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Public opinion and special interests in American environmental politics

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Public opinion and special interests in American environmental politics

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Abstract

To shed light on the political inertia around environmental legislation, I study the response of US senators to public opinion while controlling for special interest pressure. I combine data on public opinion (PO) on climate change – estimated by multilevel regression with poststratification – with campaign contributions from the extractive industries to indicate special interest (SI) influence, and use senator fixed effects, instrumental variables and the timing of senate elections for identification. PO has a strong impact on environmental legislation. The effects are different for the two parties: Republicans react to PO in election cycles, whereas Democrats are responsive through their whole term. The responsiveness of elected officials to environmental opinion is surprising: while Americans often favour environmental regulation in general, they tend to consider it as of low importance. I discuss possible explanations.

Keywords: Public opinion, campaign finance, political economy, climate change

JEL Classification: D72, Q54, Q58

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1 Introduction

In the winter of 2014, Senator James Inhofe brought a snowball onto the floor of the US senate, proclaiming: "We keep hearing that 2014 has been the warmest year on record. I ask the chair, do you know what this is? It's a snowball. Just from outside here. So it's very, very cold out. Very unseasonal." This was presented as an argument against the existence of climate change, and came just months after the IPCC had deemed anthropogenic climate change "unequivocal" (Pachauri *et al.*, 2014).

For decades prior to the snowball on the senate floor, scientists pointed to the dangers of climate change, and the role humans play in its creation. Politicians, on the other hand, have been slower to accept the need for action to curb its effects, and the 2° target of the Paris Conference of the Parties (COP) seems woefully out of reach. Scholars and activists have proposed various policies measures that, at least in theory, could solve the impending problem. The lack of successful anti-greenhouse gas legislation thus seems to be one of political inertia.

The influence of corporate interests on the political process is often cited as a key factor in creating this inertia (see e.g. Hein & Jenkins, 2017). A Gallup poll from 2015 reveals that almost 70% of Americans believe that members of Congress (MOCs) respond more to special interests than they do to their own constituents. Senator Inhofe has received large campaign donations from the fossil fuel sector (Center for Responsive Politics, n.d.). Does this mean that he is simply a puppet of his donors in the fossil fuel sector? Not necessarily. Many voters also distrust climate science, and politicians could be acting in a way that avoids alienating these climate sceptics. Indeed, Inhofe represents the state of Oklahoma, where in 2014 less than half the population believed that climate change is caused by humans, and more than 30% say they do not trust climate scientists (Howe *et al.*, 2015). It is thus not immediately clear that the politicians opposing climate regulation are choosing the special interests over their constituents.

These issues raise several questions that I attempt to answer in this work: When it comes to environmental legislation, how do politicians make decisions? Are their choices purely a reflection of an unconcerned voter base that wants them to spend their tax money on more immediately tangible policies, or are they beholden to special interests and big oil?

I explore the relationship between policy making and influence of voters and special interest

groups. In a novel dataset I combine data on legislative behaviour and public opinion (PO) with campaign finance records. Focusing on environmental and climate change legislation, I find a strong correlation between roll call votes in the Senate and voter opinion, but I also find a persistent effect of special interests (SI) in the form of campaign contributions from the oil and gas sectors. Sponsorship of climate change bills appears much less affected by both PO and SI. I attempt to establish the causality of the results by using senator fixed effects and climate related instrumental variables. Further, I explore differences between the two major parties, and the effects of electoral incentives. The results indicate that PO is indeed a strong driver of public choice, while the effect of SI is slightly less robust. Democratic senators consistently act in accordance with PO, whereas Republican senators only respond to PO during the cycles when they are up for re-election.

1.1 Background and literature

Theoretical literature indicates that politicians face a trade-off between special interests and constituent wishes (Grossman & Helpman, 2001; Stigler, 1971; Kalt & Zupan, 1984). There is a question as to the extent to which personal ideology plays a role (Peltzman, 1984; Kau & Rubin, 1993; Poole & Rosenthal, 1996), with Downs arguing that personal ideology is a cheap signalling device that allows voters to choose who to vote for based on a simplified scale in his seminal work (1957).

The empirical literature on the topic is growing as data quality increases. Multiple studies have attempted to quantify the trade-offs politicians face, using a multitude of independent variables (see Stratmann, 2005, 2017, for a review). There has yet to emerge a clear consensus on the determinants of legislator behaviour, and the importance of special interest considerations and constituent interests is still unclear. Further, little research has been done on environmental legislation. In particular, studies that use constituent interests as an independent variable rarely focus on environmental issues (with notable exceptions, including Burstein, 2003; Vandeweerdt *et al.*, 2016; Bouton *et al.*, 2021). Several studies focus on the financial sector in the wake of the financial crisis of 2008 (Mian *et al.*, 2010; Duchin & Sosyura, 2012; Igan *et al.*, 2012).

Environmental policy making warrants special attention, with a focus on stated preferences of the electorate and special interest influence. Bouton *et al.* 2021 and other scholars argue that environmental legislation has no opponents (see e.g. Peltzman, 1984). Few *voters* actively

oppose environmental regulation (although this might be changing as the environment becomes an increasingly partisan issue, see Kim & Urpelainen, 2017), but several *industries* have strong financial interest in regulation remaining lax. The side that opposes intervention is dominated by the oil and gas industry (Oreskes & Conway, 2011; Brulle, 2014), an industry in which huge rents accrue to large multinational companies, who, especially when compared to the environmentalists, have effectively unlimited budgets for buying political influence. It is therefore important to look at special interest influence and PO simultaneously when considering environmental legislation.

The demand for environmental regulation is complex, as different areas and industries will be affected differently by regulation and long term effects of climate change. In the empirical literature concerned with the impact of voter opinion on the decisions of elected officials, voter opinion has often been proxied either by using elite opinion (e.g. the voting behaviour of members of the House of Representatives to explain the voting behaviour of senators (see Nelson, 2002)) or economic interests of constituents relating to the bill (e.g. number of housing foreclosures (Mian *et al.*, 2010)). However, preferences on environmental protections are not driven purely by currently measurable economic interest (Shwom *et al.*, 2015; Kim & Urpelainen, 2017; Carmichael & Brulle, 2017; Barrage & Furst, 2019). Rather, environmental protection tends to be long run projects, often entailing economic sacrifice today for intangible benefits in the future. This makes it hard to proxy demand for environmental regulation through present economic interests. Bouton *et al.* (2021) rely on environmental organization membership, but this data is restricted to the year 1987. While state level mass opinion today is likely correlated with green organization membership in 1987, there is clear evidence that opinion is becoming more partisan over time (Kim & Urpelainen, 2017). This data also does not allow looking at dynamics of PO. I instead rely on stated preferences to estimate voter support for environmental protections by constituency.

Indeed, mass PO has been largely ignored due to difficulty of getting sufficient data on a large enough geographic scale. There is no single, comprehensive survey that is administered on a state level in the US on opinion on environmental issues. Most studies are conducted at the national-level. In order to get the appropriate geographical variation in the data, I estimate the state-level opinion by combining CCES data with US Census data by MRP. This technique allows for an unbiased estimation of smaller geographical units, with a higher precision than

simple pooling (Lax & Phillips, 2009b; Gelman & Little, 1997; Kastellec *et al.*, 2010; Howe *et al.*, 2015). However, most of the studies that do use PO focus on value-driven issues such as gay rights and abortion, which do not have economic effects on powerful industries in the way that environmental regulation does (see Lax & Phillips, 2009a, etc.).

1.2 Data and method

I consider three outcome variables of senator behaviour. First, a panel using opinion on climate change on the fraction of environmental legislation (given by the LCV score) a member of Congress voted in favour of. Second, I move the analysis to a different level of legislative behaviour, by compiling a new dataset of the number of climate change related bills each senator sponsored or co-sponsored. Finally, I include a case study of a single bill: S.1 2015 to approve the Keystone XL pipeline extension. I chose the KXL legislation as it was well known, most people had an opinion on it, there was evidence of lobbying by both environmentalists and the fossil fuel industry (see e.g. Brady, 2012; Goldenberg, 2012). To my knowledge, this is the only such study of the KXL legislation.

I estimate state level public belief in climate change using the Cooperative Congressional Election Study (CCES) survey and combine it with campaign contributions from oil and gas related industries.

I rely on three identification strategies in addition to the correlational results. First, I use senator fixed effects as the main identifying assumption. This removes any senator-specific unobservables, and allows me to estimate how a change in PO changes a senator's behaviour. It is likely that the unobserved variables affecting senator behaviour — such as ties to the oil industry, a conservative ideology etc — are more durable than those of the voters (see Mian *et al.* (2010) who argues that short term changes in external circumstances affect voters, but do not change the ideology of members of Congress). If this is the case, then the change in voting behaviour in response to PO over the six years would be a causal estimate of responsiveness of senators to PO. A key threat to this identification is that senators are actually affected by the same things as the public, and that the effect we observe is not causal. In practice, however, this becomes a question of the mode of representation in government, whether elected officials act as representatives or custodians. A positive sign on PO would still indicate that the senator votes according to PO.

Second, I use an instrumental variable approach to deal with the direction of the effect of PO, as it could be the case that the stance of the senator actually influences the PO. I attempt to assess the issue of reverse causality by using climate change related weather events as an instrument for PO. Note that the extent to which PO is influenced by weather events is debated (see e.g. Herrnstadt & Muehlegger, 2014; Carmichael & Brulle, 2017). However, if the key assumption that senators are not affected by weather events directly or indirectly except through PO holds, weather events appear the strongest candidate for an instrument — as they induce sufficient variation in the PO variable. The IV shows similar results to the OLS.

Finally, I use the staggered nature of the US Senate elections for identification of electoral incentives. Senators serve six year terms, and a third of the Senate are up for election every two years. This allows me to compare senators at points of different levels of exogenously induced electoral pressure, as Bouton *et al.* (2021) do.

This paper contributes to the literature by combining data on mass public opinion with campaign contribution data in a panel, allowing me to use several identification strategies. Using the CCES study I estimate a unique dataset of statelevel support for specific policies and environmental attitudes. A further contribution comes from using original data on bill sponsorship in the US Senate, and by analyzing the determinants of sponsoring an environmental bill (several recent studies look at the determinants of environmental bill sponsorship Bromley-Trujillo *et al.* (2019); Waggoner (2019); Gagliarducci *et al.* (2019), which this analysis complements by the inclusion of SI and the focus on the US Senate).

The results indicate that politicians respond to special interest and public pressure in roll call voting, but less so at the bill sponsorship stage. PO seems to be a slightly more consistent predictor than SI across different dependent variables and econometric models. Republicans are less affected by PO than Democrats, unless they are in an electoral cycle.

2 Data

In this section I describe the six types of data used in the analysis: (1) data on legislative behaviour of individual senators, (2) data on special interest pressure (SI) in the form of campaign contributions to individual senators, (3) state-level public opinion (PO) data, (4) state-level economic data, (5) data on personal attributes of senators, and (6) weather-based instrumental variables.

2.1 Legislative behaviour

League of Conservation Voters (LCV) Green Scorecard

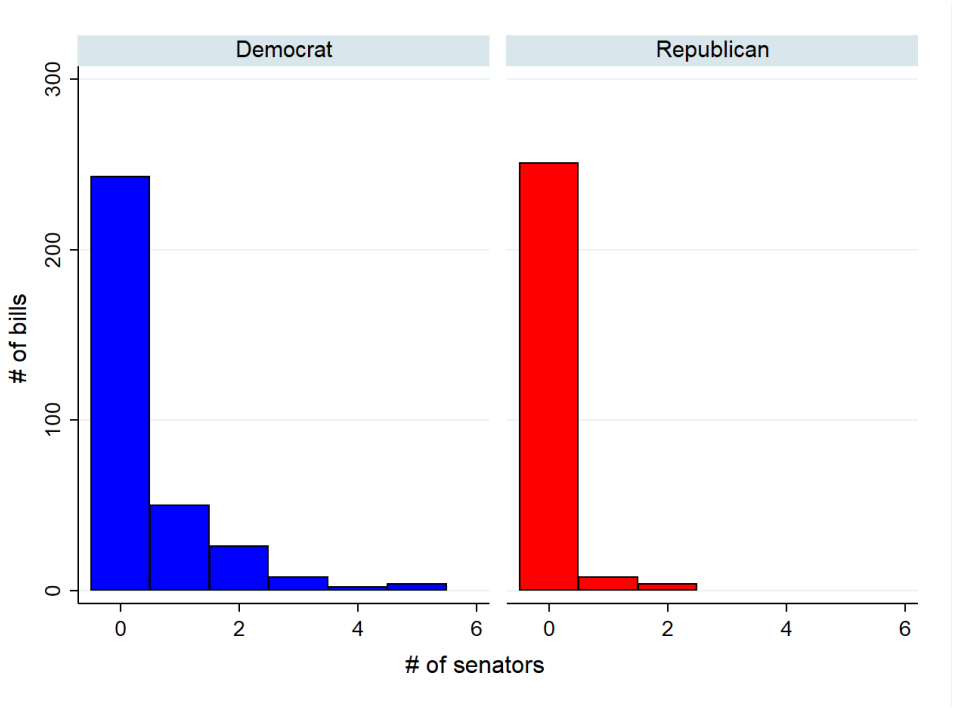
In order for a bill to pass into law in the US, it has to pass a roll call vote in the two chambers of Congress. The votes of individual senators are recorded and publicly available. The LCV compiles a list of every environmental bill in a given session of Congress, and computes a score by taking the fraction of bills for which a given Member of Congress (MoC) chose the green vote (see e.g. Herrnstadt & Muehlegger, 2014; Nelson, 2002; Bouton *et al.*, 2021, for examples of its use in the literature).

Bills sponsored and cosponsored

Sponsorship means the senator helps write the bill, and/or bring it to the senate floor for a vote. Some bills have multiple co-sponsors, who are all responsible for getting the bill to Congress. I use this alternative measure for two reasons. First, bill sponsorship differs significantly from roll call voting: sponsorship can be a costly process relative to a vote as it requires a significant amount of work. Second, the LCV is an active participant in US politics, and there may be some ideological bias in their selection of the score card. While there may also be some bias in my selection process, it is likely not the same as the LCV.

To build the bill sponsorship dataset, I accessed all bills classified by Congress as related to "climate change and greenhouse gases" through ProPublica's "US Congress API"; 315 bills over the period 2009-2014. However, not all bills are substantially related to the topic, so I did a keyword search in the bill summaries if they include any of the words "energy, efficiency, renewable, greenhouse, fossil, climate fuel, carbon, emissions, or environmental protection agency." I then read each of the bill summaries to confirm the relation to the topic as well as the stance.

Figure 1: Number of climate change-fighting bills proposed by party



This reduced the sample to only bills that attempt to fight climate change, a total of 123 bills. I collected information on bill sponsors and cosponsors. I finally gathered the total number of bills sponsored by each senator to calculate the fraction of total bills sponsored.

The data is visualized in histograms in figure 1 and summarized in table 2.

KXL pipeline bill

The previous two variables are general measures of green voting and PO. However, the CCES asks respondents about their stance on a selection of specific bills, thus offering a more direct measure of what voters want than the above analyses. Here, I examine the Senate vote to approve the Keystone XL pipeline extension (KXL), Bill S.1. The bill would approve an extension to the Keystone pipeline system. The existing pipeline carries oil from the Western Canadian Sedimentary Basin in Alberta, to refineries in Illinois, Oklahoma and Texas. The proposed extension would allow for a higher volume of oil to be transported, and the extension would take a different route than the existing pipeline by going through Montana and South Dakota.

KXL is controversial, and the bill faced widespread opposition from environmentalists for multiple reasons. First, the KXL, like all pipelines, had a risk of destructive oil spills. Second, the pipeline connected to the Alberta oil sands, and could contribute to increasing their produc-

tion. Extraction from oil sands is more energy intensive than conventional oil, causing higher greenhouse gas emissions[1], and is done by strip-mining, which has local environmental impacts [2]. Third, the pipeline would cross Native American land, and the local tribes were opposed.

The strong opposition to the bill was highly publicized in the press (Goldenberg, 2014; BBC, 2017). In a poll from 2013, only a small fraction reported that they did not know what their opinion was on the bill. The majority of voters were in favour of the project (see table 1).

The bill is an interesting case study for three reasons. First, the bill clearly delineates interests of environmentalists and the American oil industry. I assume that most oil companies would favour the bill, and thus that donations from the oil industry are associated with pressure to pass the bill. Second, the salience means that most people are aware of the bill and the controversy, and that they have an opinion on the project. Finally, the CCES includes a question on whether people support the bill. This means that I am able to directly quantify the PO support of the bill, rather than assume that other interests would be correlated with public support.

I look at the determinants of the roll call vote in the Senate of the 114th Congress on Bill S.1 "Keystone XL Pipeline Approval Act". The 100 senators could choose to vote "yea", "nay", or abstain from voting. I ignore abstentions (and Alaska and Hawaii), leaving 94 binary observations. The unit of observation is thus the vote cast by a single senator at a single moment in time, so the data is a cross-section. The "green" vote in this case is nay, i.e. voting against the KXL pipeline. Data is summarize in table 1

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Voted in favour KXL	0.638	0.483	0	1	94
PO: Supports KXL	68.784	2.421	63.507	72.771	96
DW Nominate	0.089	0.432	-0.767	0.913	91
SI: Oil Pac, last cycle	67.349	66.462	0	265.2	96
Oil state	0.229	0.423	0	1	96
KXL state	0.188	0.392	0	1	96
Disaster damages, USD	1.251	3.618	0	17.618	96
Temperature deviation, DD	-0.013	0.193	-0.244	0.817	96

[1]Lifecycle analysis shows that a barrel of oil from the Tar Sands "leads to 17% more greenhouse-gas emissions than the average barrel of oil refined in the United States"Plummer (2014).

[2]Increasing the rate of production would require large scale destruction of boreal forest (New York Times, 2011)

2.2 Independent variables

The second type of data is campaign contributions to senators from special interest groups. When individuals or groups make donations to a candidate's campaign, they have to report the donation, including the industry of the donor. I use donations from PACs affiliated with the oil and gas industry. The data is downloaded from the Center for Responsive Politics (CRP), who takes data directly from the Federal Election Commission and compiles, organizes, and publishes it (Center for Responsive Politics, n.d.). CRP orders the data by the industry of the contributor. I use the total amount donated to the last election of the senator, i.e. the total over the three cycles of holding office for incumbents and the cycle of the election for challengers. The data are on the senator-level, reporting the exact amount each senator received during her campaign from each source.

The third type of data is PO data. I get individual PO on climate change from the CCES 2010-2014 Panel Study (Schaffner & Ansolabehere, 2015), and stratify it geographically by MRP to get state-level opinions (excluding Hawaii and Alaska due to lack of data). The main specification uses question CC10_321 on climate change, and I estimate the number of people in each state that thinks climate change is occurring and requires action by MRP (see Appendix 7.1 for further details). The panel is close to balanced across participants, and changes in opinion is thus from the same people answering differently rather than different people being asked. The survey is given biannually according to congressional election cycles, and I define the time dimension as an election cycle. This gives me a panel with three periods, for the 111th, 112th and 113th Congress.

The fourth type of data is yearly, state-level economic variables. It has been argued that much of congressional voting behaviour is based on economic interests (Peltzman, 1984), so I include the percent of people employed in the oil and gas sector from the Business Patterns database of the US Census Bureau, as well as state GDP (United States Census Bureau, 2017b).

The fifth type of data is personal attributes of a senator. I include the seniority of the senator (the number of years they have been in the Senate), a dummy for whether the current cycle is an election cycle, and their DWNOMINATE score (Lewis & Sonnet, 2017).

Instrumental variables

I use deviation in temperature (percent difference in cooling degree days by cycle to the 30

year average) and severe drought and flooding by state from NOAA's nClimDiv dataset (Vose, 2014), as well as disaster declarations from FEMA (Federal Emergency Management Agency, 2014) and disaster loans granted per capita from SBA (US Small Business Administration, 2021). In the estimations I use only disaster loans granted and temperature deviations as these have a strong first stage (F=22) and pass the overidentification test.

I exclude Hawaii and Alaska, as well as senators elected in special elections, leaving me with 534 yearly observations.

The dataset is summarized in table 2.

Table 2: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
LCV Score	53.824	40.38	0	100	596
CC bills sponsored	0.127	0.449	0	4	668
PO: Climate change happening	52.042	5.538	41.078	63.379	572
CC bills sponsored and cosponsored	0.434	0.915	0	8	668
% of total CC Bills	2.457	4.32	0	50	595
SI: Oil Pac, last cycle	52.191	58.865	0	243	566
DW Nominate	0.026	0.398	-0.767	0.913	597
Seniority	12.271	10.323	1	52	597
Victory margin, last election	22.913	17.108	0.01	100	538
Election cycle	0.284	0.451	0	1	668
Empl. in oil/gas	1.096	2.125	0	13.362	597
GDP	329528.672	392452.677	26996.6	2312540	573
Deviation temperature,%	0.087	0.151	-0.271	0.58	668
Disaster damages, USD	12.183	48.663	0	529.191	668

3 Analysis

3.1 Econometric specification

Following Mian *et al.* (2010) and theories on policy maker behaviour from Downs (1957) and Grossman & Helpman (2001), I assume that the utility of a policy maker reflects her personal preference or ideology, and her reelection probability. The utility function can be written as:

$$U_i(y_i) = f(y_i) + g(y_i) + \epsilon_i \tag{1}$$

where the function $f(y_i)$ gives the relationship between the vote and the personal ideology of

the senator, $g(y_i)$ gives the relationship between the vote and the reelection probability, and ϵ_i is a random preference parameter. Assuming that reelection probability depends on the pressure from special interests (SI) and the PO on the bill that is voted on, I simplify the utility function as follows:

$$U_i(y_i) = \alpha I_i + \beta_1 PO_i + \beta_2 SI_i + \epsilon_i \tag{2}$$

Where I_i is the ideology if senator i, PO the opinion of voters in the state of senator i, and SI is the stance of special interests.

In the following analysis, I_i is proxied by the DWNOMINATE score or senator fixed effects, SI_i is proxied by campaign contributions to senator i, and PO_i is measured by the estimated PO in the state of senator i. I use Pooled OLS and OLS with senator fixed effects, and a two-stage least square for the instrumental variable analysis.

The main dependent variables I am interested in are PO in the state of the senator and the influence of SI. The theory indicates that the probability of a green vote from a member of Congress increases as the number of people in her home district favouring the policy increases. Further, I expect to see a lower probability as contributions from the oil industry increase.

Bill sponsorship can be less visible than roll call votes (e.g. it has no effect on the widely used LCV score). If visibility of a bill is related to the influence PO has on the votes of senators, we would expect to see less influence on the propensity to *propose* bills. Yet bill proposals are not simply less visible votes. While vote outcomes are simply yes and no, sponsoring a bill allows for very specific statements of ideology and policy. Indeed, as Rocca & Gordon (2010) point out, bills can be a very strong signal to special interest groups and single issue voters as they allow for such a clear formulation of legislator preferences. Further, bills frequently combine several policies, often pushed by special interests (see e.g. Kang, 2015; Rocca & Gordon, 2010). Finally, bills allow members of Congress to accurately reveal ideology, and are often referred to on the campaign trail.

For the bills, if attention to the bill is the key factor determining the effect of PO, I would expect to see a higher effect of SI, and a lower effect of PO, on the sponsoring of bills compared to the voting on bills. However, if senators use sponsorships to express personal ideology, the effect of both PO and SI would be smaller.

3.2 Dealing with causality

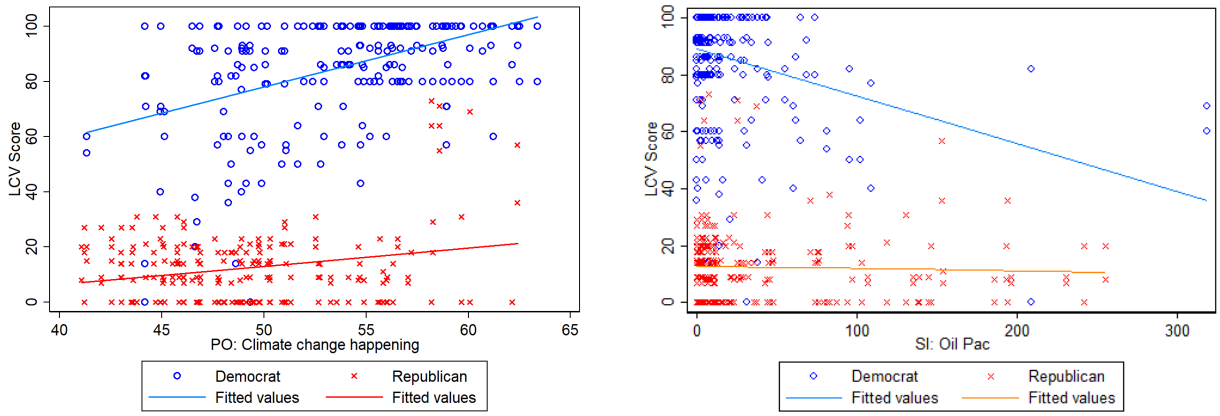
There are several potential threats to identification in this study. First, voters may elect leaders whose ideology aligns with their own. The causal link would in this case not go directly from PO to leader behaviour, but rather indirectly via an election. In this case, a significant change in PO is not necessarily reflected in a change in the leader's behaviour in a POLS model. I therefore include senator fixed effects. The results then indicate the change in leader behaviour when the PO changes.

Second, PO may respond to senator behaviour rather than the other way around (Carmichael & Brulle, 2017). The impact of a single senator may be negligible as an American citizen is exposed to many potential elites, as they are both represented by many politicians at the different levels of politics (their representatives in local and state governments, as well as their representative in the House and the Executive branch) and exposed to senators from other states in the news. However, I cannot fully rule out that there is no reverse causality at play, so I instrument PO using deviation in temperature and damages from climate related disasters.

This type of instrument relies on the idea that people's beliefs on climate change are affected by experiencing climate change related weather extremes. The exogeneity of these instruments is clear: senators cannot change the weather. However, the impact of climate change is not randomly distributed. Indeed, in the US, the regions hit the hardest by climate change are also the ones that tend to hold the staunchest anti-climate views. The strength of these instruments is also questionable; some researchers link climate beliefs to experienced weather, but some find no link. The exclusion restriction is a further point of contention, and one must make two strong assumptions for it to hold. First, one must assume that while the constituents' views are affected by weather events, their representatives are not. However, in the time period I consider, it is sufficient to assume that the senators simply have more sticky views than their constituents - an assumption that seems plausible. Second, one must assume that changes in weather only affects a senator through the change it induces in their constituents' views. This is a much stronger assumption. It is likely that extreme weather events have wide-ranging impacts, which may affect the senator through e.g. budget constraints.

When looking at roll-call votes, these assumptions may hold. It requires very little effort for a law-maker to simply vote yes on a green initiative. However, in terms of bill sponsorship,

Figure 2: Scatterplot, LCV score on PO and Oil Contributions



climate specific bills may yield to more immediate bills to help constituents recover from the crisis.

Further, with instrumental variables, one must consider who is affected by the instrument. It is likely that only a small percentage of people change their mind on climate change with the weather, and these people may not be very politically vocal on the issue. Indeed, if Bouton *et al.* (2021) are correct that the senators flip flop on environmental issues in a bid to catch single issue voters, it is unlikely that the instrument captures important variation in PO.

Overall, while the weather based instruments have some problems, they appear to be the best option if they induce significant variation in opinion, and one assumes that the senator's opinions are not affected by the weather.

4 Results

4.1 Main results

The relationships between LCV scores and PO and SI respectively for each party are presented visually in the scatterplot in figure 2. The plot indicates the existence of a positive relationship between he LCV score and PO, as well as a negative relationship between SI and score for Democrats. The differences between the two parties are obvious: Almost all Republicans have lower scores than almost all Democrats, and the relationships are stronger between score and both PO and SI for Democrats than Republicans.

Formal regression results are reported in table 3. The first two columns report the results of Pooled OLS, column (1) without covariates, and column (2) with. Both PO and SI influence the score, and in the expected direction. Total campaign contributions appear with a negative sign, and the coefficient shows that getting 1000 USD more from the oil and gas industry decreases the LCV score by about 0.3. In column (3) and (4), I include senator fixed effects, i.e. the coefficients reflect within senator variation. The magnitude of the PO effect is somewhat changed, but positive and significant coefficient reveals that an increase in the public belief in climate change by one percentage point is answered by a one point higher LCV score. Interestingly, the SI becomes positive in the fixed effects: a senator that receives more oil funding in their second election in the sample gets a higher LCV score than in their previous term. This could indicate that campaign contributions are aimed at electing SI friendly senators, rather than changing the behaviour of sitting senators. Indeed, these results are consistent with a world where campaign contributions help elect senators with a given ideology regarding climate change, but who still respond to their electorate when the electorate changes opinion.

The results of the IV are reported in columns (5) and (6), showing a slightly larger effect than the other specifications. This result seems counter to the idea of a strong effect of single issue voters: the people whose views are changed by weather events are unlikely to be single issue voters, and the effect seen here is more likely driven by a general move towards a more environmentally friendly electorate.

I repeated the analysis splitting the sample into Democrats (table 5) and Republicans (table 6), and found that the effect of PO appears driven by Democrats: there is no effect of PO on Republican senators. I explore differences between parties further in section 4.3.

4.2 Extension 1: Bills sponsored

Table 4 shows the results for the analysis using the fraction of bills sponsored being climate change related, with the same econometric models as above. The results are quite different from the score: only columns (1) and (2) show a positive effect of PO. The more complicated models all show a statistically insignificant negative effect of PO. The results indicate that senators from states with high belief in climate change are slightly more likely to propose bills in favour of climate change compared to other senators (as the POLS shows), but that this propensity is not responsive to changes in the PO (as there is no effect in the FE or IV models). This may

Table 3: Votes picked by LCV, percentage of people in state who think CC happening, 2009-14

VARIABLES	(1) POLS	(2) POLS	(3) FE	(4) FE	(5) IV	(6) IV
PO: Climate change happening	3.072***	0.629***	1.153*	1.034*	3.367***	1.737***
	(0.487)	(0.205)	(0.598)	(0.571)	(0.805)	(0.513)
SI: Oil Pac, last cycle	-0.307***	-0.0703***	0.0264*	0.109***	-0.294***	-0.0533**
	(0.0742)	(0.0220)	(0.0154)	(0.0273)	(0.0763)	(0.0246)
DW Nominate		-81.56***		-		-74.31***
		(4.086)		-		(6.537)
Seniority		-0.126		-1.634***		-0.0838
		(0.0911)		(0.487)		(0.0855)
Election cycle		0.00537		3.063**		1.032
		(1.381)		(1.354)		(1.351)
Empl. in oil/gas		0.497		3.320		0.674
		(0.512)		(2.456)		(0.653)
GDP		1.39e-06		-2.71e-05		-1.51e-06
		(1.50e-06)		(3.17e-05)		(2.74e-06)
Constant	-89.87***	28.17**	28.17	46.60	-105.9**	-30.46
	(27.81)	(11.36)	(32.95)	(34.18)	(44.38)	(26.68)
Observations	533	533	533	533	533	533
R-squared	0.528	0.843	0.916	0.920	0.527	0.831

Standard errors clustered at the state level in parentheses. Columns 1 & 2 estimated with OLS, columns 3 & 4 OLS with senator dummies, 5 & 6 2SLS with the cycle damages and cooling degree days variations instrumenting PO. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Fraction of total bills sponsored related to climate change, percentage of people in state who think CC is happening, 2009-14

VARIABLES	(1) POLS	(2) POLS	(3) FE	(4) FE	(5) IV	(6) IV
PO: Climate change happening	0.201***	0.119	-0.308	-0.337	-0.193	-0.270
	(0.0500)	(0.0745)	(0.202)	(0.215)	(0.146)	(0.180)
SI: Oil Pac, last cycle	-0.00223	0.00490	0.00280	-0.0108	-0.0199**	-0.00107
	(0.00367)	(0.00419)	(0.00825)	(0.00739)	(0.00786)	(0.00573)
DW Nominate		-2.066***				-4.614***
		(0.685)				(1.421)
Seniority		-0.0538**		0.223		-0.0685***
		(0.0214)		(0.191)		(0.0250)
Election cycle		-0.665*		-0.687		-1.025***
		(0.356)		(0.462)		(0.371)
Empl. in oil/gas		-0.178**		0.394		-0.241
		(0.0757)		(0.673)		(0.177)
GDP		2.05e-07		-2.49e-06		1.22e-06
		(7.91e-07)		(4.62e-06)		(1.00e-06)
Constant	-7.945***	-2.998	22.54**	24.21*	13.39*	17.59*
	(2.544)	(3.771)	(11.13)	(12.23)	(8.015)	(9.513)
Observations	533	533	533	533	533	533
R-squared	0.074	0.115	0.681	0.688		

Standard errors clustered at the state level in parentheses. Columns 1 & 2 estimated with OLS, columns 3 & 4 OLS with senator dummies, 5 & 6 2SLS with the cycle damages and cooling degree days variations instrumenting PO. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

Table 5: Democratic senators, Votes picked by LCV, percentage of people in state who think CC happening, 2009-14

VARIABLES	(1) POLS	(2) POLS	(3) FE	(4) FE	(5) IV	(6) IV
PO: Climate change happening	1.601***	1.077***	2.274*	2.428**	2.348***	1.923***
	(0.352)	(0.334)	(1.253)	(1.124)	(0.676)	(0.719)
SI: Oil Pac, last cycle	-0.0968**	-0.0607**	-0.381***	0.312	-0.0575	-0.0448
	(0.0386)	(0.0289)	(0.132)	(0.260)	(0.0409)	(0.0277)
Controls	NO	YES	NO	YES	NO	YES
Senator FE	NO	NO	YES	YES	NO	NO
Observations	292	292	292	292	292	292
R-squared	0.263	0.309	0.519	0.578	0.233	0.283

Standard errors clustered at the state level in parentheses. Columns 1 & 2 estimated with OLS, columns 3 & 4 OLS with senator dummies, 5 & 6 2SLS with the cycle damages and cooling degree days variations instrumenting PO. Controls are the same as table 3. Sample includes non-Republican senators only. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

Table 6: Republican senators, Votes picked by LCV, percentage of people in state who think CC happening, 2009-14

VARIABLES	(1) POLS	(2) POLS	(3) FE	(4) FE	(5) IV	(6) IV
PO: Climate change happening	0.599	0.463	0.397	0.431	1.358	1.488
	(0.540)	(0.393)	(0.404)	(0.340)	(1.172)	(1.077)
SI: Oil Pac, last cycle	-0.0419**	-0.0261*	0.0500***	0.0373*	-0.0365**	-0.0125
	(0.0201)	(0.0128)	(0.0130)	(0.0192)	(0.0149)	(0.0158)
Controls	NO	YES	NO	YES	NO	YES
Senator FE	NO	NO	YES	YES	NO	NO
Observations	241	241	241	241	241	241
R-squared	0.081	0.145	0.420	0.425	0.012	0.047

Standard errors clustered at the state level in parentheses. Columns 1 & 2 estimated with OLS, columns 3 & 4 OLS with senator dummies, 5 & 6 2SLS with the cycle damages and cooling degree days variations instrumenting PO. Controls are the same as table 3. Sample includes Republican senators only. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

Table 7: Electoral incentives, votes picked by LCV, percentage of people in state who think CC happening, 2009-14

VARIABLES	(1) ALL	(2) ALL	(3) DEMS	(4) DEMS	(5) REPS	(6) REPS
PO: Climate change happening	2.848***	0.420*	1.501***	0.858**	0.340	0.241
	(0.494)	(0.239)	(0.402)	(0.317)	(0.425)	(0.305)
Election cycle	-38.52**	-35.42**	-17.73	-32.16	-50.02**	-42.77***
	(18.79)	(13.65)	(24.53)	(20.75)	(19.16)	(14.40)
Election cycle × PO	0.773**	0.687***	0.344	0.611	1.053**	0.890***
	(0.367)	(0.254)	(0.436)	(0.367)	(0.416)	(0.308)
SI: Oil Pac, last cycle	-0.307***	-0.0716***	-0.0954**	-0.0556**	-0.0411**	-0.0271**
	(0.0744)	(0.0220)	(0.0384)	(0.0265)	(0.0180)	(0.0125)
DW Nominate		-81.49***		-43.98***		-19.03*
		(4.038)		(14.65)		(9.514)
Seniority		-0.124		0.0721		-0.0378
		(0.0920)		(0.0720)		(0.0722)
Empl. in oil/gas		0.508		-1.446		-0.0355
		(0.528)		(1.074)		(0.183)
GDP		1.43e-06		-2.67e-07		-4.45e-06
		(1.43e-06)		(1.73e-06)		(3.51e-06)
Constant	-78.67***	39.09***	7.039	28.03	-0.618	13.52
	(28.30)	(13.25)	(22.87)	(18.92)	(18.64)	(11.30)
Observations	533	533	292	292	241	241
R-squared	0.530	0.845	0.265	0.314	0.107	0.163

Standard errors clustered at the state level in parentheses. All columns estimated with OLS. Columns 1 & 2 show the full sample, columns 3 & 4 show non-Republican senators, columns 5 & 6 show Republican senators. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

indicate that bill sponsorship is driven more by personal ideology than roll call votes are.

4.3 Extension 2: Timing of elections & party differences

Results of interacting the PO and election cycles on the LCV score are shown in table 7 and Bills in table 8; columns (1) and (2) show the full senate, (3) and (4) Democrats, and (5) and (6) Republicans. The results in the full senate are not as strong as those of each party, which is explained at least in part when splitting the sample by parties: Outside of the election cycle, Democrats are responsive to PO; increasing PO by 1 percentage point is associated with a 0.35 higher LCV score and 0.3 higher fraction of bills related to CC. The interaction term has a negative sign for Democrats. The exact opposite is seen for Republicans: they see no effect of PO outside of the election cycle, but the interaction term is positive and significant for both outcome variables.

The SI effects are as in the main analysis.

Table 8: CC Bills sponsored, percentage of people in state who think CC happening, 2009-14

VARIABLES	(1) ALL	(2) ALL	(3) DEMS	(4) DEMS	(5) REPS	(6) REPS
PO: Climate change happening	0.193***	0.121	0.355***	0.315***	-0.0348	-0.102
	(0.0602)	(0.0796)	(0.0745)	(0.109)	(0.0850)	(0.0721)
Election cycle	-0.578	-0.231	13.61**	13.05**	-21.90***	-19.65***
	(3.424)	(3.417)	(5.964)	(6.331)	(5.904)	(4.539)
Election cycle × PO	-0.00427	-0.00841	-0.270**	-0.255**	0.443***	0.396***
	(0.0660)	(0.0658)	(0.111)	(0.118)	(0.125)	(0.0970)
SI: Oil Pac, last cycle	-0.00311	0.00491	-0.00124	0.00612	-0.000546	0.00467
	(0.00377)	(0.00418)	(0.00638)	(0.00636)	(0.00491)	(0.00641)
DW Nominate		-2.067***		-4.619		-7.417***
		(0.688)		(4.559)		(1.538)
Seniority		-0.0538**		-0.100***		-0.0585
		(0.0215)		(0.0290)		(0.0371)
Empl. in oil/gas		-0.179**		0.0664		-0.0739
		(0.0755)		(0.236)		(0.0700)
GDP		2.05e-07		8.13e-07		-1.13e-06
		(7.92e-07)		(5.60e-07)		(7.29e-07)
Constant	-7.293**	-3.131	-16.01***	-14.46***	3.441	10.75**
	(3.133)	(4.038)	(3.894)	(4.773)	(4.136)	(4.267)
Observations	533	533	292	292	241	241
R-squared	0.082	0.115	0.102	0.158	0.081	0.183

Standard errors clustered at the state level in parentheses. All columns estimated with OLS. Columns 1 & 2 show the full sample, columns 3 & 4 show non-Republican senators, columns 5 & 6 show Republican senators. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

4.4 Extension 3: Case Study on The Keystone XL Pipeline

The results on the KXL bill are reported in table 9. Both PO and campaign contributions appear to have a significant impact on the outcome of the senator vote. A 1 percentage point increase in the number of people supporting the bill in a given state is associated with a roughly 3-7 percentage points increase in the probability that a senator votes in favour of the bill. Using the extreme-weather instruments, we see an even stronger effect of PO.

The results of the case study on KXL further support the idea that senators trade off the interests of their constituents and that of special interests. However, while the media attention and environmentalist opposition to the KXL draw clear battle-lines between environmentalists and the fossil fuel industry, it may mean that the results cannot readily be generalized to other bills (see Mian *et al.* 2010)[3]. If a bill is highly publicized, the public is probably more likely to be aware of how their senator voted than for the average bill. It is thus more likely

[3]Indeed, the results are not the same for other individual bills (see appendix). The statistical and economic significance of variables varies greatly from bill to bill. From the current data, it is hard to say exactly which attributes of a bill is related to the importance of what variable, but this is be a topic for future research.

Table 9: Votes by senators on the passage of Bill S.1 to approve the Keystone XL pipeline, outcome variable is voting *in favour* of KXL

VARIABLES	(1) POLS	(2) POLS	(3) IV	(4) IV
PO: Supports KXL	0.0735***	0.0300*	0.180***	0.159**
	(0.0153)	(0.0161)	(0.0392)	(0.0680)
SI: Oil Pac, last cycle	0.00374***	0.000431	0.00254***	0.000640
	(0.000580)	(0.000533)	(0.000861)	(0.000633)
DW Nominate		0.767***		0.326
		(0.0948)		(0.299)
Election cycle		-0.0171		-0.0449
		(0.0738)		(0.102)
Oil state		0.0752		0.139
		(0.0947)		(0.178)
Victory margin, last election		-0.000806		-7.19e-05
		(0.00127)		(0.00233)
KXL state		0.131		0.151
		(0.0799)		(0.137)
Constant	-4.670***	-1.562	-11.92***	-10.45**
	(1.043)	(1.101)	(2.662)	(4.652)
Observations	94	89	94	89
R-squared	0.528	0.738	0.267	0.439

Standard errors clustered at the state level in parentheses. Columns 1 & 2 estimated with OLS, columns 3 & 4 estimated with 2SLS with the 2014 damages and cooling degree days variations instrumenting PO. Controls from 2014. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

that the voters will punish a senator for the "wrong" vote if it is highly publicised. This may mean that a politician will place a larger weight on constituent opinion for these bills than for the average bill. There is evidence to support this hypothesis, as Herrnstadt & Muehlegger (2014) find that salience of climate change, proxied by Google search intensity, increases the likelihood of a Congress member voting pro-environment. On the other hand, a single-minded industry donating to politicians may pay more attention to their overall voting behaviour, and punish/reward the politician for the whole bundle of votes.

5 Discussion

The strength of mass opinion response on a single issue such as the environment is a bit of a puzzle. When voters decide whom to vote for, most do not base their choice on a single issue (Downs, 1957). Rather, they base their choices on a range of issues. While most people in the US actually do favour increased environmental regulation and protections, few rank it among the most important issues (Pew Research Center (2016)). Thus few people choose whom to vote for based solely on what that person have done for the environment. While campaign contributions can be used to "sell" the politician to voters based on a broad platform, contributions to environmental legislation is only attractive to a narrow set of voters. It is therefore not immediately clear why politicians would respond so strongly to PO on environmental votes. I posit two possible explanations. First, the environmental voting record could signal broader ideology. Second, there could exist "subconstituencies" of single issue voters who care only about the environment.

Downs (1957) shows how ideology can act as a cheap signalling mechanism for politicians and as an easy information metric for voters. Information collection is costly for voters. Voters could inform themselves on every possible issue, find out where each politician stands on these issues, and then do an analysis to identify the politician who minimizes the distance between the voters' optimal stance and the politician's actual stand on all issues. But at a lower cost, the voter could identify the type of ideology that most closely matches her stances on issues and then pick a politician who signals adherence to that ideology. Environmentalism is increasingly linked to leftist liberalism, and voting in favour of environmentally friendly policies could then be seen as a signal to adherence to that ideology. Further, the kind of flip-flopping seen by

Republican senators here (and for Democratic senators in Bouton *et al.* (2021) on gun rights), could be an attempt to signal an overall more centrist stance to appeal to undecided voters in the middle.

While the overall percentage of people in the US who care strongly about the environment may be small, taking a strong environmental position could guarantee the support of single issue voters (see Bouton *et al.*, 2021, for further theory and evidence). If most people do not have strong opinions on environmental regulation, but are generally in favour of it, pandering to the voters that do care deeply could be quite a low risk way to attract these single-issue votes.[4] The strength of the IV results casts some doubt on the single issue voter idea, as the people who change their mind on climate change in response to weather events may not be the most intense environmentalists out there.

Note that the evidence I have presented cannot distinguish between the two explanations. Disentangling the effect of single issue voters relative to that of ideology signalling is empirically difficult, and would require distinguishing the single issue voters. It is not clear who these single issue voters are. Given the track records of the two parties over the last two decades, it appears unlikely that staunch environmentalists would vote for a Republican candidate even if they had "greened" their voting record (the CCES data shows that of the 2519 people who chose the greenest answer to the three environmental questions in the Panel, only 35 voted Republican – 1.4% of the environmentalists and 0.4% of the total sample). If there is an undecided centrist group, who e.g. find fiscal conservatism equally important as environmental regulation, a flip flopping Republican may gain those votes. Such a group would likely be correlated with the presence of a more intense true single issue voter group, complicating identification further. It would be interesting to know how voters react to the flip-flopping Republicans. Future research should focus on identifying the single issue voters and the effect of flip-flopping.

The results also provide some support for the literature that posits that the (oil and gas) industry influence PO. Scholars have shown theoretically (see e.g. Bramoullé & Orset, 2018; Yu, 2005; Sobbrio, 2011) and, to a lesser extent, empirically (see e.g. Farrell, 2016; Brulle, 2014; Oreskes & Conway, 2011), that industry has an incentive to spread mis-information on climate change. While the results shown do not directly provide evidence for this type of behaviour,

[4]However, I have attempted to explore this further, and preliminary analysis of the effect of the proportion of "intense environmentalists", i.e. people who chooses the "greenest" answer to all possible questions in CCES, indicates that these may have little effect on the voting of senators.

the results do provide a rationale for it: Considering the importance of PO, influencing opinion may be a complement and/or a substitute for direct influence of campaign contributions and lobbying.

Another observation from the data is that the Republican Party receives much more in contributions from the oil industry than the Democratic Party, and its members rarely vote in favour of green legislation. This could be explained by a long term effect of the contributions: close ties between the Republican Party and the oil industry may be part of the reason that US conservatives are so staunchly anti environmental regulations. Indeed, Shwom *et al.* (2015) argued that there has been an effort by the industry to align the green movement - once thought of as non-partisan (e.g. in a paper from 1984, Peltzman explicitly considers environmental legislation non-partisan) - with a liberal ideology for many Americans (Kim & Urpelainen, 2017).

6 Conclusion

In this paper I have combined estimated data on PO with data on campaign contributions to ascertain the influences of each on legislative behaviour in the US Congress related to environmental issues. I have attempted to quantify the driving forces behind the choices of politicians. The empirical results indicate a strong effect of PO and SI contributions on roll call voting, but that this effect is much weaker or non-existent when looking at bill sponsorship, indicating that senator ideology may play a larger role in sponsoring bills. I have shown that there are large differences between the two major parties, who in particular respond to election proximity differently: Republicans appear only to be affected by PO in election cycles, whereas Democrats are more responsive throughout. The results also suggest that senators respond to campaign contributions from the oil and gas sector. These tend to lower the senator's propensity to vote in favour of environmental regulation. The results for campaign contributions are slightly less robust than those of PO. Clearly, an important battle for appropriate environmental regulation is in the heart and minds of the people. Rather than trying to convince politicians to act, convincing voters that action is required may be more important as many senators – and likely other elected officials – do respond to such pressures.

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7 Appendix

7.1 Estimating the PO Data

The PO by state or district is estimated using Multilevel Regression with Poststratification. I use responses from CCES, which provides demographic information and the location down to zip code. This is combined with crosstabs from the American Community Survey 5-year estimates, which provides crosstabs by race, gender and education (United States Census Bureau, 2017a). I include further state level covariates such as percent of people in the state that voted for Obama, percentage of people who consider religion to be very important (both from CCES), and percentage of people employed in the oil industry in the state (from Census Business Patterns).

MRP is a two step process. In the first step, a multilevel logit regression is used to model the probability of being in favour of the legislation given individual and state level covariates. In the second step, these results are used to estimate the weighted sum of the "types of people" based on geographic and demographic grouping.

The first step is given by the following equation:

$$Pr(y_i = 1) = logit^{-1}(\gamma + \alpha^{race}_{j[i]} + \alpha^{education}_{k[i]} + \alpha^{gender}_{l[i]} + \alpha^{state}_{m[i]}) \tag{3}$$

where

$$\alpha^{state}_s \sim N(\alpha^{region} + \gamma^{vote} + \gamma^{percentdem} + \gamma^{percentoil} + \gamma^{relig}) \tag{4}$$

The results are used to calculate a weighted sum of the opinions of different types of people in a given state, using the ACS crosstabs. ACS crosstabs gives the number of people for all possible combinations of age, gender, and education in each state. The estimate of beliefs in a state is then given by:

$$y^{mrp}_g = \frac{\sum_{c \in g} N_c \eta_c}{\sum_{c \in g} N_c} \tag{5}$$

where y^{mrp}_g is the proportion of people in geographic area g holding the belief, N_c is the number of people of type c in the georaphic area as given by the ACS Crosstabs, and η_c is the belief coefficient as estimated by the logistic regression.

The opinion data is based on the following questions from the CCES:

For the KXL legislation, I estimate the response to "please tell us whether you would vote for (yes) or against (no) [the following bill]: A bill to approve the Keystone XL pipeline from Montana to Texas and provide for environmental protection and government oversight."

For the panel I use "From what you know about global climate change or global warming, which one of the following statements comes closest to your opinion?

1 Global climate change has been established as a serious problem, and immediate action is necessary

2 There is enough evidence that climate change is taking place and some action should be taken

3 We don't know enough about global climate change, and more research is necessary before we take any actions

4 Concern about global climate change is exaggerated. No action is necessary

5 Global climate change is not occurring; this is not a real issue

I estimate the proportion of people that answered 4 or 5.

7.2 Looking at a selection of votes

Table 10 shows regression results for a selection of environmental votes in the 114th Congress.

Table 10: Selection of environmental roll call votes in the 115th Congress, percentage of people in state who believe CC is caused by humans

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
VARIABLES	S.Amdt. 29	S.Amdt. 87	S.Amdt. 58	S.Amdt. 99	S.Amdt. 24	S.Amdt. 27	S.Amdt. 78
PO: Climate change happening	-0.00229	-0.0181*	-0.0151**	0.00711	0.0128**	-0.0194**	0.0177**
	(0.00236)	(0.0104)	(0.00732)	(0.00497)	(0.00596)	(0.00745)	(0.00764)
SI: Oil Pac, last cycle	0.000210	0.00153	0.00218***	-0.00177**	-0.00157*	0.000914	-0.00203***
	(0.000227)	(0.00145)	(0.000751)	(0.000761)	(0.000795)	(0.000621)	(0.000749)
Republican	-0.0103	0.371**	0.559***	-0.724***	-0.648***	0.660***	-0.580***
	(0.0128)	(0.163)	(0.111)	(0.0951)	(0.0974)	(0.110)	(0.119)
Election cycle	-0.0134	-0.0119	-0.131*	0.00167	-0.00293	-0.0976	0.0744
	(0.0148)	(0.0666)	(0.0681)	(0.0267)	(0.0602)	(0.0648)	(0.0469)
Oil state	-0.0390	0.0410	0.00688	-0.00384	-0.00828	0.0223	-0.0144
	(0.0403)	(0.156)	(0.0573)	(0.0390)	(0.0651)	(0.0463)	(0.0611)
Constant	0.131	1.044*	0.863**	0.589**	0.204	1.110**	-0.0218
	(0.135)	(0.569)	(0.412)	(0.279)	(0.362)	(0.420)	(0.439)
Observations	95	95	95	95	94	93	93
R-squared	0.036	0.489	0.799	0.887	0.829	0.822	0.862

	(8) OLS	(9) OLS	(10) OLS	(11) OLS	(12) OLS	(13) OLS	(14) OLS	(15) OLS
VARIABLES	S.Amdt. 15	S.Amdt. 115	S.Amdt. 133	S.Amdt. 77	S.Amdt. 1014	S.Amdt. 2176	S.J.Res. 24	S.J.Res. 23
PO: Climate change happening	0.0142**	-0.0158**	-0.0168**	-0.0396***	-0.0218**	-0.0228***	0.0327***	0.0327***
	(0.00624)	(0.00701)	(0.00752)	(0.00899)	(0.00857)	(0.00800)	(0.00814)	(0.00814)
SI: Oil Pac, last cycle	-0.00167**	0.00191**	0.00188**	0.00164**	0.00216**	0.00129*	-0.00172**	-0.00172**
	(0.000750)	(0.000756)	(0.000738)	(0.000797)	(0.000808)	(0.000706)	(0.000773)	(0.000773)
Republican	-0.656***	0.627***	0.576***	0.341**	0.489***	0.557***	-0.427***	-0.427***
	(0.0952)	(0.109)	(0.122)	(0.130)	(0.125)	(0.119)	(0.120)	(0.120)
Election cycle	0.0807*	-0.0499	-0.0477	-0.0775*	-0.0528	-0.0458	0.0852*	0.0852*
	(0.0421)	(0.0432)	(0.0465)	(0.0423)	(0.0581)	(0.0449)	(0.0429)	(0.0429)
Oil state	-0.0383	-0.0205	0.0433	-0.0425	-0.0690	0.139	-0.0275	-0.0275
	(0.0573)	(0.0482)	(0.0618)	(0.0914)	(0.0836)	(0.0865)	(0.0694)	(0.0694)
Constant	0.165	0.903**	0.966**	2.325***	1.239**	1.336***	-0.902*	-0.902*
	(0.360)	(0.396)	(0.431)	(0.525)	(0.486)	(0.463)	(0.475)	(0.475)
Observations	94	94	94	94	96	93	94	94
R-squared	0.879	0.874	0.820	0.772	0.762	0.820	0.823	0.823

Standard errors clustered at the state level in parentheses. All columns estimated with OLS with controls from 2014. Note that the green vote is not always the "yea" vote Statistical significance: *** p<0.01, ** p<0.05, * p<0.1

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