Global Governance under Populism: The Challenge of Information Suppression

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Abstract

Populists' ideological opposition to global governance is well recognized, yet whether and how these actors systematically undermine international organizations remains unclear. We argue that a key means by which populists warp global governance is by distorting scientific information, which is necessary for global responses to many public health and environmental issues. Populists are motivated to withhold or misreport scientific information due to their anti-elite, pro-state sovereignty views. Using new data on the source and quality of information provided to IOs, we find that populist leaders are significantly less likely to provide scientific information to these organizations than other types of leaders. When they do offer such data, it is less accurate than the information supplied by other sources. Our findings suggest that populism may stymie international institutions' ability to govern in areas of pressing international concern.

Keywords: populism, global governance, transparency, information, science

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A burgeoning literature argues that populism poses a critical threat to global governance (Copelovitch and Pevehouse 2019; Voeten 2020), yet the precise mechanisms through which populists undermine international organizations remain unclear. While some scholars point to populists' harsh rhetoric toward IOs or their potential for exit from these bodies (Voeten 2020), this paper identifies information withholding and distortion as key means by which populist leaders challenge IOs. Recent history offers several examples of this process. Populist leaders have been unwilling to offer the World Health Organization (WHO) information on the origins and spread of COVID-19;[1] reticent to provide IOs such as the United Nations with climate data;[2] and reluctant to supply the International Monetary Fund (IMF) with development-related information.[3]

Populists across the political spectrum exhibit two defining characteristics: anti-elitism and resistance to constraints on state sovereignty (Mudde and Kaltwasser 2017; Busby, Gubler, and Hawkins 2019; Broz, Frieden, and Weymouth 2021). Providing information to IOs cuts against both of these tenets. This is particularly so when the information is *scientific*, pertaining to natural phenomena in which experts play a major part in collecting and analyzing data. Prominent types of scientific information used by IOs relate to public health and the environment, including data on greenhouse gas emissions, disease incidence, and energy use (McGarity and Wagner 2010, 7). These data are collected by scientists and other experts who are castigated as "elites" by populists, and destined for institutions that populists see as infringing on their countries' sovereignty. We theorize that populists fail to furnish IOs with accurate scientific data either as a byproduct of the erosion of domestic scientific capacity or to intentionally weaken IOs.

To test our theory, we use original, hand-coded data on the source of IOs' information — whether it is provided directly by member states or estimated by other actors — as well as a new measure of IO data quality. We find that populists disclose significantly less scientific information

[1] See Worsnop (2019)

[2] *Center for American Progress*, 2018, ampr.gs/3f1qTQK. *New York Times*, 2019, nyti.ms/3ttVSds.

[3] See Jones and Hilbers (2004).

to IOs, and when they do furnish it, it is of lower quality than information from non-populist leaders. This reporting tends to rebound once populists leave office, however, suggesting that populists' actions are reversible.[4] We supplement these tests with interviews conducted with senior officials at leading health, environment, and energy IOs that play key data collection and dissemination roles.[5] We also test our mechanism, finding that this relationship holds most consistently for government-supplied scientific indicators as opposed to information estimated by non-governmental sources.

This paper makes several contributions. First, our theory advances the literature on the international ramifications of domestic populist movements (Copelovitch and Pevehouse 2019; Pevehouse 2020; Voeten 2020; Wehner and Thies 2021; Voeten 2021). Our argument implies that populist waves limit the amount of information that IOs have at their disposal, potentially distorting IOs' judgments and ability to fulfill their mandates.[6] Moreover, our findings suggest that populists may threaten forms of international cooperation that rest on scientific information in particular, with implications for the governance of emerging threats such as climate change and artificial intelligence.

Next, we extend the literature on government transparency and the transmission of information to IOs. While scholars have pointed to factors like democracy and state capacity as sources of government transparency,[7] we find that populism is an important predictor of government information disclosures. Moreover, unlike prior work that focuses on how states undercut IOs by reducing their participation in or exiting from these organizations,[8] we examine the essential role

[4]We follow Hollyer, Vreeland, and Rosendorff (hereafter HRV) in measuring missingness in countries' World Development Indicator reports. See Hollyer, Rosendorff, and Vreeland (2011, 2015, 2018, 2019).

[5]Ethical considerations are discussed in appendix P.

[6]On questions of IO failure, see Gray (2018); von Borzyskowski and Vabulas (2018); Adler and Drieschova (2021); Pratt (2021).

[7]E.g., Hollyer, Rosendorff, and Vreeland (2011).

[8]See, respectively, Gray (2018); von Borzyskowski and Vabulas (2018).

of information provision. These insights have applications to the study of power in global governance more generally, highlighting the supply of information as an under-appreciated source of influence.

Additionally, we extend the literature that examines how and when IOs promote cooperative outcomes among members (Keohane 1984). While a large body of work explores how these organizations can remedy collective action problems by supplying information, minimizing transaction costs, and lengthening time horizons, it often overlooks how hostile members can thwart such efforts. We demonstrate that populists in particular may damage international efforts to promote compliance with international laws and norms by interfering with information collection.

Information, IOs, and Populist Leaders

Scholars have long recognized that a core function of IOs is to disseminate information to the international community (Keohane 1984; Abbott and Snidal 1998). This information pertains to a wide range of activities, including compliance with international rules, environmental conditions, economic activities, health, security conditions, demographics, crime, trade patterns, education, and more. By collecting, analyzing, and sharing these data, IOs enable members to make more informed decisions and thereby promote cooperative outcomes. In many cases, information collection and provision are central to fulfilling IOs' formal mandates.[9]

However, supplying this information requires IOs to obtain specific data and documentation. For example, for the WHO to coordinate a global response to a disease outbreak, it must gather information on the disease's origins and incidence among members (Ge 2022). For the IMF to determine systemic economic risks and forecast economic conditions, it relies on states' economic data (Clark and Zucker 2023). For the International Atomic Energy Agency (IAEA) to ascertain members' adherence to international rules governing nuclear development, it must

[9]Interviews by authors with a senior official at a prominent health IO (January 22, 2021) and senior officials at two leading environmental and energy IOs (January 25, 2021 and February 2, 2021).

acquire information regarding countries' nuclear programs. The absence of such informational inputs can have disastrous effects, degrading the quality of trade flows, agreement enforcement, individual accountability for human rights violations, health outcomes, peacekeeping efforts, and economic decision-making (Carnegie and Carson 2020). Indeed, institutions such as the UN and World Bank explicitly recognize the vital importance of data for their activities, convening forums and events dedicated to this purpose.[10]

IOs sometimes gather information on their own using surveillance technologies, open-source information, and on-the-ground inspections. For instance, the IAEA sends inspectors to monitor members' nuclear facilities (Thorne 1992), and the European Commission sends election monitors to determine whether elections are free and fair (Kelley 2009). However, IOs typically cannot procure all of the information they need independently, as member states often refuse to empower them with these capabilities (Pollack 1997). Members may worry that doing so will provide IOs with too much power, rendering IOs unaccountable and sacrificing members' sovereignty. States may also express concern that IOs will use these capacities to expand their missions or pursue their own bureaucratic objectives (Barnett and Finnemore 1999). Moreover, open-source information may not be available or seen as reliable by IOs.

Accordingly, IOs often depend on the information provided by member states, which may pertain to the information provider itself or other states. However, IOs often experience difficulty in obtaining this information. An emerging body of scholarship recognizes that sharing information with IOs is governed in part by leaders' self-interest (Terman and Voeten 2018); for example, proclivities to share information may vary by regime type (Kono 2006; Schuessler 2010; Hollyer, Rosendorff, and Vreeland 2015). Yet considerable variation exists in information sharing even among democracies.

We theorize that populist leadership helps explain variation in whether accurate information is provided to IOs due to populists' characteristic anti-elitism and sovereignty concerns.

[10] *UN*, 2023, `https://bit.ly/422v3z1`. *World Bank*, 2023, `https://bit.ly/40Zi003`.

Further, we argue that their anti-elite and anti-expert inclinations often manifest as a specific resistance to *scientific* information, which is unique in how it "empowers technocrats and legitimizes experts" (Eichengreen 2018, 7). Multiple studies show that populists "are skeptical of experts and the research they produce" (Motta 2018; Gauchat 2012).[11] Populists often denigrate experts as out of touch, greedy, or corrupt (Castanho Silva, Vegetti, and Littvay 2017; van Kessel, Sajuria, and Van Hauwaert 2020), and seek to "ditch the expert for the man on the street" (Mudde and Kaltwasser 2017, 108).[12] They frequently believe that scientists use their knowledge to exploit others (Brewer 2016; Copelovitch and Pevehouse 2019), consistent with studies showing that populists are susceptible to conspiracy theories and other falsehoods (Oliver and Rahn 2016; Norris, Cameron, and Wynter 2018). Populists prefer simple language to complex-sounding, scientific rhetoric (Bischof and Senninger 2018) and are often convinced that their "ordinary" ingroup members are victims of outgroup experts' findings and assessments (Noury and Roland 2020).[13]

This anti-elitism can push populists toward scientific information withholding from IOs both directly and indirectly as a result of domestic processes. Domestically, scientific data are costly to produce, requiring the employment of trained experts, large research budgets, and adequate time for collection and analysis. As a result, all leaders have incentives to shirk (McGarity and Wagner 2010); however, while populists' constituents see limited value in scientific information, non-populists' constituents often trust experts and disapprove of attempts to discredit them. Statements signaling an expert consensus on scientific issues prompt greater acceptance and be-

[11]Such anti-expert framing is common in many regions both recently and historically (Rigney 1991; Bonikowski and Gidron 2016; Oliver and Rahn 2016).

[12]For example, a leader of the Dutch Party for Freedom claimed regarding the Paris Agreement that "the elite are laughing here while rubbing their hands" (Schaller and Carius 2019, 91). Similarly, Jean-Marie Le Pen, the founder of France's National Front party, decried environmentalism as the "new religion of the [bourgeois]" (*Le Point*, 2019, bit.ly/2NES7mq).

[13]See also Mudde and Kaltwasser (2017); Bischof and Senninger (2018); Copelovitch and Pevehouse (2019).

havioral change among non-populist supporters, but not among populist backers (Merkley 2020). Non-populist constituents demand expert-produced information more than populist supporters, increasing information provision incentives for non-populist leaders. This is reflected in polling; for example, while large majorities of U.S. Democrats and left-leaning independents think that scientists "should have an active role in science policy matters" (73%) and that "scientists' policy decisions are usually better than those of other people" (54%), minorities of populist-supporters agree (43% and 34%, respectively).[14] High levels of trust in science are found among non-populist groups in other regions of the world as well.[15]

As a result of the anti-expert orientation of their constituents, populist leaders often degrade domestic expert bureaucracies, particularly those engaged in scientific data collection (Bellodi, Morelli, and Vannoni 2023; Eichengreen 2018; Sasso and Morelli 2021, 2). Populist leaders may dismiss experts in favor of loyal political appointees, who may struggle or express unwillingness to collect complex scientific data and who may also lack strong relationships with officials in IOs.[16] Populists can also reduce funding for scientific endeavors, disrupt scientific operations, or otherwise interfere with scientific information collection, resulting in a lack of data or low-quality data.

Populists thus often erode domestic scientific capacity without explicitly intending to damage IOs; their intent to degrade domestic bureaucracies distorts the information that IOs receive. Consider several examples of populists across the ideological spectrum degrading their domestic scientific capacities: On the left, populist president Andrés Manuel López Obrador of Mexico cut funding to scientific institutes as part of a campaign against the country's "golden

[14] *Pew Research Center*, 2020, pewrsr.ch/3j36LzA. Populist supporters in the U.S. are particularly skeptical of scientific findings on climate and vaccine efficacy. See *Pew Research Center*, 2019, pewrsr.ch/3yevDL1.

[15] *Editage Insights*, 2019, bit.ly/2Vmt0Is.

[16] Interview with a senior official at an environment and energy IO, February 2, 2021.

bureaucracy,"[17] as did the former president of Bolivia, Evo Morales, who viewed science as a tool to be "modified and deployed to meet national ends" (Centellas 2010). On the right, Donald Trump fired scientists from key domestic positions and spread misinformation contrary to scientific findings,[18] while Jair Bolsonaro of Brazil purged environmental agencies of scientists cataloging Amazon deforestation.[19]

However, scientific information is not only withheld from IOs due to these knock-on effects; populists also intentionally keep this information from IOs. They do so for for two reasons. First, populists' disdain for the scientific experts that staff IOs leads populists to reduce their engagement with them. Experts in IOs are often highly trained individuals who analyze and interpret scientific information. Populists may try to disempower international elites by keeping scientific information from them or they may simply decline to interact with them. Sovereignty concerns, meanwhile, also lead populist leaders to intentionally withhold truthful scientific information from IOs since IOs are designed to "prescribe, proscribe, and/or authorize behavior" by states (Koremenos, Lipson, and Snidal 2001, 762). Data helps IOs to fulfill their mandates, which often include monitoring and regulating state behavior and necessitates some ceding of sovereignty (Pollack 1997). Populists loathe transferring authority from "the people" to unelected elite bureaucrats abroad (Pevehouse 2020). As a result, a senior official at an energy and environment IO described the process of collecting data from such states as "pulling teeth."[20]

Recent history is rife with instances of this behavior. For example, populists have suppressed data on pesticides and other pollutants from international bodies,[21] and many leaders

[17] *Science Magazine*, 2019, bit.ly/3lCH2z0

[18] See the Silencing Science Tracker (bit.ly/2RDvhx5) for U.S. examples in which budgets for scientific agencies were slashed and appointments increasingly politicized.

[19] *New Yorker*, 2019, bit.ly/3f0zHq6.

[20] Interview with a senior official at an environment and energy IO, February 2, 2021.

[21] Leaders often distorted HIV/AIDS data in analogous ways. Interview conducted by the authors with a senior official at a public health IO (January 22, 2021).

sought to withhold internal data on COVID-19 from the WHO, which populists argued restricted their sovereignty (Worsnop 2019; Ge 2022). Senior IO officials have also expressed concern over "a high potential [for] strategic non-disclosure for emissions and climate-relevant statistics."[22]

In sum, as a byproduct of the domestic erosion of scientific capacity and as part of an intentional effort to resist IO expertise and oversight, we theorize that populists report less scientific information and less accurate scientific information than non-populists. Populists' anti-elitism should lead them to degrade domestic capacities, while both their anti-elitism and pro-state sovereignty stances lead them to withhold or misrepresent the information they do have. Populist leaders' hostility to scientific information may emanate from both genuinely held political values and performative interest in donning "populist garb" to win support from anti-establishment constituents (Pierson 2017, S106); leaders are typically motivated by a mix of ideological and domestic incentives, and we expect similar behavior regardless of leaders' specific incentives (Pierson 2017). Moreover, our theory expects that populist practices of non-reporting and inaccurate reporting tend to coincide, with both contributing to their broad strategy of scientific information suppression.[23] We thus hypothesize the following:

Hypothesis 1. *Populist governments report less scientific data to international organizations than non-populist governments.*

Hypothesis 2. *When information is reported, populist governments report less accurate scientific data to international organizations than non-populist governments.*

[22]Interview conducted by authors. A senior official at an environmental and energy IO (January 25, 2021).

[23]To further explore this point, we also investigated potential heterogeneous treatment effects statistically, examining potential differences in our results depending on domestic characteristics or the issue area under consideration. We did not detect any such systematic effects, though we view further investigation into this area as a potential direction for future research.

Empirics

We test the first hypothesis by examining whether scientific data — information relating to the environment or public health — that should be provided to the World Bank is missing more often when a populist is in power. As a more precise test, we further examine whether this relationship holds more consistently for data that is provided directly by states rather than subject to imputation or estimation by third parties. We then evaluate the second hypothesis in the context of greenhouse gas emissions, examining whether populist governments report lower-quality data.

Data Missingness

We examine rates of data missingness using World Bank data both for comparability with previous work in this area (e.g., Hollyer, Rosendorff, and Vreeland 2011) and because of the substantive importance of the Bank in many scientific domains, including those pertaining to the environment and health-related issues. Environmental and health information lies at the heart of the Bank's formal mandate. The Bank often conditions its assistance on environmental criteria, evaluates the environmental impacts of its projects, and provides the international community with data on environmental conditions worldwide (Nielson and Tierney 2003; Buntaine 2016; Clark and Dolan 2021). Further, the Bank is active in the public health arena, where key functions include the identification of disease outbreaks, the measurement of disease incidence, and the communication of effective medical practices.[24] In this space, the data contained in the WDI are often initially collected by other IOs that explicitly engage in monitoring. For example, some health data initially come from the WHO and UNAIDS, two institutions that monitor disease incidence and outbreaks.

As part of these activities, the Bank also collects substantial amounts of information from member states that require scientific expertise to collect and analyze (see Table A6 in the appendices). Health data, for example, often involves scientific assessments of health risks, vaccine development, disease origins and spread, and new treatments. Information related to the environment often requires detailed scientific models and projections, measurements of pollutants and

[24] See, e.g., the World Bank's response to COVID-19 (bit.ly/2Vmu5A0).

energy use, and estimation of the impact of environmental factors on health and well-being.

To test whether populism is associated with the non-reporting of scientific data, we calculate the rate of missingness in countries' World Development Indicators (WDI), the primary World Bank collection of development data. This focus follows other work on information suppression (Hollyer, Rosendorff, and Vreeland 2011). Since governments typically provide these data, higher levels of missingness likely indicate that a government withheld certain data points.[25]

This dependent variable thus captures the share of scientific variables in the WDI database recorded as missing for a given country in a given year. To construct the variable, we extract the list of development indicators that fall into two categories — energy/environment and public health — and calculate the share that is missing for each country-year.[26] We include 252 WDI variables[27] over the period from 1990 to 2018, the entire time during which comprehensive data on populism is available. We standardize this outcome variable to ease interpretation.

[25]Rates of missingness for scientific data fluctuate over time, but generally, around 62% of the data are missing. Shares of missing scientific data are similar for populists (54%) and non-populists (59%) descriptively, which we find unsurprising given that many populists in the data are in wealthier countries with lower baseline rates of missingness. Further, as populism has increased around the world, the share of missing data attributable to populists has also increased, so that it is around 6% in 2018 (the last year in our dataset).

[26]Hollyer, Rosendorff, and Vreeland (2011, 2015, 2018, 2019). We calculate this measure ourselves rather than utilize their replication files to maximize temporal coverage. Our reconstructed transparency measure runs through 2018.

[27]In identifying the scientific variables, we eliminated derivatives of the same data point. For example, the WDI dataset includes kilotons of CO2 emissions for each country-year, along with CO2 emissions in proportion to various measures of GDP; we include only the indicator of kilotons of CO2 emissions. Importantly, states have no sway over derivatives; they are not reported by states at all. They are instead calculated by the World Bank based on one or a couple of reported indicators (e.g., GDP per capita based on GDP and population).

To measure populism, we draw on data from Funke, Schularick, and Trebesch (2022). This dataset analyzes the contents of 770 books, chapters, and academic articles on populism from the social sciences to code 1,500 leaders as populist or not. Populists are executives who claim to represent "true, common people" against dishonest "elites" in line with our theoretical framework. Appendix A reports the populist leaders, countries, and years in our sample.

In fully specified models, we control for a country's level of democracy using Polity2 scores, as scholars have demonstrated a strong link between democracy and transparency (Hollyer, Rosendorff, and Vreeland 2011). We also add a binary variable indicating whether a given country's leader has a right-wing ideology, drawing on the Database of Political Institutions; this helps to ensure that our results are driven by populism rather than ideology (Copelovitch and Pevehouse 2019). We further control for GDP per capita, which provides an approximate measure of a country's capacity and technical ability to collect and disseminate data, as well as its participation in ongoing IMF programs, as the IMF often mandates greater transparency as well as improvements to reporting and data collection agencies. All models additionally include country and year fixed effects to account for other country- and time-specific factors. We note that while fixed effects help to mitigate some potential concerns with this test by allowing us to account for country- and time-invariant factors, our analysis remains observational. Robust standard errors are clustered at the country level. All independent variables are lagged by one year, and we estimate these models by ordinary least squares. Appendix A reports summary statistics.

Our topline results are presented in Table 1. Column 1 includes the populism measure from Funke, Schularick, and Trebesch (2022) alone; Column 2 adds Polity2 democracy scores; Column 3 incorporates additional covariates. The results accord with our theoretical expectations. Populism achieves statistical significance in the anticipated direction regardless of the model specification. Notably, the core result from Hollyer, Rosendorff, and Vreeland (2011) replicates — as countries become more democratic, they exhibit less missingness in the WDI, though the magnitude is somewhat smaller for democracy than that for populism in these models. A one-point increase in a country's Polity2 score is associated with a decline in suppression of roughly 1% of

a standard deviation. In contrast, when a populist assumes office in a given country, the suppression of scientific information increases by approximately 7% of a standard deviation; roughly the equivalent of a seven-point decline in a country's Polity score. This translates to a 1.75% increase in missingness across all scientific indicators in a given year, or missingness in 3-4 additional indicators overall.

	Missingness of Scientific Variables		
	(1)	(2)	(3)
Populism	0.111***	0.074***	0.071***
	(0.024)	(0.017)	(0.020)
Polity2		−0.011***	−0.011***
		(0.002)	(0.002)
Right-wing			0.007
			(0.009)
GDP per capita (ln)			0.011
			(0.029)
IMF program			0.005
			(0.013)
Observations	7,656	4,614	4,026
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 1: Regressions of the proportion of scientific WDI indicators missing in a given year (standardized) on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Estimated via OLS.

As a more precise test of our mechanism, we disaggregate the source of the scientific data provided to the Bank to check that our results are more consistent for information supplied directly by states. While some indicators are calculated from information shared directly by member states with the World Bank, many of the variables instead come from other IOs, NGOs, or academic institutions, which are not wholly reliant on state-provided data. Per our interviews with relevant officials,[28] as well as information reported in the WDI's metadata, many IOs depend on estimation and imputation methodologies to resolve missingness in their datasets, while others report unmodified data furnished by member states. We accordingly hand-coded the source of each WDI variable from the WDI's metadata; further details on coding procedures can be found

[28]Interviews with a senior official at a prominent health IO (January 22, 2021) and senior officials at two leading environmental and energy IOs (January 25, 2021 and February 2, 2021).

in appendix B. In cases where other IOs furnish WDI data, we analyzed those IOs' data collection methodologies. For each scientific variable under consideration, we determined whether the data presented in the WDI is raw, state-provided data or data subject to possible estimation or imputation by an IO or other information provider. Data in the latter camp can be imputed or provided directly by third parties like NGOs and IOs. Missingness often remains even in such imputed and estimated data — some prior data is needed for imputation to occur, and many countries, especially autocracies, neglect reporting over a number of years (Hollyer, Rosendorff, and Vreeland 2011). Of the scientific variables in our data, 48.7% of them rely on unmodified data provided directly by states while the remaining 51.3% of variables involve estimation or imputation by a non-state or intergovernmental data provider. Our model specifications remain the same as before.

	Missingness of Scientific Variables			
	Raw state-reported			Estimated or imputed
	(1)	(2)	(3)	(4)
Populism	0.084***	0.065***	0.058***	0.045
	(0.020)	(0.016)	(0.018)	(0.028)
Polity2		−0.008***	−0.005***	−0.010***
		(0.002)	(0.002)	(0.002)
Right-wing			0.0002	0.016
			(0.008)	(0.015)
GDP per capita (ln)			0.001	0.004
			(0.022)	(0.046)
IMF program			−0.0004	0.005
			(0.008)	(0.015)
Observations	7,656	4,614	4,026	4,026
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 2: Regressions of the proportion of WDI indicators missing in a given year by source on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Estimated via OLS.

The results of these tests are listed in Table 2. The strongest results in the table, both in terms of magnitude and statistical significance, are for the variables reliant on raw, state-provided scientific data.[29] The entry into office of a populist government is associated with an increase in

[29]In some robustness checks in the appendix, we identify a positive and statistically significant relationship between populism and missingness in estimated/imputed variables. This is likely be-

missingness of 5-8% of a standard deviation in variables using raw state data. We observe no significant relationship between populism and variables that are estimated or imputed by non-state information providers.[30] Importantly, we do not observe clear subject-matter distinctions between these two sets of variables, nor obvious differences in their political sensitivity, suggesting that the primary difference between these variables is in their origin.[31]

We also conduct several additional tests to verify the robustness of our results to different measures and model specifications. First, we follow Hollyer, Rosendorff, and Vreeland (2014) and use a Bayesian item response (IRT) model to construct a measure of latent transparency with respect to scientific information. This approach has several advantages, as it accounts for the fact that some variables may be more difficult to collect and the reporting of some variables may be more important than others. We utilize the resulting scientific missingness index as the dependent

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cause estimated or imputed data still require some information from states — if data are too poor or not reported for long periods, they cannot be reliably imputed or backfilled. The raw state-reported data offers a more precise measure of state information provision, while the imputed or estimated data are much noiser; the relatively large size of the confidence intervals on the latter reflects this.

[30]There is still some missingness in these variables, despite their non-state provision. Across our dataset, 56% of such data points are missing. This is because not all variables estimated by third parties are imputed.

[31]To illustrate this, we draw a random sample of five variables from each set. Randomly drawn state-provided variables include "mortality rate attributed to unintentional poisoning, male (per 100,000 male population)"; "people practicing open defecation, rural (% of rural population)"; "hospital beds (per 1,000 people)"; "GHG net emissions/removals by LUCF (Mt of CO2 equivalent)"; "people with basic handwashing facilities including soap and water, urban (% of urban population)." Randomly drawn third party-provided variables include "arable land (% of land area)"; "methane emissions (kt of CO2 equivalent)"; "rural population living in areas where elevation is below 5 meters (% of total population)"; "access to electricity (% of population)"; "prevalence of underweight, weight for age, female (% of children under 5)."

variable and follow HRV by utilizing Markov Chain Monte Carlo linear regression, including the same set of covariates as above. Appendix C contains the posterior distribution for each variable from these tests; results remain robust.[32]

Next, we examine the timing and stickiness of the relationship between populism and information suppression. These tests help to allay concerns that slower-moving, omitted variables are driving our results, or that some omitted variable is associated with both the entry of populist governments and a decrease in scientific information sharing. We first compare data disclosures two years before and two years after a populist takes office. We identify a positive and statistically significant relationship between populist entry into office and missingness of scientific variables, and we show that the results are driven primarily by state-reported indicators. These results, along with those discussed in the following paragraph, appear in appendix E.

Next, we test whether populist exit from office drives improved reporting by examining missingness two years prior to and two year post populist exit from office. We identify a negative correlation between the two, but the relationship fails to achieve statistical significance at conventional levels. However, the exit tests are performed with only 33 observations, which contributes to imprecision in our estimates. We thus conduct additional tests to explore whether non-reporting under populists persists beyond populists' tenures, perhaps owing to an erosion of bureaucratic capacity. The results show that reporting tends to rebound relatively quickly (within three years) once a populist exits office. After populists exit office, their successors appear to rebuild domestic bureaucracies and/or more freely disclose data. However, we note that populist spells are increasing in frequency and often persist for long stretches, during which data non-reporting may erode the functioning of IOs.

We then confirm that these results are unique to scientific data. The results in appendix Table G12 indicate that populism has a substantively and statistically insignificant relationship with missingness in non-scientific WDI variables, most of which are economic in nature, as we

[32]We perform an additional test that weights WDI variables by average difficulty in reporting (appendix D).

anticipate theoretically. Scientific data is difficult to obtain elsewhere, crucial for development IOs to fulfill their mandates, and produced by elites, making it a particularly attractive category of data for populists to distort.

Further, we drop outliers from the dependent variable by excluding all observations with outcomes further than two standard deviations from the mean (appendix F). We then drop the United States from our sample to ensure that the Trump years are not driving our results (appendix H). Additionally, we eliminate data after 2015, as there is often a lag of a few years in the reporting of key variables as information providers collect, aggregate, and analyze relevant inputs (appendix I). Next, we swap our primary populism measure for the one from the Blair Institute for Global Change; description of the measure and corresponding results appear in appendix J. We also include additional covariates intended to capture the size of a country's fossil fuel and agricultural industries, as well as its reliance on international development assistance and a series of other potential confounders, including years in office, the onset of an economic crisis, unemployment rates, and economic growth (appendix K). In each case, results remain robust.

Next, we control for nationalism, which represents a potential alternative explanation for our results. Specifically, we condition on V-DEM's measure of the extent to which a given government espouses a nationalist ideology. While nationalism and populism often coincide, especially when populists are right-leaning (Copelovitch and Pevehouse 2019), we find that the positive relationship between populism and information suppression remains (appendix L). For similar reasons, we control for World Bank conditionality. World Bank conditions often compel states to become more transparent, and also often pertain to scientific areas such as the environment (Clark and Dolan 2021). The core results are consistent (appendix M).

In additional tests, we investigate which types of countries drive our results. To do so, we interact populism with both democracy, as measured by Polity2 scores, and GDP per capita due to the high correlation among these variables. Interaction plots and regression tables illustrating the marginal effect of populism at various levels of democracy and GDP per capita can be found in appendix N. Our core results hold for both democracies and autocracies; they are not driven by low-

capacity or autocratic states, as might be expected given existing literature (Hollyer, Rosendorff, and Vreeland 2011). Rather, populism corresponds to information suppression across much of the political and economic spectrum.

Data Quality

We further theorize that populist governments report lower quality, less accurate data to IOs. To test this, we consider greenhouse gas emissions, which are the subject of significant international governance. Under the United Nations Framework Convention on Climate Change (UNFCCC), developed countries (Annex I Parties) are mandated to provide annual data on national greenhouse gas emissions according to a standardized set of reporting guidelines.[33] Emissions reduction targets form the core of the 2015 Paris Agreement (Falkner 2016); reviews of country progress towards these targets require accurate accounting of emissions. We anticipate that Annex I Parties will report less accurate emissions data when under populist rule.[34]

Populists may distort data by intentionally withholding or misrepresenting data, or by undermining state capacity to produce accurate scientific information. In the case of the UNFCCC, we expect the latter mechanism to primarily hold due to the UNFCCC's use of a stringent verification mechanism, which complicates deliberate underreporting of emissions.[35] Independent experts associated with the UNFCCC evaluate the completeness of government-provided information and evaluate statistical methods to ensure that proper calculations were conducted.[36] To the extent that we observe emissions misreporting, it is likely then due to a general erosion of institutional capacity resulting from funding cuts, staff dismissals, and changes in leadership. Lower capacity should add random noise to state-reported emissions data, not biasing them in a particular direction.[37]

[33]Annex I Parties encompass OECD countries and post-Soviet countries.

[34]Developing countries (Non-Annex I Parties) are subject to looser reporting requirements. We accordingly focus our analysis on Annex I Parties.

[35]Interview by the authors of a senior official at an environmental IO (January 25, 2021).

[36]Ibid.

[37]Such random deviations may be difficult to detect because verification of countries' emis-

To measure the quality of state-provided emissions data, we compute the absolute difference between emissions data reported directly to the UNFCCC and the emissions data contained within the WDI.[38] Emissions data within the WDI are based on independent estimates from the Emissions Database for Global Atmospheric Research (EDGAR), a project of the European Commission's Joint Research Centre and the Netherlands Environmental Assessment Agency. While we do not expect EDGAR estimates to be perfect descriptions of emissions levels, the accuracy of these estimates should not vary with populists' entry into office.[39]

We regress the natural logarithm of the gap in emissions data on the populism indicator and our primary set of covariates. This analysis covers the years 1990–2018. We include two additional covariates capturing the sizes of a country's fossil fuel and agricultural industries, which are intended to measure the pressure governments may feel to reduce domestic capacity to generate accurate data. Remaining specifications, including the country and year fixed effects, remain the same. As is the case for the above tests, our analysis is observational; we are unable to fully rule out potential omitted variable or selection issues.

Results in Table 3 show that populism is associated with a substantively and statistically significant erosion in the quality of state-reported emissions data.[40] The accession of a populist government is associated with approximately a 25% increase in the gap between state-reported

sions inventories remains imperfect (e.g., Ogle 2015), allowing parties some space for inaccurate reporting.

[38]From the UNFCCC we collected data on total greenhouse gas emissions in CO2 equivalent, including LULUCF (land use, land-use change, and forestry). From the WDI we collected data on total greenhouse gas emissions in CO2 equivalent.

[39]The accuracy of these estimates may be eroded if the IEA and FAO, which provide data to EDGAR, acquire less or lower-quality data from populist governments. Our results would then represent an underestimate of the true effect.

[40]We do not detect an association with over- or underreporting of emissions; reporting errors do not consistently point in one direction.

	Emissions data gap (ln)		
	(1)	(2)	(3)
Populism	0.277**	0.268**	0.233*
	(0.118)	(0.121)	(0.116)
Polity2		−0.007	0.011
		(0.025)	(0.023)
Right-wing			0.122
			(0.137)
GDP per capita (ln)			−0.189
			(0.390)
IMF program			−0.054
			(0.131)
Fossil fuel (% energy consumption)			0.033*
			(0.016)
Value added by agriculture, forestry, and fishing (% GDP)			0.022
			(0.032)
Observations	936	871	790
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 3: Regressions of the absolute difference (ln) between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimated by EDGAR (as reported in the WDI) in that same year on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Estimated via OLS.

UNFCCC data and externally estimated EDGAR data, suggesting that in addition to withholding scientific data, populists also undermine their domestic capacity to produce such data, resulting in less accurate data provided to IOs. Our findings are robust to the applicable additional specifications discussed in our test of the first hypothesis, including dropping outliers, the U.S., and recent years, as well as utilizing the Blair Institute populism measure. These results are reported in appendices F–J.

It is possible that these results underestimate the true effect of populism on data quality. To approximate "true" emissions levels, we use data that were independently collected by EDGAR and then published as part of the WDI by the World Bank. Yet the Bank may hesitate to publish data that are significantly different from that reported by member states for fear of alienating them. If the Bank is disinclined from publishing such data, we would expect small differences between these third-party emissions estimates and state-reported emissions, thus attenuating the results.

Our final analysis compares this variation in data quality to the previously discussed variation in data missingness. Theoretically, we anticipate that populist anti-elitism and pro-state

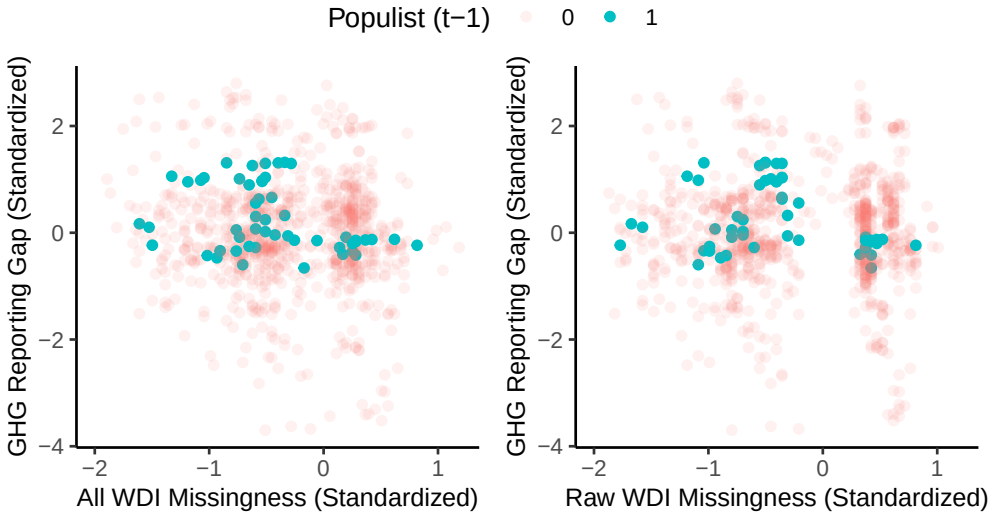

Figure 1: Relationship between the gap in third-party and state-reported emissions (y axis) and the rate of WDI missingness (x axis; all variables in left panel, state-reported variables only in right panel) by country-year. Populist governments distinguished from non-populist government.

sovereignty lead to *both* an erosion in data quality and an increase in data non-reporting. We do not expect populists to consistently, strategically opt for one form of information suppression over the other. To evaluate this, we first plot variation in emissions data quality against differences in WDI missingness. Figure 1 reveals no consistent correlation between these two forms of suppression either among populists or non-populists. Regressions of the emissions data gap on WDI missingness similarly suggest that populists do not systematically select between the two options (Appendix O). Rather, these results are consistent with our theoretical expectation that populists suppress scientific data by simultaneously degrading bureaucratic capacity and intentionally failing to report the data they do have.

Backfilling and Imputation

We consider the possibility that the World Bank backfills or imputes some of its data. For example, the World Bank may backfill missing data points in the years after countries initially fail to report them. Such backfilling may increase measurement error in our outcome variable. If rates of backfilling are randomly distributed, backfilling would reduce the precision of the coefficient estimates (i.e., increase standard errors).

If backfilling is more common following populist spells, as we theorize, this measure may understate true levels of missingness under populist governments. In other words, if populists have disdain for the scientific community, and thus information does not get reported to the Bank but the Bank backfills some of it, this would produce more conservative estimates of the relationship between populism and WDI non-reporting. However, we note that rather than populist governments having disdain for the scientific community as we theorize, the scientific community may also have disdain for populists. Or, the Bank could be less willing to "help out" populist governments by backfilling or imputing their data. If either of these possibilities were true, it could create bias in the other direction, such that our results could be spurious.

Qualitatively, we do not find evidence that mutual bias (i.e., mutual distaste between populists and IOs) results in the loss of data. We include the illustrative example of domestic data generation under the Trump administration in the appendix. We chart numerous channels through which the administration disrupted scientific data production, and we did not find evidence of mutual bias at work. We also interviewed relevant officials at international organizations to learn more about the processes of backfilling and imputation. In our discussions, we discovered that backfilling and imputation do occur, and when they do, the Bank typically uses basic procedures of linear interpolation or simply carrying forward the last value.[41] Our interviewees did not note any bias or discrimination on the part of the Bank; however, they could be unaware of such biases or not wish to disclose them. We therefore also investigate the possibility of mutual bias empirically. To do so, we downloaded the archived, pre-imputed versions of the WDI data post-2005 (all years for which such data is available). This allowed us to test for a link between populism and contemporaneous measures of missingness.

We first note that we observe high rates of backfilling overall. Plot 2 depicts the mean missingness rates of all variables recorded for the years 2004–2017 across subsequent version of the WDI ("years since variable year" being the difference between a WDI version year and the year recorded for a given datapoint). We observe a 97% missingness rate in the WDI version that

[41] Interview with a senior official at an energy and environment IO; February 2, 2021.

immediately follows a particular variable year (e.g., data recorded for the year 2004 are missing at high rates in the 2005 WDI version). This missingness rate dwindles rapidly, falling to 47% two years after a given variable year before plateauing at roughly 30% four years after.

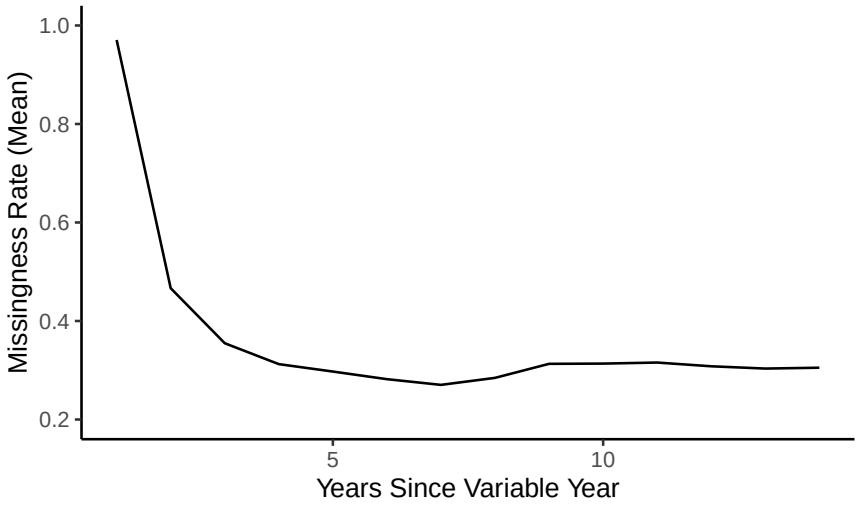

Figure 2: Mean WDI missingness in variables recorded for year t in WDI versions $t + x$ (e.g., missingness rates in variables recorded for 2004 in the 2005 WDI version). "Years since variable year" describes the difference x between a WDI version year and the year recorded for a given data point (e.g., in the 2010 WDI, it would have been 5 years since the data was recorded for 2005). Calculated for variable years 2004–2017 across the 2005–2018 versions of WDI.

We next compare backfilling rates across populist versus non-populist governments. We limit this analysis to variables that were missing two years after a variable year, which is when the World Bank broadly begin being backfilled (as indicated in Figure 2). Figure 3 illustrates that variables previously missing under a populist government are backfilled to a notably greater extent than those missing under a non-populist government. This difference in backfilling is statistically significant.[42] This trend, apparent specifically for scientific variables as well, suggests that our results are conservative. Put differently, we are likely underestimating the true level of missingness under populists, given post hoc backfilling. Thus, if we imagine a country moving from non-populist to populist leadership, the rate of backfilling should be higher for populists than for non-

[42]Regression by OLS of missingness by "years since variable year" on our binary populism indicator, with "years since variable year" fixed effects and standard errors clustered at that level. $\hat{\beta} = -0.15$ ($p < 0.001$).

populists, which means subsequent missingness rates should be artificially suppressed for populists relative to non-populists within a given country. This cuts against our findings, making them conservative.

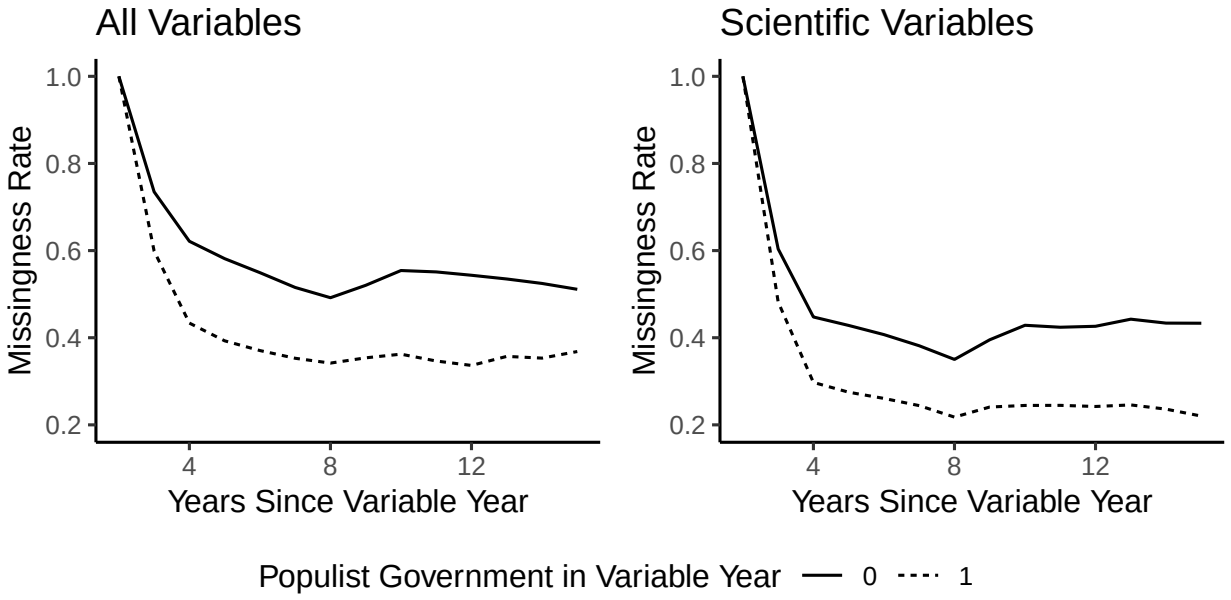

Figure 3: Mean WDI missingness in variables recorded for year t (2003–2016) in WDI versions $t + x$ (2005–2018; $x \in [2, 15]$), restricted to variables missing in year $t + 2$. Plots distinguish between missingness in variables recorded for years in which a populist was (dashed line) or was not (solid line) in power. The left-hand plot cover all WDI variables; the right-hand plot is limited to scientific variables.

We argue that this is likely occurring for two reasons. One is that populist spells tend to be short-lived, so after a populist leaves office, the new government may share the withheld data. The results in appendix E provide evidence in support of this point. The other is that the Bank may impute or find other sources of the data at higher rates for populist leaders. Perhaps the Bank anticipates difficulties in data collection under populists and thus locates other data sources preemptively.

Conclusion

We identify populism as a significant impediment to IOs' functions as repositories and providers of scientific data. Populists' anti-elitism and state sovereignty concerns incentivize populist leaders to tamper with domestic data collection capacities and withhold scientific data from IOs. In

analyses of World Bank data, we find that populist governments are significantly less likely to supply scientific information than other governments. This result holds for indicators reliant on data provided directly by member states, but not for indicators using data that is estimated or imputed by non-state information providers. By comparing state-reported and third-party-estimated greenhouse gas emissions data, we additionally find that populists supply less accurate information to IOs.

These findings are important for our understanding of how populism shapes global governance. While information distortion is a tactic used by many leaders as a means of hiding unfavorable information, populists possess both material and ideological incentives to withhold or distort such information. It is thus critical to understand the relationship between populism and international cooperation, especially on scientific issues with existential stakes, such as global health and climate change. Populist candidates continue to achieve electoral success, including in countries that have often supported and extensively utilized liberal IOs — Argentina's Javier Milei is the most recent example. Our findings thus show how populism drives hostile members to undercut IOs in a difficult-to-observe, yet highly consequential manner.

Our study suggests several directions for future work. We uncover evidence that populists both withhold scientific information and report less accurate information than other leaders. A fruitful path for future research could describe the conditions under which non-reporting is more or less likely than misreporting. We speculate that misreporting may be less common in domains with stricter monitoring regimes since the detection and punishment of leaders' misreporting would be more likely.

Additionally, we show that distinct political logics may govern disclosures of different types of information. Scholars of other determinants of transparency, such as regime type, might reach new insights from the disaggregation of information by subject. Information disclosures could also vary depending on domestic characteristics. While we did not detect heterogeneous treatment effects based on such characteristics, we view the investigation into this question as an interesting area for further work.

Moreover, scholars might explore how IOs react to populists' information distortion. IOs know they are not receiving the information they need, so an interesting question for future work is how they go about trying to obtain such information. For example, IOs might act strategically to avoid a reliance on populists who resist sharing information, perhaps by endeavoring to collect the information themselves or attempting to obtain it from other actors. Or, IOs might increase sanctions for non-compliance with reporting requirements during populist waves.

Our findings also have policy implications. In shedding light on when IOs can best carry out their mandates, we point to potential ways in which policymakers may strengthen cooperative efforts. For example, if policymakers wish to better insulate IOs from the effects of populism, they may improve IOs' abilities to gather their own information by diversifying their sources of data and documentation, expanding access to open-source information, or equipping them with more sophisticated data collection tools. Moreover, if policymakers seek to broaden IOs' writ, our study suggests that the most productive time to do so is when populist waves recede among member states.

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Online Appendices

A Summary Statistics

Country	Spell Start	Spell End
Argentina	1990	1999
Argentina	2003	2015
Bolivia	2006	2018
Brazil	1990	1992
Bulgaria	2009	2018
Ecuador	1997	1997
Ecuador	2007	2017
Greece	1993	1995
Greece	2015	2018
Hungary	2010	2018
India	2014	2018
Indonesia	2014	2018
Israel	1996	1999
Israel	2009	2018
Italy	1994	1995
Italy	2001	2011
Italy	2018	2018
Japan	2001	2006
Mexico	2018	2018
Peru	1990	2000
Philippines	1998	2001
Philippines	2016	2018
Poland	2005	2007
Poland	2015	2018
Slovakia	1990	1998
Slovakia	2006	2018
South Africa	2009	2018
South Korea	2003	2008
Thailand	2001	2006
Turkey	2003	2018
United States	2017	2018
Venezuela	1999	2018

Table A4: Populist spells 1990–2018 (Funke, Schularick, and Trebesch 2022).

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Scientific missingness	7,656	0.617	0.157	0.187	0.508	0.683	1.000
Non-scientific missingness	7,656	0.555	0.195	0.138	0.414	0.660	1.000
Scientific missigness (raw)	7,656	0.610	0.204	0.127	0.436	0.745	1.000
Scientific missingness (estimated)	7,656	0.557	0.155	0.137	0.470	0.581	1.000
Populism	7,656	0.045	0.206	0	0	0	1
Polity2	4,614	3.039	6.632	−10.000	−3.000	9.000	10.000
Right-wing	2,593	0.368	0.482	0.000	0.000	1.000	1.000
GDP per capita	6,830	12,406.880	19,057.410	161.834	1,379.505	13,943.140	191,586.600
IMF program	7,656	0.184	0.387	0	0	0	1

Table A5: Summary statistics for main regression models. Note that no transformations (e.g., standardization, natural log) have been applied to these variables.

Category	**Subcategory**	**Quantity**	**Example Indicator**
Environment	Emissions	26	CO2 emissions from liquid fuel consumption (kt)
	Land	26	Arable land (% of land area)
	Water	20	Marine protected areas (% of territorial waters)
	Energy	30	Energy use (kg of oil equivalent per capita)
Health	Disease	18	Incidence of malaria (per 1,000 pop at risk)
	Mortality	39	Mortality rate, adult, male (per 1,000 male adults)
	Nutrition	28	Low-birthweight babies (% of births)
	Hygiene	12	People using safely managed sanitation services (% of pop)
	Access to care	34	Antiretroviral therapy coverage (% people with HIV)
	Sex & reproduction	19	Fertility rate, total (births per woman)

Table A6: Categories of Scientific WDI Variables. We include 252 variables in total in our calculation of missingness in reporting across scientific measures.

B Coding Procedures

To identify the source of WDI variables, we first examined the metadata for each variable under consideration. If the data was provided by a non-governmental organization, another IO, or an academic source, we next combed through that source's website for additional information about the original source of the data in question. We then placed each variable into one of two categories. The first, which should be most affected by populism, is raw state-provided data. This category consists of variables that are of state-reported origin, including data either provided directly by states to the World Bank or data provided by states to a non-governmental entity that is subsequently relayed to the World Bank. The second, which should not be impacted by populism, includes data that is either independently collected or estimated/imputed by non-governmental organizations, academics, or IOs. Around half of the WDI variables fall into each category.

C Bayesian Item Response (IRT) Model

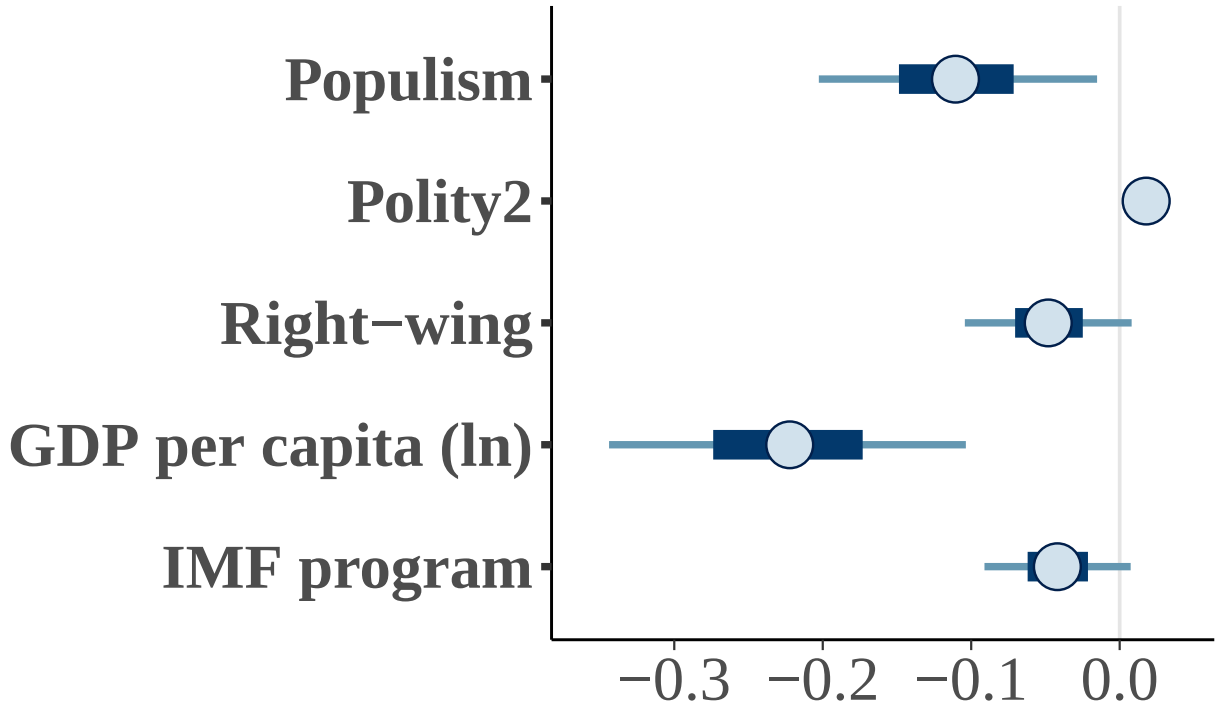

Figure C4: Posterior distributions from Markov Chain Monte Carlo for Gaussian Linear Regression with plotted means, 50% confidence boxes, and 90% confidence intervals. The result for populism remains robust (p = 0.05). We run the model with 1,000 burnin iterations and 1,000 MCMC iterations. The dependent variable is latent scientific transparency (i.e., higher values indicate *greater* transparency), which we construct utilizing the replication materials from Hollyer et al (2014) on our WDI sample of raw state-provided scientific WDI variables. MCMC allows us to address two key concerns with our primary analysis by accounting for potential variation in the importance and difficulty of disclosure across variables. Model also includes Blair Institute coding of populism and our complete cohort of control variables as well as country and year fixed effects.

D Weighted Missingness

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.045***	0.059**	0.017
	(0.014)	(0.026)	(0.011)
Polity2	−0.006***	−0.007**	−0.004**
	(0.002)	(0.004)	(0.002)
Right-wing	0.007	0.007	0.006
	(0.006)	(0.013)	(0.005)
GDP per capita (ln)	−0.006	−0.012	−0.006
	(0.026)	(0.075)	(0.052)
IMF program	−0.007	−0.018	−0.005
	(0.007)	(0.014)	(0.007)
Observations	4,026	4,026	4,026
Note:		*p<0.1; **p<0.05; ***p<0.01	

Table D7: Regressions of the weighted proportion of scientific WDI indicators missing in a given year on the populism indicator. This model weights each WDI variable incorporated into the dependent variable by the average missingness found for that variable in a given year across all countries (i.e., the dependent variable is a weighted average of missingness). Highly reported variables are weighted more than less reported variables, to account for the greater notability of not reporting a highly reported variable. It therefore incorporates a time-variant measure of difficulty in reporting a given variable. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year.

E Populist Entry, Exit, and Stickiness

	Missingness of Scientific Variables			
	Two Years Pre/Post **Entry**		Two Years Pre/Post **Exit**	
	All	Raw	All	Raw
	(1)	(2)	(3)	(4)
Populism	0.341^{**}	0.318^{*}	-0.294	-0.141
	(0.149)	(0.164)	(0.190)	(0.185)
Observations	56	56	33	33
Note:				*p<0.1; **p<0.05; ***p<0.01

Table E8: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. These models compare missingness two years prior to and two years post populist entry into office (models 1–2), as well as missingness two years prior to and two year post populist *exit* from office (models 3–4). We opt for the two-year buffer in order to compare missingness independent of general dynamics associated with government transitions. Models include country fixed effects. We omit year fixed effects because there are not many observations in any given year in this sample, and we are interested in variation within a country over time. This setup helps to allay concerns that slower-moving background or omitted variables are driving our results.

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism ($t-3$)	0.041	0.035	0.020
	(0.053)	(0.036)	(0.078)
Polity2 ($t-3$)	-0.007^{**}	-0.006^{***}	-0.002
	(0.003)	(0.002)	(0.004)
Right-wing (ln, $t-3$)	-0.008	-0.008	-0.004
	(0.013)	(0.010)	(0.019)
GDP per capita (ln, $t-3$)	0.041	-0.003	0.054
	(0.044)	(0.048)	(0.055)
IMF program ($t-3$)	-0.007	0.006	-0.012
	(0.014)	(0.012)	(0.018)
Observations	2,124	2,124	2,124
Note:			*p<0.1; **p<0.05; ***p<0.01

Table E9: Regressions of the proportion of scientific WDI indicators missing in a given year on a three-year lagged populism indicator limited to countries that did not have a populist in power in the prior year. Includes country and year fixed effects. These results show that the suppressive effects of populism on scientific information provision to IOs do not seem to linger after a populist exits office.

F Drop Outliers

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.067**	0.044**	0.058*
	(0.031)	(0.020)	(0.035)
Polity2	−0.010***	−0.002	−0.010***
	(0.003)	(0.002)	(0.004)
Right-wing	0.008	0.001	0.014
	(0.010)	(0.008)	(0.015)
GDP per capita (ln)	−0.004	0.0001	−0.034
	(0.048)	(0.041)	(0.056)
IMF program	0.032**	0.020**	0.038**
	(0.014)	(0.009)	(0.017)
Observations	2,251	2,250	2,254
Note:			*p<0.1; **p<0.05; ***p<0.01

Table F10: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects. Outliers are classified as observations with the outcome measure more than two standard deviations from the mean.

	Missingness of Scientific Variables
Populism	0.255**
	(0.114)
Polity2	0.001
	(0.023)
Right-wing	0.102
	(0.119)
GDP per capita (ln)	−0.051
	(0.365)
IMF program	−0.052
	(0.136)
Fossil fuel (% energy consumption)	0.023*
	(0.012)
Value added by agriculture, forestry, and fishing (% GDP)	0.031
	(0.032)
Observations	741
Note:	*p<0.1; **p<0.05; ***p<0.01

Table F11: Regressions of the absolute difference (ln) between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimated by EDGAR (as reported in the WDI) in that same year on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Outliers are classified as observations with the outcome measure more than two standard deviations from the mean.

G Non-Scientific Indicators

	Missingness of Non-Scientific Variables		
	(1)	(2)	(3)
Populism	0.043	0.016	−0.001
	(0.027)	(0.025)	(0.025)
Polity2		−0.010***	−0.007***
		(0.003)	(0.002)
Right-wing			0.041***
			(0.014)
GDP per capita (ln)			−0.078
			(0.061)
IMF program			−0.028**
			(0.013)
Observations	7,656	4,614	4,026
Note:			*p<0.1; **p<0.05; ***p<0.01

Table G12: Regressions of the proportion of non-scientific WDI indicators missing in a given year (standardized) on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year.

H Drop United States

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.068**	0.044**	0.061*
	(0.031)	(0.020)	(0.036)
Polity2	−0.010***	−0.003	−0.010***
	(0.003)	(0.002)	(0.003)
Right-wing	0.009	0.002	0.016
	(0.010)	(0.008)	(0.016)
GDP per capita (ln)	−0.005	−0.0003	−0.007
	(0.049)	(0.042)	(0.062)
IMF program	0.033**	0.020**	0.038**
	(0.014)	(0.010)	(0.017)
Observations	2,250	2,250	2,250
Note:			*p<0.1; **p<0.05; ***p<0.01

Table H13: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects. The U.S. is dropped to ensure that former US president Donald Trump is not driving the results.

	Missingness of Scientific Variables
Populism	0.231*
	(0.116)
Polity2	0.011
	(0.023)
Right-wing	0.129
	(0.142)
GDP per capita (ln)	−0.196
	(0.395)
IMF program	−0.053
	(0.131)
Fossil fuel (% energy consumption)	0.033*
	(0.016)
Value added by agriculture, forestry, and fishing (% GDP)	0.022
	(0.032)
Observations	774
Note:	*p<0.1; **p<0.05; ***p<0.01

Table H14: Regressions of the absolute difference (ln) between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimated by EDGAR (as reported in the WDI) in that same year on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. The U.S. is dropped to ensure that former US president Donald Trump is not driving the results.

I Drop Most Recent Years

	Dependent variable:		
	Scientific missingness (all)	Scientific missingness (raw)	Scientific missingness (estimated)
	(1)	(2)	(3)
Populism	0.067**	0.031*	0.063*
	(0.028)	(0.017)	(0.035)
Polity2	−0.009***	−0.002	−0.011***
	(0.003)	(0.002)	(0.004)
Right-wing	0.010	0.004	0.014
	(0.010)	(0.008)	(0.017)
GDP per capita (ln)	−0.010	−0.010	−0.015
	(0.052)	(0.046)	(0.064)
IMF program	0.032**	0.015*	0.040**
	(0.015)	(0.009)	(0.018)
Observations	2,203	2,203	2,203
Note:			*p<0.1; **p<0.05; ***p<0.01

Table I15: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects. Post-2015 years are dropped from the data because there is often a lag of a few years in reporting of some indicators.

	Dependent variable:
	Emissions data gap (ln)
Populism	0.307**
	(0.134)
Polity2	0.012
	(0.025)
Right-wing	0.116
	(0.138)
GDP per capita (ln)	−0.160
	(0.375)
IMF program	−0.031
	(0.125)
Fossil fuel (% energy consumption)	0.033**
	(0.016)
Value added by agriculture, forestry, and fishing (% GDP)	0.031
	(0.032)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table I16: Regressions of the absolute difference (ln) between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimated by EDGAR (as reported in the WDI) in that same year on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Post-2015 years are dropped from the data because there is often a lag of a few years in reporting of some indicators.

J Alternate Populism Measure

This section utilizes populism data from the Blair Institute for Global Change. This dataset analyzes the contents of thousands of academic articles published in 66 leading political science, sociology, and regional studies journals to code whether a given country's leader is a populist. The Institute "identified all articles published in these journals on the subject of populism, as well as political leaders linked with populism; then vetted each potential case study, consulting with country and regional experts." They define populists as leaders who share two core ideologies: (1) elites or "outsiders" threaten the interests of the "true people," and (2) populists stand for the "true people."

	Dependent variable:	
	Scientific missingness	
	(1)	(2)
Populism	0.047**	0.060**
	(0.019)	(0.027)
Polity2	−0.012***	−0.010***
	(0.002)	(0.003)
Right-wing		0.008
		(0.010)
GDP per capita (ln)		−0.004
		(0.049)
IMF program		0.033**
		(0.014)
Observations	4,614	2,277
Adjusted R^2	0.928	0.866
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table J17: Regressions of the proportion of scientific WDI indicators missing in a given year (standardized) on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Estimated via OLS.

	Dependent variable:
	Emissions data gap (ln)
Populism	0.307**
	(0.134)
Polity2	0.012
	(0.025)
Right-wing	0.116
	(0.138)
GDP per capita (ln)	−0.160
	(0.375)
IMF program	−0.031
	(0.125)
Fossil fuel (% energy consumption)	0.033**
	(0.016)
Value added by agriculture, forestry, and fishing (% GDP)	0.031
	(0.032)
Observations	790
Adjusted R^2	0.845
Note:	*p<0.1; **p<0.05; ***p<0.01

Table J18: Regressions of the absolute difference (ln) between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimated by EDGAR (as reported in the WDI) in that same year on populism. All models include country and year fixed effects and standard errors clustered by country. Independent variables are lagged by one year. Estimated via OLS.

K Additional Covariates

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.075*	0.060**	0.036
	(0.044)	(0.028)	(0.079)
Polity2	−0.021***	0.002	−0.029***
	(0.006)	(0.005)	(0.007)
Right-wing	−0.004	−0.026	0.003
	(0.027)	(0.020)	(0.041)
GDP per capita (ln)	0.066	0.057	0.003
	(0.067)	(0.066)	(0.112)
IMF program	0.065***	0.016	0.076**
	(0.024)	(0.014)	(0.029)
Fossil fuel (% energy consumption)	0.0004	0.0005	0.002
	(0.002)	(0.001)	(0.004)
Value added by agriculture, forestry, and fishing (% GDP)	0.001	−0.001	0.003
	(0.004)	(0.003)	(0.006)
Net ODA and official assistance received	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)
GDP growth (year-over-year, %)	−0.004	0.002	−0.005
	(0.003)	(0.002)	(0.005)
Unemployment rate	−0.010***	−0.002	−0.012**
	(0.003)	(0.002)	(0.005)
Economic crisis	−0.006	0.002	−0.016
	(0.012)	(0.005)	(0.018)
Observations	651	651	651
Note:			*p<0.1; **p<0.05; ***p<0.01

Table K19: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects.

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism spell length	0.014**	0.008*	0.012*
	(0.005)	(0.004)	(0.007)
Polity2	−0.017***	0.003	−0.024***
	(0.006)	(0.005)	(0.007)
Right-wing	−0.010	−0.028	−0.005
	(0.027)	(0.020)	(0.042)
GDP per capita (ln)	0.066	0.055	0.006
	(0.066)	(0.066)	(0.112)
IMF program	0.061***	0.013	0.075**
	(0.022)	(0.014)	(0.028)
Fossil fuel (% energy consumption)	0.001	0.001	0.002
	(0.002)	(0.001)	(0.004)
Value added by agriculture, forestry, and fishing (% GDP)	0.001	−0.001	0.003
	(0.005)	(0.002)	(0.006)
Net ODA and official assistance received	−0.000	−0.000	−0.000
	(0.000)	(0.000)	(0.000)
GDP growth (year-over-year, %)	−0.004	0.002	−0.005
	(0.003)	(0.002)	(0.005)
Unemployment rate	−0.009***	−0.002	−0.012**
	(0.003)	(0.002)	(0.005)
Economic crisis	−0.004	0.003	−0.015
	(0.011)	(0.005)	(0.017)
Observations	651	651	651
Note:			*p<0.1; **p<0.05; ***p<0.01

Table K20: Regressions of the proportion of scientific WDI indicators missing in a given year on the length of a given populist "spell" (uninterrupted period of populist governance of country). Includes country and year fixed effects.

L Nationalism

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.077**	0.052**	0.068*
	(0.030)	(0.020)	(0.035)
Polity2	−0.012***	−0.005***	−0.012***
	(0.003)	(0.002)	(0.003)
Right-wing	0.008	0.003	0.013
	(0.010)	(0.008)	(0.017)
GDP per capita (ln)	−0.005	0.0004	−0.008
	(0.047)	(0.040)	(0.061)
IMF program	0.031**	0.017*	0.037**
	(0.014)	(0.010)	(0.017)
Nationalism	−0.042	−0.037*	−0.036
	(0.028)	(0.021)	(0.034)
Observations	2,275	2,275	2,275
Note:			*p<0.1; **p<0.05; ***p<0.01

Table L21: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects. The nationalism measure comes from V-DEM and captures the extent to which the government promotes a nationalist ideology.

M Conditionality

	Missingness of Scientific Variables		
	All	Raw	Estimated
	(1)	(2)	(3)
Populism	0.060**	0.038*	0.055
	(0.030)	(0.021)	(0.035)
Polity2	−0.009***	−0.002	−0.010***
	(0.003)	(0.002)	(0.003)
Right-wing	0.006	0.001	0.011
	(0.010)	(0.008)	(0.016)
GDP per capita (ln)	−0.00004	0.004	−0.005
	(0.046)	(0.041)	(0.060)
IMF program	0.031**	0.018*	0.038**
	(0.014)	(0.010)	(0.017)
conditions	−0.003*	−0.003**	−0.002
	(0.002)	(0.001)	(0.002)
Observations	2,277	2,277	2,277
Note:			*p<0.1; **p<0.05; ***p<0.01

Table M22: Regressions of the proportion of scientific WDI indicators missing in a given year on the populism indicator. Includes country and year fixed effects. The conditionality measure is a country-year aggregate count of the number of prior actions mandated by Development Policy Financing programs from the World Bank. Data comes from Clark and Dolan (2021).

N Interaction Models

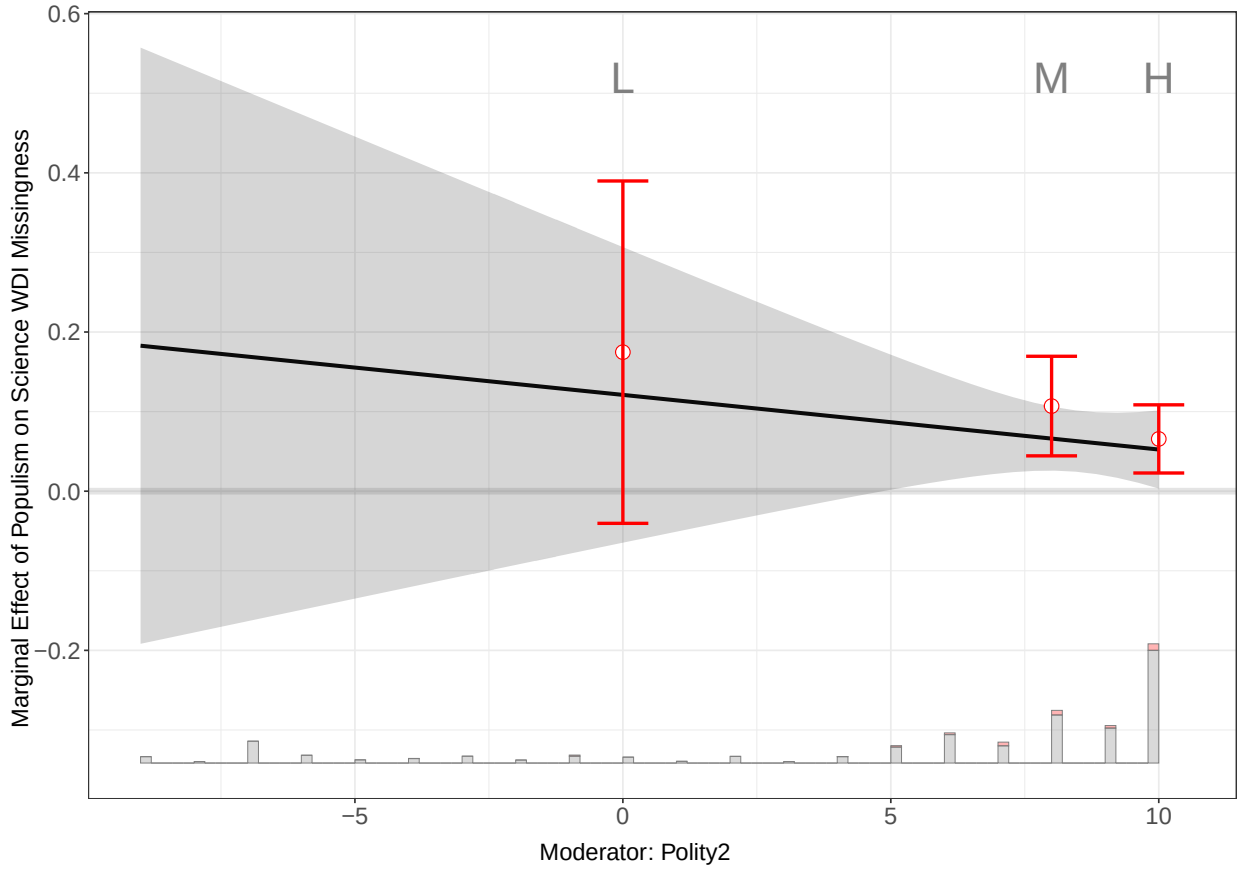

Figure N5: Populism × Polity2 Interaction Plot. The dependent variable is standardized missingness in scientific WDI variables. The interaction independent variables are the populism measure from Funke, Schularick, and Trebesch (2022) and Polity2 democracy scores. All covariates from main regressions are included in the underlying model. We utilize the binning estimator and `interflex` package from Hainmueller et al. (2019) to ensure common support in the moderator. The red confidence intervals represent the results with the binning approach, while the grey background illustrates the results with a linear interaction approach. **NB:** Populism has a positive relationship with information suppression for all Polity2 bins (terciles), as Table N5 shows.

	Lowest tercile	Middle tercile	Highest tercile
Coefficient	0.175	0.107	0.066
Standard error	0.110	0.032	0.022
95% CI	(−0.040, 0.390)	(0.044, 0.170)	(0.023, 0.108)
Moderator (Polity2) range	[−9, 6]	(6, 9]	(9, 10]

Table N23: Populism × Polity2 Interaction Table. This table shows the results of binned estimations with robust standard errors clustered by country.

O GHG Data Gap and WDI Non-Reporting

P Discussion of Ethical and Human Subjects Principles

The human subjects research included in this paper complies the with Principles and Guidance for Human Subjects Research outlined by the APSA and was deemed exempt by the Institutional Review Board at the appropriate univer-

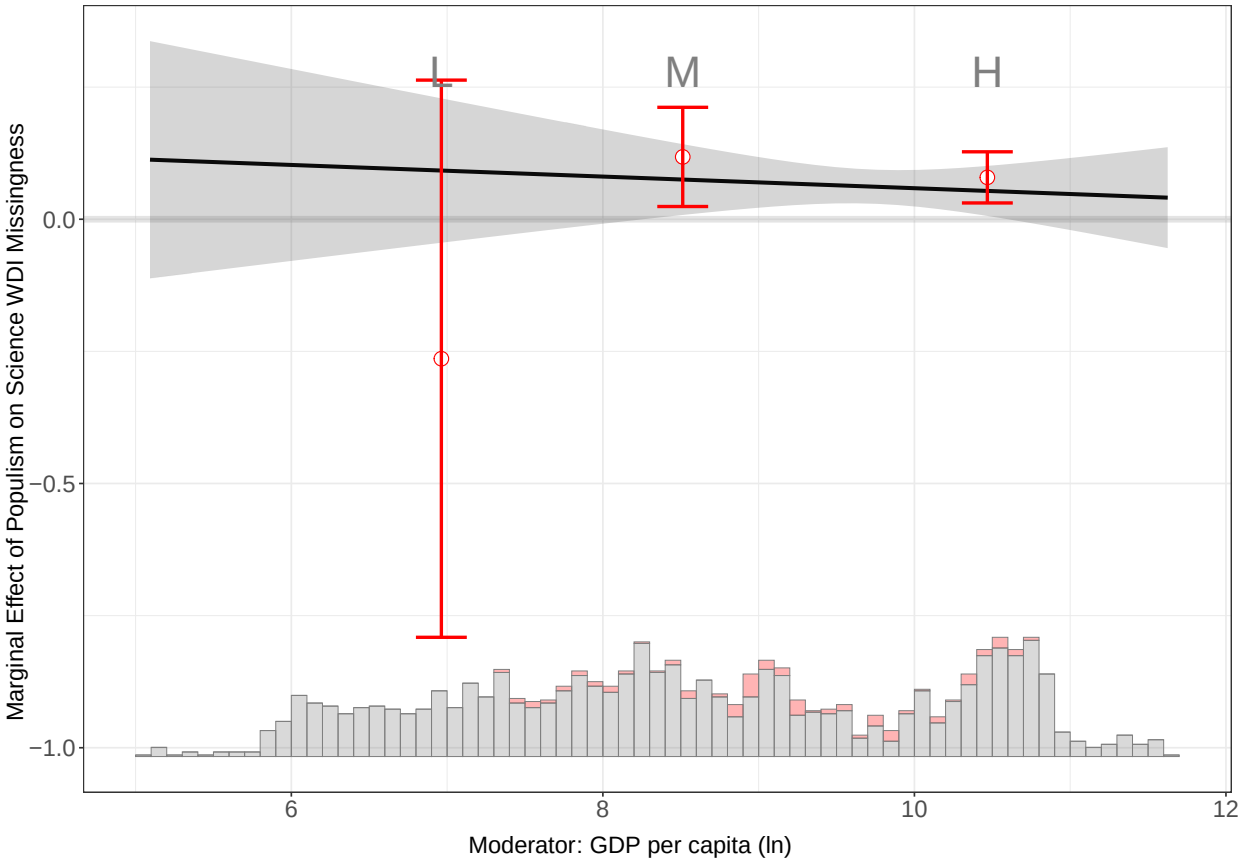

Figure N6: Populism × GDPPC Interaction Plot. The dependent variable is standardized missingness in scientific WDI variables. The interaction independent variables are the populism measure from the Funke, Schularick, and Trebesch (2022) and per capita GDP from the WDI. All covariates from main regressions are included in the underlying model. We utilize the binning estimator and `interflex` package from Hainmueller et al. (2019) to ensure common support in the moderator. The red confidence intervals represent the results with the binning approach, while the grey background illustrates the results with a linear interaction approach.

sities. We interviewed only high-ranking current officials from international organizations who were acting in their official capacity. We asked only about their professional work in their IOs. All interviewees consented to the inclusion of the specific quotes that appear in the paper with appropriate anonymization.

With regard to Principal 10 on the impact of the research on the political processes, we do not believe there is any reason to believe that our studies would have had an impact on political processes such as elections or policy creation. Subjects were only asked descriptive questions about how they collect and use data.

	Lowest tercile	Middle tercile	Highest tercile
Coefficient	−0.264	0.118	0.079
Standard error	0.269	0.048	0.025
95% CI	(−0.791, 0.263)	(0.024, 0.212)	(0.031, 0.128)
Moderator (GDPPC) range	[5.09, 7.85]	(7.85, 9.34]	(9.34, 11.6]

Table N24: Populism × GDPPC Interaction Table. This table shows the results of binned estimations with robust standard errors clustered by country.

	Dependent variable:			
	GHG data gap (standardized)			
	(1)	(2)	(3)	(4)
WDI missingness	0.314**	0.269*	0.261	0.089
	(0.119)	(0.141)	(0.194)	(0.204)
Populism	0.136**	0.145*	0.135**	0.150**
	(0.062)	(0.072)	(0.062)	(0.070)
Polity2		0.005		0.005
		(0.013)		(0.014)
Right-wing		0.036		0.037
		(0.073)		(0.072)
GDP per capita (ln)		−0.082		−0.076
		(0.255)		(0.253)
IMF		−0.052		−0.049
		(0.081)		(0.080)
WDI missingness × populism	0.006	0.028	−0.001	0.025
	(0.070)	(0.083)	(0.075)	(0.083)
Observations	936	847	936	847
Adjusted R^2	0.866	0.846	0.864	0.844
Note:				*p<0.1; **p<0.05; ***p<0.01

Table O25: Regressions of the absolute difference between the total emissions estimate provided by Annex I Parties to the UNFCCC in a given year and the total emissions figure estimaed by EDGAR in that same year (standardized) on the standardized rate of missingness in WDI scientific variables by country-year. Country and year fixed effects included; standard errors clustered by country parenthesized.

Q Illustrative Example: The U.S. under Trump

To trace our mechanism and supplement our main results, we include an illustrative example in which we investigate the effects of the election of Donald Trump – a prototypical populist – on scientific information distortion. We selected this case both due to the geopolitical importance of the U.S. and data availability.

Our theory expects that the Trump administration would lead efforts or threats to stymie the flow of accurate scientific information from the U.S. to IOs. We discuss these suppression dynamics further and provide some descriptive statistics of what kinds of information were silenced or distorted in Appendix 2.2. In general, we find that suppression events were primarily related to information in the areas of public health and climate change — two scientific areas of particular interest to development IOs as they pursue their sustainable development mandates. Moreover, the Trump administration often justified the withholding of such information using populist rhetoric, such as anti-elite statements.[43] This implies that the administration's choice to stop providing this information is at least partly attributable to populism, though we acknowledge that other factors may also have contributed to it.

Consider several examples that show that the Trump administration restricted information in these domains. First, the Trump administration forbade scientists to share information with international bodies or otherwise constrained their work. For example, when a U.S. scientist co-authored a report for the UN Intergovernmental Panel on Climate Change – which prepares climate reports for leaders around the world – he received a cease-and-desist letter. He "viewed the letter as an attempt to deter him from speaking out."[44] Similarly, in April 2020, a research chemist from the U.S. Geological Survey was told not to disclose his affiliation to the government when publishing research on climate change, and an August 2018 survey of scientists from the DOI found that over one-quarter were silenced in some way under Trump.[45] Many such scientists were also dismissed. For instance, the U.S. Navy's climate change task force was shut down in August 2019, and several EPA panels and advisory boards were disbanded in 2018 and 2019.[46]

A second method the Trump administration used to restrict information to IOs was to cut funding for information-gathering activities. One example is the United Nations' REDD+ program, which encourages countries to reduce deforestation. Compliance with this program was monitored

[43]See, e.g. accusations that scientific agencies such as the FDA and CDC have 'deep state motives.' Diamond, Dan. "Trump Officials Interfered with CDC Reports on Covid-19." *Politico* September 11, 2020. Also see McGinley, Laurie, Carolyn Y. Johnson, and Josh Dawsey. "Trump Without Evidence Accuses 'deep State' at FDA of Slow-Walking Coronavirus Vaccines and Treatments." *The Washington Post.* September 16, 2020.

[44]Plumer, Brad and Coral Davenport. "Science Under Attack: How Trump is Sidelining Researchers and Their Work." *The New York Times.* December 28, 2019.

[45]See `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

[46]See `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

by NASA's Carbon Monitoring System; however, the Trump administration canceled this system. As a result, the UN could no longer obtain critical information that it needed to run the program.[47] Similarly, the Intergovernmental Panel on Climate Change (IPCC), an IO that produces scientific assessments of climate change's impact, relies exclusively on information provided by scientists and peer-reviewed studies. The U.S. "has some of the best climate data in the world, and they are essential to the production of the IPCC." As a result of cuts to funding, however, "the quality of such assessments could suffer from a reduction in available data."[48] More generally, many bodies that conduct scientific research or create information that might be shared with IOs faced cuts.[49]

A third way that the U.S. curtailed information was to inject bias into domestically gathered information that was then shared with IOs, or that led IOs to doubt the quality of the information provided by the United States more generally. For example, the White House ordered changes to the CDC's coronavirus guidelines in May 2020 based on political considerations.[50]

Finally, we provide an additional description of Trump's efforts to do so that is relevant to IOs' operations. In particular, we explore such events over the period 2017-2019 using data from the Silencing Science Tracker.[51] This database systematically documents the Trump administration's "attempts to restrict or prohibit scientific research, education or discussion, or the publication or use of scientific information, since the November 2016 election."[52] Suppression events are primarily related to information in the areas of public health and climate change — two areas of particular interest to development IOs as they pursue their sustainable development mandates.

Figure Q7 shows the number of suppression events undertaken by the U.S. government over the period 2017-2019, while Figure Q8 places these suppression events into categories corresponding to the type of suppression. These plots show that the Trump administration has engaged in system-

[47]Bassett, Luke, Kristina Costa, and Lia Cattaneo. "Burning the Data: Attacks on Climate and Energy Data and Research." *Center for American Progress*. June 13, 2018.

[48]Bassett, Luke, Kristina Costa, and Lia Cattaneo. "Burning the Data: Attacks on Climate and Energy Data and Research." *Center for American Progress*. June 13, 2018. Indeed, two U.S. federal data sets proved pivotal to its 2014 conclusions, and the DOE's carbon emissions data is a key source for its determinations regarding precipitation patterns (Ibid).

[49]For instance, the Trump administration's proposed 2020 budget would have cut funding to the EPA by 30 percent; NIH by 12 percent; NSF by 9 percent; and USDA by 15 percent. See `https://climate.law.columbia.edu/Silencing-Science-Tracker`. While these cuts were merely proposed, IOs may worry that such threats will be acted upon, and seek to share information preemptively.

[50]See `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

[51]See `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

[52]Ibid.

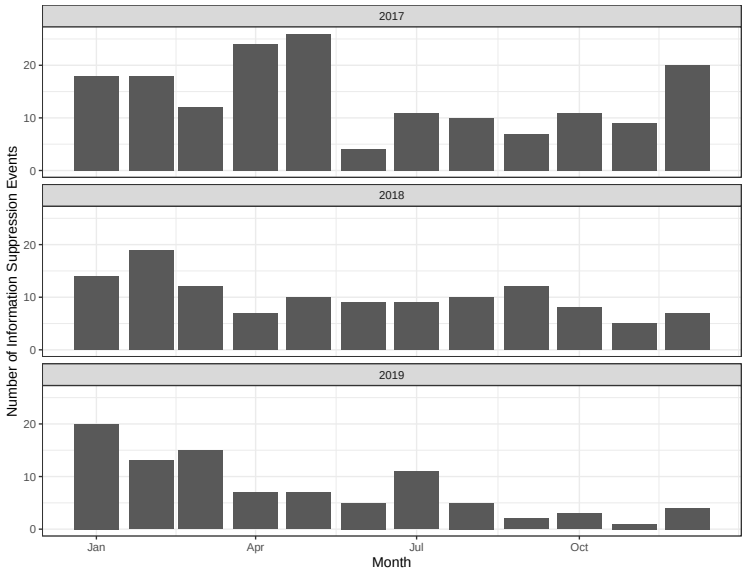

Figure Q7: U.S. Information Suppression 2017-2019. The vertical line denotes 2016. Data comes from Silencing Science Tracker `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

atic and prolonged efforts to undermine the provision and publication of scientific information.

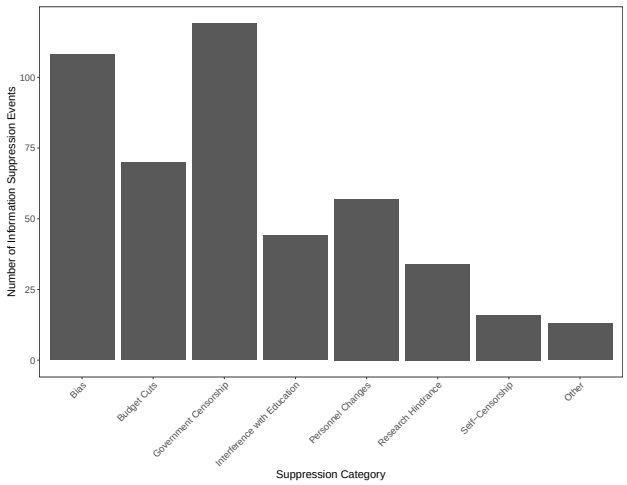

Figure Q8: U.S. Information Suppression Events by Category 2017-2019. The vertical line denotes 2016. Data comes from Silencing Science Tracker `https://climate.law.columbia.edu/Silencing-Science-Tracker`.

Several of these categories are relevant to IOs' data collection efforts. Specifically, the "Bias" category represents attempts to inject misinformation or political bias into scientific reports and government studies. Next, "Budget Cuts" comprise efforts to defund bodies that conduct scientific research or create information that might be shared with IOs. "Personnel Changes" represents the dismissal of scientists or the gutting of agencies like the EPA. "Research Hindrance" is perhaps most relevant to this paper, as it involves government intervention to block the publication of reports or transmission of information. "Self-Censorship" includes instances where government researchers avoid inquiry into certain topics for fear of government censorship or suppression.

In sum, descriptive evidence tracking information suppression by the Trump administration and information sharing by U.S.-led development IOs offers support for our theoretical contentions. Shortly after President Trump assumed office in January 2017, his administration began gutting scientific agencies, injecting bias into scientific government data and publications, and restricting the transmission of scientific information to IOs.