

Information and Climate (In)action*

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Abstract

Motivated by three empirical regularities—the growing adoption of climate laws, increased cross-national policy stringency, and variation in information disclosed by interest groups about climate change—this paper proposes a formal model exploring how misreporting by anti-climate special interests affects prospects for international and domestic climate policy. Uncertainty about climate change’s severity facilitates the strategic dissemination of information by these groups, which can influence public perceptions and discourage reform. The analysis demonstrates that greater misreporting decreases the likelihood of climate action, but that strategic misreporting is most prevalent when climate risks are perceived as moderate. Additionally, using the notion that climate policies are complementary, as suggested by descriptive analysis, I show that misreporting in one country affects others through informational spillovers, explaining variation in global climate action trajectories. These informational results run counter to traditional theories of collective action in which climate policies are strategic substitutes.

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Uncertainty is a defining characteristic of climate change, given the vast spatiotemporal scope and unpredictable intensity of its effects. These uncertainties shape the political response to climate change (Balcazar and Kennard 2025; Gazmararian and Milner 2024a;b), as they affect perceptions of welfare losses and economic damages (Cruz and Rossi-Hansberg 2024). Formulating policies to combat climate change requires both politicians and citizens to form beliefs about their vulnerability to climate risks, and to evaluate whether and how such risks justify policy intervention. A crucial determinant of these beliefs is the information disseminated by special interest groups that stand to lose from climate reform; upward of 60% of historical global carbon dioxide and methane emissions can be traced to 90 oil and gas companies (Heede 2014; Ekwurzel et al. 2017), which possess resource reserves that would yield significant profits but intensify climate change (Green et al. 2022). Interest groups have orchestrated global informational campaigns aimed at distorting public understanding of climate change and dissuading support for large-scale environmental regulations, such as those targeting fossil fuel production and consumption (Antonio and Brulle 2011; Brulle 2014). As the informational landscape evolves, so too do public perceptions and political responses.

This paper’s central task is to propose a formal model that posits a novel causal mechanism to explain variation in climate policymaking: changes in the *informational environment*. Three empirical regularities, for which I provide descriptive analysis, motivate the theory. First, I document variation in information disclosed by special interests about the threat of climate change over time; many of these groups exploited the uncertainty inherent to climate change in order to stymie climate action (Oreskes and Conway 2011), but ultimately acknowledged environmental harms. As group messaging shifted, so too did the global appetite for climate action. Second, I show that the adoption of climate laws has increased substantially over time as the scientific consensus about global environmental vulnerabilities has sharpened. Finally, countries appear to enact these laws in tandem and do so without undercutting each other’s ambition or stringency, suggesting effort complementarities in policy across nations. These facts are particularly counterintuitive from the viewpoint of extant theoretical approaches that emphasize collective action problems inherent to climate policymaking, which would predict that, given temptations to free ride, cross-national efforts to address climate change are strategic substitutes (Ostrom 1990; Stern 2007; Bernauer 2013;

[Keohane and Victor 2016](#); [Kennard and Schnakenberg 2023](#)). Moreover, while environmental policies have surged, the structure of the collective action problem surrounding the climate dilemma has *ceteris paribus* remained fixed over time—it continues to be true that policies to curb national emissions are individually costly but contribute to a global benefit—thereby suggesting the need for greater theoretical innovation to explain variation in climate policymaking.

To interrogate the effects of information on climate policymaking, I develop a formal model of both domestic and international climate policy that explicitly incorporates climate-related uncertainties and the strategic dissemination of information by special interests. I begin from first principles by building a model of domestic climate policy before expanding to an analysis with international coordination. At the domestic level, I extend a canonical electoral accountability framework ([Canes-Wrone, Herron and Shotts 2001](#)) by incorporating a special interest group that strategically designs information ([Austen-Smith 1998](#); [Kamenica and Gentzkow 2011](#); [Bergemann and Morris 2019](#)) aimed at deterring climate action. While these special interests possess accurate knowledge about environmental harms, they may “misreport” this information to the public, capitalizing on uncertainty about the severity of climate risks.

I present three main results linking climate policymaking to the informational environment. First, a higher incidence of misreporting by special interests disincentivizes politicians from pursuing climate reforms. This reduced-form relationship works through voter beliefs, which subsequently affect the politician’s reelection chances. Aware that the information they receive is strategically manipulated to promote inaction ([Alonso and Padró i Miquel 2023](#)), voters nevertheless form rational beliefs that climate action may be unwarranted. Suboptimal provision of climate policy stems from the fact that special interest messaging forms a lens through which voters assess the appropriateness of the politician’s behavior, and a greater bias in messaging downplaying the severity of climate change shades the politician toward inaction. This suboptimality is particularly striking because it can arise even if the politician and the voter have aligned preferences over the appropriateness of climate policy.

Second, since climate messaging is strategic, I endogenize special interest behavior by considering the optimal level of misreporting. Special interest groups seek to minimize the probability

of climate action, but misreporting is costly. I find that misreporting is most prevalent when the perceived severity of climate risks is intermediate, as uncertainty can be exploited most effectively. Counterintuitively, this relationship is nonmonotonic. If perceived risks are low, special interests need not invest in the infrastructure to misreport because climate action is unlikely. Conversely, as expectations about climate vulnerabilities increase, the need to misreport heightens in order to counteract the possibility of climate reforms; prevalence of misreporting increases until it becomes too costly to do so, at which point special interests become more truthful—which, combined with the first result, leads to more climate action.

Finally, the third set of findings highlights how domestic informational environments shape international climate policy. I depart from extant theoretical models (e.g., [Kennard and Schnakenberg 2023](#)) and think about countries' actions as international strategic *complements*, rather than as strategic substitutes. Substantively, the theory presumes that adopting climate policy is more valuable when other nations do the same rather than less valuable, as free-riding incentives would suggest. As I will argue below, this approach has empirical purchase because a story of strategic complementarities appears to be more consistent with the data than a story of strategic substitutes. Moreover, the percolation of global uncertainty due to climate change—countries have correlated information about its severity and learn from one another about vulnerability through policy implementation—generates informational complementarities across borders. The model thus uses strategic complementarity as a guiding assumption to help rationalize stylized facts about the evolution of global climate policymaking.

With the assumption of cross-country complementarities and the results that misreporting creates suboptimal climate policies in hand, the model explains the global trend of climate inaction. I identify a phenomenon of *informational spillovers*, when information distortions in one country undermine climate efforts worldwide. Additionally, the asymmetry of information across countries—e.g., politicians have differing knowledge of climate severity and face varying levels of misreporting—explains the heterogeneous adoption of climate reforms. The model accounts for both continued collective inaction, one of the main takeaways from the extant literature, instances of unilateral climate action, as well as growth in coordinated climate policymaking across borders.

It also pinpoints the stasis in climate policymaking to the proliferation of misreporting in countries like the United States, which had previously stagnated global climate action.

Classical theories explain the underprovision of climate policy because supplying global benefits is nationally costly. Alternatively, my model locates suboptimality within the domestic political environment, specifically because of the uncertainty that politicians face about the appropriateness of climate reforms given assessments about vulnerability. What is more, increased misreporting exacerbates this deficiency: by skewing voter beliefs against climate action, special interests effectively dissuade politicians from pursuing climate reforms perceived as electorally costly, even if these reforms were *ceteris paribus* necessary. Hence the climate policy observed in equilibrium diverges from the normative optimum.

By foregrounding variation in the informational environment, this paper helps to illuminate the contours of the ongoing green transition. When assessments of expected vulnerability are low, the probability of climate reform is also low, and misreporting is minimal. As these assessments shift over time, special interests alter their strategies, seeking to delay policy responses. However, the costs of sustained misreporting eventually outweigh its benefits, leading to a more accurate portrayal of climate risks by special interests and a subsequent acceleration in climate policymaking.

Motivation

To elaborate on the argument, I provide descriptive analysis to establish three stylized facts: (1) special interests' messaging strategies regarding the disclosure of truthful information about climate change have varied over time; (2) the scope and ambition for climate policymaking has increased over time; and (3) countries' adoption of climate laws and the stringency of their subsequent policy commitments appear to be complementary rather than substitutable. These stylized facts help to bolster the empirical plausibility of the formal model and to provide insights into the theoretical mechanisms at play.¹

Special interests have shifted the information that they disclose about climate change's severity over time, and a notable example is ExxonMobil. Figure 1 displays a timeline of relevant events

¹While information, the primary explicator of interest, is unobserved, making measuring what actors know at each point in time impossible, the theory can still document and jointly explain variation in observed outcomes.

pertaining to Exxon’s disclosure of climate-related information.² Exxon’s messaging strategy has shifted several times. In the late 1970s and early 1980s, Exxon’s scientists truthfully communicated the possibility of a climate crisis based on the combustion of fossil fuels and the release of greenhouse gases. However, this changed in the late 1990s and early 2000s, when Exxon exploited the uncertainty inherent to climate change, orchestrating a public campaign to convince citizens that climate change did not warrant broad policy action. While one would expect Exxon to downplay the effects of climate change because policy reforms would run counter to its interests, the company again shifted its messaging in 2014 when it publicly acknowledged its role in fostering climate risks. Since then, ExxonMobil has advocated for policy solutions like carbon pricing that both recognize the climate threat and take steps toward solving the problem; this pattern of accepting climate science and policies, even lobbying in favor of climate reforms, has been documented within extant literature ([Kennard 2020](#); [Green et al. 2022](#)). To be clear, companies like ExxonMobil continue to disclose information minimizing the climate threat ([Supran and Oreskes 2021](#)), but there is a noticeable shift in their rhetoric toward acknowledgment relative to the denialism of the early 2000s ([Antonio and Brulle 2011](#)). See the appendix for further details on sources in the figure.

Exxon’s behavior is not unique: other companies pursued similar messaging campaigns to dissuade their publics against climate action internationally. Shell and BP, as well as many other firms through the lobbying group Global Climate Coalition, produced documents that privately recognized the well-established scientific basis of increasing greenhouse gas emissions on global climate, but later disseminated information to the public that contradicted these findings. For example, BP’s carbon footprint calculator, launched in 2004, sought to individualize responsibility for climate change and minimize the impact of potential climate regulations on fossil fuel companies. These firms too have transitioned toward more “pro-climate” messaging in recent years and have been more forthcoming about climate risks ([Green et al. 2022](#)).

The model’s primary goal is to map this variation in messaging onto variation in climate policy outcomes. Figure 2 plots data from the Climate Change Laws of the World project ([Nachmany](#)

²Exxon’s corporate-branded documents are not the only means through which it communicated with the public. The company also projected its desired message through organizations like the American Enterprise Institute, the Competitive Enterprise Institute, and the Cato Institute that actively oppose mandatory action on global warming as well as many other environmental standards (Union of Concerned Scientists [2007](#)).

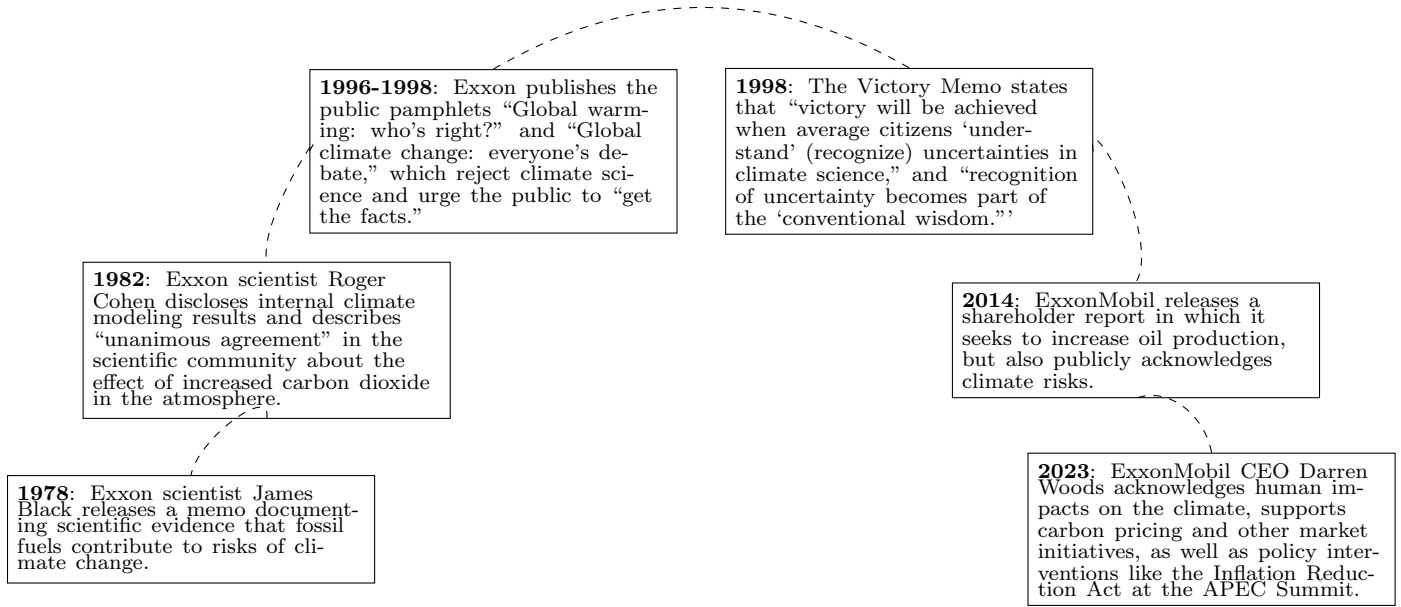


Figure 1: Variation in Exxon’s Climate Messaging

et al. 2017).³ It demonstrates that since 1990, the number of climate laws enacted across the globe is steadily increasing, and this trend is consistent across all regions of the world. Normalizing by number of adopting countries, a nation on average moves from adopting 1.4 laws in 1990 to 4.4 laws by 2020. The explosion of increased climate laws also conforms with the timeframe in which special interests like Exxon began to shift their messaging toward more truthful acknowledgments of the climate threat.

While countries have adopted more climate laws over time in the aggregate, we may be worried that nations are shirking in their effort or level of ambition on the margins, a feature of the canonical free-riding account of global climate cooperation. This argument casts policy actions as strategic substitutes (Kennard and Schnakenberg 2023), and predicts that climate ambitions should be negatively correlated across countries. This is probed in Figure 3, which plots the OECD’s Environmental Policy Stringency Index (Botta and Koźluk 2014; Kruse et al. 2022) over time for 40 countries.⁴ All countries have pursued more ambitious climate policies since 1990, and inspec-

³The data covers 196 countries plus the European Union, which I examine between 1990 and 2023 in three-year rolling averages. To be included as a law, a document must have full legal force or set out a current set of government policy objectives motivated by climate change.

⁴The data covers 40 countries between 1990 and 2020 and the index ranges from 0 to 6, which greater values meaning greater stringency. Stringency is defined as the ability to explicitly or implicitly place a price on pollution

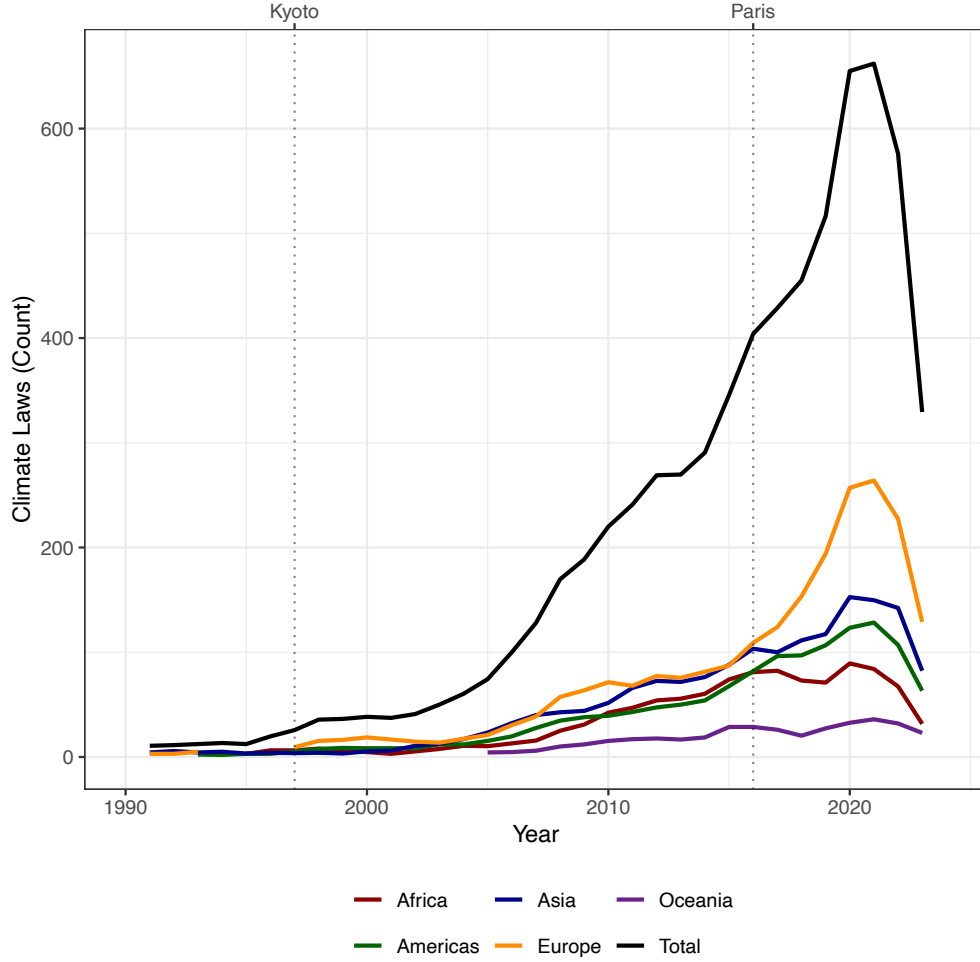


Figure 2: Increasing Count of Climate Laws Adopted (1990-2023)

tion of Figure 3 (along with estimated cross-country correlations displayed in Figure A.5) reveals that policy stringency is *positively* correlated across countries, which is inconsistent with prevailing theoretical accounts of strategic substitution. One explanation consistent with this data is a complementarity across countries in their national climate measures, and my theoretical framework uses this assumption along with variation in information disseminated about the threat of climate change to explain these stylized facts.

through market-based (taxes, trading schemes, feed-in tariffs, and deposit and refund schemes) and non-market policies (command-and-control standards and subsidies).

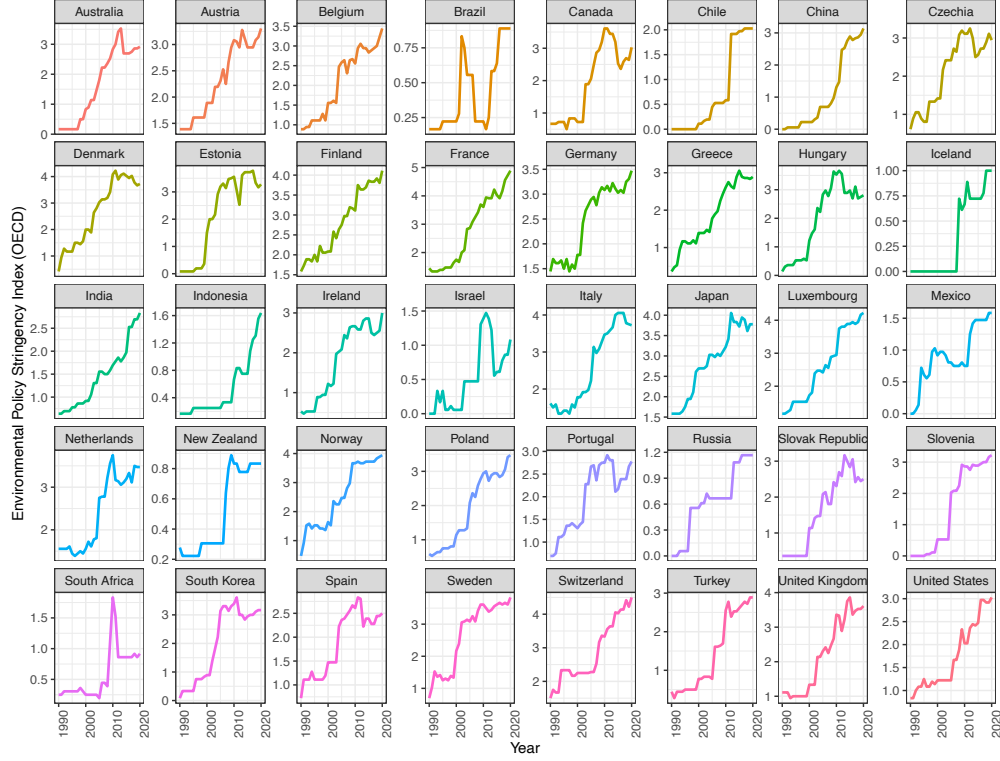


Figure 3: Increasing Environmental Policy Stringency (1990-2020)

Contribution

This paper’s theoretical argument makes several contributions to our understanding of the political economy of climate change by probing the incentives of individual citizens, special interests, and policymakers at the domestic and international levels. Primarily, the paper innovates by proposing a new causal mechanism to explain the connection between domestic politics and global climate action. A common explanation for the rise in global climate action posits that the distributional conflicts generated by climate reforms offer political advantages for domestic incumbents. The literature suggests that policy implementation inherently creates domestic winners and losers, meaning environmental reforms need not be scoped by collective action concerns (Aklin and Mildenberger 2020), pointing instead to factors like electoral institutions and electoral incentives (Finnegan 2022; Melnick 2024), special interest influence (Mildenberger 2020; Stokes 2020), and sectoral conflicts (e.g., Aklin and Urpelainen 2013; Cheon and Urpelainen 2013; Hughes and Urpelainen 2015) as shapers of climate policymaking. This paper argues that uncertainty surrounding the climate crisis

renders policy responses malleable, as the delineation between winners and losers shifts depending on the policy instrument. Additionally, this uncertainty makes finding the appropriate policy response to climate change less clear, which can animate distributive conflict and may be exacerbated by strategic messaging from special interests. For example, if true climate vulnerabilities were known, more efficient policy bargains could be negotiated by distributing abatement costs more easily or by compensating climate losers (cf. [Gazmararian and Tingley 2023](#); [Bolet, Green and González-Eguino 2024](#)). Thus, this theory presents a complementary argument, positioning distributional concerns within the broader context of informational constraints. The emergence of distributional conflict, I argue, can be a consequence of uncertainty surrounding climate change, which requires that we study the effects of information on climate policy.

The theoretical framework demonstrates how suboptimal domestic political outcomes affect international climate policy responses (cf. [Battaglini and Harstad 2020](#); [Hagen and Schopf 2024](#); [Melnick and Smith 2024](#)). Moreover, by relying on an assumption of international strategic complementarity, the model’s results on global climate cooperation are novel. Conventional wisdom claims that global climate cooperation efforts are dominated by free-riding concerns as carbon emissions or abatement efforts are often viewed cross-nationally as strategic substitutes ([Barrett 2003](#); [Kennard and Schnakenberg 2023](#)). My argument does not rely on free-riding incentives in order to explain the dearth of climate action observed globally, instead pointing to information and uncertainty as obstacles to policymaking. By endogenizing features of the informational environment, and positing a structure of strategic complementarities, the model highlights how spillovers in anti-climate messaging can depress policymaking globally.

Additionally, this paper sheds light on the role of “outside lobbying” ([Kollman 1998](#)) as a tool that interest groups can employ to communicate with the public. Public messaging is a complementary activity for special interests to other political behavior like lobbying, often undertaken to slow climate action ([Kim, Urpelainen and Yang 2016](#); [Brulle 2018](#); [2021](#); [Cory, Lerner and Osgood 2021](#)). Empirical work on climate misinformation or greenwashing has identified how climate losers may promote doubt or denialism in order to stymie climate action (e.g., [Oreskes and Conway 2011](#); [Frumhoff, Heede and Oreskes 2015](#); [Supran 2022](#)), but has yet to clearly establish the theoretical link

between messaging, voter beliefs, and politician behavior. Extant theoretical literature considers how interest groups interface with politicians through informational lobbying (e.g., [Schnakenberg 2017](#); [Schnakenberg and Turner 2024](#)) or quid pro quo contributions, either to delay climate action ([Brulle 2014](#)) or even lobby in favor of climate regulations ([Kennard 2020](#)). Conversely, this paper studies how special interests design information targeted at *citizens* to affect their beliefs about the need for climate action—which in equilibrium affects the implementation of climate policy through politicians’ incentives for reelection—and, in particular, studies their optimal communication strategy. Intuition may suggest that an anti-climate interest group like a fossil fuel company would consistently disseminate information aimed at undermining climate action. However, I identify conditions under which such a group may strategically choose to convey truthful messages about the severity of climate change. This analysis aligns with empirical observations of a shift in messaging from climate-opposed actors, who increasingly acknowledge the threats posed by climate change ([Green et al. 2022](#); [Williams et al. 2022](#)).

The model also speaks to literatures spanning mass climate attitudes and the electoral effects of climate policy implementation. In the model, individuals receive information about the effects of climate change, and such information is relevant to their voting behavior through their updated *beliefs* about climate-related uncertainties (rather than arguing for a wholesale change in policy preferences). Observational empirical evidence on whether voters reward or punish climate policies at the ballot box is mixed (e.g., [Stokes 2016](#); [Urpelainen and Zhang 2022](#); [Bolet, Green and González-Eguino 2024](#); [Colantone et al. 2024](#); [Gazmararian 2024](#); [Voeten 2025](#)), so the model helps to unpack why citizens may believe climate change is an important problem but not necessarily hold politicians accountable for their lack of action.

I now develop a formal model to link variation in the informational environment to changes in climate policymaking. I first isolate the domestic political interaction and demonstrate how messaging strategies by special interests affect the implementation of climate policy and how such campaigns vary over time as a function of expected climate damages. Then I study the prospects for international climate cooperation given these changes in information.

Model

The model depicts the politics of climate policymaking at home and abroad between two countries, $i = 1, 2$ (also referred to as i and j), which each contain a politician P (“she”), a special interest group S (“it”), and a representative voter V (“he”). There are two policy-relevant states of the world $\omega \in \{0, 1\}$. In simplified terms, ω represents the severity of climate change’s effects or the vulnerabilities to climate-related damages. Each state of the world carries a “correct” policy response that is commensurate with anticipated environmental harms: state $\omega = 1$ indicates a scenario in which greater climate policy reforms are appropriate because of greater vulnerability to climate change’s effects, while the case of $\omega = 0$ represents an instance in which the status quo or more modest climate reforms are sufficient. As will be detailed below, players have policy preferences that depend on this underlying state. The true value of ω is unobserved, but players share a common prior $P(\omega = 1) = \pi \in (0, 1)$, capturing the expected impacts of climate change.

The game begins with the special interest group in each country committing to the design of information about the state of the world ω . This takes the form of an experiment $\mathcal{E}_i(s_i, \omega) = P(s_i|\omega)$, which is a set of probability distributions over possible signals s_i to be transmitted to the voter in their country later in the game where $\mathcal{E}_i(s_i, \omega)$ is the probability that signal s_i is sent in country i when the state of the world is ω under experiment $\mathcal{E}_i(\cdot, \cdot)$. The signal s_i is akin to a report about climate change’s severity, which takes on two values $s_i \in \{0, 1\}$, thereby providing the voter with context about ω . Since I focus on the case of an anti-climate interest group like ExxonMobil, S seeks to convince their domestic public that $\omega = 0$, implying that the correct policy response is to take minimal climate action. Given the preferences of the interest group, as well as the dichotomous nature of the state of the world, the choice of an experiment can be expressed as

$$\mathcal{E}_i(s_i = 0, \omega = 0) = 1. \quad \mathcal{E}_i(s_i = 1, \omega = 0) = 0.$$

$$\mathcal{E}_i(s_i = 0, \omega = 1) = \beta_i. \quad \mathcal{E}_i(s_i = 1, \omega = 1) = 1 - \beta_i.$$

Whenever the true state is $\omega = 0$, the group will always send the signal $s_i = 0$: it would never be in the group’s interest to communicate that climate change poses a threat that demands action

when the correct policy aligns with its preferences for inaction. However, if $\omega = 1$, there is some probability $\beta_i \in [0, 1]$ that the special interest in country i reports signal $s_i = 0$. I will therefore refer to β_i as the level or intensity of “misreporting” about the true effects of climate change in country i . Higher values of β_i mean that the special interest is more likely to send the message that climate change warrants minimal action, even though the true state of the world is that climate change poses severe harms. The signal structure implies that the choice of β_i is isomorphic to the choice of the experiment $\mathcal{E}_i(s_i, \omega)$. S chooses β_i optimally in order to maximize the chances that the politician enacts policy congruent with $\omega = 0$; the group receives a payoff of 1 in this eventuality and zero otherwise. Spending resources to develop the capacity to misreport is costly, and comes at a cost $c(\beta_i)$ where $c(\cdot)$ is an increasing and convex cost function where $c(0) = 0$ and $c'(0) = 0$.

This information structure rests on some important assumptions, namely symmetric uncertainty and commitment, reminiscent of [Kamenica and Gentzkow \(2011\)](#). Think of it as follows: the group allocates resources to develop a climate model with the goal of determining ω , and commits to a disclosure rule dictating the probability of reporting unfavorable climate change evidence in the event that such evidence is found.⁵ The parameter β_i represents the likelihood of reporting severe climate effects, and its value reflects the group’s commitment to disclose information contrary to its interests. Symmetric uncertainty ensures no signaling in choosing β_i . Substantively, β_i could be the group’s ability to suppress whistleblowing on climate vulnerability, as there may be a risk that climate scientists rebuke the special interest group and bring such evidence to the public. Misreporting incurs a cost, $c(\beta_i)$, representing expenses for fabricating reports, controlling public messaging, or managing downstream reputational risks and whistleblower suppression.

After the special interest group has committed to its experiment, the game proceeds into the *climate policy subgame*, which is a variation on [Canes-Wrone, Herron and Shotts \(2001\)](#). Given each β_i , the politicians in each country must take a policy action on climate change, $a_i \in \{0, 1\}$. The action $a_i = 1$ represents broad climate reform or more intensive policies that might regulate the production of fossil fuels, and $a_i = 0$ captures the status quo or minimal policy measures.⁶ The

⁵This is analogous to choosing a level of certainty required to “reject the null hypothesis of no climate change” if it discovers that $\omega = 1$. The parameter β_i represents the significance level at which S fails to reject the null hypothesis, so $1 - \beta_i$ is the probability of issuing a report acknowledging that the effects of climate change are more severe.

⁶Modeling implementation costs would only bias results toward $a_i = 0$.

politician’s action as well as the special interest’s signal are observable to the voter who decides whether to retain or replace the politician based on her policy and the special interest’s report about the state, $r_i \in \{0, 1\}$.

While climate change’s effects remain uncertain, the politician has an informational advantage over the voter because she observes a signal about the state, indicating the relative success of potential climate reforms. The precision of this signal varies across politicians; the politician has a private type $\theta_i \in \{0, 1\}$ indicating her “competence.” The voter’s prior about the politician’s competence is $P(\theta_i = 1) = \tau_i \in (0, 1)$. Politicians’ types are not known internationally, but I assume that the priors τ_i and τ_j are sufficiently high.⁷ The signal is formulated as $x_i^\theta = \omega + \nu_i^\theta$ where $\nu_i^\theta \sim G(\cdot)$, has zero mean and admits a log-concave probability density function $g(\cdot)$ with the monotone likelihood ratio property such that $\lim_{x \rightarrow -\infty} g(x) = \lim_{x \rightarrow \infty} g(x) = 0$ (one example would be the normal distribution, $\nu_i^\theta \sim N(0, \frac{1}{\alpha_\theta})$). I focus on the limiting case where a competent politician has more precise signal of the state than the incompetent politician, in particular that $\text{var}(\nu_i^1) = 0 < \text{var}(\nu_i^0)$.⁸ Let $G(t; \omega) = P(x_i^0 \leq t | \omega)$, be the cumulative distribution of the incompetent type’s signal given the value of ω .

The politician and the voter share the same intrinsic policy preferences: each want policy to match the state of the world, or $a_i = \omega$, meaning that broad climate reforms are adopted only when it is appropriate to do so. However, since domestic climate policies also reverberate internationally, politicians care about the behavior of other nations; politician i also wants politician j to choose $a_j = \omega$. Everyone needs to “get policy right,” which comports with the simplest form of “consensus decisionmaking” (Barrett 2016) pioneered at the United Nations in international climate negotiations. This assumption is how I parameterize strategic complementarities across nations, as it means that both politicians are pivotal in implementing a joint outcome. If politicians both match their policy actions to the state of the world, they enjoy a policy payoff normalized to 1. Each politician also cares about remaining in office, and receives a payoff normalized to 1 if the voter reelects her.

⁷The assumption serves to rule out pandering from the competent politician, and consequently an equilibrium in which politicians pool on climate action. See Assumption A.1 and Lemma A.8.

⁸This is without loss of generality, all that is required is that a competent type’s signal of ω is more precise than the incompetent type’s signal.

Upon announcement of global climate policies, the representative voters in each country observe the triple (a_i, s_i, a_j) and retain or replace their leaders based on their assessments of competence $\mu_i(a_i, s_i, a_j) = P(\theta_i = 1 | a_i, s_i, a_j)$.⁹ The voter receives a payoff of 1 if he reelects a competent politician and a payoff of zero if he reelects an incompetent politician. If he removes the incumbent, replacing her with a challenger, his payoff is a random draw $\varepsilon_i \sim F(\cdot)$ where $F(\cdot)$ is a known distribution function. This payoff could represent the expected competence of an electoral challenger, and thus the possibility that climate policy will be executed competently in the future, or the value of the incumbent politician on all other electorally salient dimensions that are independent of climate policy. The shape and support of the distribution $F(\cdot)$ modulate how much the voter cares about climate policy relative to other issues, capturing salience as well as structural electoral factors such as partisan asymmetry or incumbency advantages.

For players in country i (country j 's are analogous), payoffs are formalized as follows:

$$\begin{aligned} u_S &= 1 - a_i - c(\beta_i). \\ u_P &= a_i a_j \omega + (1 - a_i)(1 - a_j)(1 - \omega) + r_i. \\ u_V &= r_i \theta_i + (1 - r_i) \varepsilon_i. \end{aligned}$$

The timing of the game is summarized as follows:

0. Nature randomly draws the state ω .
1. Interest groups commit to experiments $\mathcal{E}_i(s_i, \omega)$, choosing $(\beta_i, \beta_j) \in [0, 1]^2$.
2. Politicians observe signals x_i^θ and choose climate policies, $(a_i, a_j) \in \{0, 1\}^2$.
3. Interest groups' signals $(s_i, s_j) \in \{0, 1\}^2$ and the shocks $(\varepsilon_i, \varepsilon_j) \in \mathbb{R}^2$ are realized. Voters form posterior beliefs $(\mu_i(a_i, s_i, a_j), \mu_j(a_j, s_j, a_i) \in [0, 1]^2)$ and choose to retain or replace their politicians, $(r_i, r_j) \in \{0, 1\}^2$.

I examine weak Perfect Bayesian equilibria. A strategy for the special interest group i is a choice of β_i that is a best response to the choice β_j by interest group j given equilibrium behavior

⁹Allowing voter i to also condition his retention rule on interest group j 's signal makes the model more tedious and does not qualitatively alter results.

in the climate policy subgame. In the subgame, a strategy for politician i is a mapping from her type θ_i and private signal x_i^θ into an action, given beliefs about what she expects politician j to do. The voter’s strategy is a reelection rule that is sequentially rational given politician i ’s policy action, politician j ’s policy action, interest group i ’s signal about the state of the world, and the realization of the shock ε_i . Voter i ’s beliefs about politician i ’s competence are formed by Bayes’s Rule wherever possible.

Comments on the Model

The model setup makes several simplifying assumptions and thus warrants further discussion mapping theoretical components to relevant empirical elements of the politics of climate change.

Interpretation of the state and actions. There is a connection between “appropriate” policy responses and the state of the world, which immediately generates distributional conflict between the special interest, which has state-independent preferences, and the politician and voter, who have state-dependent preferences over policy. This conflict arises directly because of the fact that there is uncertainty about what types of policies should be implemented. The state ω and actions a_i, a_j are assumed to be binary, but provide sufficient richness to capture this fundamental tension in climate politics (Colgan, Green and Hale 2021). By way of interpretation, policy $a_i = 0$, which is the preferred choice of the special interest group regardless of the state of the world, might typify minimal climate reforms or even upholding the status quo, or other consumer-facing policies that still allow for the combustion of fossil fuels. Policies that invoke the “individualization of responsibility” fall under this umbrella. Policy $a_i = 1$ would encompass more comprehensive climate policy reform or policies that are more likely to affect production of fossil fuels. One could imagine a model with a continuous state of the world and continuous action space, allowing for more fine-grained interpretations of policy outcomes, but this adds mathematical complexity without providing additional substantive insights.

The special interest and assumptions on information. I model the strategic dissemination

of information by a single interest group that opposes climate action. The appendix includes an extension in which the special interest group has a bias in favor of environmental action (e.g., the Sierra Club), in which all results bias toward climate action rather than inaction. Concentrating on a single group allows for a more concrete understanding of the incentive structure for misreporting, and focusing on an anti-climate group captures the empirical regularity of anti-climate lobbying and its role in stalling climate policy, especially in the United States (Dunlap and McCright 2011; Brulle 2014; Dunlap and McCright 2015), although one could interpret s_i as the “net messaging” a voter receives from multiple interest groups.

The politician does not know s_i when implementing climate policy; her information about ω is external to what the interest group communicates to the voter (x_i^θ is unrelated to s_i). This shuts down any informational lobbying (Schnakenberg 2017; Schnakenberg and Turner 2024) or other quid pro quo lobbying approaches in which the interest group directly interfaces with the politician. This allows for the isolation of and focus on the “outside lobbying” mechanism (Kollman 1998) in which special interests indirectly influence policy through voter beliefs. That said, results would not be qualitatively different if the politician could condition her strategy on s_i ; see the appendix for an extension that considers this alternative setup.

The politician’s incentives and the basis of the selection problem. The politician in the model does not have latent policy preferences for particular climate policy responses (e.g., Maskin and Tirole 2004); instead, she wishes to enact the appropriate policy given expectations about the severity of climate change. On policy, the politician and the voter have aligned incentives. The voter thus rewards politicians whom are viewed as competent, or were more likely to have done the right thing.

The politician’s competence lends itself to several interpretations. We may think that some politicians are more likely to implement successful climate reforms given information that they have at their disposal about the true threat of climate change. This may arise due to variation in bureaucratic capacity or variation in the quality of scientific knowledge. In addition, competence may signify a heightened ability to implement policy congruent with the voter’s willingness to pay

for climate policy, given their prior belief about the need for such policy measures.

Analysis: Domestic Politics

Before moving to the international model, I solve the game for the case of a single country. This means that the politician's utility function is $u_P = a_i\omega + (1 - a_i)(1 - \omega) + r_i$; I suppress dependence on country i to reduce notational clutter. This section establishes two main results about the relationship between information and climate policymaking. Result 1 demonstrates that as special interests are more likely to misreport to the domestic public, politicians are less incentivized to take climate action. Result 2 shows that the optimal level of misreporting is nonmonotonic in climate change's expected severity (or the *ex ante* expectation that climate reform is appropriate). Before turning to results, I state the game's equilibrium. Proofs of all formal results are in the appendix.

Proposition 1 *In a perfect Bayesian equilibrium:*

1. *Given equilibrium behavior in the climate policy subgame, the special interest chooses an optimal misreporting level $\beta^* \in [0, 1]$.*
2. *A unique cutoff \tilde{x}^* exists such that a politician of type θ chooses policy $a = 1$ given signal x^θ with probability $\sigma^*(\theta, x^\theta) \in [0, 1]$. These probabilities are*

$$\sigma^*(1, x^1) = x^1 = \omega.$$

$$\sigma^*(0, x^0) = 1 - G(\tilde{x}^*; \omega).$$

3. *Upon observing policy a and signal s , the voter reelects the politician with probability $F(\mu^*(a, s; \tilde{x}^*))$.*

Proceeding by backward induction, I introduce the intuitions of the equilibrium. First consider the *climate policy subgame*, the interaction between the voter and the politician in which β is an exogenous parameter. When evaluating the politician's competence, the voter draws inferences based on both the politician's actions and the information provided by the special interest group regarding the state of the world. Since both the politician and the voter prefer policy to align with

the true state of the world, the politician's actions reveal information about both her type and her beliefs regarding the urgency of climate policy. Following any policy choice a and signal s , the voter reelects the politician if and only if $\mu(a, s) \geq \varepsilon$, so the probability of retention from the politician's perspective is $F(\mu(a, s))$.

Now considering the behavior of the politician, it is clear that the competent politician always prefers to choose $a = \omega$: policywise she wants to match her action to the state and has perfect information about the need for climate policy. By contrast, the incompetent type does not precisely know the state of the world, so she must form beliefs about the true severity of climate change. Given the value of her private signal $x^0 = x$, the incompetent politician's posterior belief about the state is $\eta(x) = P(\omega = 1|x) = \frac{\pi g(x;1)}{\pi g(x;1) + (1-\pi)g(x;0)}$. These beliefs affect her personal assessment about potential environmental damages, as well as which messages she believes the voter could observe from the special interest. Write $\Delta(s) = F(\mu(1, s)) - F(\mu(0, s))$ as the difference in the politician's reelection odds between taking climate action and not, holding the interest group's signal fixed. The incompetent politician thus chooses $a = 1$ if and only if

$$\eta(x) + (1-\beta)\eta(x)F(\mu(1, 1)) + (1-\eta(x) + \beta\eta(x))F(\mu(1, 0)) \geq (1-\eta(x)) + (1-\beta)\eta(x)F(\mu(0, 1)) + (1-\eta(x) + \beta\eta(x))F(\mu(0, 0)),$$

so the cutoff \tilde{x}^* solves

$$\underbrace{2\eta(\tilde{x}^*) - 1}_{\text{net belief } a=1 \text{ correct}} + \underbrace{(1-\beta)\eta(\tilde{x}^*)\Delta(1; \tilde{x}^*)}_{\text{net electoral return if } s=1} + \underbrace{(1-\eta(\tilde{x}^*) + \beta\eta(\tilde{x}^*))\Delta(0; \tilde{x}^*)}_{\text{net electoral return if } s=0} = 0.$$

The incompetent politician weighs her posterior belief that $\omega = 1$ with the difference in reelection odds that each policy choice induces. If she is sufficiently confident that broad climate reform is the correct policy, then she chooses $a = 1$. Otherwise, she selects policy $a = 0$. Since the incompetent type's information is imperfect, she can sometimes make the “wrong” policy choice. The signal that makes the incompetent politician indifferent between choosing $a = 1$ and $a = 0$ is \tilde{x}^* , thereby identifying the equilibrium cutoff. Increasing \tilde{x}^* would require the incompetent type to be more certain that $\omega = 1$ in order to take action, thereby decreasing the range of signals that would result in climate reform; decreasing \tilde{x}^* would galvanize the incompetent politician toward climate action, meaning she needs lower quality information to choose $a = 1$.

The special interest's signal, s , plays a crucial role in shaping the equilibrium dynamics of the policymaking process. Since the special interest (strategically) communicates the appropriateness of climate policy, its message functions as a lens through which the voter interprets the politician's behavior. Consequently, it affects the voter's assessment of the politician's competence, and in particular, the voter is more likely to update favorably when the politician's action and the special interest's message coincide. To see why, consider the history following $(a, s) = (0, 1)$. Since the interest group is biased toward maintaining the status quo—new climate regulations like those targeting fossil fuels are detrimental to its interests—any signal $s = 1$ must be fully informative about ω , so the voter knows $\omega = 1$ for sure. Thus, if the politician failed to take action in this eventuality, she must be incompetent. To avoid this most severe electoral sanction, the incompetent politician therefore internalizes the possible messages the voter could observe and tailors her policy to appear consistent.

Equilibrium Climate Action and Misreporting

We are interested in how the politician's equilibrium strategy changes with the special interest's level of misreporting β . Since both the politician's competence θ and her signal about the state of the world x are unobserved, it is useful to work with the *ex ante* probability of climate action, or the total probability that a politician chooses $a = 1$, written as

$$A(\tilde{x}^*) = \underbrace{\tau\pi}_{\substack{\text{competent type} \\ \text{takes action if } \omega=1}} + \underbrace{(1-\tau)\pi(1-G(\tilde{x}^*;1))}_{\substack{\text{incompetent type takes action if } \omega=1}} + \underbrace{(1-\tau)(1-\pi)(1-G(\tilde{x}^*;0))}_{\substack{\text{incompetent type takes action if } \omega=0}}.$$

Increasing the level of misreporting decreases the probability of climate action from the incompetent type. Formally, the cutoff \tilde{x}^* is increasing in β , $\frac{d\tilde{x}^*}{d\beta} > 0$. As β increases, the interest group is more likely to send the signal $s = 0$ regardless of the state. While voters rationally downweight the probability of such a false negative, the signal still affects voter beliefs and subsequently the incompetent politician's willingness to take climate action. Increasing the level of misreporting incentivizes climate inaction because, as mentioned above, the voter becomes more likely to believe the politician is competent when observing consistency between her actions and the interest group's

signal. Since the voter's inference about the appropriateness of climate policy is produced jointly by the group's strategic motivations from the action of the politician, he becomes more scrutinizing of climate action in a world where misreporting is rampant. Subsequently, the incompetent politician optimally decreases the probability of climate action.

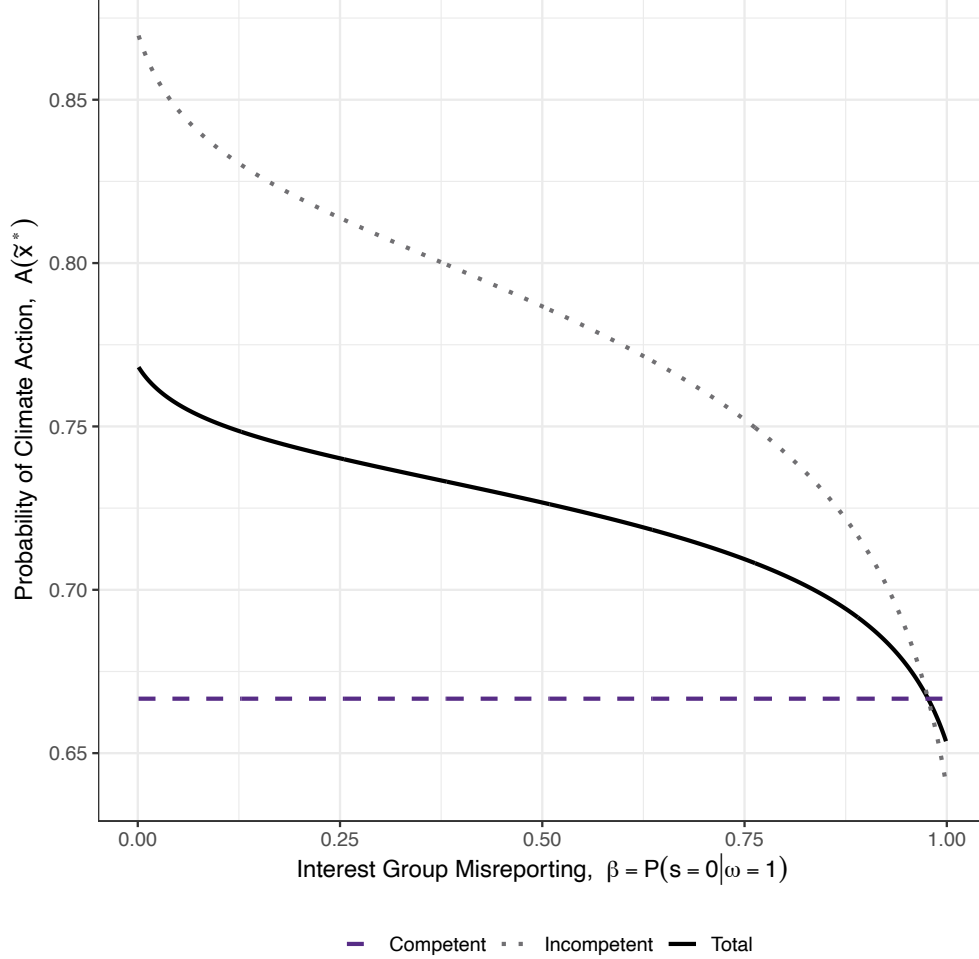


Figure 4: Probability of Climate Action Decreases in Misreporting

$$\pi = \frac{2}{3}, \tau = \frac{1}{2}, \varepsilon \sim N(0, 1), \nu^0 \sim N(0, 1)$$

Misreporting affects the incompetent politician's incentives for climate action through her internalization of the voter's belief about her competence, which affects the politician's utility through her reelection concerns. Specifically, the politician's reelection odds are tied to the voter's posterior beliefs about her competence, which are also affected by special interest messaging. As mentioned, the special interest's message acts as a lens through which the voter assesses the politician's climate

policy; as that lens becomes more biased, the incompetent politician shades climate policy in favor of inaction to maintain the veneer of competence and subsequently increase her reelection chances. Suboptimality in climate policy provision arises from the incompetent politician's concerns over her electoral fortunes in the face of biased messaging.

While the competent type is unaffected by the special interest's misreporting, the probability of climate action decreases because of the informational effects on the incompetent politician's behavior. This is seen in Figure 4: the competent type's probability of choosing $a = 1$ is constant in β (purple dashed line), while the incompetent type's willingness to pursue climate reforms is decreasing in the level of misreporting (grey dotted line). As a result, the total expected level of climate action goes down (black solid line):

$$\frac{dA(\tilde{x}^*)}{d\beta} = -(1 - \tau)\pi g(\tilde{x}^*; 1) \frac{d\tilde{x}^*}{d\beta} - (1 - \tau)(1 - \pi)g(\tilde{x}^*; 0) \frac{d\tilde{x}^*}{d\beta} < 0.$$

Result 1 *The probability of climate action is decreasing in the special interest's misreporting β .*

In a context of extensive misreporting, politicians are less inclined to pursue climate reforms due to the electoral consequences of implementing such policies. Since the voter becomes less likely to view climate reforms as correct, the incompetent politician diminishes her pursuits of reform. Conversely, in a scenario where interest groups truthfully disclose the impacts of climate change, we would expect to observe more reform. I now finish discussion of the domestic politics model by endogenizing the level of misreporting β .

Optimal Misreporting

Zooming out of the climate policy subgame, I determine how the special interest optimally designs information about the state of the world. Given the equilibrium behavior, the interest group seeks to minimize the probability of climate action plus any costs associated with committing to misreporting. As made clear above, since the proliferation of misreported information about the state always slows down climate action by the incompetent politician, the special interest's ideal strategy would be to set $\beta = 1$, always sending $s = 0$. However, information design is costly for

the special interest. The group's objective function is

$$\max_{\beta \in [0,1]} 1 - A(\tilde{x}^*) - c(\beta).$$

The special interest trades off the marginal benefits of spreading misreported information, which unambiguously leads to a decreased probability of climate action if an incompetent politician is in office per Result 1, and the marginal costs of developing the infrastructure to misreport. This tradeoff is characterized by the corresponding first-order condition:

$$\underbrace{(1 - \tau) \frac{d\tilde{x}^*}{d\beta} \left(\pi g(\tilde{x}^*; 1) + (1 - \pi) g(\tilde{x}^*; 0) \right)}_{\text{marginal benefit of incompetent type taking inaction}} = \underbrace{c'(\beta)}_{\text{marginal costs of misreporting}}.$$

To think about evolution in the special interest's message over time, I examine the relationship between β^* and the underlying severity of climate change π . The prior π captures the accruing expectations that climate change is environmentally harmful over time, so the comparative static can trace out temporal changes in special interest behavior. When π is low, the correct policy is more likely to be aligned with the preferences of interest group: bold climate reforms are not necessary on average. But when π increases, there are greater incentives to misreport because the more likely policy goes against the preferences of the special interest.

Figure 5 illustrates that the optimal β^* is nonmonotonic in π , taking an inverse-U shape. That is, if the expected risks of climate change are minimal or highly likely, then the special interest designs a relatively truthful signal. Intuitively, if climate change poses a minimal threat such that action is almost never appropriate, then the interest group does not need to expend resources to achieve its preferred outcome; it is likely that the politician would choose $a = 0$ in the absence of a signal to obfuscate inference. Conversely, if π is very high, then the interest group's signal $s = 0$ would not be credible, as the voter leans heavily on the prior. In this case, it becomes prohibitively costly for the interest group to misreport both because of the material costs $c(\beta)$ but also because these messages would be rationally discounted by the voter.

However, if climate risks are middling, meaning that the incompetent politician and the voter

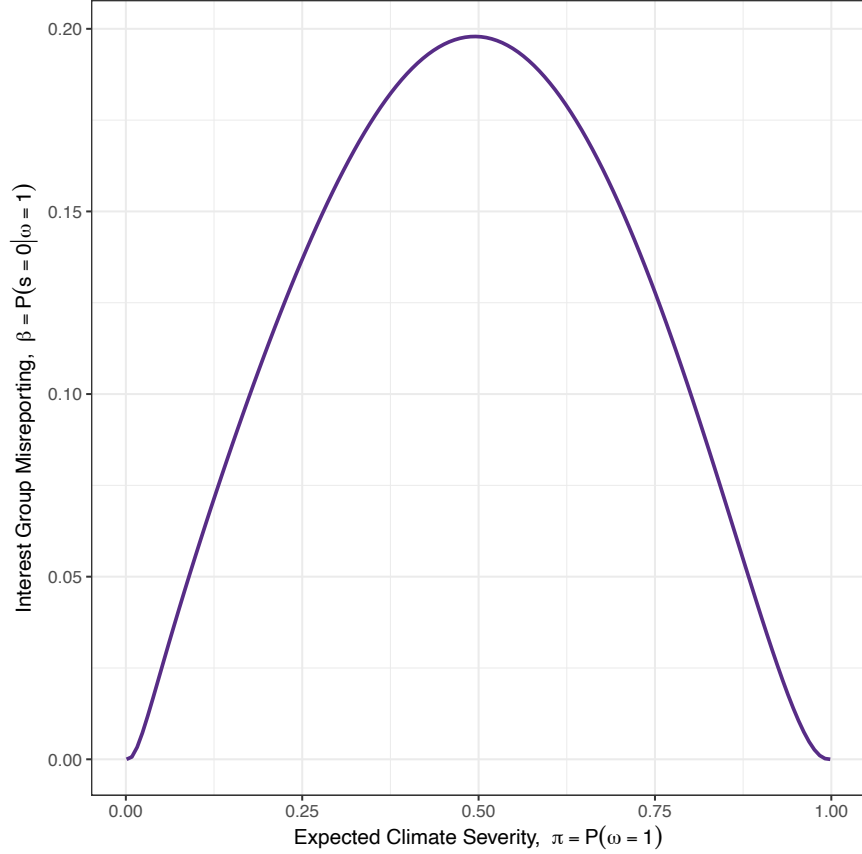


Figure 5: Nonmonotonicity of Optimal Misreporting in Expected Climate Severity
 $\pi = \frac{2}{3}, \tau = \frac{1}{2}, \varepsilon \sim N(0, 1), \nu^0 \sim N(0, 1), c(\beta) = \frac{1}{4}\beta^2$

are the most unsure about whether climate policy is appropriate, then the interest group is most likely to misreport. This generates the most uncertainty about whether climate policy is the correct reform to pursue. Here, a signal $s = 0$ carries most weight as it sways the public toward inaction, thereby discouraging the politician from pursuing climate reforms. This nonmonotonicity comports with the trajectory of information disseminated by companies such as Exxon, reminiscent of the timeline in Figure 1: when climate change's risks were poorly understood in the 1980s or there was little *ex ante* threat, Exxon's scientists toed the scientific consensus. Into the 1990s, their strategy changed toward convincing the public that climate change was not an issue that warranted a large policy response, corresponding to a time where knowledge about climate change's risks began to increase. This informational campaign began to wind down by the 2010s, a time where expected damages were increasing further, with Exxon acknowledging the severity of the climate problem.

Result 2 *The interest group's optimal information structure is nonmonotonic in the ex ante severity of climate change π : misreporting is most likely when π is intermediate.*

This result underscores the cross-cutting nature of uncertainty in climate policymaking: when politicians and voters do not precisely know their vulnerabilities to climate change, they must make assessments about what types of policy responses are appropriate to address the problem. Furthermore, as is expected by the distributional nature of climate policy (Colgan, Green and Hale 2021), there may be special interest groups with an interest in delaying action, but can disseminate information to the public about the severity of the climate threat. When the *ex ante* uncertainty about climate vulnerabilities is intermediate, then special interest groups proliferate information that downplays the risks of climate change and is likely to stymie political action by exploiting climate change's uncertainties.

Analysis: International Cooperation

This section analyzes the full model which considers the interplay between domestic politics and international climate cooperation. I consider how the informational effects described in the previous section interact with international efforts to coordinate climate policies. Results 3 and 4 establish the core of the theory: across borders, climate policies are strategic *complements* in equilibrium, which follows from the politicians' payoffs because both nations want to match their policy to the perceived climate threat. Hence, any domestic factors that suppress policymaking in one nation can spill over and affect decisionmaking internationally. Result 5 explores heterogeneity in international policy outcomes as a function of domestic misreporting. The equilibrium of the game is stated in Proposition 2 and resembles that of the domestic politics analysis.

Proposition 2 *In a perfect Bayesian equilibrium:*

1. *Given equilibrium behavior in the climate policy subgame, the special interests choose optimal misreporting levels $(\beta_i^*, \beta_j^*) \in [0, 1]^2$.*
2. *A unique pair of cutoffs $(\tilde{x}_i^*, \tilde{x}_j^*)$ exists such that a politician of type θ in country i chooses*

policy $a_i = 1$ given signal x_i^θ with probability $\sigma^*(\theta_i, x_i^\theta) \in [0, 1]$. These probabilities are

$$\sigma^*(1, x_i^1) = x_i^1 = \omega.$$

$$\sigma^*(0, x_i^0) = 1 - G(\tilde{x}_i^*; \omega).$$

3. Upon observing policies a_i and a_j and signal s_i , the voter in country i reelects the politician with probability $F(\mu_i^*(a_i, s_i, a_j; \tilde{x}_i^*, \tilde{x}_j^*))$.

As before, the climate policy subgame proceeds wherein voter i reelects politician i if and only if $\mu_i(a_i, s_i, a_j) \geq \varepsilon_i$, occurring with probability $F(\mu_i(a_i, s_i, a_j))$. To consider the difference in electoral returns for politician i fixing the signal s_i and politician j 's action a_j , write $\Delta_i(s_i, a_j) = F(\mu_i(1, s_i, a_j)) - F(\mu_i(0, s_i, a_j))$.

At the international level, politician i must form an assessment of politician j 's likelihood of taking climate action, or the belief that politician j views climate change as sufficiently severe. Because signals are all centered around the same ω , they are correlated across countries. Climate change presents a common values uncertainty problem. This means that, from politician i 's perspective who has signal $x_i^\theta = x_i$, $x_j^\theta | x_i \sim \eta(x_i)G(\cdot; 1) + (1 - \eta(x_i))G(\cdot; 0)$. Politician i uses her updated beliefs about the state $\eta(x_i)$ to infer what politician j knows about the global climate threat (or lack thereof).

As in the single country case, competent politicians always follow their signals: since the international climate response requires both politicians to match their actions to the state of the world, it is optimal in policy terms to do the right thing. However, incompetent politicians, who do not know the true vulnerability to climate change, must consider two factors. First, as in the domestic politics analysis, an incompetent politician must consider how her actions play domestically in terms of informing the voter about her type. Second, her climate policy must be a best response to the other nation's climate policymaking. Let $y_j = P(a_j = 1 | x_i)$ be the probability that politician j takes climate action from the perspective of the incompetent politician i who has received signal

$x_i^0 = x_i$. She then pursues climate action herself, $a_i = 1$, if and only if

$$\underbrace{2y_j - 1}_{\text{net belief } a_i=1 \text{ correct} + \text{coordination}} + \underbrace{\eta(x_i)(1 - \beta_i)(y_j \Delta_i(1, 1) + (1 - y_j) \Delta_i(1, 0))}_{\text{net electoral gain if } s_i=1} + \underbrace{(1 - \eta(x_i) + \eta(x_i)\beta_i)(y_j \Delta_i(0, 1) + (1 - y_j) \Delta_i(0, 0))}_{\text{net electoral gain if } s_i=0} \geq 0,$$

which resembles the condition characterizing \tilde{x}^* in the domestic politics analysis, but also endogenizes the behavior of politician j . Hence, in equilibrium, an incompetent politician will pursue climate reform if and only if her signal about its appropriateness is sufficiently high, which means she also has to be convinced that politician j will do the same. Since the incompetent politician j faces an analogous problem, the equilibrium to the international coordination game is characterized by a pair of cutoffs $(\tilde{x}_i^*, \tilde{x}_j^*)$, the solution to a system of two equations, which delineate the quality of information about the state of the world that an incompetent politician in each country would require to take climate action.

Informational Spillovers and International Climate Cooperation

The model highlights two relevant sources of information that affect international climate policy-making. First, the signal x_i^θ provides information about whether politician j is sufficiently likely to take action because signals are correlated. Hence, varying the cutoff rule \tilde{x}_j^* , or the ease with which an incompetent politician j pursues climate reform, also affects how politician i will respond. The next result formalizes that politicians' actions are strategic complements internationally: if politician i knows that politician j uses a more stringent threshold, making it less likely that j takes climate action, then politician i updates negatively on the appropriateness of climate reform and is less likely to take action as well. This follows directly from the fact that politicians need to coordinate their behavior around the true state of the world.

Result 3 *Actions are strategic complements: if politician j is less likely to take climate action then so is politician i , \tilde{x}_i^* is increasing in \tilde{x}_j^* .*

The second source of information stems from the special interest group in each country, affecting how voters assess the appropriateness of the international climate policy outcome. Since countries

want to coordinate their policy responses at the international level, changes in the domestic environment of one country will affect international climate action. Consider the effects of increased misreporting about the severity of climate change within country i . Since misreporting stagnates climate action in country i (Result 1), and country i 's actions matter for country j (Result 3), such misreporting affects country j as well. Indeed, misreporting anywhere affects climate action everywhere, creating an *informational spillover*.

Result 4 *Increasing misreporting in country i β_i increases incompetent politician j 's cutoff \tilde{x}_j^* .*

These spillover effects arise because of the equilibrium forces that incentivize global climate coordination. Misreporting in country i has no *direct* effect on policymaking in country j , but spillovers occur because of the *strategic* effects that interlock each politician's willingness to undertake climate policy. Clearly, this willingness is a function of countries' domestic politics: the cutoffs \tilde{x}_i^* and \tilde{x}_j^* depend on one another and, as Result 3 illustrates, amplify each other. Formally, this can be written as

$$\frac{d\tilde{x}_j^*}{d\beta_i} = \underbrace{\frac{\partial \tilde{x}_j^*}{\partial \beta_i}}_{=0 \text{ no direct effect}} + \underbrace{\frac{\partial \tilde{x}_j^*}{\partial \tilde{x}_i^*}}_{>0 \text{ Result 3}} \underbrace{\frac{d\tilde{x}_i^*}{d\beta_i}}_{>0 \text{ Result 1}} > 0.$$

Along with strategic complementarities, increasing misreporting in any country can stagnate climate action globally: the domestic suboptimalities created by misreporting reverberate across borders. The consequences of informational spillovers on global climate action are immediate. From the above analysis, we know that both countries are less likely to pursue climate action when misreporting increases: $\frac{dA_i(\tilde{x}_i^*)}{d\beta_i} < 0$ and $\frac{dA_j(\tilde{x}_j^*)}{d\beta_i} < 0$. At the international level, we can define three outcomes: (1) *coordinated climate action*, the probability that both nations pursue climate reform, $A_i(\tilde{x}_i^*)A_j(\tilde{x}_j^*)$; (2) *unilateral climate action*, the probability that one only nation pursues climate reform, $(1-A_i(\tilde{x}_i^*))A_j(\tilde{x}_j^*)+A_i(\tilde{x}_i^*)(1-A_j(\tilde{x}_j^*))$; and (3) *coordinated climate inaction*, the probability that neither nation pursues climate reform, $(1-A_i(\tilde{x}_i^*))(1-A_j(\tilde{x}_j^*))$. Note that all three of these quantities are likely to be nonzero in equilibrium, which provides a more general characterization of the likelihood of global climate action than extant theories. In particular, unilateral climate action is possible in equilibrium: incomplete information about the true severity of climate change

ω means that transnational best responses account for the possibility of “miscoordination” because a politician could “get it wrong.” In other words, it is possible to observe instances in which some nations pursue climate reforms and others do not; such reform is pursued because it is domestically valuable, even while best responding to possible inaction at the international level.

The next result investigates the effects of misreporting on these outcomes.

Result 5 *Increasing misreporting in country i β_i :*

- *Decreases coordinated climate action.*
- *Increases unilateral climate action if $A_i(\tilde{x}_i^*) > \frac{1}{2}$ and $A_j(\tilde{x}_j^*) > \frac{1}{2}$.*
- *Increases coordinated climate inaction.*

Given strategic complementarities, the first and third findings of Result 5 follow intuitively. Figure 6, the international analog of Figure 4, illustrates this result: the solid purple line shows decreased coordinated climate action and the dashed grey line shows increased coordinated climate inaction as a function of how special interest i reports about the severity of climate change. Additionally, the result provides the theoretical mapping to the stylized facts about international climate action. Figures 2 and 3 highlight increased climate law adoption over time and the complementary returns to adoption across countries. Result 5 shows that countries are more likely to take climate action, and jointly so, when misreporting decreases. As established in Result 2, the trajectory of misreporting has shifted over time to become more truthful about the effects of climate change, thereby spurring domestic action and subsequent international informational spillovers. This logic is confirmed through Figure 6 in which coordinated climate action is highest when misreporting is low, corresponding to the surge in climate law adoption seen in Figure 2.

The effects of misreporting on unilateral climate action (dotted purple line in Figure 6) are more subtle because we are looking at the effect of increased misreporting in country i while conditioning on the eventuality that countries mismatch their climate policies. Differentiating the definition of unilateral climate action with respect to β_i yields

$$\frac{dA_i(\tilde{x}_i^*)}{d\beta_i}(1 - 2A_j(\tilde{x}_j^*)) + \frac{dA_j(\tilde{x}_j^*)}{d\beta_i}(1 - 2A_i(\tilde{x}_i^*)).$$

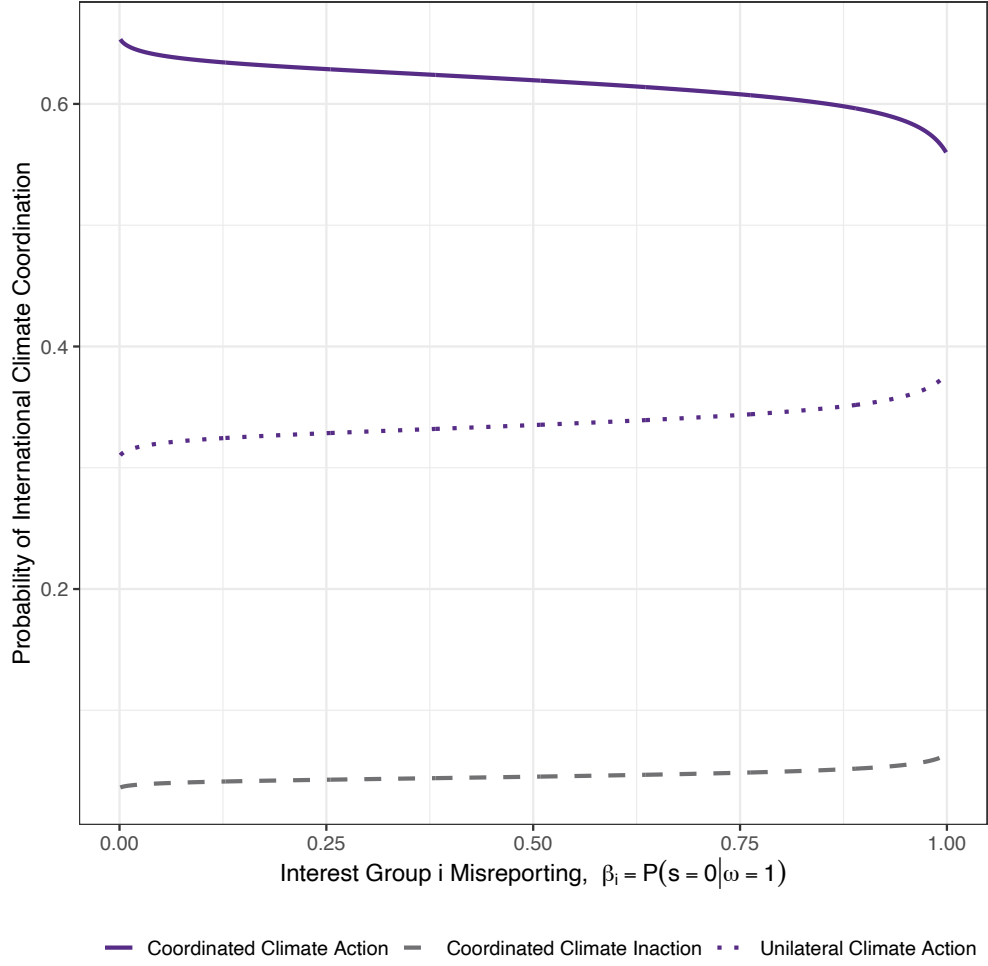


Figure 6: Misreporting and International Climate Coordination Outcomes

$$\pi = \frac{2}{3}, \tau_i = \frac{1}{2}, \tau_j = \frac{3}{5}, \beta_j = \frac{1}{2}, \varepsilon_i, \varepsilon_j \sim N(0, 1), \nu_i^0, \nu_j^0 \sim N(0, 1)$$

The sign of this derivative is ambiguous, and depends on the baseline levels of $A_i(\tilde{x}_i^*)$ and $A_j(\tilde{x}_j^*)$. While possible, unilateral climate action is rarer because coordination incentives factor heavily into politicians' decision to pursue climate reforms. Increasing misreporting invokes informational spillovers, which reinforce these coordination incentives, thereby making it difficult to know the direction of the effects of misreporting on unilateral climate action.

Optimal International Misreporting

To finalize analysis of the model, consider how special interests i and j design information in their nation to best prevent climate action. As in the single country case, each group seeks to minimize the probability that their country pursues climate reforms, thereby maximizing the functions

$$\begin{aligned} u_S^i &= 1 - A_i\left(\tilde{x}_i^*(\beta_i, \beta_j)\right) - c(\beta_i). \\ u_S^j &= 1 - A_j\left(\tilde{x}_j^*(\beta_j, \beta_i)\right) - c(\beta_j). \end{aligned}$$

As reflected in the objective function, while special interest group i 's primary motivation is to shape information to discourage domestic support for climate policies, cross-national strategic interactions between interest groups are embedded within the problem. This occurs because the cutoffs \tilde{x}_i^* and \tilde{x}_j^* are functions of both β_i and β_j ; each politician is playing a mutual best response to their international counterpart given their domestic informational environments. Consequently, special interest group i must optimally design its misreporting strategy, β_i , while considering the strategy of group j , β_j , and vice versa. Taking into account the equilibrium behavior of politicians in the international coordination subgame, these interest groups develop misreporting strategies that serve as cross-national mutual best responses. Each group weighs the marginal value of inducing the incompetent politician into stymieing climate action with the marginal costs of designing misreported information. While the formal analysis is more technical, the substantive themes of misreporting's effects are preserved in the international cooperation model: Result 6 confirms that misreporting is, as in the domestic politics analysis, nonmonotonic in the expected severity of climate change.

Result 6 *Interest groups' optimal information structure is nonmonotonic in the ex ante severity of climate change π : misreporting is most likely when π is intermediate.*

Model Takeaways

To summarize, the international cooperation analysis has yielded the following insights beyond the domestic politics analysis:

- Since politicians’ signals are correlated around the true state, their information generates strategic complementarities in their actions. In equilibrium, we may observe coordinated climate action, coordinated climate inaction, or unilateral climate action as politicians optimally respond both to the domestic demands of voters as well as to global coordination incentives.
- Misreporting interacts with the assumption of complementarities to create informational spillovers, turning domestic informational distortions into suboptimal global climate policy provision. When misreporting proliferates anywhere, it depresses climate action everywhere. Moreover, when expectations about climate change’s effects are middling, there is greater misreporting by special interests, which corresponds to less coordinated climate action. However, as expectations about climate uncertainties become more precise, it becomes costlier to misreport, and special interests shift their messaging toward more truthful acknowledgments of climate change. This, in turn, yields more internationally coordinated climate action.

Suboptimal Climate Action and Misreporting

In canonical models of international climate cooperation, the free rider problem claims that relative to a social optimum—because countries must undertake personally costly actions for global benefits and policies are assumed to be strategic substitutes—there is an underprovision of climate policy (Kennard and Schnakenberg 2023). In this model, I study an alternative version of global climate cooperation, and so I define the globally optimal provision of climate policy via “appropriateness,” or the probability that each politician takes action commensurate with the state of the world, $R_i(\tilde{x}_i^*) = P(a_i = \omega)$. Define this optimality benchmark for each country i as

$$R_i(\tilde{x}_i^*) = \underbrace{\tau_i}_{\substack{\text{competent type} \\ \text{always correct}}} + \underbrace{(1 - \tau_i)\pi(1 - G(\tilde{x}_i^*; 1))}_{\substack{\text{incompetent type correct if } \omega=1}} + \underbrace{(1 - \tau_i)(1 - \pi)G(\tilde{x}_i^*; 0)}_{\substack{\text{incompetent type correct if } \omega=0}} .$$

Two points are immediate. First, as shown in the equilibrium analysis, the competent type always takes the correct policy action. Any “policy mistakes” ($a_i \neq \omega$) come from incompetent politicians. Second, being correct always entails a nonzero probability of climate inaction, the

appropriate policy whenever $\omega = 0$, and the benchmark accounts for this eventuality.

In traditional theoretical analyses of climate action, the extent of the collective action problem is measured as the distance from the social optimum to the equilibrium level of policy. Analogously, I measure the distance between the optimal provision of climate policy and the equilibrium probability of climate action,

$$\left| R_i(\tilde{x}_i^*) - A_i(\tilde{x}_i^*) \right| = \left| \tau_i(1 - \pi) + 2(1 - \tau_i)(1 - \pi) \left(G(\tilde{x}_i^*; 0) - \frac{1}{2} \right) \right|.$$

The first term represents the competent politician's restraint from reform when she knows that $\omega = 0$. The second term represents the net difference of mistakes made by the incompetent politician. Hence, what appears to be suboptimal provision of climate reforms is driven by two factors: competent types knowing when it is appropriate to pursue climate action and when it is not, and incompetent types making mistakes.

Now consider the effects of misreporting on optimal policy provision. Result 7 finds that, in a world of greater misreporting, suboptimality is exacerbated: the distance between the probability of pursuing the correct policy and the probability of climate action gets larger.

Result 7 *Suboptimal climate policy is increasing in the levels of misreporting β_i and β_j .*

Misreporting generates suboptimality in climate policy via two reinforcing channels. Domestically, the incompetent politician wishes to appear competent in order to win reelection; greater misreporting shades her policy agenda toward inaction, even if all else equal pursuing climate action is the correct policy. The second force is international, and follows directly from the effects of informational spillovers. Misreporting, either at home or abroad, dissuades both nations from taking climate action. The suboptimal provision of climate policy is thus exacerbated by international coordination incentives that politicians face.

Discussion

The model provides novel insights to explain empirical regularities about the increase in the depth and breadth of international climate cooperation. In particular, I demonstrate how complemen-

tarities in information that politicians have about the severity of climate change translate into complementarities about climate action across borders. Breaking down these complementarities yields several implications.

My model shows that strategic complementarities are a possible explanation for the surge in climate policy over time. From the perspective of extant, collective-action based theories, this trend is puzzling. To explain the increase in climate policy within pre-existing theoretical frameworks, one might point to a secular increase in the demand for climate policy adoption, while also claiming that the realized provision of climate measures may continue to fall short of an unobserved social optimum. Increasing demand for policy could explain the trend of increasing climate action over time; however, conditional on the trend, traditional theories would still predict decreasing returns from the actions of other countries, which would not account for the simultaneous increase in policy ambition. However, by exploring potential strategic complementarities, this model can account for both the increase in policy over time as well as positively correlated policy ambition on the margin.

The fundamental prediction of collective action theories is that countries will underprovide climate policy relative to a normatively desirable optimum. Suboptimality arises because providing global benefits are personally costly. My theory generates an alternative benchmark that accounts for the role of information and the appropriateness of climate policy. With such a benchmark, I demonstrate that the probability of doing the right thing and the probability of taking climate action diverge in a world where misreporting is high (Result 7). This result underscores the failure of politicians to take climate action (even if it is warranted) in a noisy informational environment as they compete with special interests to favorably shape voters' assessments of their competence.

Similar to UNFCCC negotiations, the model requires unanimity or "consensus" to implement international climate policy, thereby incentivizing coordinated climate action across borders. Nevertheless, unilateral climate action can occur in equilibrium, and, moreover, such action can be electorally beneficial. Climate action can have *domestic* benefits because politicians may be signaling competence to their voters. This dynamic underscores a key insight: international cooperation, while desirable, is not strictly necessary to achieve climate policy gains. Politicians may prioritize demonstrating their competence to voters over the benefits of international coordination, further

challenging conventional accounts of climate action as purely reliant on global cooperation (cf. [Aklin and Mildenberger 2020](#)).

Conclusion

This paper posits a unified model of domestic and international climate policymaking that explains several key empirical facts about the political economy of climate change. I point to changes in the domestic informational environment to document variation in climate policy, its intensity and complementarities across borders, as well as the evolution in messaging strategies pursued by special interests about the severity of the climate threat over time. The theoretical analysis demonstrates that when special interests are able to proliferate “misreported” information about climate change’s risks to the public, downplaying environmental harms, imperfectly informed politicians cut back on their provision of climate reforms in order to salvage their electoral prospects. In a world of international cooperation, misreporting spills over across borders in a negative feedback loop, stagnating global climate action. The contemporary growth in climate policy adoption can therefore be explained by the transition away from denialism and toward relative truthfulness on behalf of special interests that have found it too costly to continue to misreport as the *ex ante* uncertainty around climate change’s severity has decreased over time.

References

- Aklin, Michaël and Johannes Urpelainen. 2013. “Political Competition, Path Dependence, and the Strategy of Sustainable Energy Transitions.” *American Journal of Political Science* 57(3):643–658.
- Aklin, Michaël and Matto Mildemberger. 2020. “Prisoners of the Wrong Dilemma: Why Distributive Conflict, Not Collective Action, Characterizes the Politics of Climate Change.” *Global Environmental Politics* 20(4):4–27.
- Alonso, Ricardo and Gerard Padró i Miquel. 2023. “Competitive Capture of Public Opinion.” https://www.nber.org/system/files/working_papers/w31414/w31414.pdf.
- Antonio, Robert J. and Robert J. Brulle. 2011. “The Unbearable Lightness of Politics: Climate Change Denial and Political Polarization.” *The Sociological Quarterly* 52(2):195–202.
- Austen-Smith, David. 1998. “Allocating Access for Information and Contributions.” *The Journal of Law, Economics, and Organization* 14(2):277–303.
- Balcazar, Carlos Felipe and Amanda Kennard. 2025. “Climate Change and Political Mobilization: Theory and Evidence from India.” <https://drive.google.com/file/d/14yiR15XTWylc8-xE3RosKL03i2-Ta989/view>.
- Barrett, Scott. 2003. *Environment and Statecraft: The Strategy of Environmental Treaty-Making*. Oxford: Oxford University Press.
- Barrett, Scott. 2016. “Coordination vs. voluntarism and enforcement in sustaining international environmental cooperation.” *Proceedings of the National Academy of Sciences* 113(51):14515–14522.
- Battaglini, Marco and Bård Harstad. 2020. “The Political Economy of Weak Treaties.” *Journal of Political Economy* 128(2):544–590.
- Bergemann, Dirk and Stephen Morris. 2019. “Information Design: A Unified Perspective.” *Journal of Economic Literature* 57(1):44–95.

- Bernauer, Thomas. 2013. "Climate Change Politics." *Annual Review of Political Science* 16(Volume 16, 2013):421–448.
- Bolet, Diane, Fergus Green and Mikel González-Eguino. 2024. "How to Get Coal Country to Vote for Climate Policy: The Effect of a "Just Transition Agreement" on Spanish Election Results." *American Political Science Review* 118(3):1344 – 1359.
- Botta, Enrico and Tomasz Koźluk. 2014. Measuring Environmental Policy Stringency in OECD Countries: A Composite Index Approach. OECD Economics Department Working Paper 1177 OECD Publishing.
- Brulle, Robert J. 2014. "Institutionalizing delay: foundation funding and the creation of U.S. climate change counter-movement organizations." *Climatic Change* 122(4):681–694.
- Brulle, Robert J. 2018. "The climate lobby: a sectoral analysis of lobbying spending on climate change in the USA, 2000 to 2016." *Climatic Change* 149(3):289–303.
- Brulle, Robert J. 2021. "Networks of Opposition: A Structural Analysis of U.S. Climate Change Countermovement Coalitions 1989–2015." *Sociological Inquiry* 91(3):603–624.
- Canes-Wrone, Brandice, Michael C. Herron and Kenneth W. Shotts. 2001. "Leadership and Pandering: A Theory of Executive Policymaking." *American Journal of Political Science* 45(3):532–550.
- Cheon, Andrew and Johannes Urpelainen. 2013. "How do Competing Interest Groups Influence Environmental Policy? The Case of Renewable Electricity in Industrialized Democracies, 1989–2007." *Political Studies* 61(4):874–897.
- Colantone, Italo, Livio Di Leonardo, Yotam Margalit and Marco Percoco. 2024. "The Political Consequences of Green Policies: Evidence from Italy." *American Political Science Review* 118(1):108–126.
- Colgan, Jeff D., Jessica F. Green and Thomas N. Hale. 2021. "Asset Revaluation and the Existential Politics of Climate Change." *International Organization* 75(2):586–610.

- Cory, Jared, Michael Lerner and Iain Osgood. 2021. "Supply Chain Linkages and the Extended Carbon Coalition." *American Journal of Political Science* 65(1):69–87.
- Cruz, José-Luis and Esteban Rossi-Hansberg. 2024. "The Economic Geography of Global Warming." *The Review of Economic Studies* 91(2):899–939.
- Dunlap, Riley and A.M. McCright. 2011. Organized Climate Change Denial. In *The Oxford Handbook of Climate Change and Society*, ed. John S. Dryzek, Richard B. Norgaard and David Schlosberg. pp. 144–160.
- Dunlap, Riley E. and Aaron M. McCright. 2015. Challenging Climate Change: The Denial Countermovement. In *Climate Change and Society: Sociological Perspectives*, ed. Riley E. Dunlap and Robert J. Brulle. New York: Oxford University Press.
- Ekurzel, B., J. Boneham, M. W. Dalton, R. Heede, R. J. Mera, M. R. Allen and P. C. Frumhoff. 2017. "The rise in global atmospheric CO₂, surface temperature, and sea level from emissions traced to major carbon producers." *Climatic Change* 144(4):579–590.
- Finnegan, Jared J. 2022. "Institutions, Climate Change, and the Foundations of Long-Term Policymaking." *Comparative Political Studies* 55(7):1198–1235.
- Frumhoff, Peter C., Richard Heede and Naomi Oreskes. 2015. "The climate responsibilities of industrial carbon producers." *Climatic Change* 132(2):157–171.
- Gazmararian, Alexander F. 2024. "Sources of Partisan Change: Evidence from the Shale Gas Shock in American Coal Country." *Journal of Politics* .
- Gazmararian, Alexander F. and Dustin Tingley. 2023. *Uncertain Futures: How to Unlock the Climate Impasse*. New York: Cambridge University Press.
- Gazmararian, Alexander F. and Helen V. Milner. 2024a. "Personal Experience and Self-Interest: Diverging Responses to Global Warming." <https://osf.io/preprints/osf/g4js9> .
- Gazmararian, Alexander F. and Helen V. Milner. 2024b. "Political Cleavages and Changing Exposure to Global Warming." *Comparative Political Studies* .

- Green, Jessica, Jennifer Hadden, Thomas Hale and Paasha Mahdavi. 2022. "Transition, hedge, or resist? Understanding political and economic behavior toward decarbonization in the oil and gas industry." *Review of International Political Economy* 29(6):2036–2063.
- Hagen, Achim and Mark Schopf. 2024. "Political influence on international climate agreements with border carbon adjustment." *Journal of Environmental Economics and Management* 125:102979.
- Heede, Richard. 2014. "Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010." *Climatic Change* 122(1):229–241.
- Hughes, Llewelyn and Johannes Urpelainen. 2015. "Interests, institutions, and climate policy: Explaining the choice of policy instruments for the energy sector." *Environmental Science & Policy* 54:52–63.
- Kamenica, Emir and Matthew Gentzkow. 2011. "Bayesian Persuasion." *American Economic Review* 101(6):2590–2615.
- Kennard, Amanda. 2020. "The Enemy of My Enemy: When Firms Support Climate Change Regulation." *International Organization* 74(2):187–221.
- Kennard, Amanda and Keith E. Schnakenberg. 2023. "Comment: Global Climate Policy and Collective Action." *Global Environmental Politics* 23(1):133–144.
- Keohane, Robert O. and David G. Victor. 2016. "Cooperation and discord in global climate policy." *Nature Climate Change* 6:570–575.
- Kim, Sung Eun, Johannes Urpelainen and Joonseok Yang. 2016. "Electric utilities and American climate policy: lobbying by expected winners and losers." *Journal of Public Policy* 36(2):251–275.
- Kollman, Ken. 1998. *Outside Lobbying: Public Opinion and Interest Group Strategies*. Princeton: Princeton University Press.

- Kruse, Tobias, Antoine Dechezleprêtre, Rudy Saffar and Léo Robert. 2022. Measuring environmental policy stringency in OECD countries: An update of the OECD composite EPS indicator. Technical Report 1703 OECD.
- Maskin, Eric and Jean Tirole. 2004. “The Politician and the Judge: Accountability in Government.” *American Economic Review* 94(4):1034–1054.
- Melnick, Justin. 2024. “Domestic Politics in the European Union’s Emissions Trading System: Evidence from Free Allowance Allocation.” *Journal of Political Institutions and Political Economy* 5(4):627–657.
- Melnick, Justin and Alastair Smith. 2024. “Shaming Paris: A Political Economy of Climate Commitments.” <https://justinmelnick.github.io/papers/paris/paper.pdf>.
- Mildenberger, Matto. 2020. *Carbon Captured: How Business and Labor Control Climate Politics*. Cambridge: The MIT Press.
- Nachmany, Michal, Sam Fankhauser, Joana Setzer and Alina Averchenkova. 2017. Global trends in climate change legislation and litigation. Technical report Grantham Institute London: .
- Nachtigall, Daniel, Luisa Lutz, Miguel Cárdenas Rodríguez, Filippo Maria D’Arcangelo, Ivan Hašič, Tobias Kruse and Rodrigo Pizarro. 2024. “The Climate Actions and Policies Measurement Framework: A Database to Monitor and Assess Countries’ Mitigation Action.” *Environmental and Resource Economics* 87(1):191–217.
- of Concerned Scientists, Union. 2007. ExxonMobil’s Disinformation Campaign. Technical report Union of Concerned Scientists.
- Oreskes, Naomi and Erik M. Conway. 2011. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change*. New York: Bloomsbury Publishing.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Dallas, TX: Cambridge University Press.

- Schnakenberg, Keith E. 2017. "Informational Lobbying and Legislative Voting." *American Journal of Political Science* 61(1):129–145.
- Schnakenberg, Keith E. and Ian R. Turner. 2024. "Formal Theories of Special Interest Influence." *Annual Review of Political Science* 27.
- Stern, Nicholas. 2007. *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press.
- Stokes, Leah C. 2016. "Electoral Backlash against Climate Policy: A Natural Experiment on Retrospective Voting and Local Resistance to Public Policy." *American Journal of Political Science* 60(4):958–974.
- Stokes, Leah C. 2020. *Short Circuiting Policy: Interest Groups and the Battle Over Clean Energy and Climate Policy in the American States*. New York: Oxford University Press.
- Supran, Geoffrey. 2022. "Three shades of green(washing): Content analysis of social media discourse by European oil, car, and airline companies."
- Supran, Geoffrey and Naomi Oreskes. 2021. "Rhetoric and frame analysis of ExxonMobil's climate change communications." *One Earth* 4(5):696–719.
- Urpelainen, Johannes and Alice Tianbo Zhang. 2022. "Electoral Backlash or Positive Reinforcement? Wind Power and Congressional Elections in the United States." *The Journal of Politics* 84(3):1306–1321.
- Voeten, Erik. 2025. "The Energy Transition and Support for the Radical Right: Evidence from the Netherlands." *Comparative Political Studies* 58(2):394–428.
- Williams, Emily L., Sydney A. Bartone, Emma K. Swanson and Leah C. Stokes. 2022. "The American electric utility industry's role in promoting climate denial, doubt, and delay." *Environmental Research Letters* 17(9):094026.