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Political Economy, Markets, and Institutions

The Contemporary Social Contract and Conditions of Climate Policy Intractability

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Observable declines in public trust in media, government, and science have contributed to intractable climate policy conditions in the time since the landmark consensus of the 1987 Montreal Protocol. This commentary considers how scholars might measure the influence these declivities in public trust have had on the policy process. With attention to how these factors constrain the contemporary social contract, policy scholars can begin to conduct a wide range of exploratory statistical analyses to examine how declines in public trust reduce individuals' willingness to sacrifice for the greater good and increase the likelihood of policy stagnation. Rather than examine the effective workings of the policy process, this commentary encourages scholars to confront instances of intractability and integrate measures of public trust that may be used to identify practices that nudge intransigent publics toward urgent policy reforms, restore confidence in epistemic communities, and promote consensus in international climate policy deliberations.

With popular media coverage oscillating between increasingly erratic weather events and examples of extreme political dysfunction, the recent enactment of the Inflation Reduction Act and its aggressive targets for the reduction of greenhouse gases offers an unusual moment of climate optimism in the United States. Notwithstanding the critical importance of this achievement, razor-thin majorities in Congress, upcoming elections, and high levels of public mistrust leave many wondering whether this historic legislation can withstand potential electoral shifts. In an effort to safeguard policy progress in a time of intense partisanship, it is necessary to reinvigorate the social contract and restore trust between members of the public and the epistemic communities pressing for urgent policy action.

Extending Rousseau's conceptualization of the social contract, political scientists have acknowledged that the strength of democratic political systems relies on a balance between government assurances of freedom, security, and opportunity and the public's willingness to trust institutions associated with policy-making. Theories of the policy process are often predicated on high levels of public trust as a prerequisite for the consensus recognition of policy problems, commitment to deliberative processes, and confidence in the recommendations of technical experts. However, with attention to observable declines in public trust associated with media, government, and science, it is increasingly necessary to consider the constraints on the contemporary social contract (CSC) that contribute to policy stalemate and the presence of intransigent opposition. If the social contract represents a balance between these individual rights and collective responsibilities, instances of intractability represent areas where the emphasis on individual affordances has overwhelmed considerations of the "common good" and caused the policy process to stagnate. Although media misinformation, political polarization, and science denial are frequently identified when explaining the conditions of climate policy intractability, scholars have yet to develop an empirical strategy to measure how the public's trust in media, government, and science impacts the policy process (Bail et al. 2018; Bolin and Hamilton 2018; Cook 2019; Chinn, Hart, and Soroka 2020; Gladston and Wing 2019; Funk et al. 2019; Leiserowitz et al. 2022). This

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commentary presents a way forward and urges global policy scholars to incorporate a wide range of measures of public trust that serve to improve understandings about how these factors contribute to conditions of intractability that influence the policy process.

In the twenty-first century, the social contract remains instrumental to formulations of public policy and democratic action that require citizens to enact behavioral changes in response to urgent global public health and environmental concerns. Research published by the *Lancet* (2022) undertook an analysis of COVID-19 pandemic preparedness across 177 countries and found that "high levels of government and interpersonal trust…were associated with higher covid-19 vaccine coverage among middle-income and high-income countries" (COVID-19 National Preparedness Collaborators 2022, 1). A recent exploratory survey examining indicators of public trust in eight developed nations found strong associations between higher levels of trust and the presence of domestic climate policy commitments (Groff 2022). The likely failure of several developed nations to satisfy agreed-upon commitments to address global warming and climatic change (GWCC) indicates that international climate policy action may be similarly inhibited by declines in public trust. The concern is that instances of intractability exacerbate existing declivities in public trust and weaken the CSC in ways that jeopardize the policy process more broadly; as intractability becomes entrenched in one instance, opportunities to reach deliberative consensus in other contexts are reduced. Although there are a number of theories associated with the effective workings of the policy process, there is considerably less theoretical attention devoted to understanding those factors that spread policy misinformation, entrench partisan opposition, and jeopardize trust in epistemic communities.

INTRACTABILITY IN INTERNATIONAL CLIMATE POLICY PROCESSES

The 1987 Montreal Protocol serves as a high-water moment of public trust and international climate policy consensus and remains the only treaty to receive universal ratification by all 196 United Nations member states. Recent research demonstrates that the Montreal Protocol has substantially reduced ozone-depleting chlorofluorocarbons (CFCs) and facilitated the long-term repair of the ozone layer, substantially impacting surface cooling projections in the time since its implementation (Goyal et al. 2019; Young et al. 2021). Given the success of the Montreal Protocol, some have suggested that the framework should be adopted and extended to develop international policy responses to GWCC. A 2020 report by the Montreal Protocol Implementation Committee contends that the Montreal Protocol is an "already-operational instrument" with "existing processes" that may help generate the policy momentum for a "Global Pact for the Environment" (66). However, a static extension of the Montreal Protocol framework, without a consideration of the factors that influence public trust and contribute to the presence of intractability, would ignore constraints on the CSC that are necessary to address within any effort to organize an ambitious international climate policy consensus.

Examining the unique features of the Montreal Protocol, Haas (1992) found that trust in the epistemic community was integral to the *one-of-a-kind* global climate policy consensus, writing, "The epistemic community was the only competent scientific group at hand which could interpret the uncertainty surrounding policymaking about ozone-depleting substances," and adding, "news of the environmental crises not only publicized the community's opinions but also reinforced the value of its policymaking input" (223). Albrecht and Parker (2019) describe the scientific discovery of the "ozone hole" as a "dramatic focusing event" that resulted in increased "global public attention to the problem of ozone depletion" and "created a sense of urgency about the need for a robust global policy solution" (311). The findings of the epistemic community were vaunted in news coverage that ultimately pressured the largest producer of CFCs, DuPont, to move to a non-CFC-emitting substitute and drove policymakers to respond to public attention with consensual action. In a content analysis of news reports related to ozone between 1979 and 1985, Howland, Becker, and Prelli (2006) found that "scientists command the bulk of news attention regarding the stratospheric ozone problem, and that is an important form of power," adding, "they had the ear of policy making bodies" (221). In the three decades following the Montreal Protocol, there have been several attempts to generate international climate policy consensus and considerable efforts made to direct public attention to the escalating consequences of exceeding "climate guardrails" (Hansen et al. 2015). However, alongside declivities in public trust, the epistemic communities' contributions to news coverage of climate science have been diminished, and oppositional partisan positions have hardened. A review of nearly six hundred *New York Times* news articles from 1980 to 2018 finds that "basic climate facts appear … with vanishingly small frequencies" and reports that "the vast majority of climate-change news articles contained none of the five basic climate facts" (Romps and Retzinger 2019, 6). Chinn et al.'s (2020) review of US climate change news from 1985 to 2017 finds that media has grown increasingly polarized, with coverage of partisan perspectives increasingly outnumbering coverage of scientific expertise. These findings suggest that factors associated with public trust, including decreasing public trust in media, increasing political polarization, and the circumvention of scientific expertise, have mitigated the strength of the epistemic community's recommendations and diminished the public's readiness to accept commitments to international climate policy.

In the time since the Montreal Protocol, observable declines in public trust have strained individuals' reciprocal commitments to institutions associated with media, government, and science. A wide range of available data sources can be brought together to convincingly demonstrate the significant declines in public trust and changing characteristics of political polarization associated with imbalances in the CSC. General Social Survey (GSS) data from 1972 to 2014, collected from more than three thousand

Americans every two years, illustrates a considerable decline in the public's confidence in government, as well a growing distrust in institutions associated with media and press (Hooghe and Oser 2017). The Centre for Democracy's 2020 Global Satisfaction with Democracy Report finds that "dissatisfaction with democracy has risen over time, and is reaching an all-time global high, in particular in developed democracies" (Foa et al. 2020, 1). Although Pew Research reports show that Americans' public trust in science remains higher than indicators of trust in media, business, and elected officials, "there are particularly sizable gaps between Democrats and Republicans when it comes to trust in scientists whose work is related to the environment" (Funk et al. 2019, para. 3). Hamilton, Hartter, and Bell (2019) observe that "the association between climate-change views and sociopolitical identity is so strong, statistically, that climate-change questions might effectively serve as proxies for political identity itself" (2). By incorporating and aggregating measures of public trust from existing data sets, scholars can identify factors that reduce the public's willingness to commit to climate policies for the greater global good. In future research, the inclusion of metrics associated with public trust in government, media, and science can be used to examine constraints on the CSC and encourage practices that confront instances of intractability and promote consensus.

MEASURING THE CONDITIONS OF INTRACTABILITY

Efforts to operationalize the CSC in various policy contexts could be useful for identifying the factors that have led to the erosion of public trust in institutions associated with media, government, and science. By aggregating a wide variety of existing data sets into different construct variables reflective of instances of intractability, scholars could better examine how declivities in public trust impact policy outcomes. Additional research is needed to develop an empirical strategy to investigate how public trust moderates the influence of the epistemic community and impacts climate policy outcomes. Policy scholars should take up existing indicators of trust in media, government, and science to better examine and explain instances of policy intractability. Drawing on dual sets of data, one focused on "metrics of public trust" and the other on "policy-specific metrics," scholars can conduct exploratory statistical analyses to identify the strength of relationships between the many factors considered. Methods of confirmatory factor analyses and sequential equation modeling (SEM) could be used to identify the strength of associations between particular indicators of public trust and policy outcomes. The integration of a wide range of potential variable conditions would enable exploratory analyses to identify relevant factors previously excluded from models of the policy process. In instances where the assumptions of parametric tests have been violated or there are shortcomings in the available data, the application of nonparametric statistical tests (such as Kendall's tau-b and Spearman's Rho) could be used to assess monotonic relationships between data sets. Nonparametric tests are especially instructive when examining the strength and direction of associations that exist between variables and among a range of prospective factors.

Using existing survey data and organizational policy reports, including the Edelman Trust Barometer, OECD Reports, the Reuters Institute Digital News Report 2020, and the World Values Survey (WVS), among many others, scholars can identify relevant indicators of trust in media, government, and science to integrate into their examinations of the policy process (see table 1).

The integration of measures of public trust enables researchers to use econometric analyses to find relationships between aggregated data sets and indicators specific to a particular policy issue. Drawing on longitudinal country-specific data, scholars may seek to explore policy relationships over time. In the context of climate policy, future research might consider how the conditions of public trust associated with the high-water mark of the Montreal Protocol compare to the contemporary conditions of climate policy challenges. Developing comparative analyses, policy scholars might choose to discern between countries with greater and lesser follow-through on international climate policy commitments to explore those "enabling factors" that "motivate constituent support for public policies and influence citizens' willingness to limit individual freedoms in exchange for greater social security and assurances of collective wellbeing" (Groff 2022, 1). In doing so, research might compare country-specific data associated with environmental policy indicators and climate policy outcomes, including measurements of greenhouse gas emissions, assessments of resource productivity, and reports of public favorability associated with domestic and international climate policy (see table 2). Reliable data for these metrics can also be aggregated from existing institutional databases and organizational reports such as the Climate Action Tracker, the Climate Change Performance Index (CCPI), the Environmental Performance Index (EPI), OECD reports, and the 2020 Renewable Energy Ratings, among many others. As just one example, the OECD's *Environment at a Glance Indicators* (2022) report includes thirty-eight relevant metrics. In addition to measures of greenhouse gas emissions, the report includes country-by-country calculations associated with the "share of renewables in the production of electricity," "environmentally related tax revenue," and "share of climate change mitigation technologies." Along with others not listed here, the integration of these dual data sets could be used to compare countries' climate progress and performance in association with factors of public trust to better explain instances of intractability and identify practices that promote international climate policy consensus.

Efforts to identify the enabling factors of the CSC will confront an expanding interdisciplinary scope that presents three challenges. First, to the project itself, the depth and breadth of the available analytic connections are seemingly endless, and scholars must prioritize those that most effectively address the questions posed by the program of research. Second, to the scholar, the process of conducting interdisciplinary work requires the ability to bring together

different analytical concepts to identify new areas of research. Here, the opportunity to identify novel conceptual collaborations and/or develop important methodological contributions is a promising reward for these efforts. However, this novel or experimental work brings up a third challenge related to scholarly reception. Although there are a number of academic journals and popular press publication outlets that promote interdisciplinary and exploratory research, the diverse combination of literature may challenge the reviewers' areas of expertise and problematize foundational disciplinary assumptions. To overcome these three challenges, it is important that researchers aggregating a wide range of data sets make a concerted effort to develop a clear explanation for why particular variables were chosen, present a transparent description of their methodological processes, and seek out opportunities for interdisciplinary collaborations and contributions. Moreover, it will be increasingly necessary that academic publication outlets facilitate the publication of exploratory studies and encourage the types of interdisciplinary collaboration needed to identify best practices for building public trust and forging consensus under conditions of intractability.

CONCLUSION

Although the Montreal Protocol remains a high-water mark of global policy consensus, policy makers should not even begin to contemplate its use as a contemporary framework without first acknowledging the constraints on the CSC that have contributed to climate policy intractability. It is important to acknowledge that declines in public trust undermine consensus and reduce the public's willingness to sacrifice for the greater good. While the Inflation Reduction Act provides a brief moment of climate optimism, its commitments to reducing greenhouse gases fell along partisan lines and remain subject to the caprice of future administrations that may overturn and reverse any gains. Future research examining the conditions that lead to intractability can be used to identify practices that restore confidence in epistemic communities, nudge intransigent publics toward urgent policy reforms, and promote consensus in international climate policy deliberations.

When declining indicators of government trust merge with distrust in media and science, the social contract is jeopardized, and the likelihood of issue freeze and policy stalemate is magnified. The concern is that the conditions of intractability beget more intractability; as intransigent opposition ferments, media misinformation, political polarization, and science denial undermine the effective workings of the policy process and further compromise public trust. In the context of GWCC, this cyclical effect is particularly concerning. The longer it takes for developed nations to organize an ambitious climate policy consensus, the more difficult it will be to adequately address pressing environmental concerns, and the more likely it is that existing forms of partisan opposition to climate policy will become entrenched. As it is, several developed countries are expected to fail to meet their nationally determined contributions (NDCs), and only 28 percent have signaled a commitment to "ratchet up" their NDCs in the next round (Climate Watch 2022). For these reasons, it is particularly important to understand the factors of intractability that continue to stagnate international policy commitments to address GWCC.

Attention to the health and strength of the CSC—and its many enabling factors—may provide alternative avenues to circumvent intractability and encourage the kind of reforms necessary for robust climate policy in the future (Groff 2022). In future research, the inclusion of measures of public trust can be used to better understand the factors that influence the role of the epistemic community and impact compliance with policy process outcomes. Among the factors that influence public trust, measures of political polarization function as a moderating factor as increased trust in media can be associated with political polarization. In these instances, even when indicators of trust in media are high, partisan polarization may erode confidence in policy action and contribute to intractable climate policy conditions that reduce the likelihood that developed nations will commit to international policy actions that require individual and institutional sacrifices. Although media misinformation, political polarization, and science denial are often independently associated with instances of intractability, it is necessary to develop a more sound empirical strategy to collectively examine factors that constrain the CSC. The exploration of a wide range of variables and data sets can serve to enhance the validity of the concept and extend its consideration to diverse policy contexts. The examination of metrics associated with public trust is particularly necessary in instances where the policy process appears to be making little progress. Additional research is needed to consider how intransigent opposition associated with GWCC, immigration, reproductive health rights, and other long contested policy issues is exacerbated by declines in public trust.

AUTHOR BIOGRAPHY

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COMPETING INTERESTS

None to declare.

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APPENDICES

Table 1. Existing Indices of Public Trust

Media			
Data Source	**Sample Metrics**		
Edelman Trust Barometer 2022	Trust in media by country	Concerns with fake news by country	
IPSOS Global Advisor 2019	Trust in news sources by country	Relevance of news sources by country	Perceived change in media trust over the last five years
Reuters Institute Digital News Report 2022	Overall media trust score by country	Sources of news by country	Percentage who believe media is free from political influence
World Values Survey Wave 7 (2017–2022)	Frequency of use of social media to obtain information reported as percentage (Q 207)	Percentage use of internet and social media to understand politics and political events (Q 217)	Percentage of individuals that believe journalists and media are involved in corruption (Q 117)
Government			
Data Source	**Sample Metrics**		
Edelman Trust Barometer 2022	Trust in government by country	Trust in democracy by country	Trust in United Nations by country
OECD Government at a Glance 2021		Confidence in national government in 2020 and its change since 2007 by country	Trust in government, the civil service, the parliament, and the police, 2018 – by country
Wellcome Global Monitor 2020	Government should fight diseases wherever they occur vs. government should fight diseases only when they pose a risk to that country		
World Justice Project Rule of Law Index 2020	Adherence to rule of law by country	Constraints on government powers by country	Openness of government by country
World Values Survey Wave 7 (2017–2022)	How much would you say the political system in your country allows people like you to have a say in what the government does? (Q 234A)	Very Good – Very Bad: Having experts, not government, make decisions according to what they think is best for the country (Q 236)	Confidence in the government (Q 71)
Science			
Data Source	**Sample Metrics**		
Edelman Trust Barometer 2022	Trust in national health authorities by country	Trust in the World Health Organization by country	
IPSOS Global Trustworthiness Index 2021	Trust in scientists by country	Trust in doctors by country	
Wellcome Global Monitor 2020	Belief that the WHO bases coronavirus-related decisions on scientific advice compared with a belief that national governments do so, among G20 countries	Countries and territories where people were more likely to say that their government leaders do not value scientists' opinions	
World Values Survey Wave 7 (2017–2022)	Agree/Disagree: Science and technology are making our lives healthier, easier, and more comfortable (Q 158)	Agree/Disagree: We depend too much on science and not enough on faith by country (Q 160)	Agree/Disagree: It is not important for me to know about science in my daily life (Q 162)

*Note: This table is nonexhaustive. Scholars are encouraged to identify a wide range of operational and empirical measures from which to aggregate the effects of public trust.

Table 2. Existing Indices Associated with Climate Change

Contributions to Warming			
Data Source	**Sample Metrics**		
Climate Action Tracker 2022	Projected emissions by 2030 by country		
International Energy Agency Key World Energy Statistics 2021	Crude oil producers, net exporters, and net importers by country	Coal producers, net exporters, and net importers by country	Electricity producers, net exporters, and net importers by country
OECD Environment at a Glance Indicators 2022	Greenhouse gas emissions, intensities per capita by country	CO_2 emissions from energy use per capita by country	Carbon footprint, intensities per capita by country
OECD Work on Green Growth 2019–2020	Premature deaths from exposure to particular matter and ozone by country		
Policy Commitments			
Data Source	**Sample Metrics**		
Climate Action Tracker 2022	Percentage above/below NDC targets by country	Overall CAT rating: On a scale of Paris Agreement compatible to highly insufficient	
Climate Change Performance Index (CCPI) 2022	CCPI rating table by country	Renewable energy rating table	Climate policy rating table
OECD Environment at a Glance Indicators 2022	Share of renewables in the production of electricity by country	Climate change-related tax revenue by country	Aid to climate change mitigation by country
OECD Work on Green Growth 2019–2020	Stringency of environmental policies by country (2012)	Burdens on the Economy due to Environmental Policies (BEEP) indicator (2012)	Carbon pricing gap (2015)
Environmental Performance Index (EPI) 2022	EPI Overall Score	Climate Policy Rank	10-year change in EPI
Public Sentiments and Press Coverage			
Data Source	**Sample Metrics**		
Ipsos Global Advisor - Earth Day 2022	Concerns about climate change in the previous 2–3 weeks, by country	Concerns about the impacts of climate change that are already being seen in your country, by country	Concerns about the impacts of climate change that are already being seen in other countries around the world
Media and Climate Change Observatory, University of Colorado 2004–2022	Average annual number of climate change articles per paper tracked in each country, 2004–2022		
Pew Research Center 2021 Global Attitudes Survey	Percentage that view climate change as a threat to the country, by country	Percentage who are concerned that global climate change will harm them personally at some point in their lifetime	Percentage of people willing to make at least some changes to their lives to help reduce the effects of climate change
Reuters Institute Digital News Report 2022	Proportion that think climate change is very or extremely serious by country		

UNDP People's Climate Vote 2021	Public belief in the climate emergency, by country	Proportion of respondents by country who say we should do everything necessary, urgently in response, as a subset of those people who believe in the climate emergency	Popularity of more investment in the green economy and jobs among G20 countries

*Note: This table is nonexhaustive. Scholars are encouraged to identify a wide range of operational and empirical measures from which to evaluate contributions to warming, climate policy commitments, and associated public sentiments and press coverage.