

RESEARCH ARTICLE

Electoral appeal of climate policies: The Green New Deal and the 2020 U.S. House of Representatives elections

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Abstract

Climate issues widely feature in policy discussions, but it is not clear if voters reward politicians who champion climate policies. In some countries, candidates and parties with an explicit climate agenda have done well in elections (Switzerland and Germany being recent examples) while in other cases, voters have either ignored climate issues or punished candidates/parties for their climate positions (Australia, the U.K., and Canada). Focusing on the U.S. as a case study, we examine the electoral appeal of the Green New Deal (GND) legislative proposal which outlined a vision for a sustainable and equitable economy. Different versions of the GND policy idea have been adopted across the world. The GND was introduced in the US Congress in 2019 and was endorsed by 102 of the 232 House Democrats, but not by a single Republican. Our analysis finds an association between Democrats' endorsement of the GND and a 2.01 percentage point increase in their vote share, even after controlling for the 2018 vote share. Unlike most western democracies, the U.S. is a laggard on climate issues. Yet, we find that U.S. voters reward legislators who advocate an ambitious climate policy agenda.

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Introduction

Do climate issues have electoral traction? Climate activism and policy proposals have made headlines across countries. The Green New Deal (GND) proposal and the mass student strikes (Fridays for the Future) organized by Greta Thunberg have generated enthusiasm across the world, especially among young voters [1]. In several countries, climate issues have acquired a social justice dimension through indigenous climate movements and Black Lives Matter. Many firms support climate action. Since the 2015 Paris Agreement, leading companies, including oil and gas companies, have pledged to pursue zero-emission targets.

Climate change was a key issue in the 2019 Swiss Federal elections; the Green party emerged as the fourth largest group in the Federal Council. Climate issues were also salient in the 2021 German federal elections. During the recently concluded French Presidential elections, President Macron promised to become an environmental president [2]. In Brazil,

protecting the Amazon, the critical component of climate mitigation, is dominating the forthcoming presidential elections [3].

Yet, a transition to a zero-emission economy faces enormous challenges because some sectors and communities benefit from a decarbonized economy while others bear transition costs [4, 5]. Australia and Canada have elected leaders that downplay the need for climate action. While the European Union is a climate leader, gas taxes have motivated protests, such as the “yellow vests,” in France. In the Netherlands, the Farmers Defense Force organized demonstrations against the policy proposal to reduce methane emissions by decreasing protein content in cattle feed. Broadly, as Hooghe and Marks suggest, right-wing populist groups have used climate policy to differentiate themselves from Green parties [6].

In the U.S., major public opinion polls suggest that a bipartisan majority supports federal action on climate issues [7]. However, there is a strong lobby of climate deniers, doubters, and policy impeters. The U.S. did not ratify the 1998 Kyoto Protocol. It does not have a federal carbon tax or cap-and-trade policy. Finally, under President Trump, the U.S. withdrew from the 2015 Paris Agreement. Among Western democracies, the U.S. is an outlier in the tardy implementation of climate policy and can be viewed as a “hard case” to test the electoral appeal of climate policy proposals.

Instead of relying on opinion polls to assess public support for climate action, we investigate the electoral traction of climate issues. We focus on the 2020 federal elections to the U.S. House of Representatives, specifically the electoral appeal of the GND resolution, which had emerged as a key issue in U.S. climate politics. For reference, the U.S. President has a four-year term. The U.S. legislature has two chambers, the House of Representatives, and the Senate. The House has a two-year term while the Senate has a six-year term. Thus, all House members are up for election every two years while by design, one-third of U.S. Senate seats are up for election every two years. In 2020, along with U.S. Presidential elections (Trump versus Biden), the American public elected all House members and one-third of Senators. In some states, elections for the Governor and legislature also took place. Because the focus of this paper is on U.S. House elections, our model controls for the party vote shares for other elected positions.

Barbier introduced the concept of the GND in the wake of the 2008 recession [8]. Drawing on this idea, on February 7, 2019, Representative Alexandria Ocasio-Cortez and Senator Edward Markey introduced the GND resolution [9], House Resolution 109, and closely related Senate Resolution 59. For reference, Simple Resolutions, which can be introduced in both the House and the Senate, are vehicles for members to express viewpoints, opinions, or outline specific policies. They can have multiple sponsors—as in the case of GND -- to reveal the level of support. Simple Resolutions are different from legislative bills, which are introduced for the purpose of making laws.

The GND provided a new vocabulary to the climate movement that focused climate conversations on specific topics that voters might care about [10]. It became a key climate issue [11] and mobilized environmental groups, including the Sunrise Movement led by young activists. Importantly, the GND concept has also diffused outside of the United States. The top 20 industrialized countries' COVID-19 economic recovery programs were supposed to incorporate GND priorities [12]. The European Union has adopted a Green Deal program. In the 2019 parliamentary elections, the British Labour Party outlined its vision of a GND which included sectoral targets, the nationalization of the electricity grid, and the restructuring of energy markets [13]. The Global Alliance for the Green New Deal, with members from 19 countries, had an active presence at the 2021 Glasgow Conference of Party meeting [14].

For critics, the U.S. GND was an all-encompassing plan, covering complex non-climate issues such as public health, racial disparities, the gender pay gap, and education. Moreover, it did not offer guidance on how it would be funded. Republican party members framed it as a

blueprint for socialism and uniformly opposed it. Even among Democrats, there was a split, lacking centrist support [15]. Eventually, 102 of the 232 House Democrats, and not a single Republican, formally endorsed the GND Resolution before the November 2020 elections [16].

Did the GND endorsement affect the candidates' vote shares? In exploring this issue, our paper raises the broader question of how voters respond to policy proposals put forward by candidates or their parties. Voters seldom have full and complete information on the candidates' positions on policy issues. Thus, boundedly rational voters [17–19] look for informational signals of candidates' policy positions to examine how they cohere with their policy preferences. Given the complexity of the climate debate, it is unlikely that voters had full information about the climate positions of candidates running for 2020 U.S. House of Representatives elections. This is where the GND endorsement could probably play a role; it constituted an informational signal for current House members' climate credentials. Moreover, it was a public and costly signal given the intense criticism from Republicans and even Democrat party leaders such as Nancy Pelosi. Thus, voters probably took the GND endorsement as a credible signal of House candidates' climate policy positions instead of dismissing it as cheap talk [20–24].

Our analysis of the 2020 U.S. House of Representative elections finds a positive association between incumbent Democrats' vote share and their GND endorsement. All else equal, a GND-endorsing Democrat incumbent secured 2.01 percentage points higher vote share in comparison with non-endorsing Democrat incumbents, even after controlling for their 2018 vote share. Importantly, other plausible climate signals such as endorsement by a prominent U.S. environmental NGO, the Sierra Club or the House environmental voting record as reflected by the League of Conservation Voters are not associated with changes in vote share [25]. While we do not draw a causal connection between the GND endorsement and vote share increase, our findings indicate GND's electoral appeal for climate voters.

Environmental issues and electoral outcomes

There is a well-developed literature on how environmental issues influence electoral outcomes at the candidate and the party levels. Scholars have noted the role of legislative records of individual candidates and environmental policy positions of parties in this regard. Of course, this raises questions about the direction of causality: whether legislative records and policy positions reflect the voter preferences, or whether voters act on information about legislative records and policy positions.

How important are environmental issues in electoral politics? The level of political consensus on environmental policy varies across countries; indeed, parties and individuals differentiate themselves by their support for or opposition to specific environmental issues. In the U.S. context, some suggest that the narrative of the 1960s and 1970s about political consensus on environmental issues is no longer true. Hays [26] defines these variations along geo-political lines, noting that voters in the Mountain region (the Rockies) were far more ideologically polarized on environmental issues and that regional environmental cultures informed the importance of environmental policy in a candidate's platform. Muckelstion et al.'s [27] study of the Oregon state legislature found similar cleavages between urban and rural voters. Dunlap and Allen [28] find that Democratic legislators are more likely to support environmental legislation, primarily because liberal voters in their home Congressional district are significantly more pro-environment than in Republican or marginal districts. Thus, it is not surprising that Democrats tend to be more pro-environment in relation to their Republican opponents.

While constituent preferences certainly influence party position, scholars have examined how other electoral incentives—closeness to elections, types of electoral systems, or electoral

competitiveness—could shape legislative records and policy choices. Schulze [29] examines climate policy instruments in 29 countries for the 1990–2016 period. He finds that governments enact more “soft” policies such as subsidies, research grants, and information instruments as elections approach but not “hard” ones like taxes and regulations. As expected, left governments, which tend to be more committed to climate issues, enact more hard policies before elections. In his study of high-income democracies for the period 1988–2013, Finnegan [30] finds that high levels of electoral competition are associated with lower gasoline taxes. In a recent paper, McAlexander and Urpelainen [31] examine the U.S. Congressional environmental roll call votes for the period 1970–2013. They find that Democrats are more likely to vote in favor of environmental protection before elections. Further, the likelihood of pro-environment votes by Republicans is higher when the member won by a small margin in the previous election.

Scholars have also examined whether the electorate rewards or punishes legislators and parties based on their legislative records and policy positions. After all, as Ansolabehere and Jones [32] note, electoral accountability requires that voters with specific policy preferences have information about their legislators’ voting records and they are prepared to act on this information. Similarly, there is some work examining how voting record coheres with campaign promises on environmental issues, the logic being that voters might punish legislators who break their promises. Ringquist and Dasse [33] found that U.S. Congressional legislators act approximately 73 percent of the time to keep campaign promises on environmental protection policy.

Accountability requires that candidates can correctly assess voter preferences. Sometimes, it is less clear what voters want, and the extent to which media attention reflects voter preferences. For example, while climate issues have received a lot of media attention in recent years, does this imply that voters rank climate issues among their top policy priorities, and therefore support parties and candidates with strong climate positions and records?

The results are mixed. Scholars have examined how parties running on climate platforms fared in national and provincial elections. Savolainen and Ylä-Anttila [34] suggest that climate issues played an important role in Finland’s 2019 parliamentary elections, described by some as “the world’s first climate elections.” The climate platform seemed to have had electoral pay-offs in the 2019 Swiss federal elections. Bernhard [35] notes: “Whereas the topic of asylum was salient in the previous federal elections, this year’s campaign was dominated by the debate on global climate change. . . . Inspired by Greta Thunberg, a Swedish climate activist, school children and younger adults staged numerous events, such as student strikes, across the country. In addition, several climate rallies took place on Saturdays. On 28 September, three weeks before the elections, more than 60,000 people demonstrated in Berne’s city centre. . . .” Climate issues were also salient in the 2021 German federal elections, and the 2021 French Presidential elections. In Brazil, protecting the Amazon, the critical component of climate mitigation, is dominating the forthcoming Presidential elections. Former President Lula, who is seeking to stage a comeback, has emerged as an outspoken climate champion and is contrasting his climate proposals with that of the track record of the incumbent President Bolsonaro [36].

In other countries, however, climate issues have provided less electoral traction to political parties. Rootes [37] attributes Labor Party’s defeat in the 2013 Australian elections to its carbon tax policy. In the 2018 Swedish Parliamentary Elections, the Green Party adopted the slogan “The climate can’t wait.” Yet the party did not perform well, securing a vote share of 4.4%, its worst performance since 1991 [38]. In examining the 2008 Canadian federal elections, Clarke et al. [39] find that the Liberal Party’s Green Shift Program, which sought to impose a revenue-neutral carbon tax, hurt the party. Even in provincial elections and referendums, some climate measures have not fared well. Stokes [40] finds that citizens living near wind energy projects

(which impose local costs and motivate not-in-my-backyard opposition) punished the incumbent Liberal party in the 2011 Ontario provincial elections. In their study of the state of Washington's 2018 carbon tax referendum which was defeated by a 56.5%–43.5% margin, Karceski et al. [41] find that the tax proposal was unpopular across the state and its defeat was not due to T.V. advertising by fossil firms.

U.S. Congressional elections. The literature on U.S. Congressional elections typically focuses on factors such as corruption, incumbency advantage, campaign spending, and legislative voting record [42–44]. Scholars have examined whether Congressional leaders respond to public opinion or whether the public adopts the positions of their Congressional leaders [45]. Regarding the former, an important debate pertains to the rewards for legislative effectiveness versus legislative purity; does the electorate reward candidates for enacting policies (which might involve coalition building and making compromises) or consistently supporting specific policy positions irrespective of their adoption [46]?

Lee et al. [47] find that voters focus on consistent policy positions and do not reward policy compromises. Snyder and Ting [48] agree that legislative records matter for voters. Other scholars suggest that voters support candidates who get a policy enacted, even if it involves working with bipartisan coalitions. Carson et al. [49] note that voters may choose not to reelect a candidate for being too partisan, as reflected in their voting record.

In the 2020 U.S. Presidential, Senate, and House election campaigns, climate issues were widely debated. The GND emerged as an important policy proposal for the candidates to benchmark their climate policy positions. Given the partisan nature of U.S. climate politics [50] and the fact that no Republican endorsed it, GND endorsement should be important for Democratic candidates because liberal voters tend to support climate policy [51]. Yet, scholars also note that when a party “owns the issue” [52], party candidates are less worried whether voters will reward or punish them for their legislative stance on the issue. Following this logic, because voters view Democrats as the pro-climate policy, Democratic candidates will feel less compelled to endorse GND because their party affiliation is a strong enough signal about their climate stance. Building on the above literature, we formulate the following hypothesis:

Hypothesis: All else equal, GND endorsement is associated with increased incumbent Democrats' vote share.

Methods

We test the above hypotheses at the level of Congressional districts. We exclude 49 House seats where the incumbent House member did not (or could not) seek reelection. These include 36 open seats where the incumbent retired, 8 seats where the incumbent was defeated in the primaries, and 5 seats where the incumbent died or resigned. Thus, incumbent members sought reelection in 386 (435–49) Congressional districts only. Because not a single Republican endorsed the Green New Deal, we restrict our main analysis to Democrats only. In robustness check, we run the model for all incumbents and our basic results about the positive association between vote share and GND endorsement do not change (Model 1, [S1 Text](#)). Our replication data are available at the Harvard Dataverse, <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/DMEGO0>.

Did then the emergence of GND caused Democrats to retire, or led to their defeat in the primaries? 49 incumbents did not seek reelection. These included 36 who retired (9 Democrats, 26 Republicans, and 1 Libertarian) and 8 who lost the primaries (3 Democrats and 5 Republicans). Further, there were 5 seats where the incumbent either died or resigned (2 Democrats and 3 Republicans). Of 9 Democrats who retired, 5 retired from electoral politics while

4 sought some other elected position (the Presidency, U.S. Senate, Governor, etc.). Of the 5 retiring from electoral politics, 2 endorsed the GND (Jose Serrano NY-15, Nita Lowey, NY-17). In the 3 seats where Democrat incumbents were defeated in the primaries, 2 (Elliott Engel, NY-16 and William Lacy Clay, MI-1) endorsed the GND. Hence, we do not see a pattern where the lack of GND endorsement is associated with incumbents not seeking election in 2020

We fit an OLS model along with a lagged dependent variable (vote share in 2018 elections) and robust standard errors clustered by state. The dependent variable is the incumbent's 2020 vote share, and the key independent variable of interest is whether the Democrat incumbent endorsed the GND resolution.

We control for two additional ways voters could assess the incumbents' environmental credentials. First, we control for an endorsement from the Sierra Club, a preeminent national environmental organization and active in electoral politics. Coley and Schachl find that climate issues and Republican Presidency have contributed to the Sierra Club's membership growth since the 1960s [53]. Both factors were highly salient in the 2020 U.S. elections. Moreover, the Sierra Club's endorsement has electoral consequences. In their study of local pro-development ballot initiatives, Gerber and Philips find that endorsement from the Sierra Club increased electoral support for the initiative [54].

Second, we control for the Congressional environmental voting record as reflected in The League of Conservation Voters (LCV) National Scorecard. Scholars have sought to explain variation in LCV scores (as the dependent variable) attributed to Senators and House members [55–57]. This is among the first papers to explore the electoral consequences of LCV scores. Because the League published the 2020 LCV scores in January 2021 after the elections, we include the 2019 LCV scores in the main model because voters had access to this data only at the time of the November 2020 elections. As a specification check, we also run the model with average LCV scores during the 2019–2020 term (Model 2, [S1 Text](#)) and lifetime LCV scores (Model 3, [S1 Text](#)). Our key result about the role of GND endorsement on the incumbent's vote share does not change.

Our model controls for additional confounding factors. Because 2020 was a presidential election year, we control for the same party's presidential vote share in the legislative district as a proxy of both a coattail effect and relative concentration of Democrats and Republicans in the legislative district. Because Senate and gubernatorial elections might impact House elections, we control for whether the state held the U.S. Senate and/or gubernatorial elections in 2020.

Because 2020 elections were affected by the COVID-19 epidemic, as revealed in the exit polls, we control for COVID deaths per 1,000 people [58]. Our results do not change when we control for COVID infections per 1,000 population (Model 4, [S1 Text](#)). Prior research highlights the role of demographic and socioeconomic factors such as gender, race, educational attainment, unemployment levels, and the poverty line (Model 5, [S1 Text](#)) in support for environmental policy. Drawing on various American Community Survey 1-Year Estimates and County Business Patterns Data, we control for their 2019 values. Given that climate policy is facing pushback from the fossil fuel industry on which it tends to impose concentrated costs, we control for the number of fossil fuel workers (quarrying, mining, oil/gas extraction) in Congressional districts.

Scholars note the role of money in politics, particularly in terms of social media and television advertising. Hence, we control for spending by the incumbent and the challenger, both logged. Finally, voters might pay greater attention to climate issues if their district is vulnerable to climate change. Hence, we control for the district-level natural disaster vulnerability score provided by FEMA. Despite controlling for a multitude of confounding factors, we recognize

that our model could have omitted some (unobserved) factors that are correlated both with the vote share and GND endorsement, leading to potential endogeneity issues. We, therefore, emphasize that this is an observational study that does not test for a causal link between GND endorsement and the 2020 vote share. In [Table 1](#) we summarize our variables, their range, mean values, and data sources.

Results

We present our results in [Table 2](#). We find that GND endorsement is associated with an increased 2.01 percentage point vote share of Democrat incumbents (Hypothesis is supported). Importantly, neither LCV nor Sierra Club endorsement is statistically significant. They are not jointly significant either. This is an important finding because it emphasizes the role of the GND as a key climate issue in electoral politics. Though scholars suggest that voters typically either do not pay attention to candidates' environmental positions or even if they do, they do not attach much salience to it in their voting decisions (as the exit polls might report), our results suggest that voters saw GND as a credible signal of candidates' climate policy position and rewarded them for endorsing it.

Why were the other two policy signals -- the Sierra Club's endorsement and LCV scores -- not significant? Arguably, neither focused specifically on the incumbent's climate policy

Table 1. Descriptive statistics.

	Mean	Standard Deviation	Min	Max	Data Source
Incumbent Vote Share 2020	64.858	11.722	46.3	100	Politico
Vote Share 2018	68.454	13.671	45.600	100	Politico
GND signatory	.397	.490	0	1	https://www.congress.gov/bill/116th-congress/house-resolution/109/cosponsors
LCV Score 2019	95.119	7.721	7.000	100	https://scorecard.lcv.org/
LCV Score 19/20	96.872	5.278	51.000	100	https://scorecard.lcv.org/
LCV Score Life	93.009	7.999	34.000	100	https://scorecard.lcv.org/
Sierra Endorsement	.868	.344	0	1	Opensecrets.org
NRI Score	27.713	20.659	3.610	100	https://hazards.fema.gov/nri/
Senate Election	.466	.500	0	1	Ballotpedia
Governor Election	.091	.289	0	1	Ballotpedia
Incumbent Spending (log)	6.217	.364	5.176	7.344	Opensecrets.org
Challenger Spending (log)	4.364	2.231	0	7.079	Opensecrets.org
President Vote Share	63.824	10.599	43.500	91.3	Ballotpedia
COVID Deaths, August 2020	.645	.637	.02	3.27	https://e-jghs.org/DOIX.php?id=10.35500/jghs.2020.2.e22
COVID Infection Rate, August 2020	15.910	7.541	1.57	44.75	https://e-jghs.org/DOIX.php?id=10.35500/jghs.2020.2.e22
Male (%), 2019	49.071	.994	44.992	52.391	2019 American Community Survey
Median Age, 2019	38.016	3.451	29.8	47.8	2019 American Community Survey
Highschool+ (%), 2019	87.502	7.009	57.3	96.5	2019 American Community Survey
%Below Poverty	8.938	4.730	2.2	23.7	2019 American Community Survey
%Unemployed	4.799	1.506	2.2	10	2019 American Community Survey
%White	64.415	17.727	16.753	94.413	2019 American Community Survey
%African American	15.379	16.550	0.879	67.033	2019 American Community Survey
%Native American	.703	1.691	0.058	23.018	2019 American Community Survey
%Hispanic	24.149	20.881	1.503	89.204	2019 American Community Survey
Fossil Fuel Employees, per 1,000 pop (2019)	.746	2.100	0	17.514	US Census Bureau

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Table 2. Explaining incumbent vote share in 2020 House elections.

Environmental Signals	
GND signatory	2.010* (.958)
LCV Score 2019	.050 (.042)
Sierra Endorsement	-1.865 (1.981)
Control Variables	
NRI Score	-.014 (.015)
Senate Election	1.668* (.821)
Governor Election	-.071 (1.324)
Incumbent Spending (log)	-.747 (1.128)
Challenger Spending (log)	-1.218** (.329)
President Vote Share	.424** (.104)
COVID Deaths	-.119 (.576)
% Male	-.524 (.581)
Median Age	-.144 (.204)
% Highschool+	-.017 (.115)
% Below Poverty	-.133 (.169)
% White	-.049 (.045)
% African American	-.012 (.067)
% Native American	.112 (.091)
% Hispanic	-.016 (.036)
Fossil Fuel Employees (per 1,000 population)	-.308* (.136)
Vote Share 2018	.267** (.082)
Constant	63.018 (43.562)
Observations	219
R-squared	.803

Notes: Ordinary Least Square Regression. State-clustered robust standard errors in parentheses.

* $p \leq 0.05$,

** $p \leq 0.01$

$\diamond p \leq 0.05$, $\diamond\diamond p \leq 0.01$ (Joint Significance).

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position; they reflect the broader environmental record, which seems to have less traction among voters. If so, then voters perceive climate issues not merely as specific types of environmental issues, but a subject area that deserves policy attention in its own right. Furthermore, neither Sierra's endorsement nor the LCV score ignited a public debate the way the GND did. Thus, voters did not view them as costly and therefore credible signals of the candidates' climate policy position. Therefore, controversies can sometimes help voters discover issues: the intense Republican backlash to the GND probably enhanced the informational value of the GND endorsement among voters.

The lagged dependent variable, vote share in 2018, is statistically significant, which coheres with the intuition that voters are often sticky in their party preferences. A couple of control variables are statistically significant as well. These include the vote shares of the same-party presidential and senate candidates, challenger spending (negative). Fossil fuel workers are associated with a decreased vote share. Climate vulnerability did not affect vote share, which coheres with the mixed finding on the relationship between natural disasters and public support for climate action [59, 60]. Surprisingly, COVID deaths and poverty levels, which exit polls suggested were the key voter concerns, are not statistically significant. Finally, the racial composition of the electorate is not statistically associated with the vote share.

Discussion and conclusion

Our paper explores whether voters reward or punish legislators for their climate policy positions and legislative records. Globally, the electoral traction of climate issues has a mixed record. In some countries, candidates and parties with an explicit climate agenda have done well (Switzerland and Germany being recent examples) while in some cases voters have either ignored climate issues or punished candidates/parties for their climate positions (Australia, the U.K., and Canada). Thus, the U.S. case that we have examined in this paper, should be viewed as an instance of electoral reward (and not punishment or indifference) of a climate policy proposal at the level of an individual candidate.

We recognize that not all climate issues are likely to have political traction. Arguably, climate issues that impose local costs tend to face greater opposition in relation to projects that generate local benefits. In the former category, we could place energy siting issues that impose local costs, such as nuclear plants, oil pipelines, wind farms, or solar facilities, which have invited a local backlash across the world [60]. On the other hand, climate adaptation issues, such as planting trees to reduce the “heat island effect” or drought-proofing agriculture, which often generate local benefits might be more popular among the electorate [61, 62].

Our paper finds that a loosely formulated aspirational climate plan, focusing mainly on mitigation but also including many non-climate components, motivated Democratic voters in the 2020 House elections. Arguably, this could imply that the climate agenda needs to be appropriately packaged and presented to the electorate, as the GND demonstrated. Future work should examine whether the electoral reward for the GND endorsement is due to climate dimensions or its associated policies, which provide private benefits to specific constituencies.

Arguably, the electorate may not differentiate between the policy positions of the candidate and the party. However, the American electoral system is idiosyncratic because individual candidates, both in the Senate and the House of Representatives, often highlight their own voting records, differentiating themselves not only from their opponents but even from their party. Thus, our findings may not be generalizable to other countries with different electoral systems such as parliamentary systems or multimember electoral districts.

Specifically, while Democrats are the pro-climate party in the U.S., some House members sought to project an even more pro-climate image than their party label. Why? Is it that incumbents faced candidates in primaries with an aggressive climate agenda, and they saw the GND endorsement as an insurance policy? This is difficult to test because most GND endorsements took place prior to the primaries. Yet, future research should examine factors that motivated House Democrats to endorse the GND resolution.

We find that the GND endorsement is associated with an increased vote share of the incumbent Democrat. Future research could examine if the increased vote share was due to increased support from independent voters or a higher level of mobilization of Democrats. We find that challengers’ spending is associated with a decreased vote share, but further research could explore if their media campaigns targeted Democrats for their GND endorsement.

Finally, given the peculiarities of the U.S. electoral system (such as the simultaneous elections of the President, the House, and one-third of the Senate) as well as the presence of Donald Trump in the 2020 elections (whose anti-climate policy positions might have motivated a counter-mobilization), what implications might our paper have for other countries? As we have noted, the GND idea has been adopted by European political parties. The British Labour Party placed it in the center stage in the 2018 parliamentary elections. However, how policy proposals might translate into electoral outcomes, depends on several factors including the voting system. Future work should examine if GND-type proposals get framed as radical ideas, might fare poorly in the first-past-the-post elections in single-member district systems (as in

the United States), as opposed to proportional representation in multi-member district systems.

The electoral traction of the GND-type approaches also depends on how policymakers leverage exogenous shocks. Two events are of importance here: COVID-19 and the Ukraine invasion. Several governments undertook massive spending programs in the wake of the COVID-19 epidemic. Nahm et al [12] find that the largest twenty economies spent US\$14 trillion to address the COVID-induced recession. However, only 6% of this stimulus injection was devoted to climate mitigation, in spite of the promise to incorporate GND-type of approaches. Thus, GND rhetoric does not necessarily inform governmental spending priorities. The Ukraine invasion is another exogenous shock that has thrown the climate policy in turmoil. While climate advocates seek to frame it as an opportunity to enhance national security by a quicker transition to renewable energy, others see it as a lifeline for the oil and gas industry due to national security reasons. Future research should examine how GND-type of policy proposals shape both the policy discourse and new spending that might result from this invasion, and how these influence electoral outcomes in subsequent elections.

Supporting information

S1 Text. Specification checks for incumbent vote share in 2020 House elections.
(DOCX)

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