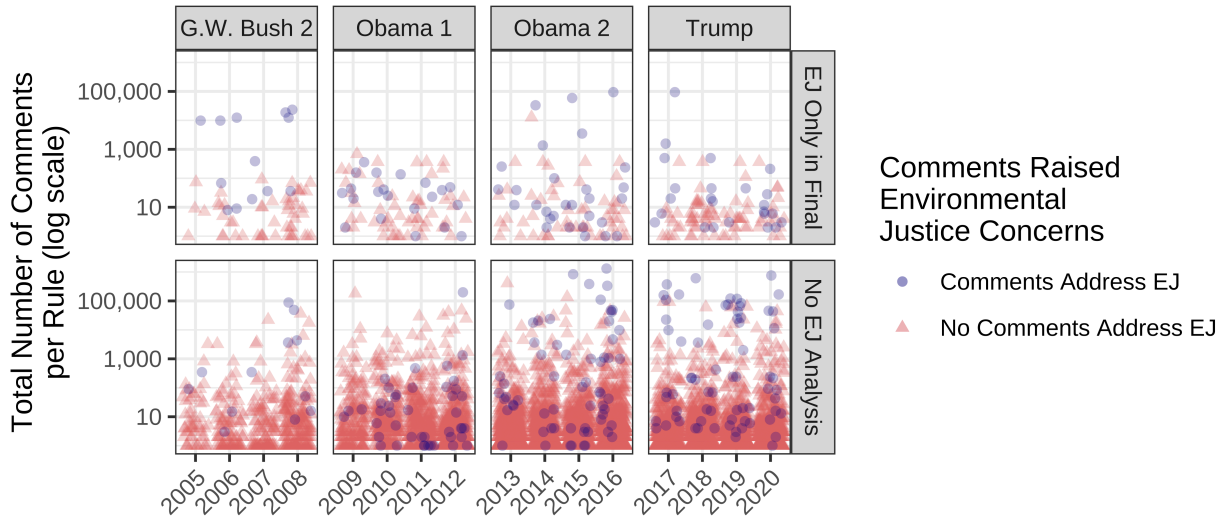
Comments Figure 3 shows the number of comments on each proposed rule published between 2005 and 2020. Circles indicate rules where no commenters raised EJ concerns. Triangles indicate rules where they did. The bottom row shows the subset of rules where "environmental justice" appeared in neither the draft nor the final rule. The top row shows rules in which "environmental justice" appeared in the final but not the draft. My first analysis compares these two subsets. For the statistical analysis, I distinguish unique comments from mass comments (form letters). The number of unique comments approximates a coalition's size—the number of different groups, each submitting a unique text. The total number of comments, including signatures on identical form letters, indicates the scale of public attention and pressure.

Figure 2: Number of Final Rules Addressing Environmental Justice by Agency



Even at the Environmental Protection Agency (EPA), where most policies are clearly framed as "environmental" issues, only about half of final rules address EJ. Many agencies that make policy with apparent EJ effects almost never address EJ. These include the Fish and Wildlife Service (FWS), Department of Housing and Urban Development (HUD), National Oceanic and Atmospheric Administration (NOAA), Nuclear Regulatory Commission (NRC), and the Office of Surface Mining (OSM). At no agency did a majority of rules address EJ overall. Only in a handful of years at agencies that publish few rules was EJ addressed in most rules. These include the Council on Environmental Quality (CEQ), Army Corps of Engineers (COE), Federal Emergency Management Agency (FEMA), Forest Service (FS), and several Department of Transportation agencies (the Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), and Federal Transit Administration (FTA).

Figure 3: Number of Comments on Proposed and Final Rules and Whether Comments Raised Environmental Justice Concerns



Interest Groups and Second-order Representation When lobbying during rulemaking, groups often claim to represent broader movements and segments of the public—claims which are often dubious and difficult to verify (Seifter, 2016). We cannot assume that a group's lobbying success is a win for the people they claim to represent. Interpreting the substantive results or normative import of any findings in this analysis thus requires caution. It is insufficient to know which groups participate and whether policy changes as they suggest. We also need to know whether the people that organizations claim to represent are involved in the organization's decisions. As Seifter argues, "the expertise a group claims is often based on its ability to convey a particular constituency's perspective, experience, or concerns. . . A group that does not have or engage with a membership cannot reliably convey those sorts of constituency-based insights." (Seifter, 2016, p. 1306). Examining second-order representation is thus required to assess "what contemporary participation does and does not achieve" (Seifter, 2016, pg. 1306)—for example, the extent to which comments raising EJ concerns (and any potential policy response) should be considered movement advocacy and influence. The prevalence and impact of the EJ frame in the policy process can only be meaningfully interpreted against the backdrop of who exactly is using EJ rhetoric.

I examine who is raising EJ concerns in two ways. First, I identify the top organizational commenters such as tribes, businesses, and nonprofits using EJ language and investigate whom these groups represent. I then use a hand-coded sample of 10,000 organizational comments on a random sample of 150 rules to assess which types of organizations get the substantive policy changes they request when raising EJ concerns. Second, where commenters

signed their name, I compare surnames to their racial and ethnic identity propensities in the U.S. Census. This is a proxy for the extent to which public comments are representative of the groups they claim to represent (Seifter, 2016). Together these descriptives provide evidence of second-order representation.

Which Organizations Most Often Raise EJ Concerns? To explore who raises EJ concerns, I first identify the organization behind each comment through an iterative process of computational text analysis and hand-coding.[4] This includes organizational comments on signed letterhead and individuals who use the text of a form letter provided by an organization. I then investigated the governance structure of all organizations that raised EJ concerns on more than one policy.

Table 1 shows the organizations that raised environmental justice in comments on the most proposed rules between 1993 and 2020. By total number of comments, the top mobilizer was the Sierra Club, with over 340,000 comments mentioning EJ on dozens of rules. The Sierra Club is a membership organization whose members pay dues, elect the leaders of local chapters and have some say in local advocacy efforts. However, its policy work is directed by a more traditional national advocacy organization funded by donations, including over $174 million from Bloomberg Philanthropies, which funded several of the public pressure campaigns in these data. The Sierra Club has a major program arm dedicated to Environmental Justice that works with local partners "to foster the growth of the environmental justice movement so that oppressed communities will find justice and everyone can experience the benefits of a healthy and sustainable future." The National Board of Directors adopted a statement on social justice in 1993 and principles on environmental justice in 2001. As a federated organization with many local efforts, it is difficult to generalize about second-order representation. The extent to which EJ communities have a formal say in the national organization's lobbying decisions varies across campaigns.

Earthjustice was the second most prolific organizer of EJ comments, with over 175,000 comments on many of the same rules that the Sierra Club lobbied on. Earthjustice is primarily engaged in litigation on behalf of environmental causes. Their website boasts 2.2 million supporters, but it is not clear who they are or if they play any role in advocacy strategy. A search of their website returns hundreds of results for "Environmental Justice," with the top results from staff biographies who work on more local or targeted campaigns, such as environmental conditions for the incarcerated. The Natural Resources Defense Council (NRDC) is similar to Earthjustice—a national nonprofit funded by donations and focused on litigation—but they also lobby and organize public pressure campaigns, including over

[4]See the codebook in Appendix E.

Table 1: Organizations Raising Environmental Justice Concerns on the Most Rulemaking Dockets 1993-2020

Organization	Dockets	Unique EJ Comments	Total EJ Comments
Center For Biological Diversity	53	82	199
Sierra Club	36	62	342,099
Earthjustice	24	32	177,462
Center For Food Safety	19	42	42
NRDC	16	17	162,535
Citizens Trade Campaign	8	8	8
Friends Of The Earth	7	7	61,871
OCEANA	7	7	146
Arctic Slope Regional Corporation	6	7	7
PEW	5	5	63,773
Alaska Eskimo Whaling Commission	5	5	5
American Public Transportation Association	5	5	5
California Pan-Ethnic Health Network	5	5	5
Environmental Protection Agency	5	5	5
Southern Environmental Law Center	5	5	5
CREDO	4	4	221,559
Environmental Defense Fund	4	29	29
California Air Resources Board	4	5	5
Defenders Of Wildlife	4	5	5
Policylink	4	5	5

160,000 comments mentioning environmental justice. CREDO Action, PEW, and MoveOn are more generic progressive mobilizers who lack a systematic focus on EJ issues but occasionally leverage their large contact lists to support campaigns led by others.

While not a large portion of EJ comments, private companies repeatedly raise research about the unequal impacts of policy to frame these issues as a legitimate but unresolved scientific debate that is not yet conclusive enough to base regulations on, mirroring the way tobacco and fossil fuel companies have emphasized scientific uncertainty in their lobbying efforts (Oreskes and Conway, 2011). For example, in one comment, the Southern Company wrote:

> People with lower SES are exposed to almost an order of magnitude more traffic near their homes (Reynolds et al., 2001), and live closer to large industrial sites and are exposed to more industrial air pollution (Jerrett et al., 2001). Legitimate health concerns must be addressed. But adopting standards with a scientific basis so uncertain that health improvement cannot be assured is not sound public health policy. (EPA-HQ-OAR-2004-0018-0211)[5]

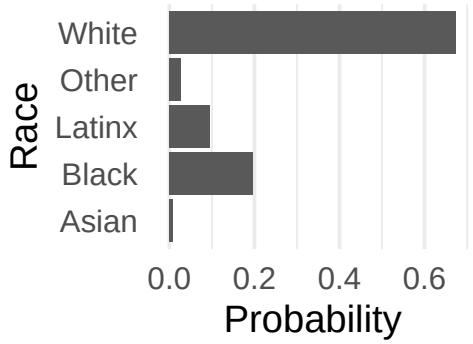
Other electric utility companies and the American Chemistry Council (the Chemical Industry's Trade Association) submitted nearly identical language on multiple proposed rules. Like many companies, the Southern Company claimed to represent its customers: "electric generating companies and their customers are expected to bear much of the burden" of regulations (EPA-HQ-OAR-2004-0018-0211). Yet, customers have little say in companies' decisions.

Overall, regarding second-order representation, it appears that the groups most often using the language of environmental justice may do so sincerely but generally represent affected communities in a surrogate capacity. Local community groups raise EJ issues, but not nearly as often or with the same intensity as the "big greens." The domination of large advocacy organizations highlights the importance of resources as a condition for lobbying and mobilizing. Not all groups that may benefit from generating political information can leverage it because they lack the resources to fund a campaign or even comment on relevant policies. However, smaller, more member-driven groups occasionally partner with national groups with more resources to mobilize on their behalf. Finally, a third, much less common type of commenter raises EJ issues to reframe them as ongoing debates and thus undermine their urgency. Though this strategy is intended to undermine EJ efforts, the fact that energy companies felt compelled to acknowledge and question EJ concerns suggests their importance for policy outcomes.

[5]All primary documents cited are available on regulations.gov.

Commenter Race To estimate the racial distribution of commenters using EJ language, I select commenters who signed with a surname appearing in Census records. Figure 4 shows a probabilistic racial distribution of commenters who raise EJ concerns in their comments based on the distribution of self-reported racial identities associated with surnames as recorded in the 2010 census, recoding "Hispanic" as "Latinx." I estimate this distribution using the proportion of people with a given surname identified as belonging to each racial category. This approach does not assign specific individuals to racial categories. Instead, it represents each commenter as a set of probabilities adding up to 1. The estimated racial distribution of the sample is the sum of individual probabilities.

Figure 4: Estimated Racial Distribution from Census Surnames of Commenters Raising Environmental Justice Concerns in Rulemaking



Compared to the overall distribution in the 2010 census, this sample of commenters is estimated to be slightly disproportionately Black, less than proportionately Latinx or Asian, and slightly less White compared to the national population. This is unsurprising, given that Black Americans have led theorizing and activism around environmental justice (Bullard, 1993). However, the similarity to the national distribution, taken together with who is organizing, suggests that commenters raising EJ are not mainly from organizations representing groups at the frontlines of environmental racism.

3.3 Measuring Policy Change

I use two indicators of responsiveness to model the effect of public comments on policy documents: *whether* a policy addresses EJ and changes in portions of the text discussing EJ—i.e., change in *how* it addresses EJ. Both measures indicate whether agency officials explicitly paid attention to EJ as they revised the rule. This is similar to measures of "procedural responsiveness" used by Balla et al. (2020). Recall from Figure 1 that only 15% of proposed or final rules from these agencies mention environmental justice at all.

Measure 1: Adding Text Addressing EJ to Final Rules For the subset of draft rules that did not address EJ, I measure whether agencies added any mention of "environmental justice" in the final rule. Such additions usually take the form of an "E.O. 12898" section where the agency justifies its policy changes using some concept(s) of EJ. The next most common addition occurs in the agency's response to comments, explaining how the rule did not have disparate effects or that they were insignificant.

Agencies may both respond to a comment and add a 12898 section. For example, the EPA responded to several commenters, including Earthjustice, the Central Valley Air Quality Coalition, the Coalition for Clean Air, Central California Environmental Justice Network, and Central California Asthma Collaborative: "EPA agrees it is important to consider environmental justice in our actions and we briefly addressed environmental justice principles in our proposal." As the commenters noted, the EPA had not addressed EJ in the proposed rule, which approved California rules regulating particulate matter emissions from construction sites, unpaved roads, and disturbed soils in open and agricultural areas. After receiving these comments, EPA added a 12898 section to the final rule but did not substantively change the rest of the policy.

Less frequently, an agency may explicitly dismiss a comment and decline to add a 12898 section. For example, the G.W. Bush EPA dismissed a comment on a proposed rule revising Startup, Shutdown, & Malfunction (SSM) plan requirements: "One commenter stated that EPA failed to comply with Executive Order 12898 on Environmental Justice... We do not believe that these amendments will have any adverse effects on... minority and low-income populations... Owners or operators are still required to develop SSM plans to address emissions... The only difference from current regulations is that the source is not required to follow the plan" (71 FR 20445). As these examples illustrate, agencies may add text addressing EJ that would not satisfy critics. This measure merely indicates whether the agency engaged with the EJ frame.

Most frequently, agencies neither responded to comments nor added a 12898 section, declining to engage with the EJ frame at all.

Measure 2: Changing Text Addressing EJ in Final Rules Where draft rules did address EJ, I assessed whether a rule changed *how* it discussed environmental justice between its draft and final publication.[6] When an agency addresses EJ in the draft rule, it is almost always

[6]Occasionally, there is more than one version of a proposed or final rule on a rulemaking docket. I use an inclusive measure of change that counts change from *any* proposed to *any* final rule. If the change occurred between the first and second draft of a proposed rule, I count it as a change. This best captures the concept of rule change. However, estimates are similar if only counting cases where change occurred between *every* version of the rule.

in a section about how it addressed E.O. 12898.[7] In many cases, there is no change to the text of the final rule, including the 12898 section. To measure change, I parse draft and final rules into sentences and identify sentences containing the phrase "environmental justice." If an agency leaves these sentences unchanged between the draft and final rule and adds no new sentences mentioning EJ, this suggests that the agency did not engage with comments raising EJ concerns.[8]

Figure 5 shows the draft and final rule pairs used in each measure, with Measure 1 leveraging variation in final rules where the draft contained no mention of EJ and Measure 2 leveraging variation in the text addressing EJ when the draft did address EJ. Circles indicate that "environmental justice" appeared in the text. Triangles indicate that it did not. Solid lines indicate change in rule text; dashed lines indicate no change (one and zero, respectively, for the dependent variable). For visual clarity, draft and final rules are grouped by year—each point may represent hundreds of draft or final rules published that year. In the models, the president variable corresponds to the date the final rule is published since this is the administration in power when the decision to change or not change the rule text is finalized.

4 Results: Changes in How Policy Documents Address Distributive Justice

4.1 Are final rules more likely to address EJ after comments do so?

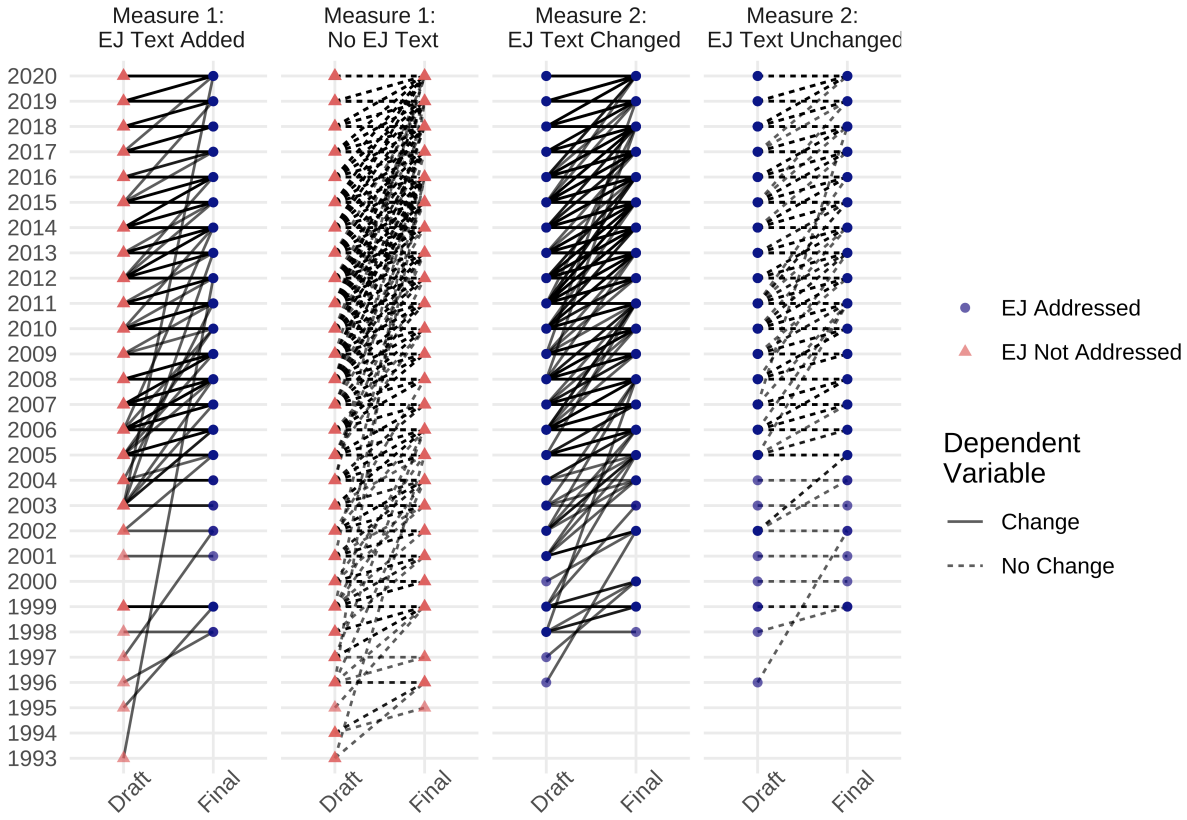
When agencies do not address EJ in the draft rule, they are more likely to add EJ language when comments raise EJ concerns. Descriptively, there is a large difference in the rate of addressing EJ between rules where commenters did (33 percent) and did not raise EJ concerns (4 percent). However, in most cases (67 percent), agencies did not respond at all when commenters raised EJ concerns.

Rates of adding EJ in rules without EJ comments have decreased over time, leveling out at 3 percent during the Obama and Trump presidencies. Rates of adding EJ when commenters

[7] E.O. 12898 sections and other text mentioning environmental justice sometimes assert that the policy has no disproportionate impacts on EJ communities. Comments raising environmental justice concerns typically challenge such assertions. If agency officials decline to change their text and add no new sentences about environmental justice, this indicates they likely ignored any comments raising distributive justice claims. If officials change or add language on EJ—even in a revised dismissal of distributive justice claims—it is more likely that they engaged with commenters.

[8] An alternative approach would be to parse documents by section and assess whether E.O.12898 sections are identical. Parsing by sentences has three advantages: it is computationally faster, it avoids problems with changes in section numbering and other frustrations with section matching, and it captures attention to EJ outside of the 12898 section, especially in sections responding to comments. If an agency is paying attention to EJ issues, sentence matching will likely detect it.

Figure 5: Draft and Final Rule Pairs



raised EJ concerns are consistently much higher but also decreased over time, from 57 percent under G.W. Bush to 26 percent under Trump. EPA had a relatively high baseline rate of change (10 percent), which increased to 52 percent when comments raised EJ concerns. Most other agencies also added EJ at a higher rate when comments raised EJ concerns; indeed, most agencies almost never added mentions of EJ when comments did not raise EJ concerns.

To account for differences across presidents, agencies, and the number of comments, I estimate logit models. For Models 1 and 2 in Table 2, the outcome is whether the agency added "environmental justice" to the final rule. The predictors are whether comments raised EJ concerns, the number of unique (non-form letter) comments addressing EJ, the total number of comments (including form letters), and the interaction between the total number of comments and whether any comments raised EJ concerns. Models 1 and 3 also include the agency's prior rate of addressing EJ in final rules (see Table 4). Models 3 and 4 are the same as Models 1 and 2, except that the outcome is whether the policy text changed how EJ is discussed.

All models include fixed effects for the presidential administration. Models 2 and 4 also include fixed effects for each agency instead of controlling for each agency's prior rates of addressing EJ. Thus, estimates in Models 1 and 3 include any variation *across* agencies that is not attributable to prior rates of addressing EJ, whereas estimates in Models 2 and 4 rely on variation *within* each agency. All estimates rely on variation *within* each presidential administration. All predicted probabilities below include agency fixed effects (Models 2 and 4).

Models 1 and 3 show that the agency's prior rate of addressing EJ in their final rules is a strong predictor of adding EJ language. While all these agencies make policies that could be framed as "environmental," and all policy decisions have distributive consequences, institutions have norms and procedures that lead policymakers to see problems differently and thus be more or less receptive to EJ claims. This correlation between past rates of addressing EJ and receptivity to comments raising EJ claims is significant for both measures, supporting the *Policy Receptivity Hypothesis* (3).

The Predicted Probability of Added Text As logit coefficients are difficult to interpret, especially for models with interactions, Figures 6, 8, and 7 show predicted probabilities for a final rule addressing EJ when the draft rule did not.[9]

[9]Other variables are held at their modal values: one total comment and zero additional EJ comments. Except for Figures 6 and 7, all predicted probability plots below show probabilities at the modal values for other variables: President Obama, the EPA, zero additional EJ comments, and the median number of total comments (one comment for Models 1 and 2; four comments for Models 3 and 4) unless otherwise specified. Plots by president or agency show models estimated with indicators rather than fixed effects. Figure 7 uses estimates from Model 1.

Table 2: Logit Regression Predicting Change in Rule Text

	1	2	3	4
Dependent Variable	**EJ Text Added**	**EJ Text Added**	**EJ Text Changed**	**EJ Text Changed**
EJ Comment	2.414***	2.298***	0.555+	0.568***
	(0.164)	(0.082)	(0.321)	(0.013)
Log(Comments+1)	0.305***	0.232***	−0.142	−0.159***
	(0.054)	(0.027)	(0.105)	(0.031)
Log(Unique EJ Comments+1)	0.649+	0.687+	0.333***	0.374***
	(0.392)	(0.405)	(0.077)	(0.032)
EJ Comment*Log(Comments+1)	−0.283***	−0.202***	0.064	0.066***
	(0.033)	(0.018)	(0.100)	(0.014)
Agency EJ Ratio	8.342***		1.910+	
	(0.340)		(1.076)	
Num.Obs.	11 315	7067	1864	1842
AIC	3232.9	3084.8	2161.4	2126.9
BIC	3298.9	3290.7	2211.2	2226.3
Log.Lik.	−1607.436	−1512.396	−1071.705	−1045.469
Std.Errors	by: president	by: president & agency	by: president	by: president & agency
FE: president	X	X	X	X
FE: agency		X		X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Controlling for average rates of policy change per agency and salience (the total number of comments), Figure 6 shows a large increase in the probability of that "environmental justice" will be added to the rule when comments raise EJ concerns. This supports the *Distributive Justice Claims Hypothesis* (2). When comments raise distributive justice concerns, they are more likely to be addressed in the final policy. Rates of adding EJ language decreased after the Clinton Administration, but differences between presidents are small compared to the difference between rules that did and did not receive EJ comments. Predicted differences among presidents are also much smaller than those between agencies. Figure **??** shows large differences in the responsiveness of the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the EPA (at the lower and upper ends of prior rates of addressing EJ, respectively). Pipelines and the transportation of hazardous material have long been central concerns of the environmental justice movement, but environmental justice has not historically been a frequent concern of officials writing rules at the Pipeline and Hazardous Materials Safety Administration. Whereas EPA has an office of Environmental Justice and volumes of policy on EJ, PHMSA has almost no EJ policy and refers EJ-related queries to its Office of Civil Rights. These institutional differences correlate with receptivity to distributive justice claims.

Figure 6: Probability that Environmental Justice is Added Between Draft and Final Rules by President

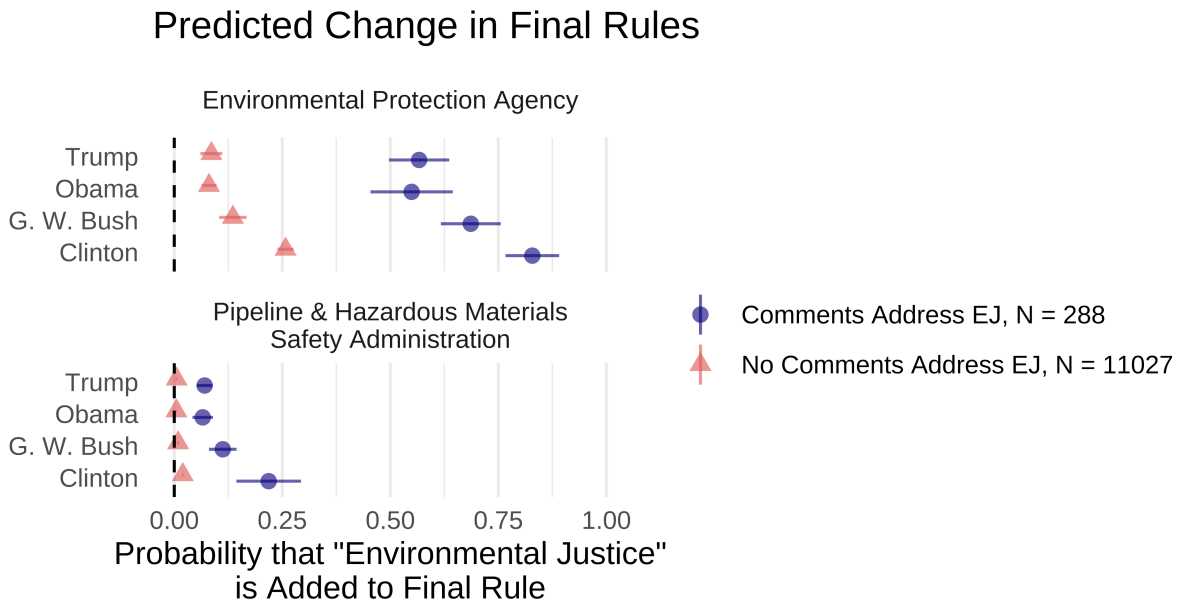
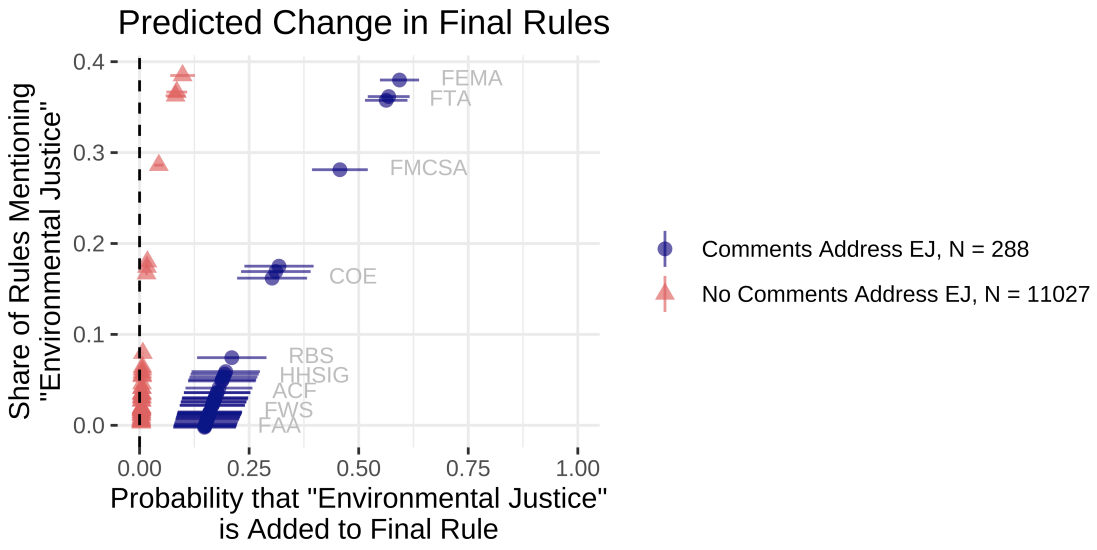


Figure 7 shows the predicted probability of EJ being added to rules at different prior rates of addressing EJ in final rules ("Agency EJ Ratio" in Model 1) for all agencies. The Federal Emergency Management Agency (FEMA), the EPA, and the Federal Transit Administration (FTA) have the highest baseline rates of addressing EJ (46%, 41%, and 38%, respectively) and also the greatest predicted responsiveness to EJ comments on proposed rules that did not address EJ. The Army Corps of Engineers (COE) had a lower baseline propensity to address EJ. At just under the average baseline ratio of 10%, the Nuclear Regulatory Commission (NRC) has an even smaller predicted increase when commenters raise EJ concerns. Bureau of Ocean Energy Management (BOEM) and Federal Aviation Administration (FAA) rarely address EJ in their final rules and have even lower predicted levels of responsiveness to EJ comments.[10]

Figure 8 shows the probability that an agency will add EJ language given different total numbers of comments. At low numbers of total comments (i.e., low levels of public attention), a single comment raising environmental justice strongly predicts whether language mentioning environmental justice will be added to the final rule. For rules with less than ten comments (most rules), one comment mentioning EJ is associated with a 47 percent increase in the probability that EJ will be addressed in the final rule. This supports the *Distributive Justice Claims Hypothesis* (2). However, at low levels of public attention and pressure, the

[10]Appendix Figure 14 offers an alternative approach, separately estimating individual agency effects, where possible.

Figure 7: Probability Environmental Justice is Added Between Draft and Final Rules by Share of Rules Addressing Environmental Justice



probability that an agency will add EJ language increases only to around 50 percent. Even when comments raise EJ concerns, agencies often do not address them.

As the number of comments increases, the probability that a rule will add text addressing EJ increases. This supports the *Public Attention Hypothesis* (5)—policy change is more likely when there is more public attention to a policy process. Simultaneously, the relationship between any one comment raising EJ and agencies addressing EJ in the rule is less strong when there is more overall public attention. In the small portion of highly salient rules with 10,000 or more comments, the presence of any one comment raising EJ concerns has a much smaller relationship with agencies adding EJ to the text. Even without EJ comments, a rule with 10,0000 comments is predicted to add EJ language 38 percent of the time, 30% higher than a low-salience rule with no EJ comments. The scale of public attention matters regardless of whether these comments explicitly raise EJ concerns. However, as shown in Figure 3, few rules with 10,000 or more comments do not have at least one comment mentioning EJ, so we are highly uncertain about estimates of the impact of EJ comments on rules with high levels of public attention. We can be much more confident about the relationship between comments raising EJ concerns and rule change at lower levels of public attention.

The probability of "environmental justice" appearing in the final rule also increases with the number of unique comments mentioning "environmental justice" in Model 2. Figure 9 shows a much higher probability of seeing EJ language added when 100 unique commenters raise EJ concerns than when only one commenter does. This supports the *Repeated Claims*

Hypothesis (4).

Figure 8: Probability Environmental Justice is Added Between Draft and Final Rules

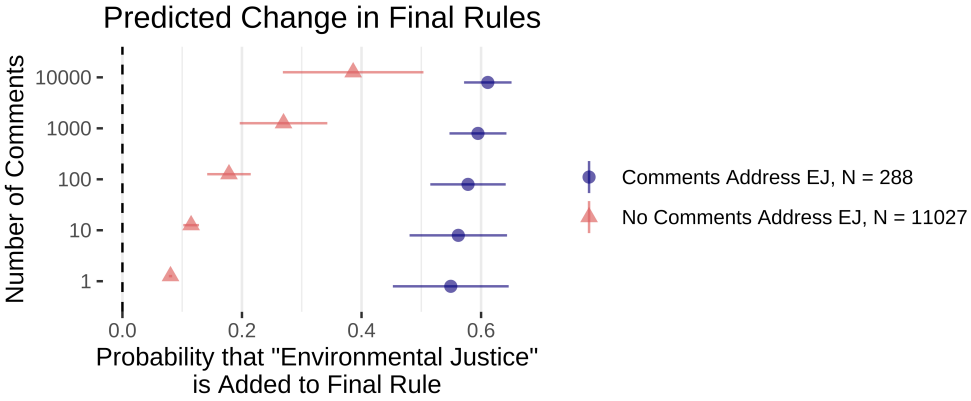
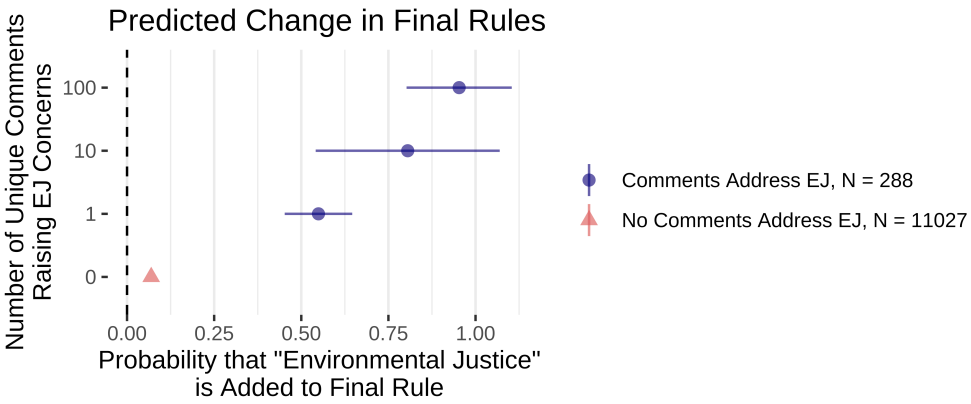


Figure 9: Probability Environmental Justice is Added Between Draft and Final Rules by Number of Comments Raising Environmental Justice



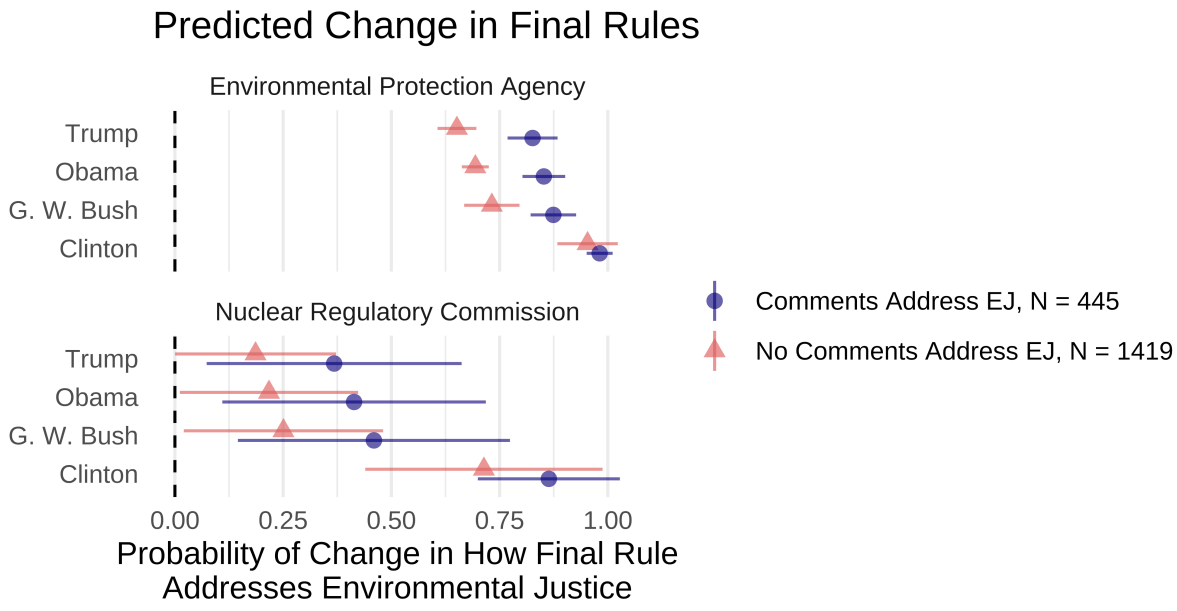
4.2 Are rules more likely to change how they address environmental justice when comments mention it?

Turning to rulemaking processes where EJ was discussed in the draft rule, we also see responsiveness to comments raising EJ concerns, now measured as whether any sentences containing "environmental justice" changed between the draft and final rule.

Most rules that addressed EJ in the draft were published by the EPA. The EPA had a high rate of baseline change, which increased when comments raised EJ concerns. Other agencies had too few draft rules mentioning EJ to make strong inferences, but many changed how they discussed EJ 100 percent of the time when comments raised EJ concerns, while inconsistently doing so when comments did not.

The Predicted Probability of Changed Text Controlling for average rates of change per agency and the number of comments, Figure 10 shows little difference in baseline rates of changing EJ language across the Bush, Obama, and Trump presidencies compared to the differences between agencies. All are significantly lower than the Clinton administration's rate, which could be related to Clinton's Executive Order on environmental justice or simply an artifact of the limited number of rules published on regulations.gov before the mid-2000s.

Figure 10: Predicted Change in How Environmental Justice is Addressed Between Draft and Final Rules by President



For draft rules that already discussed EJ, the relationship between the total number of comments and change in sentences discussing EJ is in the opposite direction posited by the *Public Attention Hypothesis* (5). The logged total number of comments is inversely related to change in the final rule text. The more comments on a proposed rule, the less likely it is to change. These rules are more likely to change when they receive *fewer* comments. While the *Public Attention Hypothesis* (5) explains the adding of EJ text where none existed in the draft, the opposite is true for changing a text that already addressed EJ. Instead, this result supports the competing intuition that more salient rules may be harder to change because the agency has anticipated public scrutiny. When agency officials preempt EJ concerns, their position stated in the draft is likely to be the position of the final rule, especially in high-salience rulemakings.

As shown in Figure 11, EJ comments have a small but discernible relationship with the probability of rule change at low levels of public attention. As the total number of comments increases, the estimated difference between policies that did and did not receive EJ comments

decreases. When no comments mention EJ, a rule that receives 10,000 comments is much less likely to change than a rule that received only 10. Again, this suggests that agencies have already stated their final policy position in high-salience draft policies. When comments do raise EJ concerns, more public attention has little impact on the probability of policy change. Figure 12 shows the probability that an agency will change EJ language at different numbers of unique comments raising EJ concerns. Unlike the general level of public attention, specific attention to EJ issues is positively related to change in rule texts. Sentences mentioning EJ are more likely to change between draft and final rules when 100 comments raise EJ concerns than when only one comment raises EJ concerns.

Figure 11: Predicted Change in How Environmental Justice is Addressed Between Draft and Final Rules by Number of Comments

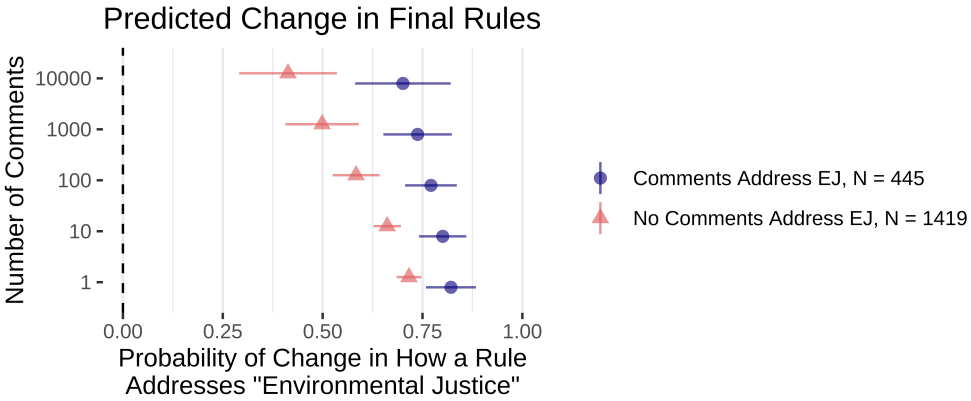


Figure 12: Probability Environmental Justice is Added Between Draft and Final Rules by Number of Comments Raising Environmental Justice

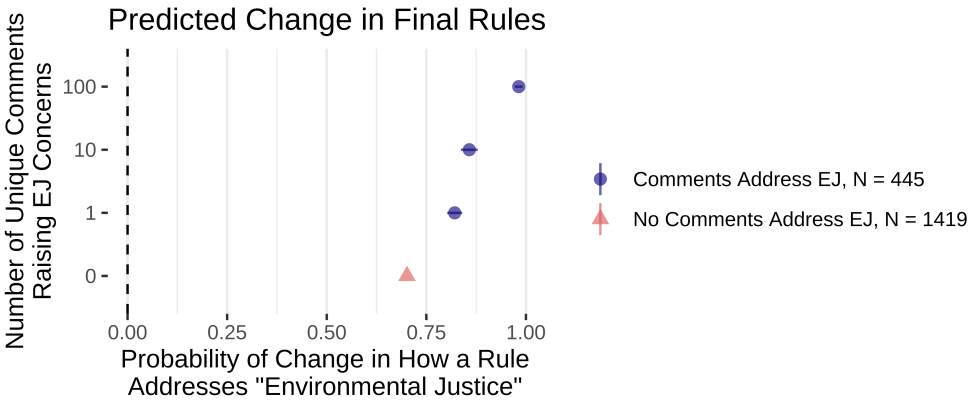


Table 3: Hand-coded Lobbying Success by Type of Organization, 2005-2020

Organization Type	N	Overall Success Rate	EJ Success Rate
Business (Overall)	1,911	13%	-
Business, Finance	6	33%	-
Business, Law Firm	288	25%	50%
Government, City	5	40%	-
Government, State	294	50%	-
Government, Tribe	179	9%	0%
NGO (Overall)	6,096	27%	24%
NGO, Credit Union	103	50%	-
NGO, Environmental Group	130	18%	14%
NGO, Frontline EJ	78	4%	0%
NGO, Pressure Group	182	15%	-
NGO, Professional Assn.	179	33%	-
NGO, Religious	220	24%	-
NGO, Union	88	27%	-
NGO, University	140	10%	-
Trade Association	894	45%	-

4.3 Substantive Policy Change and Lobbying Success

The statistical analyses above measure agency responses to a particular issue frame over time. How does this relate to substantive policy change in particular rulemakings? Using a hand-coded sample of over 10,000 comments—all comments from organizations with concrete policy demands on a random sample of 150 agency rules from 2005 to 2020, Table 3 shows relative rates of lobbying success for different types of organizations. "Overall Success Rate" shows the share of cases that changed between draft and final as each type of commenter requested. "EJ Success Rate" shows the share of cases that changed as the commenter requested when comments included the phrase "environmental justice." Some organization types — including frontline EJ community groups, universities, religious groups, professional associations, environmental groups, and pressure groups — are subsets of the broad "NGO" category. Trade associations, while technically nonprofits, are not included in the NGO category.

Only law firms were more likely to get their substantive policy demands met when their comments raised EJ concerns. Tribes and Frontline EJ community groups—already the

types of organizations least likely to have their substantive demands met (9% and 4%, respectively)—saw none of their substantive demands related to EJ met. NGOs, overall, and environmental groups (a subset of NGOs) were slightly less likely to see their policy demands met when these demands were explicitly linked to EJ. The most successful types of organizations overall—Trade Associations, States, Cities, and Banks—did not use EJ language in the hand-coded sample. Because EJ demands often oppose the status quo, this aligns with research showing that advocating for the status quo is one of the strongest predictors of lobbying success (Baumgartner, 2009). This should not be taken as evidence that tribes and frontline groups are never influential. Rare events—like comments raising EJ concerns on rules that did not address EJ—are not captured by this small random sample of rules.

5 Conclusion

This analysis presents a rare, systematic account of the impact of a political movement on specific policy outcomes across institutions and over time. It illustrates the importance of issue definitions in policymaking and how movements can affect the policy process—even technocratic processes like agency rulemaking, where most U.S. law is now made.

When activists assert distributive justice claims, there is a higher probability that policymakers engage in discourse that highlights the distributive effects of policy. However, baseline rates of addressing environmental justice in rulemaking are so low that, even when activists raise EJ concerns, most policy documents pay no explicit attention to EJ. This general lack of attention persists across agencies and across the G.W. Bush, Obama, and Trump administrations. Yet, similarities across administrations in baseline rates of considering EJ and responsiveness to public pressure mask radically different definitions of environmental justice advanced by each administration.

There is a great deal of variation in responsiveness across agencies, suggesting that policy receptivity and responsiveness to public input are conditional on slow-moving institutional factors such as organizational cultures and institutional mechanisms for processing political information. Agencies with a history of addressing distributive justice concerns are more receptive to claims about distributive justice than agencies for whom these claims are novel.

Bureaucracies are specialized institutions built to make and implement certain kinds of policies based on certain goals and types of knowledge. Each agency has distinct norms and biases. Some may see an issue as "environmental" when others do not. Likewise, some may see disparate impacts that demand consideration as issues of fairness and distributive "justice" where other officials, with different norms and training, see no such disparity. In

short, some policymakers appear to see their policy area as more related to environmental justice than others and are thus more receptive to commenters' concerns.

Which policy outcomes result from an environmental justice analysis depends on how the populations of concern are defined. In some cases, EJ concerns highlight economic inequality, leading policy to account for disparate impacts on low-income populations. In other cases, groups raise claims rooted in cultural practices, such as fish consumption among certain tribes. As occurred in the Mercury Rule, the analysis in subsequent drafts of the policy used evaluative criteria specific to these communities. Thus, policy outcomes depend on the specific environmental justice concerns raised. Future research should assess the relationship between distinct types of EJ claims and corresponding policy changes.

Which communities and concerns are elevated by pressure campaigns depend on second-order representation—who makes decisions in the organizations that mobilize public pressure. Examining which groups raise environmental justice concerns and second-order participation in these organizations' advocacy decisions validates some of the skepticism about who is able to participate and make their voice heard. Elite groups dominate policy lobbying, even on an issue like environmental justice. National advocacy organizations frequently request that regulators protect "all people" or even "low-income communities of color." However, this more generic advocacy may not lead to the same outcomes as participation by groups that can present more specific local environmental justice concerns unique to a community.

Several types of organizations raise environmental justice concerns. Some are generic progressive advocacy organizations. Others are community-based organizations. Linking these two types are high-capacity national organizations that frequently partner with local organizations for place-based litigation and campaigns. National advocacy groups that partner with frontline community groups may be more likely to raise local concerns in national policymaking than groups that focus almost exclusively on national campaigns. Given the importance of federal policy for local environmental outcomes and advocacy organizations' potential to draw policymakers' attention to environmental justice issues, future research should examine the quality of partnerships between frontline communities and national advocacy organizations. Similarly, historical research might investigate the extent to which the nationalization of environmental politics may have shaped an advocacy environment dominated by national advocacy organizations, as has been found in other policy areas (Miller, 2008).

The quality of representation is more than an academic concern. Policymakers must make sense of representational claims in order to understand the political environment in which they act. Political information like petition signatures thus has the power to affect policy. While lobbying disclosure requirements could be amended to provide other information about

how well groups represent the constituencies they claim to represent (Seifter, 2016), letter-writing campaigns are one of the only strategies currently available to demonstrate issue-specific congruence between the positions of groups and the people they claim to represent.

The above analysis focuses on one particular type of political action that is likely correlated with other forms of activism, lobbying, and civic engagement. For example, future research could explore connections between pressure campaigns and protests, both for organizers and participants. Likewise, future research could measure media attention to agency rules and the various issue frames that media coverage promotes. It is difficult to disentangle the effects of co-occurring inside and outside lobbying strategies. However, future research could look at other tactics and pathways for activists to raise distributive justice concerns and affect policy. For example, campaign leaders often meet with policymakers, commission scientific reports, and encourage letter-writing to politicians.

Future work could also explore connections between geography, identity, and participation in campaigns. To date, environmental justice scholarship has focused on geography-based inequalities. These inequalities and harms may have cross-cutting effects on civic participation. On the one hand, exposure to environmental harms may inspire civic engagement, especially around distributive justice frames like environmental justice (Taylor, 2012). On the other hand, economic and environmental inequality create inequalities in the time and resources for civic participation (Piven and Cloward, 1977; Soss, Hacker and Mettler, 2007; Michener, 2018). The receptivity of government institutions to different identities (Harrison, 2019) may also affect the tactics activists use (Taylor, 2012).

In the end, the above analysis offers some clarity on two poorly understood and rarely linked features of U.S. politics: the policy impact of social movements and the role of public pressure in bureaucratic policymaking. It offers some hope that policymakers may at least acknowledge concerns raised through direct democracy mechanisms like public comment periods. At the same time, it highlights how policymakers rarely explicitly address the disparate impacts of policy, even when directly confronted with distributive justice concerns. Social movements do affect the policy process in aggregate terms, but there are steep odds to overcome in any given policy fight.

A Appendix A: Tracing Ideas Through Rulemaking

A.1 Environmental Justice as a Contested Concept

Using an environmental justice frame does not always imply the same communities of concern. Environmental justice emerged from movements against environmental racism, especially the disposal of toxic materials in predominantly Black neighborhoods (Bullard, 1993). However, the term quickly took on other meanings, encompassing various marginalized groups. President Clinton's 1994 Executive Order on Environmental Justice required all parts of the federal government to make "addressing disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations" a core aspect of their mission. This meant considering the disproportionate effects of policies by race and income during rulemaking, thus broadening the scope beyond race.

In 2005, EPA political appointees reinterpreted the Order, removing race as a factor in identifying and prioritizing populations. This move was criticized by activists and two reports by EPA's own Office of Inspector General (EPA-OIG-2004-P-00007 and EPA-OIG-2006-P-00034).

President Obama's EPA Administrators reestablished race as a factor. They named EJ as one of their top priorities, but they also faced criticism from activists for paying lip service to environmental racism without adequate policy changes.

In an October 2017 proposed rule to repeal restrictions on power plant pollution, the Trump EPA acknowledged that "low-income and minority communities located in proximity to [power plants] may have experienced an improvement in air quality as a result of the emissions reductions." This is remarkable given that "assertions that hazardous facilities are concentrated in minority and low-income communities in the United States and that those communities are exposed to inordinate amounts of environmental hazards" are "the most controversial claims of the environmental justice movement" (Taylor (2014), p. 1). Because the Obama EPA discussed EJ when promulgating the Clean Power Plan rule (stating that "climate change is an environmental justice issue"), the Trump EPA attempted to reframe rather than ignore environmental justice. The Trump EPA contended that the Obama EPA "did not address lower household energy bills for low-income households [and that] workers losing jobs in regions or occupations with weak labor markets would have been most vulnerable" (EPA 2017). Like regulated industry commenters, these statements frame the distribution of jobs and electricity costs as EJ issues in order to push back against policies that would equalize the distribution of health impacts from pollution.

The central conflict over the role of race in policy analyses is just one of many conflicts that

the environmental justice movement has caused to be fought somewhat on its terms. The next section briefly reviews the decades-long policy fight over regulating mercury pollution to illustrate how these definitional conflicts shape rules and rulemaking. This case and other examples in this article emerged from reading hundreds of rulemaking documents where agencies did and did not respond to comments raising EJ concerns. Their purpose is to assess whether the cases in the quantitative analysis are plausibly what they appear to be: that changes in rule text are, sometimes, causally related to public comments and that non-changes are cases of agencies disregarding comments, not some accident of the data or measures. The qualitative reading also confirmed other key assumptions, such as the fact that advocates do, in fact, use "environmental justice" when they raise distributional concerns, even on many rules that are not about issues traditionally considered "environmental."

A.2 Safe Levels of Mercury For Whom? How Distributive Justice Claims Shaped U.S. Mercury Regulation

Definitions of the public good and minority rights are implicit in most policy documents, including agency rules. The public comment process offers an opportunity to protest these definitions. In the EPA's Mercury Rules, two definitional issues were decisive. First, as with many forms of pollution, mercury-emitting power plants are concentrated in low-income and non-White communities. Second, some populations consume much more locally-caught freshwater fish, a major vector of mercury toxicity. Studies inspired by the political controversy around the Mercury Rules found high risk among certain communities, including "Hispanic, Vietnamese, and Laotian populations in California and Great Lakes tribal populations (Chippewa and Ojibwe) active on ceded territories around the Great Lakes" (EPA 2012). Thus the standards that EPA chooses depend on whom the regulation aims to protect: the average citizen, local residents, or fishing communities. Mercury regulations have disparate effects based on race and class because of disparate effects based on geography and cultural practices.

In December 2000, when the EPA first announced its intention to regulate mercury from power plants, the notice published in the *Federal Register* did not address EJ issues, such as the disparate effects of mercury on certain populations; it only discussed anticipated impacts in reference to "the U.S. population" (EPA 2000). When the first draft rule was published, it only discussed the effects of the rule on regulated entities, noting that "Other types of entities not listed could also be affected" (EPA 2002). Commenting on this draft, Heather McCausland of the Alaska Community Action on Toxics (ACAT) wrote:

> The amount of methyl-mercury and other bioaccumulative chemicals consumed

> by Alaskans (especially Alaskan Natives) could potentially be much higher than is assumed... [This could increase] the Alaskan Native mortality rate for babies, which according to the CDC, is 70% higher than the United States average. Indigenous Arctic & Alaskan Native populations are some of the most polluted populations in the world.

By citing the CDC, McCausland's comment provided both technical and distributive information. As allies mobilized, public pressure mounted to address the disparate impacts of mercury levels. After receiving hundreds of thousands of comments and pressure from tribal governments and organizations, a revised proposed rule echoed McCausland's comment noting that

> Some subpopulations in the U.S., such as Native Americans, Southeast Asian Americans, and lower-income subsistence fishers may rely on fish as a primary source of nutrition and/or for cultural practices. Therefore, they consume larger amounts of fish than the general population and may be at a greater risk of the adverse health effects from Hg due to increased exposure (04-1539/p-719).

After nearly a million additional public comments, a further revised proposed rule ultimately included five pages of analysis of the disparate impacts on "vulnerable populations" including "African Americans," "Hispanic," "Native American," and "Other and Multi-racial" groups (EPA 2011). In the final rule, "vulnerable populations" was replaced with "minority, low income, and indigenous populations" (EPA 2012). The EPA had also conducted an analysis of sub-populations with particularly high potential risks of exposure due to high rates of fish consumption as well as additional analysis of the distribution of mortality risk by race.

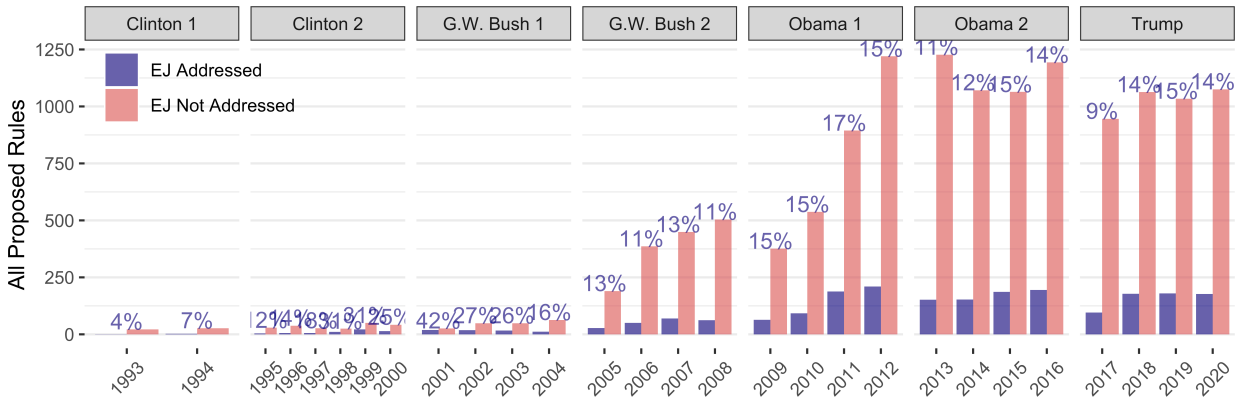
Of this second round of comments, over 200 unique comments explicitly raised EJ issues. The Little River Band of Ottawa Indians expressed the Tribe's

> ...frustration at trying to impress upon the EPA the multiple and profound impacts of mercury contamination from a Tribal perspective. Not to mention the obligations under treaties to participate with tribes on a 'Government to Government' basis. At present, no such meetings have occurred in any meaningful manner with EPA Region V, the EPA National American Indian Environmental Office, nor the State of Michigan's Department of Environmental Quality... In this rulemaking, the EPA perpetuated, rather than ameliorated, a long history of cultural discrimination against tribes and their members (EPA-HQ-OAR-2009-0234-12462, p. 67).

Did comments like these play a role in EPA's changed analysis of whom mercury limits should aim to protect? Because of the many potential sources of influence, it may be difficult to attribute causal effects of particular comments on a given policy. However, comments may serve as a good proxy for the general mobilization of groups and individuals around an administrative process, and it is not clear why else the EPA would not address EJ in the first draft of a rule and then add it to subsequent drafts in the absence of activist pressure. Electoral politics does not offer an easy explanation. The notice proposing the Mercury Rule was issued by the Clinton administration, the same administration that issued the Executive Order on Environmental Justice, and the subsequent drafts that did address EJ issues were published by the Bush administration, which had a more contentious relationship with EJ advocates, while Republicans controlled both houses of Congress. The expansion of the analysis from one draft to the next seems to be in response to activist pressure.

Figure 13 shows the full time period for these data.

Figure 13: Proposed and Final Rules by Whether they Address Environmental Justice.



B Appendix B: Additional Descriptives

B.1 Rates of Addressing EJ by Agency

Table 4 shows the total number of final rules and the percent that address EJ for the twenty agencies that most frequently mention EJ in final rules.

Figure 14 shows estimated variation in rates of adding EJ to final rules across agencies. Some agencies have dedicated staff and prominent internal guidance on EJ analysis in rulemaking, including the Environmental Protection Agency and the Department of Transportation (which includes the Federal Railroad Administration (FRA), Federal Motor Carrier Safety Administration (FMCSA), and Federal Highway Administration (FHWA)). These agencies are among the most responsive to commenters raising EJ concerns. However, differences among agencies are fairly uncertain due to the small number of rules where EJ was added at most agencies. Combined with the main results (models 1 and 3 in Table 2), these differences in responsiveness add further support for the *Policy Receptivity Hypothesis* (3), but differences between agencies with different missions and institutional practices regarding EJ are not clear-cut.

Figure 14: Probability that "Environmental Justice" is Added Between Draft and Final Rules by Agency

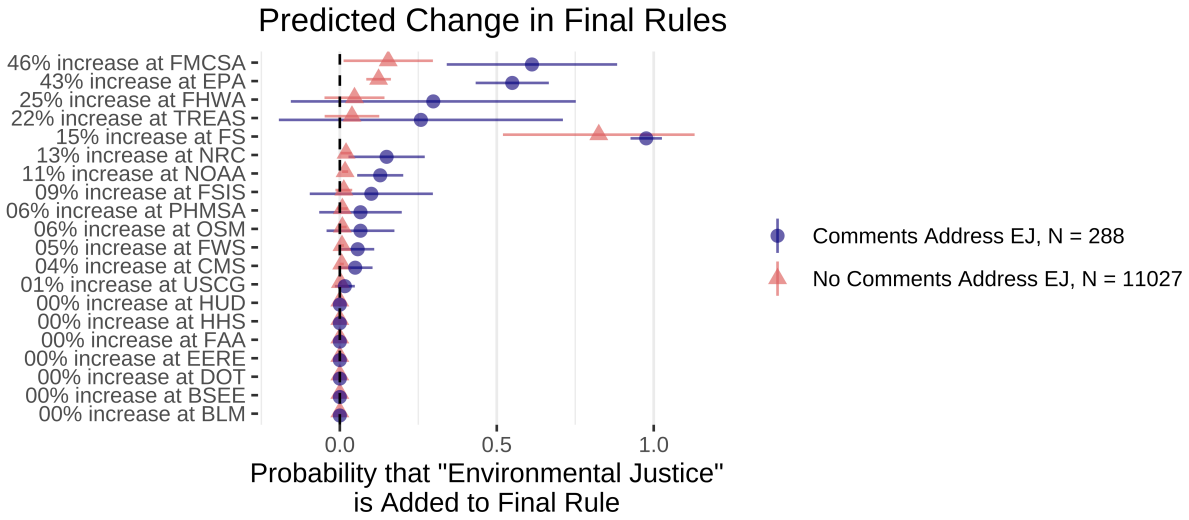


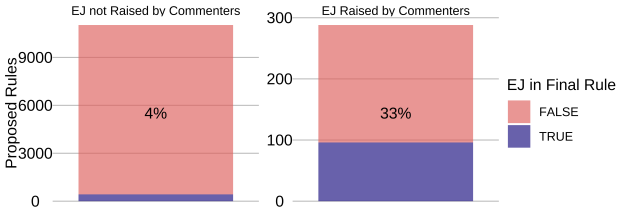
Table 4: Rates of Mentioning "Environmental Justice" in Final Rules

Agency	Rules	Mention EJ
FEMA	68	38.24%
EPA	7294	36.41%
FTA	50	36.00%
FMCSA	141	28.37%
CEQ	8	25.00%
FRA	107	17.76%
FHWA	134	17.16%
COE	73	16.44%
RBS	65	7.69%
NRC	536	6.16%
USDA	17	5.88%
HHSIG	18	5.56%
RUS	76	5.26%
BLM	39	5.13%
BOEM	23	4.35%
ACF	26	3.85%
BSEE	26	3.85%
DOT	182	3.30%
CCC	31	3.23%
NRCS	32	3.12%
FS	35	2.86%
FSA	36	2.78%
NHTSA	732	2.46%
RHS	82	2.44%
FWS	812	1.72%
BIA	60	1.67%
TREAS	63	1.59%
DOE	66	1.52%
PHMSA	281	1.42%
FSIS	73	1.37%
DOD	343	1.17%
HHS	87	1.15%
NOAA	2596	0.96%
GSA	119	0.84%
OSM	171	0.58%
HUD	250	0.40%
EERE	350	0.29%
CMS	509	0.20%
USCG	4783	0.13%
FAA	9612	0.03%

B.2 Rates of Change With and Without Comments Raising Environmental Justice

Figure 15: Rates of Change Between Draft and Final Rule

(a) Proposed Rules with No EJ Text



(b) Proposed Rules with EJ Tex

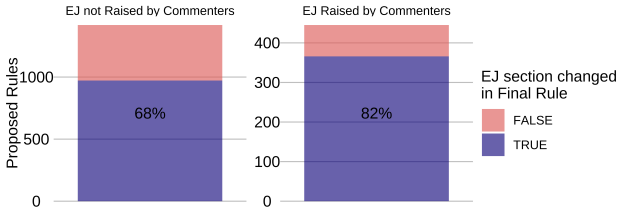


Table 5: Logit Regression Predicting Change in Rule Text (Data Subsets)

	2 EPA Only	2 Mass Only	2 EJ Only	4 EPA Only	4 Mass Only	4 EJ Only
Dependent Variable	**EJ Added**	**EJ Added**	**EJ Added**	**EJ Changed**	**EJ Changed**	**EJ Changed**
EJ Comment	2.141***	−1.321		0.492	−0.739	
	(0.376)	(2.198)		(0.350)	(0.992)	
Log(Comments+1)	0.315***	−0.355	−0.260***	−0.166	−0.036	−0.085
	(0.081)	(0.369)	(0.006)	(0.115)	(0.090)	(0.102)
Log(Unique EJ Comments+1)	0.422	0.893***	0.763*	0.340***	0.242***	0.362***
	(0.266)	(0.207)	(0.302)	(0.094)	(0.030)	(0.108)
EJ Comment*Log(Comments+1)	−0.196	0.409		0.079	0.193	
	(0.159)	(0.316)		(0.111)	(0.128)	
Num.Obs.	3834	272	286	1753	242	443
AIC	2483.4	183.8	335.2	2022.2	251.3	398.8
BIC	2533.4	248.7	353.5	2060.5	282.7	419.2
Log.Lik.	−1233.710	−73.906	−162.608	−1004.097	−116.668	−194.389
Std.Errors	by: president	by: president & agency	by: president	by: president	by: president & agency	by: president
FE: president	X	X	X	X	X	X
FE: agency		X			X	

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

C Appendix C: Robustness

The main models (2 and 4) from Table 2 use agency fixed effects and an indicator for whether at least one comment raised EJ concerns. Table 5 presents roughly the same models to show that results are not driven only by agencies that have little contact with EJ issues or rules that have little to do with EJ issues. Models "2 EPA Only" and "4 EPA Only" are identical to Models 2 and 4 but subset to EPA rules instead of agency fixed effects. Models "2 Mass Only" and "4 Mass Only" are identical to Models 2 and 4 but subset to rules that received over 100 comments. Models "2 EJ Only" and "4 EJ Only" are identical to Models 2 and 4 but subset to rules that received at least one comment raising EJ concerns instead of including the indicator.

D Appendix D: Alternative specifications

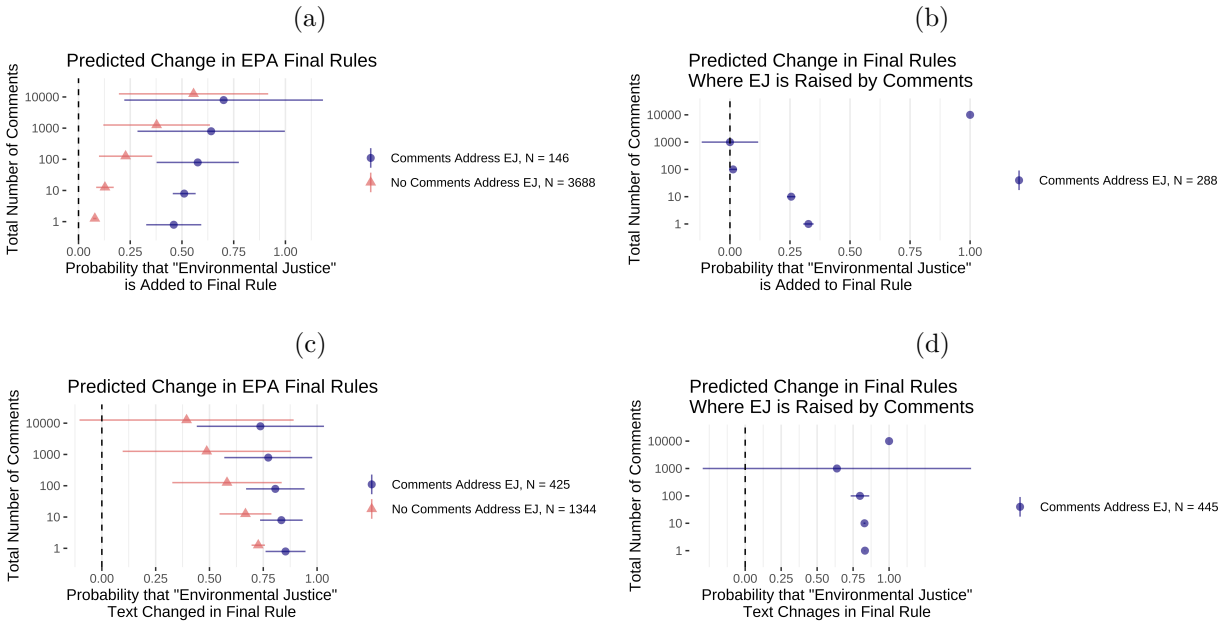
Table 6 presents an alternative specification as robustness checks for the main models 2 and 4 in Table 5. While we have strong reasons to believe that comments have decreasing marginal effects, and the logged number of comments offers a parsimonious modeling strategy, the models in Table 6 relax this assumption about functional form by using both linear and quadratic terms instead. In these tables, "Total Comments" is measured in thousands, whereas "Unique EJ Comments" is not transformed. With this specification, most hypotheses cannot be assessed by the p-value on any one term. Instead, Figures 16 and 17 show predicted probabilities at various levels of public attention (total comments) and coalition size (unique EJ comments), respectively, while holding other variables at their modal values.

Table 6: Logit Regression Predicting Change in Rule Text

	2b	2b EPA Only	2b Mass Only	2b EJ Only	4b	4b EPA Only	4b Mass Only	4b EJ Only
Dependent Variable	**EJ Added**	**EJ Added**	**EJ Added**	**EJ Added**	**EJ Changed**	**EJ Changed**	**EJ Changed**	**EJ Changed**
EJ Comment	2.276	2.152	2.322		0.639	0.588	1.179	
	(0.125)	(0.168)	(0.744)		(0.064)	(0.268)	(0.372)	
Total Comments	0.141	0.281	0.059	−0.039	0.171	0.250	0.274	−0.002
	(0.189)	(0.098)	(0.176)	(0.008)	(0.110)	(0.142)	(0.270)	(0.002)
Comments^2	−0.005	0.026	−0.002	0.000	−0.008	−0.011	−0.012	0.000
	(0.008)	(0.032)	(0.005)	(0.000)	(0.004)	(0.004)	(0.010)	(0.000)
Unique EJ Comments	0.159	0.228	−0.056	0.194	0.034	0.027	0.035	0.028
	(0.150)	(0.204)	(0.142)	(0.056)	(0.004)	(0.014)	(0.005)	(0.003)
Unique EJ Comments^2	0.007	0.014	0.013	−0.001	0.000	0.000	0.000	0.000
	(0.005)	(0.031)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
EJ Comment*Total Comments	−0.176	−1.659	−0.050		−0.174	−0.252	−0.275	
	(0.157)	(0.691)	(0.130)		(0.110)	(0.143)	(0.270)	
EJ Comment*Comments^2	0.006	0.098	0.002		0.008	0.011	0.012	
	(0.008)	(0.075)	(0.004)		(0.004)	(0.004)	(0.010)	
Num.Obs.	7067	3834	272	286	1842	1753	242	443
AIC	3113.6	2527.9	183.9	340.1	2143.7	2039.0	249.6	401.5
BIC	3340.1	2596.6	259.7	365.6	2259.6	2093.7	291.5	430.2
Log.Lik.	−1523.794	−1252.936	−70.967	−163.027	−1050.868	−1009.493	−112.807	−193.751
Std.Errors	by: president & agency	by: president	by: president & agency	by: president	by: president & agency	by: president	by: president & agency	by: president
FE: president	X	X	X	X	X	X	X	X
FE: agency	X		X		X		X	

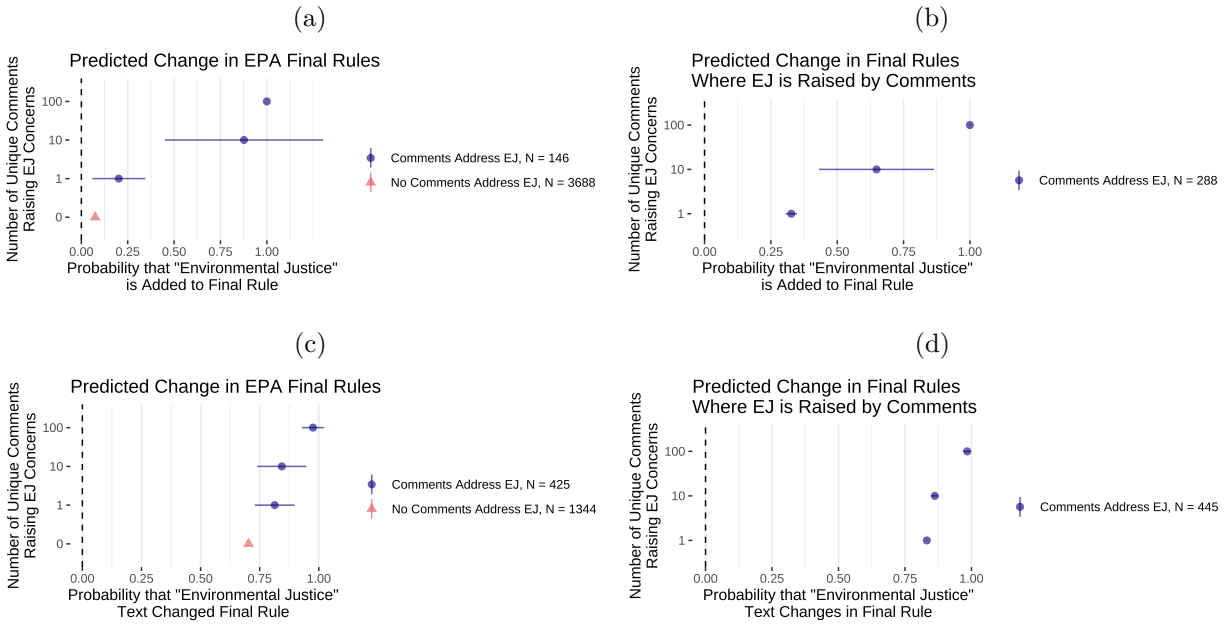
D.1 Predicted Response by Total Comments

Figure 16: The Effect of Public Attention in Subsets of Data



D.2 Predicted Response by Number of EJ Comments

Figure 17: Rates of Change Between Draft and Final Rule



E Appendix E: Codebook

This codebook describes the coding of public comments on proposed agency rules.

E.1 Coding Comments

A position will eventually be identified for all comments, but the first step is to identify the positions of comments by organizations and elected officials (other comments are generally identified automatically from textual similarity). This scheme (especially the `org_type`, `ask`, and `success` variables) builds on work by Susan Webb Yackee (e.g., Yackee, 2006; Yackee and Yackee, 2006).

`DATE` = the date on the comment. If the comment is not dated, this defaults to the date that the agency received the comment.

Initially, we code position on the main dimension of conflict (it may be a challenging interpretive task to identify the main dimension of conflict raised by a comment).

`position` =

- "1" Opposed to the rule change for moving in the wrong direction (e.g., "We need

stronger, not weaker regulations" or "These regulations are already bad for our business, we should not make them even more strict")

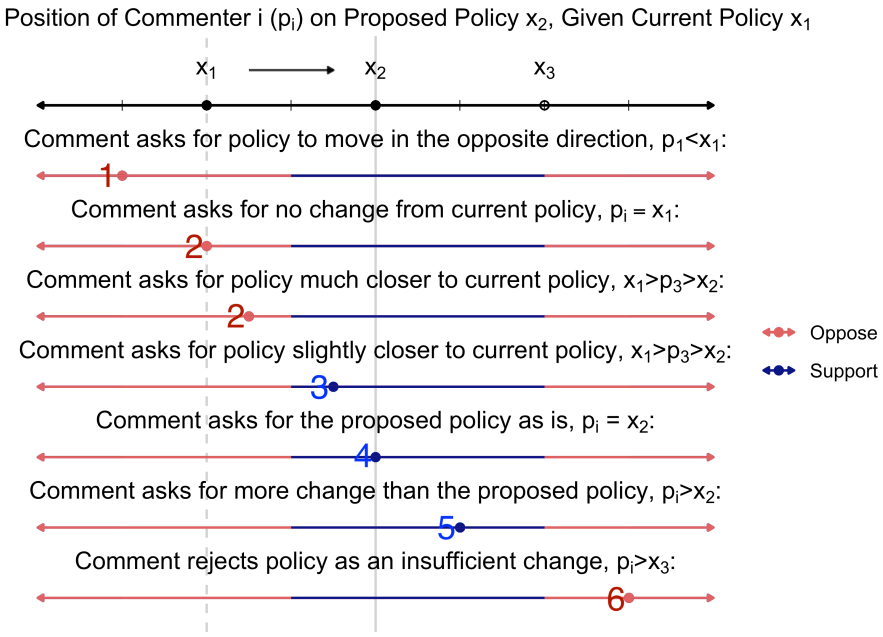
- "2" Opposed to the change, prefers no change, though they might be ok with some change
- "3" Supports the rule change, but asking for less (e.g., "we applaud EPA's efforts to regulate . . . , but would prefer less severe limits" or "The Guild recognizes the need to have uniform regulations which the proposed rules address. Still, the Guild takes issue with some of the proposed changes")
- "4" Supports the rule change as is
- "5" Supports the rule change but asking for more
- "6" Opposed to the rule change for not going far enough (e.g. " While the proposed rule may improve current protections to some degree, it is utterly inadequate. . . If the agency fails to revise the rule to incorporate such measures, then they should withdraw the proposed rule completely" https://www.regulations.gov/comment/NOAA-NMFS-2020-0031-0668)
- "0". Only if there is really no position of any kind on the policy

Note that a commenter can support a rule that is moving in a deregulatory direction. This means that they oppose regulation and thus support the rule (because the rule is rolling back regulation). What matters here is their position on the change from the status quo (current policy) to the proposed rule, not on regulation in general. These positions correspond to a commenter's ideal policy (their "ideal point" in the policy space). If a commenter's ideal policy is at position 1 in the figure below, the proposed rule change is moving policy in the opposite direction they want it to move, hence their position is "opposed to the rule change for moving in the wrong direction." Similarly, if the current policy (the status quo) is a commenter's ideal policy, their ideal point is at or near the current policy (x1), position 2, and they are opposed to the proposed rule change.

If the commenter's ideal policy is at positions 3, 4, or 5, these ideal policies are closer to the new policy, X2 than the current policy X1, and thus they are likely to support the rule change. If the commenter's ideal policy is at position 6, the change from X1 to X2 is insufficient for them to support it (even though it is technically moving in the direction they would like). This is rare, but commenters do occasionally reject proposed rules for doing too little. Their hope is that by rejecting this proposed policy (even though it moves policy in their preferred direction), they might get a better policy later.

`position_certainty` =

Figure 18: Instructions for Coding the Position of a Comment Given Current Policy, X1, and proposed policy, X2



"1" = fairly certain (may also be left blank), "2" = unsure, "3" = totally unclear

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`coalition_comment` = Is this commentator lobbying alongside other commenters in a fashion that suggests they are a coordinated coalition? If so, put the name of one of the other main organizations in the coalition here and use this for all comments with compatible asks. Coalitions may be implicit (compatible asks, even if they don't mention the other organizations) or explicit (e.g. "In terms of specific reservations about the proposed changes, we associate ourselves with the letter from ACLU"). There may often be only one coalition commenting on a rule (especially for rules with few comments). It is harder to identify the sides of a debate where only one side shows up, but we must be careful not to artificially break up essentially aligned interests just to have a conflict between commenters. The conflict that matters is generally on the main dimension(s) of conflict at issue in the policy. If everyone is 3s and 4s (or 1s and 2s) they will more often all be one big coalition pushing generally in the same direction with compatible asks than several smaller ones pushing in different incompatible directions. Position and coalition are not synonymous, but they are highly correlated.

`coalition _type` =

The key distinction here is typically whether the lead organizations will profit from the coalition's advocacy (even if some of the organizations in the coalition are nonprofits)

- "public" if this coalition is primarily lobbying on behalf of some idea of the public interest (two organizations lobbying on the same rule may have opposing ideas of the public interest, but oftentimes public interests conflict with private interests)

- "private" if this coalition is mainly on behalf of private interests (even if not their own or if using language evoking the public interest, as most lobbying does)

`comment_type` =

- "org" any kind of organization making substantive suggestions

- "elected" Is this comment from an individual elected official (e.g., U.S. House or Senate). Add a specific type of elected official after a semicolon "elected; house, elected; senate, elected; governor, elected; state senate, county commissioner, etc.

- "individual" an individual who is writing in their personal capacity, not on behalf of an organization or office (even if they use an organization's letterhead), and is not part of an organized petition-like campaign

- "corp campaign" a form letter used by many (often small) businesses (org_name and org_type will still be the organization (e.g. the name of the small business and "corp;small business")

- "mass" a petition-like campaign
  - "mass;grassroots" - individuals who genuinely care

  - "mass;astroturf" campaigns are intended to create a deceptive appearance of public support. The group organizing the campaign is only doing so because they are being paid. The individuals mobilized are often either deceived (e.g., intentionally misled about the policy or its likely effects) or financially incentivized to participate. In the extreme, astroturf campaigns may use the names of fake or non-consenting individuals. In contrast, a more grassroots campaign may also require funding, but groups would choose to use resources for such a campaign even without the quid pro quo, and individuals are mobilized based on some pre-existing interest or belief. While grassroots campaigns may involve simplification, spin, and even mild deception, it is not decisive to the campaign. If you find yourself thinking "why are these people supporting this company/industry?" it

might be astroturf.

– "mass;corp campaign" - genuine support/opposition from a large number of businesses, often small businesses.

If `comment_type` = *"org":* `org_name` = the name of the organization. This column will often be filled in automatically with an algorithm's best guess. Please revise these names to be the clearest, standardized, and unique version of the organization's name.

If more than one organization signed the comment, try to pick the main organizer (e.g., the one whose letterhead is used). If unclear, go with an organization we have seen before (this will increase the chances it is linked to the right set of lobbying coalitions). If still unclear, go with the first signatory. When more than one organization signed the comment, add "; coalition" to the end of whatever `org_type` codes you give it.

`org_type` = the type of organization, "corp"/"corp group"/"gov"/"ngo" etc. (create additional codes as needed). Definitions:

- "corp" = individual business (add subtypes as applicable, corp;small business, corp;coop, corp;law firm, corp;bank; corp;financial firm, corp;consultancy)

- "corp group" = "business interests" (members or representatives of a trade association, corp group;trade association)
- "gov" = government interests ("gov;state" "gov;local" "gov;federal" "gov;tribal" 'gov;regional" or "gov;foreign") within the United States. If states (e.g. Governors or Attorneys Governor), list out all states in org_name.

- "ngo" = non-business and non-government interests.
  Use a semicolon to indicate subtypes, such as:
  "ngo;advocacy"
  "ngo;legal"
  ngo;professional (e.g. an association of doctors or other professionals)
  "ngo;philanthropy"
  "ngo;Foundations"ngo;union"
  "ngo;credit union"
  ngo;pressure group (a group mobilizes pressure campaigns)
  "ngo;membership organization" (an NGOs that has members)

"ngo;university"
"ngo;thinktank" (an organization that does policy-oriented research)
"ngo;church" or "ngo;religious"

- "ngo;ej" Does this organization represent an Environmental Justice/frontline community? I.e. are they based in an affected community?

NOTE: There are many additional sub-types of non-governmental organizations, including advocacy groups, membership groups, professional associations, foundations, and charities. These are not mutually exclusive. Use a semicolon to separate multiple tags. Some 501c3s are industry associations; they should be coded as a "corp group." However, many NGOs that are not clearly a corp group still advocated for private interests. For example, Chambers of Commerce represents business interests generally and thus ends up being a member of many private-interest coalitions, even though they may not explicitly be commenting on behalf of a regulated industry as an industry association would.

- "other" = If the commenter is really in no way in any of the above (e.g. a foreign government)

`ask` =
The text of the comment (e.g., a sentence) that best captures the overall ask, proceeded by a word or two describing the ask (e.g. "ej analysis; [TEXT]" or "exempt credit unions; [TEXT]"). Specific guidance for EJ asks: EJ asks may be specific-placed based requests or general asks broadly relevant to EJ ("ej specific;" vs. "ej general;"). Because this is federal policy, general assertions are more common, but EJ claims also often make claims about specific groups deserving protection.

`ask1`, `ask2`, `ask3` =
The text of the comment's top three (if there are three) specific asks or objections (e.g., the proposed rule text they object to or would like to be changed.) If a comment responds to several issues within a rule, try to select the main ask from each of the top 3 issues, not just the first 3 issues they address. For example, if the organization "opposes" or "supports" several proposed changes, but "strongly opposes" or "strongly supports" other proposed changes, that may indicate which issues they care most about. Ultimately, you must put yourself in the organization's shoes, think about their mission and their members, and decide which of the issues they raise are most important to them. Identify the clearest statements of their top 3 aims and include all surrounding text that is on topic for that ask. As with `ask` tag each sub-ask with a few words, followed by a semicolon before the text of the ask.

If there is only a general sentiment, `ask1` can be the same `ask` (with `ask2` and `ask3` left blank, as they are any time there is not more than one detailed request).

`success`, `success1`, `success2`, `success3` (corresponding to `ask`, `ask1`, `ask2`, `ask3`)

- "2" if, overall, the final rule ended up mostly where requested
- "1" if, overall, the rule ended somewhat close to that requested
- "0" if no adverse changes, but also no requests met, or if the request is moot. A request may become moot if superseded by another request. For example, if a group requests that the rule is withdrawn, but if not, changed, then withdrawal makes the requested changes moot. Note: If no changes were requested (they requested the rule be published as is), then no adverse changes is actually a 2)
- "-1" if the rule ended up somewhat different/opposite than requested
- "-2" if the rule ended up significantly different/opposite than requested

Note that "-1" and "-2" can include rules being published without requested changes or withdrawn when the group would prefer the rule not to be withdrawn.

`success_certainty` =

"1" = fairly certain (may also be left blank), "2" = unsure, "3" = totally unclear

IMPORTANT NOTE: Asks and success should focus on the change from the proposed to the final rule. For example, if an commenter likes a rule, but asks that it goes further, and then the rule is rolled back somewhat, this would be an adverse change and thus a -1. If a rule that an organization liked was withdrawn, it would be a -2. If they ask for it to be published as is and it is published as is, success is a 2. If they ask for it to be strengthened and it is published as is that is a 0. If their asks are a mix of "stay the course" and "strengthen" and the rule is published without change, we might code that a 0 or a 1 depending on how important the changes demanded were. If their main emphasis was on keeping policy provisions in the proposed rule, no change is a moderate success.

`response` =

Paste the text of the agency's response to the comment. The `final_url` column contains the link to the final rule (where agencies often respond to some comments) in the federal register.

If `comment_type` *= "elected":* Note: this is only for individual elected officials. If a governor or attorney general writes on behalf of the state government that is a "gov" type organization.

`org_name` (or `elected_name`, if your sheet has it) is the official's full name. If there is more than one official, record the first one, unless they are from the US House or Senate, in which case, record all names separated by ";"

`org_type` (or `elected_type`, if your sheet has it) is the official's position. For U.S. Senators and Representatives, this should be "Chamber-[STATE ABBREV]" (e.g. "Senate-WI" or "House-NY"). For state representatives, please start with the state to avoid confusion ("Wisconsin Assembly District 4").

Make sure to code `coalition` and `coalition_type`!

The `ask` and `success` variables are coded as described for `comment_type` = "org"

If `comment_type` *= "mass":* Code `org_name` and `org_type` as the organization mobilizing the comment campaign, if known.

Make sure to code `coalition_comment` and `coalition_type`! Every mass comment must be assigned a coalition!

Keep your eye out for "astroturf" campaigns that appear to advocate for public interest but are really mobilized by private interests. Recall the types of mass comment campaigns from the above description of `comment_type`:

- "mass;grassroots" = individuals who genuinely care
- "mass;astroturf" = individuals who were mobilized by a well-resourced group to create an impression of public support/opposition

  And the related `comment_type` if the form letter is signed by businesses rather than individuals:
- "mass;corp campaign" = genuine support/opposition from a large number of businesses, often small businesses.

Leave `ask`, `success`, and `response` columns blank.

Check that the `number_of_comments_received` column matches the number of comments/signatures submitted. If it does not, correct it.

If your sheet has a `transparency` column, code whether the campaign was transparent about its

"sponsor", "signers", "both", or "neither". If your sheet does not have this column, record transparency comments in the `notes`.

Generally, it is obvious from the letter who they are and how we might verify that. A bunch of names with no contact information is not very transparent, but if they say "these are members of our organization," that should be enough if we needed to verify. Agencies occasionally post one representative comment for a campaign; this should not be held against an organization if they also provided the others, we could get them if needed. If a sponsor gives their phone number but not their organization, that is not enough. If you have to research to find the organization's name, that is not transparent. If they submit under a misleading name, that is also not transparent. I have mostly seen this in corp campaigns, where they try to disguise who paid for the campaign.

If your sheet has a `platform` column, record the tech platform(s) used to generate comments: "VoterVoice" "Care2" "SalesForce" If your sheet does not have this column, record any platform used to generate comments in the `notes`.

If your sheet has a `fraud` column, record any indication of fraud, for example, - a large number of double-counted signatures - clear evidence that signers were tricked, paid, or deceived into commenting - "DMARC validation failed." Otherwise, leave this column blank. If your sheet does not have this column, record evidence of fraud in the `notes`.

If `comment_type` = "individual": Only code `position`, `coalition`, `coalition_type`, if it is immediately obvious, otherwise, record comment_type as "individual" and move on. If an individual comment is very technical–perhaps from a professor–do your best to code the coalition and read carefully to see if the person is writing on behalf of a group. "individual" is only for people writing in their personal capacity.

Leave `org_name`, `org_type`, `ask`, and `success` variables blank, unless the individual's organization also submitted comments on behalf of the org, in which case org_name can be helpful for identifying the individual's coalition, but it is not necessary.

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