Government Influence in Information Production of International Organizations*

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June 10, 2024

Abstract

A core function of international organizations (IOs) is to provide information to help states address international cooperation problems. Despite compelling evidence for the importance of information and the conditions under which information facilitates cooperative outcomes, we know little about the extent to which governments can and do shape information that IOs provide. In this paper, we develop a theoretical argument that models governments' incentives to influence information production processes in IOs as a function of domestic distributive politics. Focusing on the negotiations of the highly visible "Summary for Policymakers" report of the United Nations' Intergovernmental Panel on Climate Change (IPCC), we analyze textual accounts of meeting discussions from systematic observer report data and estimate word embeddings from governments' review comments to demonstrate empirically that national economic interests guide governments' involvement during various stages of IPCC report production. These findings have implications for our understanding of the role of information provision by IOs for international cooperation.

Keywords: international organizations; information provision; climate science; distributive politics; IPCC; keyword-assisted topics models; word embeddings.

^{*}We are grateful to Mark Buntaine, Robert Gulloty, Dafni Kalatzi Pantera, Michael Lerner, Krzysztof Pelc, Bernhard Reinsberg, Charles Rodger, Gabi Spilker, and Muzhou Zhang for comments on earlier drafts of the paper. This research was funded by the Economic and Social Research Council (ESRC) as part of the project "The Politics of Science in International Climate Cooperation" (ES/W001373/2). For the purpose of Open Access, the author has applied a Creative Commons Attribution (CC BY) to any Author Accepted Manuscript (AAM) version arising from this submission. Rosanna Crawford and Stuart Brown provided excellent research assistance. All errors are our own.

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Introduction

Information is essential for international cooperation. Often, this information is provided by international organizations (IOs) and their agencies (Keohane, 1984; Milner, 1997; Abbott and Snidal, 1998). The United Nations (UN) Human Rights Office, for example, reports on violations of the UN Convention against Torture, the World Bank informs foreign investors about the business climate in host countries, and the World Health Organization's Weekly Epidemiological Reports track the outbreak of diseases, such as Covid-19, cholera, and measles. In all these cases, so standard scholarship goes, information facilitates international cooperation. IOs help states observe what is otherwise often unobservable: receiving credible information about a cooperation problem's underlying problem structure (Mitchell, 2006), other actors' actions, or their interests allows coordination and constraint through naming and shaming (Hafner-Burton, 2008; Lebovic and Voeten, 2006; Tingley and Tomz, 2021), market responses (Simmons, 2000; Morse, 2019) or electoral pressure (Dai, 2005; Fang, 2008; Chaudoin, 2014).

However, for information to have such cooperation-inducing effects much of the existing literature typically assumes that information that IOs share is free from government influence. Indeed, if national governments could easily meddle with, for instance, IO reports on human rights violations, the contents of infringement proceedings, or the publication of economic performance data, this would considerably limit an IO's capacity to constrain government behavior. The controversies over data irregularities related to the World Bank's "Ease of Doing Business" indicator and the executive decision to cancel the associated report in 2021 is one prominent example. In such cases, the information that IOs release is no longer independent, but becomes endogenous to government influence. Similar to the discussion about whether international treaties screen or constrain governments (von Stein, 2005; Simmons and Hopkins, 2005), information provided by IOs that has actively been shaped by (some) national governments is unlikely to coordinate government behavior in meaningful ways. Hence, international organizations' ability to effectively facilitate cooperation *through information* depends on the extent to which IOs are able to firewall their information production processes from outside influence. In practice, information production in IOs relies heavily on governments' inputs. Direct influence through data, expertise, and finances (Abbott and Snidal, 1998; Nielson and Tierney, 2003) as well as indirect influence through informal governance arrangements and staff preferences (Chwieroth, 2013; Clark and Dolan, 2021; Clark and Zucker, 2023) challenge the assumption of no government influence in the information production of IOs.

In this paper, we study the *politics of information production* inside IOs. We argue that the extent to which governments can and do shape the information that IOs produce is a political process itself. This is to say that governments have strong incentives to exercise control over information production in IOs *exactly* because they recognize the constraining effects of better information and greater transparency that international institutions can generate (Mitchell, 1994; Dai, 2005; Fang, 2008; Chaudoin, 2014). Since information supplied by IOs has the power to structure international negotiations (Morrow, 1994), we expect states with high cooperation costs in these negotiations to attempt to shape IOs' information outputs in their favor. Our theoretical framework explains government influence in information production as a function of domestic distributive politics. It highlights the political opposition of national losers to the costly implementation of internationally agreed cooperation outcomes. Since who loses from costly cooperation varies by country, our theoretical account recognizes the contextual and sectoral nature of how domestic distributive politics shapes government influence in IO information production.

We test our argument in the case of the Intergovernmental Panel on Climate Change (IPCC), the United Nations' primary body on climate science (de Pryck and Hulme, 2022; Hughes, 2024). The IPCC regularly publishes the most extensive assessments of what we know about the physical basis, the impacts, and mitigation options of climate change. These reports—and the "Summary for Policymakers" (SPM) as a condensed, high-level overview, in particular—are highly influential in shaping the discourse in annual climate talks under the UN Framework Convention on Climate Chance (UNFCCC) as they set the scientific guardrails for agreeing a political response to the climate crisis. Drawing on original data from both the review stage and the line-by-line approval meetings of the Working Group III SPM text on climate mitigation, we use statistical analysis, keyword-assisted topic models (Eshima, Imai, and Sasaki, 2024), and word embeddings to demonstrate that domestic economic interests shape governments' attempts to influence information production in the IPCC. We show that this finding holds across multiple sectors, spanning oil and gas, forestry, and food systems, and that different countries intervene specifically on those parts of the IPCC text that have material implications for key national industries.

Our paper makes two contributions. First, it shows that governments will seek to influence information production in IOs if they expect IO-provided information to lead to international cooperation outcomes that may harm domestic economic interests. This is an important insight because it nuances our understanding of the conditions under which information can credibly facilitate international cooperation. Information provision can only shape government behavior if the institutional rules empower IOs to protect information production processes from government influence, emphasizing aspects of institutional design (Abbott and Snidal, 1998; Koremenos, Lipson, and Snidal, 2001; Johnson and Urpelainen, 2014). An implication of this logic for future research is that the power of IOs for facilitating international cooperation in highly technical areas may be limited: issues, such as cyber security, terrorist financing, banking regulation, global health, or climate change all require considerable informational input from states, constraining the extent to which an IO can shield against government influence. Empirically, we apply recent methodological advances in modeling the use of words (Rodriguez and Spirling, 2022; Rodriguez, Spirling, and Stewart, 2023; Eshima, Imai, and Sasaki, 2024) to study otherwise difficult-to-observe information production processes in IOs and contribute to the growing use of text-as-data approaches in international relations (e.g., Chaudoin, 2022; Thrall, 2023).

Second, our research speaks to the existing literature that puts domestic distributional conflict at the core of climate politics (Colgan, Green, and Hale, 2021; Aklin and Mildenberger, 2020; Bayer

and Genovese, 2020). We build our argument from the same first principles that costs from ambitious climate policy will structure opposition to and support for international climate cooperation among publics, firms, and governments (Bechtel, Genovese, and Scheve, 2019; Genovese, 2019; Kennard, 2020; Cory, Lerner, and Osgood, 2021; Gaikwad, Genovese, and Tingley, 2022; Bayer, 2023). However, we extend this logic one step further and show that the same incentives that are rooted in the domestic political economy operate not only at the level of the international negotiations themselves, but also apply to information production processes that *precede* these actual negotiations over cooperation outcomes. From a normative perspective, these findings challenge the assumption that information production in IOs is free from politics and call for the more systematic study of the politics of information production in IOs and global governance more broadly.

Information, International Cooperation, and IOs

The lack of information typically complicates international cooperation between governments for one of three reasons: states are either uncertain about a key feature of the cooperation problem itself, about other states' actions, or about other states' preferences. While the cost associated with learning about the underlying problem structure or monitoring other governments' behavior prevents cooperation in the first two cases, incentives to misrepresent private information undermine cooperation in the last case. International organizations help facilitate cooperation in all such situations.

International organizations can address cooperation problems stemming from under-investment in information collection because they benefit from economies of scale in information production (Keohane, 1984; Milner, 1997; Koremenos, Lipson, and Snidal, 2001): pooling resources reduces the per-unit cost of information gathering and, hence, lowers the risk of free-riding (Abbott and Snidal, 1998; Mitchell, 1994). International organizations function as an informational clearing house that collects, vets, and disseminates information. In doing so, IOs can effectively change what governments know about the very structure of a cooperation problem as well as other governments' actions and incentives. Greater access to information alone is not a sufficient condition for successful cooperation, of course, as distributional conflict continues to persist (Morrow, 1994; Goldstein and Martin, 2000), but it certainly reduces the likelihood that cooperation breaks down over asymmetric information.

International organizations also allow governments to make credible commitments. By tying governments' hands through international law or multilateral agreements, reneging on previously negotiated cooperation outcomes comes with significant costs (Abbott and Snidal, 2000; Koremenos, 2005; Rosendorff, 2005). While such non-compliance costs can arise from market responses (Simmons, 2000; Büthe and Milner, 2008; Gray, 2009; Morse, 2019), from fear over naming and shaming campaigns (Lebovic and Voeten, 2006; Hafner-Burton, 2008; Tingley and Tomz, 2021), or from electoral pressure (Dai, 2005; Fang, 2008; Chaudoin, 2014), the common thread in this literature is that IOs can vouch for the veracity of information. Absent reassurances by neutral IOs, governments' public statements about compliance with international commitments carry little weight (Mitchell, 1994; Fortna, 2003; Fang, 2008; Fang and Stone, 2012). Governments have incentives to portray their policies and actions in favorable light, especially on contentious issues. Any claims about not shirking international responsibilities are therefore not convincing unless there is external proof. IOs can often provide such proof. Their multilateral nature equips them with high, yet varying, levels of legitimacy (Abbott and Snidal, 1998; Dellmuth et al., 2021). As a result, information that is verified by IOs and distributed by them can facilitate international cooperation because such information is seen as credible, impartial, and not tainted by particular governments' interests.

Notwithstanding the intuitive appeal of this argument which conceptualizes IOs as unbiased information providers, it sits somewhat uncomfortably with another strand in the international relations literature that studies government influence in IOs and its effects on outcomes. Indeed, governments have been found to exercise control in IOs through formal and informal channels

(Stone, 2004; Dreher, Sturm, and Vreeland, 2015; Carter and Stone, 2015; Graham and Serdaru, 2020) as well as through IO staff that internalize major power interests in their organizational practice (Clark and Dolan, 2021). Building on these findings, we argue in the next section that the same incentives that motivate governments to shape the *material* outcomes of IOs, such as IMF loan conditions or World Bank development assistance programs will also structure governments' attempts to influence the *informational* outcomes of IOs.

A Theory of Government Influence in IO Information Production

Our argument about the politics of information production in IOs starts from the observation in the international institutions literature that information provided by IOs helps facilitate cooperation. This has been shown to be the case for information that is directly shared by IOs themselves (Keohane, 1984; Mitchell, 1994; Milner, 1997; Abbott and Snidal, 1998) as well as for information that is indirectly valuable as a credible signal in instances where IOs matter for overcoming commitment problems (Simmons, 2000; Büthe and Milner, 2008; Fang, 2008; Gray, 2009). As a result, information that comes out of IOs can constrain the set of available policy options for governments (Dai, 2007). Information therefore strengthens incentives for cooperation.

Governments will, however, evaluate these stronger incentives for cooperation against concerns over political backlash from costs associated with greater cooperation. International cooperation, by its very nature, requires deviation from unilateral policymaking, and this deviation is usually costly: signing a free trade agreement squeezes market shares for domestic, import-competing firms; likewise, a globally negotiated phase-out of fossil fuels threatens carbon-intensive industries at home. These and related costs from internationally coordinated policy responses to global challenges, such as globalization, the Covid-19 pandemic, or climate change, are at the core of growing pushback against, and even the undoing of, international cooperation (Broz, Frieden, and Weymouth, 2021; Colgan, Green, and Hale, 2021; Colantone and Stanig, 2018). In cases where public discontent meets political mobilization around issues of international cooperation, these topics can easily become contested and drive heightened politicization, for example, in the run-up to elections (De Vries, Hobolt, and Walter, 2021). Tapping into nationalist sentiments that highlight losses from international cooperation for domestic voters at the expense of other countries—as exemplified in the political rhetoric of "Taking Back Control" in Brexit Britain and "America First" in Trump's United States—, populist leaders challenge incumbents on their commitments to international cooperation. In times when political polarization and populism are on the rise across many advanced democracies, these challenges are real. From Brexit to the global energy transition, popular support for policy proposals that advance anti-cooperation stances translate, more and more so, into electoral gains for populist leaders, mostly on the political right (Colantone and Stanig, 2018; Colantone et al., 2024; Voeten, 2024; Gazmaraian, 2024).

This creates a trade-off for governments. On the one hand, mainstream political leaders often see themselves forced to moderate their support for international cooperation and liberal IOs in response to populist demands at home. Populists capitalize on domestic backlash from losers of international cooperation who experience localized and concentrated costs from internationally coordinated policymaking (Broz, Frieden, and Weymouth, 2021; De Vries, Hobolt, and Walter, 2021; Ballard-Rosa et al., 2021). On the other hand, as audience cost theory teaches us, backing down from internationally articulated promises, reneging on commitments, or stepping away from cooperation altogether can equally be electorally costly (Fearon, 1994; Smith, 1998; Leeds, 1999; Mansfield, Milner, and Rosendorff, 2002; Mansfield and Pevehouse, 2006). It is these competing pressures which we argue create incentives for governments to seek influence in IO information production.

More specifically, we claim that governments have strong incentives to shape the information that IOs provide because they are aware of the constraining effects of IO information. If this is indeed the case, IO provided information is no longer exogenous, but becomes part of an endogenous political process itself, where governments can shape the information before it becomes publicly released by an IO. The extent to which governments can exercise such control over information production will depend on the institutional design of the specific IO: IOs that largely rely on independent sources, for instance, may be largely shielded from government influence compared to those, such as the Intergovernmental Panel on Climate Change (IPCC), which we study below, for which government inputs and even government approval of the produced information are critical.

In instances where governments have indeed some influence over an IO's information production, we conjecture that *governments seek to protect the domestic distributional losers from the information that IOs release*. In our specific case of climate change, and in keeping with evidence from the climate politics literature (Colgan, Green, and Hale, 2021; Aklin and Mildenberger, 2020; Kennard, 2020; Stokes, 2020; Mildenberger, 2020; Green et al., 2022) we expect that governments whose economies are highly reliant on the fossil fuel industry, will attempt to influence the language of the IPCC Summary for the Policymakers texts more aggressively than other countries.

Background on the IPCC

We test our argument in the case of the United Nations' Intergovernmental Panel on Climate Change (IPCC). The IPCC was founded in 1988 by the World Meteorological Organization and United Nations Environment Programme. It is both an IO (with permanent Secretariat in Geneva) and a scientific body which counts 195 member countries. Its goal is to assess and summarize the science, impact, and mitigation options of climate change. Its reports provide crucial policy inputs for governments' international negotiations, such as those happening under the United Nations Framework Convention on Climate Change (UNFCCC). In order to produce such reports, the IPCC does not conduct its own research: instead, it relies on available climate change-related knowledge and draws on peer reviewed, published, and technical literature.

The IPCC is organized in three working groups (WGs) dedicated, respectively, to summarizing available knowledge on: the physical basis of climate change (WGI); impact, adaption, and vul-

nerability of climate change (WGII); and options to reduce CO2 emissions and mitigate climate change (WGIII). The IPCC operates in "assessment cycles", i.e., rounds of five to seven years which end up in the production of an assessment report (AR), such as the latest AR6 report in 2023.¹ In each cycle, every WG produces at least three relevant documents: a Longer Report (in IPCC jargon this is often referred to as the "underlying report"), a Technical Summary, and a Summary for Policymakers (SPM). These three documents contribute to the AR that gets produced in a given cycle. IPCC summary reports are usually organized in "headline statements" that synthesize a given set of sub-paragraphs (which we refer to as "sub-headline statements").

We study the production of the SPM in AR6 of WGIII. We focus on WGIII as it deals with mitigation options and greenhouse gas emission reduction, both particularly relevant policy issues in climate negotiations. Among the various text documents produced by the IPCC, we focus on SPMs because of the significant public attention that they tend to receive. Their content is often reported on newspapers and media sources. Moreover, SPMs are reviewed, discussed, and approved line-by-line by government delegates. The process of revision and government approval produces three different versions of a single SPM. First, WG authors produce an initial SPM draft. We refer to this as the "draft" version of the SPM. In the case of the SPM produced by WGIII for AR6, the document was dated November 28, 2021. The draft is then sent to governments, who submit comments in a process of review on this initial version. WG authors receive comments and incorporate them in a second version, which we refer to as the "interim" SPM. In our case, this version is dated March 16, 2022. The interim version is then discussed over multiple days in a plenary session, where government delegates discuss the SPM line-by-line and must reach consensus on raised issues. For WGIII, in assessment cycle 6, plenary sessions started on March 21. Although initially scheduled to finish on Friday, April 1, a final approval of the SPM was only achieved on Sunday night, April 3, 2022. The outcome of this stage is a third version of the SPM, which we refer to as the "final" version.

¹ See: *Sixth Assessment Report*, Intergovernmental Panel on Climate Change (IPCC). 2023.

B.2 Net GHG emissions have increased since 2010 across all <u>major</u> sectors <u>globally</u>. For CO2 An increasing share of emissions is accounted for by activities in urban areas. Emissions reductions in CO2 from fossil fuels and industry, <u>due to</u> improvements in energy <u>efficiency</u> intensity of GDP and carbon intensity <u>of energy</u>, have not been sufficient to compensate for growing more than offset by increasing global activity levels in industry, energy supply, transport, <u>buildings</u>, agriculture and <u>land-use change</u>, as well as urbanisation <u>buildings</u>. (high confidence) {2.2, 2.4, 6.3, 7.2, 8.3, 9.3, 10.1, 11.2}

(A) Draft vs interim version

B.2 Net <u>anthropogenic</u> GHG emissions have increased since 2010 across all major sectors globally. An increasing share of emissions is accounted for by activities in can be attributed to urban areas. Emissions reductions in CO2 from fossil fuels and industrialy processes, due to improvements in energy intensity of GDP and carbon intensity of energy, have been less than more than offset by increasing emission increases from rising global activity levels in industry, energy supply, transport, agriculture and buildings. (high confidence) {2.2, 2.4, 6.3, 7.2, 8.3, 9.3, 10.1, 11.2}

(B) Interim vs final version

FIGURE 1: Tracked changes across versions of an IPCC SPM. Headline Statement B.2, Working Group III, assessment cycle 6

This two-stage process of revision can make the final version of an SPM significantly different from the initial one. Figure 1 shows in red insertions and deletions for the single headline statement B.2 of the SPM of WGIII in Assessment Cycle 6, when moving across versions. It exemplifies how the text changed significantly at the end of government approval. The review stage (1a) significantly toned down the extent to which improvements in energy efficiency failed to compensate growing CO2 emissions from fossil fuels and industry. Moreover, it deleted references to changes in land usage. Changes after the plenary session (1b), then, led to a headline statement which further softened the degree to which growing CO2 emissions have been appropriately reduced.

Textual changes are not limited to this statement. In Figure 2, we describe changes in the whole document across the three versions of WGIII's SPM in AR6 (draft, interim, and final). As unit of analysis, we consider sub-headline statements—individual SPM paragraphs—that were present across all text versions. The figure plots the distributions of two similarity scores across the three different versions of the same sub-headline statement. First, we calculate Levenshtein similarity² across versions of the same sub-headline statement (left-hand panel). The text changed

² The measure is based on the Levenshtein distance D(a, b) between string a and string b, defined as the minimum



FIGURE 2: Similarity between versions of SPM text sections. Left panel shows the distribution of the Levenshtein similarity. Right panel shows the distribution of the cosine similarity when considering TF-IDF

significantly between the draft and final version of the SPM: the average sub-headline statement in the draft version has a similarity score of just 0.39 with its final variant. However, we note that a significant change is already detected after the review stage: the average sub-headline statement has already a low Levenshtein similarity score (0.51) between the draft and the interim version. A similar picture is observed when computing cosine similarity between term frequency–inverse document frequency (TF-IDF), which quantifies the extent to which different versions use a similar vocabulary across versions of the same sub-headline statement (right-hand panel).

Empirics

We provide evidence for our argument with two distinct analyses that leverage novel data on country attempts to interfere with the IPCC information production process. First, we explain decisions

number of changes (insertions or deletions) of characters required to turn a into b (or vice-versa). The Levenshtein similarity L(a, b) is: $L = 1 - \frac{D(a, b)}{max(length(a), length(b))}$, where $length(\cdot)$ returns the number of characters of a string. As such, L is bounded between 0 (all characters of a should be changed in order to produce b or vice versa) and 1 (a and b are identical).

by governments to intervene on a specific part of the SPM and we show that the likelihood of government intervention on a part of the SPM text increases with domestic dependence on fossil fuel. We document this logic both at the stage of the review process—the one that leads from the SPM draft to the interim version—and during the plenary negotiations—that lead to the final SPM version. Second, we study the textual content of the individual review comments submitted by government authorities to IPCC authors and use word embeddings to show that governments of countries with higher domestic reliance on fossil fuel submit comments that engage in the debate on mitigation technologies in a way that significantly differs from that of other governments.

Data

IPCC procedures and data allow us to document otherwise difficult-to-observe attempts by governments to interfere with the information produced by IOs. We begin by obtaining data on the three SPM text versions from the IPCC data repository. Excluding the introductory section, the draft SPM produced by WGIII for AR6 contained a total of 151 sub-headline statements—i.e., paragraphs numbered in a progressive manner (e.g., B.1, B.1.1, B.1.2, ...)—and figures or tables. We refer to individual sub-headline statements, figures, and tables as "parts of text" (POTs). Each POT is a self-contained summary of available scientific evidence related to different aspects of mitigation or CO2 emission reduction options. We are able to document how each of these individual POTs changed across the three versions following government interferences through review comments and the negotiation process—as exemplified for B.2 in Figure 1.

Next, from the IPCC data repository we obtain the exhaustive list of comments submitted by governments when reviewing the draft SPM. This amounts to a total of 4,954 comments, submitted by 43 governments in all. That is, we observe the universe of suggested changes that governments submitted on the initial SPM draft and that determined it to change into the interim version. The table includes information on the government submitting comments, the exact pages and lines of the draft SPM that each comment refers to, the type of comment (classified as either "figures/tables",

"substantive", or "editorial"), and the text of the submitted comment. Cleaning this data source reduced the number of comments that can be used in our analysis. First, we discard the 381 comments submitted by the European Union, as we are unable to clearly allocate them to any specific member state. This brings comment sources down to 42 countries. Furthermore, a number of comments refer to non-existing pages and lines of the draft SPM; for them, we manually retrieve the correct page and line information of the draft SPM. We discard comments that we are unable to attribute to any correct page or line and those that refer to the entirety of the text.³ These selections bring the number of comments down to 4,347 individual text annotations, submitted by 42 countries in all.

Figure 3 shows the distribution of the number of comments submitted by each government, distinguishing between substantive and editorial comments. Consistently with our expectations, the most active countries in submitting attempts to meddle with IO-produced information tend to be countries with significantly high stakes in the fossil fuel production or consumption (e.g., the US, France, the UK, Saudi Arabia, Germany, Norway). According to our explanation, these countries are those that would be most vulnerable to ambitious climate actions. However, the figure also shows that smaller countries, for instance small island states threatened by the most dire consequences of climate change, tend to attempt to intervene frequently in the review process (e.g., St. Kitts & Nevis, Jamaica, St. Lucia...). Similar patterns do not emerge when looking at editorial comments, which suggests that the mechanisms explaining decisions to submit comments related to the content or the form of the text are distinct.

We complement such detailed account of country attempts to interfere with the SPM text in the review phase with available descriptions of similar attempts during the followup plenary negotiations. Minutes of such negotiations are not collected, which limits the extent to which we can achieve a description of country intervention in this phase that is as detailed as what we have for

³ That is, from our first analysis where we explain government decisions to intervene on a POT we exclude 226 comments involving either the entire text or unidentifiable POTs. However, these comments are included in our second, word embeddings study, where we study the content of government's submitted comments.



FIGURE 3: Number of review comments submitted by governments for the IPCC SPM produced by WGIII for AR6, draft version

the review process. However, the Earth Negotiation Bulletin (ENB) maintains an online report of the negotiations drawing from their own participants' observations. Such reports are standardized in structure and allow an account of the main attempts at interfering with the text. We draw on this report⁴ to collect any instance where a country raised a point on a POT of the interim SPM—these points are typically made either in response/objection/support of other countries or as an original intervention. A total of 48 countries are mentioned in the ENB report on the WGIII negotiation session for AR6. Given that the ENB does not describe country interventions at the disaggregated level of sub-headline statements that we can document for the review stage, here our analysis operates at a more aggregated level: our POTs are a total of 43 headline statements themselves (numbered B.1, B.2, B.3, ...), figures, and tables.

Explaining Attempted Government Interference. Research Design

For our first analysis focusing on explaining attempts by countries to interfere with a POT of the information eventually produced by the IPCC, we produce two mirror datasets that focus on the review process and negotiations, respectively. We pair each POT from the SPM (151 for the draft, 43 for the interim verion) with every country intervening in the information-production process (42 countries for the review process, 48 during negotiations). Our unit of analysis is thus a POT-country pair. For each pair, in our two datasets we measure whether the country attempted at meddling with the information production. In our review-comment dataset we measure a binary variable for whether the country submitted at least one substantive comment pertaining to that POT, thus attempting to change its content. In this dataset, this is done at the very disaggregated level of POTs which even include individual paragraphs. We then obtain the same variable related to editorial comments, which we intend as a placebo test. Consistently with evidence shown in Figure 3, the probability that a paragraph-country pair will see a government intervening with at least one substantive comment is rather high, at 0.40. Instead, editorial comments are much rarer

⁴ We draw on the summary report of the WGIII contribution to AR6, whose negotiations took place between March 21 and April 4, 2022. See: *Summary report, 21 March – 4 April 2022*. Earth Negotiation Bulletin (ENB) 2022.

(with a probability of 0.08). Likewise, in our negotiation dataset we measure a binary variable describing whether a country took part to the negotiation on a given POT—which, in this dataset, is defined at a more aggregated unit. The probability that a country participates to the negotiations on a given POT, from ENB reports, is still quite high (0.28).

We explain our binary dependent variables drawing on country-level covariates that capture domestic dependency on fossil fuel production. We draw on the World Bank World Development Indicators to measure fossil fuel rents per each country. In particular, we measure oil, coal, and natural gas rents as percentage of gross domestic product (GDP). These variables are our explanatory variables of interest, meant to indicate the extent to which the economy of a country is vulnerable to ambitious climate action that would significantly cut down on fossil fuel usage.

We also gather data on variables that would likely confound our relationship of interest. First, we measure total CO2 emissions (in kg of CO2 per constant GDP), to ensure that results do not reflect the role of more polluting economies. Second, we control for the total natural resources rent (as GDP percentage) to rule out that results do not represent a spurious relationship driven by dependency on natural resources. We also control for constant-price GDP and for percentage GDP growth, because richer economies could have better capacity to submit comments/participate to negotiations and they could also be more dependent on fossil fuels to sustain their economy (or its growth). Finally, we control for whether the country is classified as a Small Island Developing State (SIDS).⁵ All our covariates are computed as country-specific averages over the entire assessment cycle 6 and until the year of the review (that is, from 2015 to 2021).

We explain our binary dependent variables in linear probability models estimated using ordinary least squares (OLS). We completely remove between-POT heterogeneity with the inclusion of a POT-fixed effect across all our specifications. This is meant to account for all factors that contribute to create variation across paragraphs and POTs such as: topic, length, technicality, or

⁵ To classify a country as a SIDS, we rely on the list of SIDS from the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States.

imprecisions in the reported content. With the inclusion of this fixed effect, our models explain within-POT decisions (which, in the review comment data amounts to a *paragraph*-level variation) by countries to intervene as a function of their fossil fuel dependence (and covariates), then average estimated effects across POTs.

Our key identifying assumption is a version of the conditional independence assumption relative to country-level features only. No omitted country-level variable should exist that simultaneously increases (decreases) fossil fuel rents and the likelihood to intervene on an IPCC paragraph. Any text-level variation will, instead, be accounted for by our POT fixed effects. After presenting our results, we report a sensitivity analysis that lends credibility to this assumption. Across our specifications, all standard errors are clustered using two-way clustering over paragraph and country, to account for likely correlation in the review activity at these two levels.

Results

We begin by studying government attempts to interfere with the SPM text production in the review process by submitting comments. Table 1 shows our results when estimating the linear probability fixed-effect models described above. We introduce control variables step-wise, to avoid suppression effects (Lenz and Sahn, 2021). As such, in our simplest specification we only include variables related to fossil fuel rents and POT fixed effect.

Consistently with our argument, we find that the likelihood to submit a substantive comment on a paragraph increases by about 0.02 when oil rents increase by just 1 percentage point of GDP. This effect increases in magnitude when including control variables. For instance, Model 3 estimates an increase in probability by about 0.10, for each percentage point increase in oil rents over GDP, after controlling for CO2 emissions and total natural resources rents. Across specifications, effects are always statistically significant at the 0.05 conventional level. Instead, we find no consistent effect for other fossil fuel rents. We find some weak evidence that larger coal rents are associated with an increase in the likelihood to intervene on a paragraph but this effect is only detected at a

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.022*	0.036***	0.100**	0.078*	0.077*
	(0.009)	(0.007)	(0.034)	(0.035)	(0.034)
Coal rents (% of GDP)	0.018	0.289	0.376+	0.314	0.351+
	(0.152)	(0.198)	(0.205)	(0.187)	(0.187)
Natural gas rents (% of GDP)	-0.127	-0.071	0.011	0.004	0.013
	(0.080)	(0.081)	(0.090)	(0.092)	(0.091)
CO2 emissions (kg per 2015 US\$ of GDP)		-0.462+	-0.427+	-0.471+	-0.522*
		(0.272)	(0.246)	(0.247)	(0.249)
Total natural resources rents (% of GDP)			-0.068+	-0.044	-0.040
			(0.033)	(0.035)	(0.034)
GDP (constant 2015 US\$, trillions)				0.035***	0.037***
				(0.007)	(0.007)
GDP growth (annual %)				-0.008	-0.001
				(0.019)	(0.021)
Small Island Developing State					0.156
					(0.186)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.398	0.398	0.398	0.398	0.398
Num.Obs.	6191	6191	6191	6191	6191
R2	0.068	0.095	0.122	0.180	0.188
R2 Adj.	0.044	0.072	0.099	0.159	0.166

TABLE 1: Probability that a country submits a substantive comment on a POT of the IPCC WGIII draft SPM

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

0.10 level of significance in models 3 and 5. No significant effect is ever found for natural gas rents.

Next, we offer a placebo test to bolster our results from the previous table. We replicate all models from 1 replacing our binary dependent variable with the analogous version capturing whether a government submitted an editorial comment on a paragraph. If our logic is correct, and countries attempt to intervene on the information produced by an IO in order to shield vulnerable domestic constituencies, our variables of interest should not generate strong effects on this dependent variable. Table 2 reports our findings. We find small effects for oil rents, as expected. The detected effect is *negative* in the first specification and small and noisy in the following ones. Instead, we do detect a positive and statistically significant effect for coal and natural gas rents (models 2 to 5).

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	-0.004**	0.004	0.021*	0.016+	0.017+
	(0.001)	(0.003)	(0.009)	(0.009)	(0.009)
Coal rents (% of GDP)	0.078*	0.229***	0.251***	0.237***	0.220***
	(0.033)	(0.043)	(0.051)	(0.052)	(0.049)
Natural gas rents (% of GDP)	0.005	0.036+	0.057*	0.055*	0.051*
	(0.012)	(0.020)	(0.025)	(0.025)	(0.024)
CO2 emissions (kg per 2015 US\$ of GDP)		-0.256**	-0.247*	-0.254**	-0.229*
		(0.094)	(0.093)	(0.093)	(0.086)
Total natural resources rents (% of GDP)			-0.018*	-0.012	-0.014+
			(0.008)	(0.008)	(0.008)
GDP (constant 2015 US\$, trillions)				0.007*	0.006*
				(0.003)	(0.003)
GDP growth (annual %)				-0.003	-0.006
				(0.006)	(0.007)
Small Island Developing State					-0.074+
					(0.037)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.078	0.078	0.078	0.078	0.078
Num.Obs.	6191	6191	6191	6191	6191
R2	0.057	0.085	0.091	0.100	0.105
R2 Adj.	0.033	0.062	0.068	0.076	0.082

TABLE 2: Probability that a country submits an editorial comment on a POT of the IPCC WGIII draft SPM

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

Next, we replicate this very analysis on the negotiation dataset, which mirrors the review comment data in structure. We report estimates from the same linear probability models, when estimated over the negotiation dataset, in Table 3. Consistently with our previous findings, we find that a +1 increase of oil rents as GDP percentage is associated with an increase of 0.02 to 0.06 in the probability that a country will take part to plenary negotiations over the interim version of the SPM. The effect is consistently positive across specifications and statistically significant at a conventional level of 0.05. Similarly to above, we find no effect for coal and natural gas rents.

In appendix, we test extensively our findings. For what concerns the review comments analysis,

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.021***	0.024***	0.078***	0.059**	0.060**
	(0.005)	(0.006)	(0.019)	(0.020)	(0.020)
Coal rents (% of GDP)	0.048	0.150	0.230+	0.165	0.164
	(0.112)	(0.129)	(0.132)	(0.116)	(0.117)
Natural gas rents (% of GDP)	-0.037	-0.015	0.041	0.029	0.030
	(0.038)	(0.039)	(0.039)	(0.045)	(0.046)
CO2 emissions (kg per 2015 US\$ of GDP)		-0.163	-0.148	-0.155+	-0.154+
		(0.101)	(0.090)	(0.091)	(0.089)
Total natural resources rents (% of GDP)			-0.056**	-0.036+	-0.036+
			(0.019)	(0.020)	(0.019)
GDP (constant 2015 US\$, trillions)				0.032***	0.032***
				(0.005)	(0.005)
GDP growth (annual %)				-0.006	-0.006
				(0.013)	(0.015)
Small Island Developing State					-0.010
					(0.089)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.289	0.289	0.289	0.289	0.289
Num.Obs.	2016	2016	2016	2016	2016
R2	0.142	0.150	0.170	0.219	0.219
R2 Adj.	0.122	0.131	0.151	0.200	0.200

TABLE 3: Probability that a country intervenes in plenary negotiations on a POT of the IPCC WGIII interim SPM

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

we provide results from a sensitivity analysis that confirms our estimates would still be positive, large, and statistically significant when accounting for an omitted variable with a confounding effect as large as that of the GDP control variable or even 3 or 5 times larger than it (Figure A.1). We also show our results are robust to using a probit model for studying our binary dependent variable (Table A.2) and to substituting our binary dependent variable with a count for the number of submitted comments per POT (Table A.3). We replicate the same tests for the negotiation data analysis (Figure B.1, Tables B.2, and B.3, respectively). In the case of our sensitivity analysis for negotiation data, however, we find that an omitted variable with a confounding effect at least three times as large as that of GDP would be sufficient to flip the sign of our estimates and to render

them insignificant.

Content of Review Comments: Word Embeddings

So far, we have only studied the likelihood that governments will intervene on a specific paragraph as a function of the importance of fossil fuel for their countries' domestic economies. We have completely abstracted the content of the intervention from our analysis. We propose here one final test that bolsters our claim and complements the analyses proposed. We leverage the rich information in the content of governments' submitted comments and study the semantics of key words used by governments in such review process. Our aim is to show that governments' written attempts to interfere with the information production process related to salient mitigation policy options change as a function of domestic fossil fuel rents.

Our approach to the study of governments' written attempts at interfering with the scientific discussion of mitigation policy options relies on word embeddings (Rodriguez and Spirling, 2022). This methodology is gaining popularity in political science (e.g., Rheault and Cochrane, 2020; Rodman, 2020; Thrall, 2023). Embeddings are numerical representations of the meaning (semantics) of textual "features"—i.e., words or multi-word expressions—as multi-dimensional vectors. Under this representation, each instance of a feature corresponds to a single vector with D dimensions. We embrace the "distributional hypothesis" of linguistics—i.e., the premise that the meaning of a word is linked to that of its neighboring ones (Harris, 1954)—and define the embeddings of a feature in terms of the numerical representation of neighboring words' meanings. For linguists, this allows to account for polysemy.⁶ More interestingly for us, representing word meanings by looking at neighboring words allows to estimate semantic differences among usages *of the same features*, as a function of corpus covariates. For instance, we can study how semantics (i.e.: word embeddings) of specific words change based on characteristics of who uses them in the text.

⁶ For instance, the feature "bank" will be closer to financial terms if it means a financial institution, but it will be associated to navigation terms if it refers to the land alongside a river.

In order to study changes in semantics of key words as a function of covariates of the actor who uses these words, we adopt the integration of word embeddings in a regression framework proposed by Rodriguez, Spirling, and Stewart (2023). The methodology allows to study differences in the usage of one or more "target features", i.e., a word or multi-word expression of interest. It works in two steps. First, it learns word embeddings of a target feature "à la carte" (ALC), that is by averaging the known embeddings of words in the context around it. Conveniently for us, this allows the user to study embeddings also of target features that occur very rarely in a corpus.⁷ Second, the methodology estimates a multivariate regression model to study variation in the multidimensional embeddings vectors measuring semantics as a function of covariates.

We apply this method on our corpus of 4,573 substantive comments submitted by governments on the SPM draft. We treat each comment as a separate document. In order to learn embeddings of our target features ALC, we follow the authors and use a set of pre-trained embeddings: the Global Vectors (GloVe) estimated by Stanford University based on the 2014 corpus of Wikipedia pages (Pennington, Socher, and Manning, 2014).⁸ We consider a context window of ten words to the left and right of each instance of our targets. We take the pre-trained GloVe embeddings of words in such context window and average them to learn the meaning of each instance of our targets. While doing so, we discount the weight of very common words by using the transformation matrix estimated by Khodak et al. (2018). This produces one vector per instance of the target word with dimensions $1 \times D$ (D = 300, in our case). Next, the N computed ALC vectors—one per instance of the target—are stacked in an $N \times D$ matrix. This matrix represents our dependent variable. We explain such stacked vector of word semantics as a function of document-level explanatory variables in a multivariate regression model. Covariates are the same country-level variables used in the previous analysis, defined at the level of the country which submits a comment. Each

⁷ In our highly technical case, governments discuss salient mitigation policy options only in the context of SPM paragraphs that directly pertain to them. For instance, one of the target features we focus on below appears in just 115 instances.

⁸ Among the various versions of GloVe, we rely on the Wikipedia 2014 + Gigaword 5 (6B tokens, 400K vocabulary, uncased, 300-dimensional vector).

estimated coefficient is, in turn, a $1 \times D$ vector. We normalize them by taking the Euclidean norm to produce a single scalar. Standard errors are estimated via bootstrap, and empirical p-values for tests of hypotheses are computed with permutation tests. We interpret coefficients by studying which (pre-trained) embeddings of features the target tends to be more often associated to, at specific values of the covariates.

We start by defining two sets of target words representing salient mitigation policy options. The first refers to carbon capture and storage (CCS), consisting in the process of capturing CO2 emitted from industrial activities and storing it underground. The technology is controversial, due to leakage risks, high costs, and risk of locking-in high temperatures and fossil fuel consumption in the short and medium term. The utilisation of captured CO2, for instance in the production of blue hydrogen and chemicals, is criticized as an effort to delay the renewable energy transition. Controversy is also reflected in our data. Parts of the SPM draft mentioning CCS (and related techniques such as bioenergy with CCS or direct-air CCS) as a technology for achieving net zero GHG emissions from industry, agriculture, or transport (B.4.1, C.5, C.5.2, C.5.3, C.5.4, C.11.1, and C.11.3) received a total of 385 comments and are among the most commented sections of the draft.⁹ Table 4 reports a sample of ten comments mentioning CCS, their context, and the government reporting the comment.

TABLE 4: Random sample of comments including the target feature 'C	'C	1	S	5)	1	5	5	•	!	_	C)	C	((,)	e	1	ľ	Ľ	J	ι	J	t	1	3	Е)	e	(f	f	1	j		t	t	:1	ار	2	2	Э	е	e	е	e	;e	ŗ,	3	g	ç	ş	ŗ	r	r	u	a	а	2	t	t	1		;	•)	2	е	e	e	e	e	e	6	6	6	6	6	e	16	16	16	1(1	1	h	h	h	ł	ł	ł	tl	t	t	1		2	g	ş	l	n	1	i	1	(u	ι	ŀ	.]	2	(1	r	1	i	1	•	5	S	t	t	l	n	r	ľ	;]	e	e	1	1	r	1	r	ľ	J	ľ	1	n	ľ	1	ľ])
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Country	Text
United States	what is the role of fossil_fuels with [carbon_capture_and_storage] ccs given government investment and planning in these technologies it
France	with co2 storage capacity but it is better to say [ccs] capacity
St. Kitts & Nevis	increasing evidence that blue hydrogen produced with natural gas [ccs] has high ghg_emissions and high fugitive methane emissions in particular
China	original text in section of the underlying report [ccs] also addresses a key challenge of the technical aspect of
Norway	page line where it is stated that [ccs] is included in pathways and on page line
France	technological issues and trade_off of [ccs] should be added to this list
Saudi Arabia	which allows all types of technologies to be employed additionally [ccs] has been presented in the most of the reviewed literature
Germany	be avoided in the chemical industry please add along with [ccs] for process related $co2_{emissions}$
Australia	unclear from the current text how much [ccs] has been assumed in these reductions are these reductions in
United States	estimating the potential role of ccs can the confidence that [ccs] will be employed really be high based on the literature

The second mitigation policy option we consider relates to land usage. Agriculture, Forestry, and Land Usage (AFOLU) is an acronym used by the IPCC and UNFCCC to refer to CO2 emis-

 $^{^{9}}$ We report the full distribution of government comments by POT in Figure C.1.

sions from agriculture and forestry. A related acronym is Land Use, Land-Use Change and Forestry (LULUCF). Because CO2 in the atmosphere can be abated in the form of carbon in vegetation, AFOLU and deforestation are important contributors of global carbon dioxide emissions. In this context, LULUCF is considered a valuable mitigation option with short-term effects of reducing carbon dioxide in the atmosphere, through activities like afforestation or reforestation. However, such practices are reversible, vulnerable to human activity or natural disasters, and thus potentially fail at presenting a long-term solution to mitigate CO2 emissions. Governments submitted several comments on parts of text mentioning AFOLU and LULUCF.¹⁰

We analyze the semantics used by government delegates to refer to these discussed policy options by studying variation in the embeddings around two different sets of mitigation policy target words: CCS¹¹ and LULUCF.¹² We aim at studying how semantics of these policy options change significantly, in submitted written government comments, as a function of domestic fossil fuel rents. We also test differences in semantics around the usage of a single generic target feature related to carbon dioxide emissions.¹³ Finally, we run a placebo test aimed at showing that semantics do not change significantly as a function of fossil fuel rents when our target features are common words related to the review process.¹⁴ We fit a multivariate regression model of the embedding spaces for each of these target words drawing on the full specification of our previous analysis, excluding paragraph fixed-effects.

Table 5 reports our results. Semantics around our target words of interest change significantly as a function of domestic fossil fuel rents (oil, coal, and natural gas), even when holding constant sources of variation captured by important confounders.¹⁵ Instead, significant differences are not

¹⁰ Figure C.1.

¹¹ Including: "ccs", "carbon_capture_and_storage", "beccs", and "daccs".

¹² Including: "lulucf", "afolu", and misspelling of the acronym "aflou" and "afolu".

¹³ We consider the target word "co2".

¹⁴ We study placebo target words considering exhortation to rephrase certain parts of the text ("rephrase", "rephrased", "rephrasing"), consider changes ("consider", "considerd", "considere", "considere", "considere", "considere"), and make notes ("note", "noted", "notes").

¹⁵ In model 2, we are unable to include the binary variable for SIDS due to singularity issues.

		Test			Placebo	
	CCS ¹	LULUCF ²	Emissions ³	Rephrase ⁴	Consider ⁵	Note ⁶
Oil rents (% of GDP)	0.353*	0.347*	0.088***	1.206	0.610	0.705
	(0.061)	(0.063)	(0.008)	(0.871)	(0.184)	(0.467)
Coal rents (% of GDP)	2.139***	1.543	0.420***	4.626	1.675	3.899
	(0.282)	(0.371)	(0.030)	(2.351)	(0.373)	(4.705)
Natural gas rents (% of GDP)	0.484*	0.553**	0.158***	2.032+	0.744	3.534
	(0.199)	(0.325)	(0.013)	(2.425)	(0.258)	(6.736)
CO2 emissions (kg per 2015 US\$ of GDP)	1.380**	1.390+	0.430***	5.120	1.380	3.156
	(0.296)	(0.465)	(0.023)	(2.204)	(0.377)	(1.280)
Total natural resources rents (% of GDP)	0.333*	0.298*	0.087***	1.145	0.582	0.712
	(0.050)	(0.071)	(0.008)	(0.864)	(0.174)	(1.879)
GDP growth (annual %)	0.102	0.115***	0.027***	0.637	0.063+	0.128
	(0.046)	(0.038)	(0.002)	(0.326)	(0.009)	(0.087)
Small Island Developing State	0.521+		0.260***	1.350	0.624	0.697
	(0.083)		(0.017)	(0.354)	(0.119)	(0.132)
Target word occurrences	115	155	1382	48	228	49
Unique features in context	606	713	2591	361	1136	476
Vector space length	300	300	300	300	300	300
Skip-gram window size	10	10	10	10	10	10

TABLE 5: Multivariate regression models of target words' embeddings in governments' submitted comments

¹ Instances of target feature: carbon_capture_and_storage, ccs

² Instances of target feature: aflolu, aflou, afolu, lulucf

³ Instances of target feature: co2, co2_emission, co2_emission, emission, emissions, ghg_emission, ghg_emissions

⁴ Instances of target feature: rephrase, rephrased, rephrasing

⁵ Instances of target feature: consider, considerd, considere, considered, considers, reconsider

⁶ Instances of target feature: note, noted, notes

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

detected for the placebo expressions, which suggests that the differences observed are specific to the salience of mitigation policy options.

We interpret the results from model 1, which explains changes in semantics around the target feature CCS. In order to interpret our findings substantively, we compute the cosine similarity between the predicted target word's embedding, at given levels of oil and coal rents, and the embeddings of other features in the context. We choose four features from the context: "barriers", referring to the limits of CCS; "limited" and "acceptance", referring to the public skepticism towards the technology; and "growth", referring to the drop in costs of CCS as a technology for emission mitigation. Figure 4 shows that model 1 predicts that countries with lower fossil fuel rents tend to discuss the target feature "CCS" by referring to its "barriers" or its "limited" "acceptance", more than do countries with higher domestic fossil fuel rents. The opposite is true when looking at "growth". The embeddings for CCS tend to be more similar to those for the words "barriers", "limited", and "acceptance" when looking at lower percentiles of the distributions of Coal (4a) and Oil rents (4b). Instead, the reverse relationship is found when looking at the similarity of the target word embedding with the embedding of "growth" and fossil fuel rents.



FIGURE 4: Cosine similarity between word embeddings of target feature (CCS) and a set of context features, at percentiles of fossil fuel rents

Conclusion

International organizations hold power because of the information they can provide. While existing research treats information typically as exogenous to cooperation problems, we argue in this paper that information production itself is likely to be part of a political process: governments have incentives to shape the information that IOs provide to other governments, non-governmental observers, and their domestic public. When governments are given the opportunity to influence the production of IO information, such as in the case of the IPCC, where government participation is mandated in the rules of this UN body, we expect to see government attempt to shape the wording of the text in the highly influence IPCC reports.

Drawing on a combination of descriptive evidence, regression models, and word embeddings, we provide strong evidence that government influence in the IPCC's Summary for Policymakers text is a function of a country's structural dependence on fossil fuels. These findings have important implications. For scholars studying the role of information in international organizations, we caution that information may not always be free from government interests which offers new insight into the conditions under which information can effectively catalyze international cooperation. Future research on the international political economy of climate politics can build on our results which extend the logic of distributional effects of ambitious decarbonization beyond international negotiations themselves to the prior stage of information production in IOs.

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Government Interference in Information Production of International Organizations

-SUPPLEMENTARY MATERIALS-

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A Analysis of government review comments submission

A.1 Robustness tests

A.1.1 Sensitivity analysis

We conducted a sensitivity analysis using the sensemakr R package by Cinelli and Hazlett (2020). This package allows user to benchmark the effect of an unobserved confounder against the confounding effect from an observed covariate. As a benchmark, we selected the measure of GDP as it is likely to correlate significantly with fossil fuel domestic rents and with government capacity to submit a review comments. The "omitted variable bias (OVB) minimal reporting" is presented in Table A.1.

TABLE A.1: OVB minimal reporting from sensitivity analysis of linear probability model of government comments

Outcome: Covernment comments

	C	Juicome	. Ooverni		enis	
Treatment:	Est.	S.E.	t-value	$R^2_{Y \sim D \mid \mathbf{X}}$	$RV_{q=1}$	$RV_{q=1,\alpha=0.05}$
Coal Rents	0.351	0.028	12.632	2.6%	15%	12.8%
df = 6032		Bound	d (1x GDP	P): $R^2_{Y \sim Z \mathbf{X}, \mathbf{X}}$	$_{D} = 8\%, F_{0}$	$R_{D\sim Z \mathbf{X}}^2 = 0.6\%$



FIGURE A.1: Sensitivity analysis of the linear probability model number 5 in Table 1. Estimates and t-statistics benchmarked against an unobserved confounder as severe as $\times 1$, $\times 3$, and $\times 5$ the confounding effect of country GDP

We also report how the estimated effect and t-statistics would change when accounting for an unobserved confounder as large as GDP or even 3 and 5 times larger than it. We report our findings in Figure A.1, where we show that our estimates would still be large and statistically significant when accounting for such large confounders.

A.1.2 Probit models

In Table A.2, we verify that our results are similar when substituting our linear probability models with probit models (which are more adequate to a binary dependent variable).

TABLE A.2:	Probability	that a cou	ntry subn	nits a su	bstantive	comment	on a	POT	of th	ne II	PCC
WGIII draft S	SPM (probit	models)									

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.065*	0.121***	0.309*	0.242+	0.238+
	(0.033)	(0.029)	(0.131)	(0.131)	(0.131)
Coal rents (% of GDP)	0.046	0.867	1.134+	0.981	1.109+
	(0.405)	(0.545)	(0.630)	(0.597)	(0.590)
Natural gas rents (% of GDP)	-0.376	-0.283	-0.025	-0.052	-0.029
	(0.282)	(0.261)	(0.313)	(0.314)	(0.309)
CO2 emissions (kg per 2015 US\$ of GDP)		-1.367+	-1.257+	-1.498*	-1.695*
		(0.768)	(0.705)	(0.764)	(0.766)
Total natural resources rents (% of GDP)			-0.203	-0.124	-0.109
			(0.129)	(0.130)	(0.129)
GDP (constant 2015 US\$, trillions)				0.129**	0.140**
				(0.043)	(0.052)
GDP growth (annual %)				-0.028	-0.006
				(0.058)	(0.062)
Small Island Developing State					0.485
					(0.528)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.398	0.398	0.398	0.398	0.398
Num.Obs.	6191	6191	6191	6191	6191
R2	0.053	0.078	0.099	0.152	0.160
R2 Adj.	0.016	0.041	0.062	0.114	0.122

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

A.1.3 Count dependent variable

In Table A.3 we substitute our binary dependent variable from Table 1 with a count for the number of comments submitted by a country on a POT of the IPCC WGIII draft SPM. We find a consistently positive effect of oil rents (between +0.11 and +0.48 comments per each unit increase in oil

rents as GDP percentages) and a larger positive effect of coal rents. We find no effect for natural gas rents.

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.106+	0.207***	0.476***	0.299**	0.297**
	(0.053)	(0.032)	(0.134)	(0.109)	(0.109)
Coal rents (% of GDP)	-0.093	1.784*	2.152*	1.642*	1.696*
	(0.377)	(0.854)	(0.807)	(0.729)	(0.744)
Natural gas rents (% of GDP)	-0.460	-0.079	0.273	0.212	0.225
	(0.423)	(0.362)	(0.369)	(0.377)	(0.377)
CO2 emissions (kg per 2015 US\$ of GDP)		-3.193*	-3.044**	-3.404**	-3.479**
		(1.235)	(1.061)	(1.194)	(1.200)
Total natural resources rents (% of GDP)			-0.287*	-0.091	-0.085
			(0.127)	(0.109)	(0.110)
GDP (constant 2015 US\$, trillions)				0.290***	0.293***
				(0.068)	(0.069)
GDP growth (annual %)				-0.065	-0.055
				(0.075)	(0.082)
Small Island Developing State					0.231
					(0.503)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	1.054	1.054	1.054	1.054	1.054
Num.Obs.	6191	6191	6191	6191	6191
R2	0.085	0.154	0.179	0.392	0.392
R2 Adj.	0.062	0.132	0.158	0.376	0.377

TABLE A.3: Number of comment submitted by a country on a POT of the IPCC WGIII draft SPM

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

A.2 KeyATM model performance

Topic 1: Gases and emissions	Topic 2: Temperatures/scenarios	Topic 3: International politics	Topic 4: Mitigation policies
emiss [√]	warm [√]	develop	mitig [√]
ghg [√]	limit	polici [√]	option [√]
co2 [√]	pathway	countri [√]	cost
global	1.5c [√]	chang	potenti
net	2c [√]	nation [√]	current [√]
reduct	like	support	action [√]
zero	overshoot	technolog	scale
spm	scenario	effect	polici [√]
region	level	shift	econom
higher	probabl	reduc	enabl
Topic 5: Finance/investment	Topic 6: Fossil-based energy	Topic 7: Renewable energy	Topic 8: Carbon removal
invest [√]	use	energi [√]	carbon [√]
flow [√]	chang	sector [Topic 5]	reduct
financ [√]	includ	demand	process
need	land [Topic 9]	use	cdr [√]
financi	uncertainti	electr [√]	reduc
data	ship	effici	deploy [√]
infrastructur	fuel [√]	transport	larg
public	averag	reduc	benefit
climat	aviat	materi	improv
sector [√]	gas [√]	build	co-benefit
Topic 9: Land use	Topic 10: IPCC bodies	Unlabelled topic 1	Unlabelled topic 2
land [√]	report [√]	year	gtco2-eq
trade-off	climat	categori	indic
sdgs	assess [√]	base	chapter
manag	literatur [√]	panel	submit
synergi	climate-chang	rang	impli
agricultur [√]	consid	indic	contribut
adapt	group [√]	refer	refer
ecosystem [√]	framework	assess [Topic 10]	element
soil	section	valu	october
afolu [√]	wg [√]	shown	studi

TABLE A.4: Top 10 words of the 10 labelled topics and 2 unlabelled topics. Topic estimation via keyATM

B Analysis of government participation to plenary negotiations

B.1 Robustness tests

B.1.1 Sensitivity analysis

We replicated our sensitivity analysis for the negotiation dataset. We maintain the same observed benchmark as in our previous sensitivity analysis (GDP). The "OVB minimal reporting" is presented in Table B.1. Similarly to above, we also report how the estimated effect and t-statistics would change when accounting for an unobserved confounder as large as GDP or even 3 and 5 times larger than it (Figure B.1). Unlike above, our estimates from this analysis would be negative and statistically insignificant with a confounder as large as 3 or 5 times the size of GDP.

TABLE B.1: OVB minimal reporting from sensitivity analysis of linear probability model of government participation to negotiations

Outcome: Government participation

Outcome. Obvernment participation								
Treatment:	Est.	S.E.	t-value	$R^2_{Y \sim D \mid \mathbf{X}}$	$RV_{q=1}$	$RV_{q=1,\alpha=0.05}$		
Coal Rents	0.164	0.039	4.235	0.9%	9.1%	5%		
df = 1966		Bound	d (1x GDP): $R^2_{Y \sim Z \mathbf{X}, J}$	$_{D} = 6.4\%,$	$R_{D\sim Z \mathbf{X}}^2 = 2\%$		



(A) Point estimates

(B) *t*-statistics

FIGURE B.1: Sensitivity analysis of the linear probability model number 5 in Table 3. Estimates and t-statistics benchmarked against an unobserved confounder as severe as $\times 1$, $\times 3$, and $\times 5$ the confounding effect of country GDP

B.1.2 Probit models

In Table B.2, we show that we obtain similar results with probit models instead of linear probability models.

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.064***	0.078***	0.303***	0.238**	0.238**
	(0.017)	(0.020)	(0.084)	(0.085)	(0.085)
Coal rents (% of GDP)	0.162	0.563	0.902*	0.733+	0.731+
	(0.350)	(0.406)	(0.441)	(0.414)	(0.421)
Natural gas rents (% of GDP)	-0.122	-0.045	0.191	0.153	0.154
	(0.137)	(0.139)	(0.141)	(0.160)	(0.164)
CO2 emissions (kg per 2015 US\$ of GDP)		-0.649	-0.576	-0.691	-0.688
		(0.437)	(0.376)	(0.430)	(0.420)
Total natural resources rents (% of GDP)			-0.234**	-0.159+	-0.160+
			(0.083)	(0.086)	(0.085)
GDP (constant 2015 US\$, trillions)				0.107***	0.107***
				(0.020)	(0.019)
GDP growth (annual %)				-0.022	-0.022
				(0.048)	(0.052)
Small Island Developing State					-0.014
					(0.313)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.289	0.289	0.289	0.289	0.289
Num.Obs.	2016	2016	2016	2016	2016
R2	0.123	0.133	0.155	0.200	0.200
R2 Adj.	0.087	0.096	0.117	0.160	0.160

TABLE B.2: Probability that a country intervenes in plenary negotiations on a POT of the IPCC WGIII interim SPM (probit models)

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

B.1.3 Count dependent variable

In Table B.3 we substitute our binary dependent variable on government participation to plenary sessions with a count variable for the number of times a country is mentioned by ENB summary reports on negotiations about a POT of the IPCC WGIII interim SPM. Although country mentions in ENB reports might not accurately reflect the number of times a country has intervened in negotiations, we argue this serves as our best approximation of plenary sessions in lack of meeting minutes. We find a consistently positive effect of oil rents (between +0.11 and +0.28 mentions per each unit increase in oil rents as GDP percentages) and no effect for coal or natural gas rents.

	(1)	(2)	(3)	(4)	(5)
Oil rents (% of GDP)	0.113***	0.119***	0.281***	0.246*	0.246*
	(0.020)	(0.022)	(0.074)	(0.093)	(0.092)
Coal rents (% of GDP)	0.680	0.871	1.111	0.896	0.895
	(0.910)	(0.889)	(0.933)	(0.824)	(0.838)
Natural gas rents (% of GDP)	-0.193	-0.153	0.016	0.053	0.053
	(0.140)	(0.162)	(0.143)	(0.170)	(0.170)
CO2 emissions (kg per 2015 US\$ of GDP)		-0.305	-0.261	-0.282	-0.282
		(0.401)	(0.392)	(0.371)	(0.360)
Total natural resources rents (% of GDP)			-0.170*	-0.128	-0.128
			(0.070)	(0.094)	(0.090)
GDP (constant 2015 US\$, trillions)				0.109**	0.109**
				(0.032)	(0.031)
GDP growth (annual %)				0.047	0.047
				(0.083)	(0.095)
Small Island Developing State					-0.002
					(0.263)
Part of text FE	Yes	Yes	Yes	Yes	Yes
Outcome variable average	0.703	0.703	0.703	0.703	0.703
Num.Obs.	2016	2016	2016	2016	2016
R2	0.183	0.185	0.197	0.241	0.241
R2 Adj.	0.165	0.166	0.178	0.223	0.222

TABLE B.3: Number of country interventions in plenary negotiations on a POT of the IPCC WGIII interim SPM

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

C Word embeddings analysis of governments' submitted review comments



C.1 Comment description

FIGURE C.1: Number of substantive and editorial comments submitted by governments on individual parts of text of the draft SPM. Parts of text are split in two columns sorted by global number of comments received. We also report which parts of text mention AFOLU and CCS technologies