A Watershed Moment:
Climate Change and Election Outcomes

Mark David Nieman
Iowa State University

July 2019

Abstract

Does climate change affect electoral outcomes? The tangible economic effects of climate change, such as decreases in property values, tax and insurance increases, and income fluctuations in the tourism and fishing industries, create a strong impetus for the voters in affected areas to support political parties that prioritize environmental issues. With 40% of the population living in coastal counties, the US case allows for testing whether the changing climate conditions translate into observable electoral outcomes. This letter shows a gradual, yet growing, decrease in the Republican party's vote share in coastal counties in recent elections. Negligible prior to 2012, the difference in the Republican vote share between coastal and non-coastal counties grew to as much as 10 percentage points in the 2016 and 2018 congressional and presidential elections.

Key words: Climate change, coastline, elections, political behavior, political outcomes.

Introduction

Global climate change has reached unprecedented and possibly irreversible levels in recent years, leading to tangible and observable outcomes, especially for the residents of coastal areas. Sharp decreases in property values, coupled with tax and insurance hikes resulting from changing flood zone designations (Layne 2019; Lewis 2019; Williams 2019), have much more resonance with voters than seemingly abstract facts on melting glaciers and warming oceans. Declining incomes in the travel, tourism, and fishing industries, caused by extreme temperatures, droughts, and the changing migration of sealife (Vora 2018; Free 2019), spill over well beyond these industries to nearby businesses in the form of decreasing sales and asset values.

The case of the US provides great conditions for studying the electoral effects of these changes. While 40% of the US population lives in coastal counties (NOAA 2017), climate change concerns are not reflected in the political platform of one of the two major political parties. President Trump's view of global warming as "a hoax" (cited in Volodzko 2019) is in fact a rather accurate summary of the Republican party's official position (Republican Platform 2016; Hayes 2000; Båtstrand 2015).[1] If climate-related considerations were ever decisive to voters in coastal communities, such trends should be evident in voting outcomes in recent US presidential and congressional elections.

Climate change has traditionally ranked as a low priority issue in public opinion polls (Egan and Mullin 2017). A possible explanation for this is that the implications of climate change are not distributed equally. Rather, the most notable and obvious implications—rising sea levels and changes to sea habitats—are evident along the coastline. While climate change affects severe weather of all kinds, such as droughts, flooding, etc, in many parts

[1]The 2016 Republican platform downplays the issue, and questions the science behind it, whereas the 2012 platform contains a single reference to climate change, where it is used to critique President Obama's foreign policy position.

of the country, these events occur frequently enough that subtle changes go unnoticed or are attributed to random fluctuations. Along shorelines and in areas dependent on coastal ecosystems, however, the implications of climate change are increasingly clear.

As coastal communities are increasingly affected by climate change, they should be increasingly likely to seek political redress. Political parties that challenge climate science, de-emphasize climate issues, or oppose mitigating action should perform worse in coastal communities. This effect, moreover, should increase over time, as the impact of climate change becomes more direct. I test these hypotheses by modeling the two party vote share of the Republican party in US counties for congressional and presidential elections. I find that in coastal counties, the Republican vote share has been shrinking in recent elections, reaching an about 10 percentage point decrease by 2016 and 2018.

Climate Change and Political Outcomes

Numerous studies show that political polarization is a driving factor for public opinion gap in concerns about climate change, with political conservatives less likely to believe that climate change is real or that the government should act to prevent it (Guber 2013; Nai, Schemeil and Marie 2017). A recent study by Pew found a 56 percentage point difference between the two major US parties regarding whether climate change is a major threat (Poushter and Huang 2019). The relationship between partisanship and concern for climate change is not just a US phenomenon; similar, albeit smaller, differences are found between right- and left-leaning parties in Europe as well (Hornsey et al. 2016; Poushter and Huang 2019).

The partisan gap in public opinion broadly reflects that in the positions of the political parties. The US Republican party, for example, states in their official platform that "climate change is far from this nation's most pressing national security issue" (Republican Platform

2016, 20), questions the science behind climate concerns, rejects the agendas of both the Kyoto Protocol and the Paris Agreement (22), and advocates for expanding extraction of fossil fuels (19–20). Conversely, the US Democratic Party platform argues that "climate change is an urgent threat and a defining challenge of our time" (Democratic Platform 2016, 24), explicitly calls for protecting communities from climate change (7), and endorses the Paris Agreement (24). Though less dogmatic, conservative parties in Europe are also more supportive of coal and petroleum production (Båtstrand 2015) and adopt less pro-environment positions than left-wing parties (Carter 2013). These differences affect policy outcomes: for example, parties with pro-environment positions make greater progress in achieving greenhouse emission targets (Jensen and Spoon 2011).

Partisanship is only one factor; susceptibility to the effects of climate change may also lead to greater concern and political action. While Friedman (2019) finds significant partisan differences in assessments of both the risk posed by, and government responsibility to combat climate change, climate concerns also appear to be related to personal experience. Several studies find that local temperature affects public opinion both at the national- and state-levels (Egan and Mullin 2012; Bergquist and Warshaw 2019).

Previous studies also show that climate change preferences are location-dependent. Linking survey and spatial data, Brody, Zahran and Vedlitz (2008) find that those living closer to coasts—particularly those living within 1 mile of a coast—are more concerned with climate change. Geographical characteristics have been linked with increased concern with climate change outside of the US, as well. Mildenberger et al. (2016) find that, in Canada, those in urban areas are more likely to believe that climate change is due to human activity than those in rural areas. Linke et al. (2018) combine a survey experiment with respondents' geographical data and find that, in developing countries, drought conditions are associated with greater acceptance of violent attitudes.[2] Stokes (2016) finds that voters living nearby

[2]The link between climate change and political violence is complex. Water scarcity is linked to militarized

wind energy projects are more likely to punish incumbents.

Constituencies whose well-being is most directly affected by climate-related issues should also be the most likely to translate their preferences into observable political behavior. Faced with the tangible and immediate economic implications of climate change, such as declining property values (Layne 2019; Williams 2019), flood-related increases in insurance premiums (Lewis 2019), and losses associated with disruptions to the tourism and fishing industries (Vora 2018; Free 2019), voters in coastal areas have a strong impetus to favor political parties that treat climate change as a salient threat. These incentives should increase in recent years, as climate change has had an increasingly direct impact in coastal areas. As conservative parties tend to discount climate change as a political issue, I hypothesize that their proportion of the vote share should be depressed in coastal areas and that this effect should strengthen over time.

Research Design

I explore the relationship between coastal counties and Republican vote share in the most recent US congressional and presidential elections using a cross-section time-series design, where the unit of observation is the county-year. I measure the dependent variable in two ways. First, I use the Republican share of the two-party vote in elections to the US House of Representatives from 2006–2018 (7 elections). These data are obtained from (Leip 2019) for 2006–2014 and (Chyzh and Urbatsch 2019) for 2016–2018. Second, I use the Republican share of the two-party vote in presidential elections from 2000–2016 (5 elections) (MIT Election Data and Science Lab 2018). I exclude Alaska, as county-equivalent units are not consistently defined, and county-years where elections were not contested, as some

conflict (Tir and Stinnett 2012; Lee and Mitchell 2019), though other factors are likely to exacerbate or mitigate this risk (Salehyan 2008; Hendrix and Salehyan 2012; Nardulli, Peyton and Bajjalieh 2015; Mach et al. 2019).

states do not report these vote totals. The congressional elections sample consists of 19,754 observations, while the presidential elections sample consists of 15,196 observations.

My primary independent variable is whether a country is coastal. The National Oceanic and Atmospheric Administration (NOAA) uses two measures for "coastal counties." The first is *coastal watershed counties*, which are defined as counties "where land use and water quality changes most directly impact coastal ecosystems" (NOAA 2017, 1). This definition is met if either "(1) at a minimum, 15 percent of the county's total land area is located within a coastal watershed or (2) a portion of or an entire county accounts for at least 15 percent of a coastal USGS 8-digit cataloging unit" (NOAA 2017, 1-2).

The second measure is *coastal shoreline counties*, which are counties "that are directly adjacent to the open ocean, major estuaries, and the Great Lakes, which due to their proximity to these waters, bear a great proportion of the full range of effects from coastal hazards and host the majority of economic production associated with coastal and ocean resources" (NOAA 2017, 2). These are defined as counties "that (1) [have] a coastline bordering the open ocean or Great Lakes coasts (or associated sheltered water bodies), or (2) [contain] velocity zones (V-zones) or coastal high hazard areas" (NOAA 2017, 2).[3]

The first of the two measures—*Watershed*—is broader, and the second—*Coastal*—is a subset of the first. Approximately 21% of all US counties qualify as watershed, and 12% as shoreline. I use each of these measures to account for the areas most clearly and directly impacted by climate change.

I control for several socio-economic factors that are expected to impact vote choice: a county's percent of African American and other racial minorities, percent of Hispanic/Latinx population, unemployment rate, urbanization, percent of population with a high school degree or equivalent, percent with a Bachelor's degree, and the state's GDP. These data

[3] "V-zones are areas where wave heights more than 3 feet and/or high velocity water can cause structural damage in a 100-year flood, a flood with a 1-percent chance of occurring or being exceeded in a given year" (NOAA 2017, 2).

Table 1: Coastal Counties and Republican Vote Share

	House				Presidential			
	β	SE	β	SE	β	SE	β	SE
Watershed	-0.041	(0.003)			-0.034	(0.003)		
Shoreline			-0.048	(0.004)			-0.037	(0.003)
Black, logged	-0.037	(0.002)	-0.038	(0.002)	-0.043	(0.001)	-0.044	(0.001)
Latinx, logged	-0.006	(0.002)	-0.007	(0.002)	-0.015	(0.002)	-0.016	(0.002)
Other, logged	-0.028	(0.002)	-0.028	(0.002)	-0.017	(0.002)	-0.017	(0.002)
Unemployment	-0.014	(0.001)	-0.014	(0.001)	-0.017	(0.001)	-0.017	(0.001)
Urbanization	-0.065	(0.004)	-0.064	(0.004)	-0.053	(0.003)	-0.052	(0.003)
High-school	0.001	(0.001)	0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)
Bachelor's	-0.002	(0.001)	-0.002	(0.001)	-0.003	(0.001)	-0.003	(0.000)
GDP, logged	0.056	(0.013)	0.056	(0.013)	-0.047	(0.011)	-0.047	(0.011)
Constant	0.590	(0.028)	0.587	(0.028)	0.565	(0.028)	0.562	(0.028)
Variance								
State	0.012		0.012		0.014		0.014	
Year	0.004		0.004		0.002		0.002	
Residual	0.018		0.018		0.010		0.010	
Observations	19754		19754		15196		15196	
States	49		49		49		49	
Years	7		7		5		5	

Note: Dependent variable is Republican share of the two-party vote for a county. Pooled US House elections for 2006–2018. Pooled US presidential elections for 2000–2016.

are obtained from the US Census (2019), the US Bureau of Economic Analysis (2019), and the US Department of Agriculture (2019). All independent variables are mean centered. I estimate a multi-level ordinary least squares regression with counties nested within states and election years (Gelman and Hill 2006).

Results

Table 1 displays the results of the statistical analysis. Models 1 and 2 present the congressional elections sample, while models 3 and 4 report the presidential elections sample. In models 1 and 3, coastal counties are measured using the *Watershore* variable and, in models 2 and 4, they are measured using the *Shoreline* variable.

Consistent with my expectations, both measures for coastal counties are negative and statistically significant for both congressional and presidential elections. The Republican vote share in *Watershed* counties is about 4.1 percentage points lower in House elections, and 3.4 percentage points lower in Presidential elections. The decrease in Republican vote share is even lower in *Shoreline* counties: 4.8 percentage points in House elections and 3.7 percentage points in presidential elections.[4] Control variables behave largely act as expected.

Next, I investigate whether these effects have changed over time. As the issue of climate change has become more salient, particularly in coastal counties where its effects have become more pronounced, we would expect to see more dramatic shifts away from the Republican party. To assess this, I re-estimate the models from Table 1, but with random coefficients for the coastal parameters, allowing them to vary over time (Beck and Katz 2006, 191-192).[5]

Figure 1 displays the results of the random coefficient models.[6] Figure 1a presents the coefficients for *Watershed* (black) and *Shoreline* (gray) for congressional elections, while Figure 1b presents these same coefficients for presidential elections, respectively.

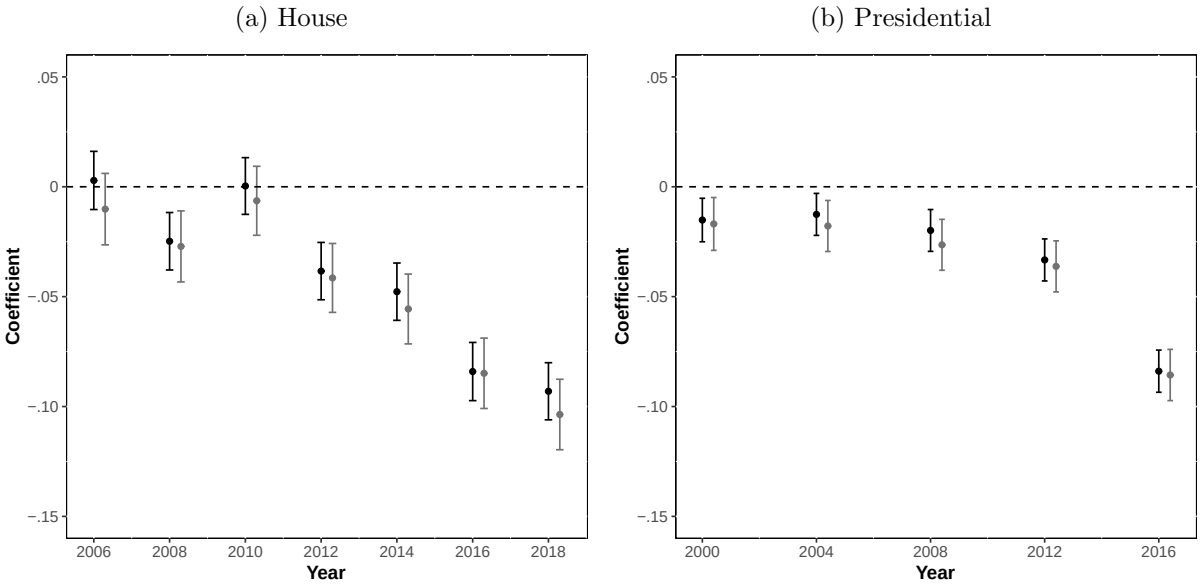
Figure 1 shows that the negative effect of *Watershed* and *Shoreline* has strengthened over time. While only one of the three House elections saw a negative effect for coastal counties on Republican vote share, its magnitude increases sharply in the 2012 election and steadily afterward. Substantively, by the 2018 midterms, the Republican vote share in House elections was 9.3 percentage points lower in *Watershed* counties and 10.4 percentage points lower in *Shoreline* counties, holding all other factors at their means. A similar dynamic is observed in presidential elections. While coastal counties consistently had a negative effect on the Republican vote share, the effect began to shift from marginal in the early aughts, increased slightly during 2008 and 2012 elections, and further in the mid-2010s. In the 2016

[4]The results are almost identical when using state and year fixed effects. See online appendix.

[5]A benefit of the multi-level modeling approach is that it easy accommodates time-varying parameters (Gelman and Hill 2006, 254-275). For an example of a similar modeling approach, see Nieman and Thies (2019).

[6]A table with the full results is available in Table 2 in the online appendix.

Figure 1: Coastal Counties and Republican Vote Share, Time-varying Effects.



Note: Subfigure (a) reports the coefficient of *Watershed* (black) and *Shoreline* (gray) for the Republican share of the two-party US House vote, while subfigure (b) reports the same coefficients for the Republican share of the two-party US Presidential vote. Estimated random coefficients from Table 2.

presidential election, the Republican vote share was 8.4 percentage points lower in *Watershed* counties and 8.6 percentage points lower in *Shoreline* counties, all else equal.

Conclusion

As the consequences of climate change become more evident, so too do its political effects. While media coverage of climate change often separates the discussion of impacts and political action (Hart and Feldman 2014), this distinction becomes less meaningful as individuals increasingly experience climate change impacts first-hand. Currently, only politically sophisticated voters are able to reconcile their environmental and economic values (Kellstedt et al. 2017), but as the economic costs of climate change become increasingly clear (Burke, Hsiang and Miguel 2015), a broader range of votes are likely to link the environment

to their economic well-being.

A convergence of environmental and economic values may also counteract the partisan divide in climate change beliefs. While many view the partisan divide with pessimism (e.g., Guber 2013; Zhou 2016), others argue that it stems from an effort to form accurate beliefs with variation in what evidence is credible (Druckman and McGrath 2019). If the latter is true, individuals in areas that see tangible impacts from climate change will update their beliefs accordingly and vote for political parties that reflect those beliefs. Such changing policy issue concerns are likely to filter upwards to political parties (Spoon and Klüver 2014).

This research note provides some evidence for the latter perspective. Namely, climate change impacts electoral outcomes. In areas that observe clear, tangible effects from climate change, such as coastal counties in the US, political parties that downplay climate change as a political issue see decreases in their vote share. While there are still considerable constraints facing policy action to combat climate change, these results offer some limited optimism.

References

Båtstrand, Sondre. 2015. "More than Markets: A Comparative Study of Nine Conservative Parties on Climate Change." *Politics & Policy* 43(4):538–561.

Beck, Nathaniel and Jonathan Katz. 2006. "Random Coefficient Models for Time-Series-Cross-Section Data: Monte Carlo Experiments." *Political Analysis* 15(2):182–195.

Bergquist, Parrish and Christopher Warshaw. 2019. "Does Global Warming Increase Public Concern about Climate Change?" *Journal of Politics* 81(2):686–691.

Brody, Samuel D., Sammy Zahran and Arnold Vedlitz. 2008. "Examining the Relationship Between Physical Vulnerability and Public Perceptions of Global Climate Change in the United States." *Environment and Behavior* 40(1):72–95.

Burke, Marshall, Solomon M. Hsiang and Edward Miguel. 2015. "Global Non-linear Effect of Temperature on Economic Production." *Nature* 527:235–239.

Carter, Neil. 2013. "Greening the Mainstream: Party Politics and the Environment." *Environmental Politics* 22(1):73–94.

Chyzh, Olga and R. Urbatsch. 2019. "Bean Counters: The Effect of Soy Tariffs on Change in Republican Vote Share Between the 2016 and 2018 Elections.". Working paper. URL: http://www.olgachyzh.com/research/.

Democratic Platform. 2016. URL: www.democrats.org.

Druckman, James N. and Mary C. McGrath. 2019. "The Evidence for Motivated Reasoning in Climate Change Preference Formation." *Nature Climate Change* 9:111–119.

Egan, Patrick and Megan Mullin. 2012. "Turning Personal Experience into Political Attitudes: The Effect of Local Weather on Americans' Perceptions about Global Warming." *Journal of Politics* 74(3):796–809.

Egan, Patrick and Megan Mullin. 2017. "Climate Change: U.S. Public Opinion." *Annual Reviews of Political Science* 20:209–27.

Free, Christopher. 2019. "Climate Change is Already Reshaping Commercial Fishing.". Published on March 26. URL: https://www.barrons.com/articles/climate-change-is-already-reshaping-commercial-fishing-51553605227.

Friedman, Jeffrey. 2019. "Priorities for Preventive Action: Explaining Americans' Divergent Reactions to 100 Public Risks." *American Journal of Political Science* 63(1):181–196.

Gelman, Andrew and Jennifer Hill. 2006. *Data Analysis using Regression and Multilevel/Hierarchical Models*. Cambridge University Press.

Guber, Deborah Lynn. 2013. "A Cooling Climate for Change? Party Polarization and the Politics of Global Warming." *American Behavioral Scientist* 57(1):93–115.

Hart, P. Sol and Lauren Feldman. 2014. "Threat Without Efficacy? Climate Change on U.S. Network News." *Science Communication* 36(3):325–351.

Hayes, Samuel P. 2000. *A History of Environmental Politics Since 1945*. University of Pittsburgh Press.

Hendrix, Cullen S. and Idean Salehyan. 2012. "Climate Change, Rainfall, and Social Conflict in Africa." *Journal of Peace Research* 49(1):35–50.

Hornsey, Matthew J., Emily A Harris, Paul G. Bain and Kelly S. Fielding. 2016. "Meta-analyses of the Determinants and Outcomes of Belief in Climate Change." *Nature Climate Change* 6:622–626.

Jensen, Christian B. and Jae-Jae Spoon. 2011. "Testing the 'Party Matters' Thesis: Explaining Progress Towards Kyoto Protocol." *Political Studies* 59(1):99–115.

Kellstedt, Paul, Mark D. Ramerez, Arnorld Vedlitz and Sammy Zahran. 2017. "Does Political Sophistication Minimize Value Conflict? Evidence from a Heteroskedastic Graded IRT Model of Opinions Toward Climate Change." *British Journal of Political Science* doi:10.1017/S0007123417000369.

Layne, Rachel. 2019. "In New England, Home Prices Fall as Seas Rise." CBS News. Published on January 24. URL: https://www.cbsnews.com/news/climate-change-in-new-england-home-prices-fall-as-seas-rise/.

Lee, Sojeong and Sara McLaughlin Mitchell. 2019. "Energy Resources and the Risk of Conflict in Shared River Basins." *Journal of Peace Research* 56(3):336–351.

Leip, David. 2019. "Atlas of U.S. Presidential Elections." URL: https://uselectionatlas.org.

Lewis, Roger. 2019. "Factoring the Effects of Climate Change into Real Estate Investments." Washington Post. Published March 8. URL: https://www.washingtonpost.com/realestate/factoring-the-effects-of-climate-change-into-real-estate-investments/2019/03/07/aa60f186-3f7f-11e9-a0d3-1210e58a94cf_story.html?noredirect=onutm_term=.cb5f02d6ac20.

Linke, Andrew, Frank D.W. Witmer, John O'Loughlin, J. Terrence McCabe and Jaroslav Tir. 2018. "Drought, Local Institutional Contexts, and Support for Violence in Kenya." *Journal of Conflict Resolution* 62(7):1544–1578.

Mach, Katharine J., Caroline M. Kraan, W. Neil Adger, Halvard Buhaug, Marshall Burke, James D. Fearon, Christopher B. Field, Cullen S. Hendrix, Jean-Francois Maystadt, John O'Loughlin, Philip Roessler, Jürgen Scheffran, Kenneth A. Schultz and Nina von Uexkull. 2019. "Climate as a Risk Factor for Armed Conflict." *Nature* pp. 1–5.

Mildenberger, Matto, Peter Howe, Erick Lachapelle, Leah Stokes, Jennifer Marlon and Timothy Gravelle. 2016. "The Distribution of Climate Change Public Opinion in Canada." *PloS One* 11(8):e0159774.

MIT Election Data and Science Lab. 2018. "County Presidential Election Returns 2000-2016." URL: https://doi.org/10.7910/DVN/VOQCHQ.

Nai, Alessandro, Yves Schemeil and Jean-Louis Marie. 2017. "Anxiety, Sophistication, and Resistance to Persuasion: Evidence from a Quasi-Experimental Survey on Global Climate Change." *Political Psychology* 38(1):137–156.

Nardulli, Peter F., Buddy Peyton and Joseph Bajjalieh. 2015. "Climate Change and Civil Unrest: The Impact of Rapid-onset Disasters." *Journal of Conflict Resolution* 59(2):310–335.

Nieman, Mark David and Cameron G. Thies. 2019. "Property Rights Regimes, Technological Innovation, and Foreign Direct Investment." *Political Science Research and Methods* 7(3):451–469.

NOAA. 2017. "Coastal County Definitions." Published in November. URL: https://coast.noaa.gov/data/digitalcoast/pdf/qrt-coastal-county-definitions.pdf.

Poushter, Jacob and Christine Huang. 2019. "Climate Change Still Seen as the Top Global Threat, but Cyberattacks a Rising Concern." Pew Research Center. Published February 10. URL: https://www.pewresearch.org/global/2019/02/10/climate-change-still-seen-as-the-top-global-threat-but-cyberattacks-a-rising-concern/.

Republican Platform. 2016. URL: www.gopconvention2016.com.

Salehyan, Idean. 2008. "From Climate Change to Conflict? No Consensus Yet." *Journal of Peace Research* 45(3):315–326.

Spoon, Jae-Jae and Heike Klüver. 2014. "Do Parties Respond? How Electoral Context Influences Party Responsiveness." *Electoral Studies* 35(1):48–60.

Stokes, Leah. 2016. "Electoral Backlash against Climate Policy: A Natural Experiment on Retrospective Voting and Local Resistance to Public Policy." *American Journal of Political Science* 60(4):958–974.

Tir, Jaroslav and Douglas M. Stinnett. 2012. "Weathering Climate Change: Can Institutions Mitigate International Water Conflict?" *Journal of Peace Research* 49(1):211–225.

US Bureau of Economic Analysis. 2019. "Regional Economic Accounts." URL: https://apps.bea.gov/regional.

US Census. 2019. "Population Estimates Program." URL: https://www.census.gov/programs-surveys/popest.

US Department of Agriculture. 2019. "Economic Research Service." URL: https://www.ers.usda.gov/data-products/county-level-data-sets.

Volodzko, David. 2019. "Trump's Climate Denial Is A National Security Threat." Forbes. Published February 23. URL: https://www.forbes.com/sites/davidvolodzko/2019/02/23/manufacturing-climate-denial-is-a-threat-to-manufacturing/718f883721b9.

Vora, Shivani. 2018. "Travel Tackles Climate Change." New York Times. Published on December 2. URL: https://www.nytimes.com/2018/12/02/climate/travel-tackles-climate-change.html.

Williams, Geoff. 2019. "How Climate Change Could Impact Your Home Value." US News. Published on March 29. URL: https://realestate.usnews.com/real-estate/articles/how-climate-change-could-impact-your-home-value.

Zhou, Jack. 2016. "Boomerangs versus Javelins: How Polarization Constrains Communication on Climate Change." *Environmental Politics* 25(5):788–811.

Online Appendix

This appendix contains several additional models. First, I report the full estimated model used to construct Figure 1 in Table 2. Next, Table 3 shows that the main table in the manuscript is robust to modeling fixed effects. Finally, Table 4 repeats this robustness check with the random coefficient model; here, election year fixed effects are interacted with the independent variable.

Table 2: Coastal Counties and Republican Vote Share, Time-varying Effects

	House				Presidential			
	β	SE	β	SE	β	SE	β	SE
Watershed 2000					-0.015	(0.005)		
Shoreline 2000							-0.017	(0.006)
Watershed 2004					-0.013	(0.005)		
Shoreline 2004							-0.018	(0.006)
Watershed 2006	0.003	(0.007)						
Shoreline 2006			-0.010	(0.008)				
Watershed 2008	-0.025	(0.007)			-0.020	(0.005)		
Shoreline 2008			-0.027	(0.008)			-0.026	(0.006)
Watershed 2010	0.001	(0.006)						
Shoreline 2010			-0.006	(0.008)				
Watershed 2012	-0.038	(0.007)			-0.033	(0.005)		
Shoreline 2012			-0.041	(0.008)			-0.036	(0.006)
Watershed 2014	-0.048	(0.007)						
Shoreline 2014			-0.056	(0.008)				
Watershed 2016	-0.084	(0.007)			-0.084	(0.005)		
Shoreline 2016			-0.085	(0.008)			-0.086	(0.006)
Watershed 2018	-0.093	(0.006)						
Shoreline 2018			-0.104	(0.008)				
Black, logged	-0.036	(0.002)	-0.038	(0.002)	-0.042	(0.001)	-0.044	(0.001)
Latinx, logged	-0.006	(0.002)	-0.007	(0.002)	-0.015	(0.002)	-0.016	(0.002)
Other, logged	-0.030	(0.002)	-0.028	(0.002)	-0.019	(0.002)	-0.018	(0.002)
Unemployment	-0.015	(0.001)	-0.015	(0.001)	-0.018	(0.001)	-0.018	(0.001)
Urbanization	-0.057	(0.004)	-0.057	(0.004)	-0.047	(0.003)	-0.047	(0.003)
High-school	0.001	(0.001)	0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)
Bachelor's	-0.002	(0.001)	-0.002	(0.001)	-0.003	(0.001)	-0.003	(0.001)
GDP, logged	0.051	(0.012)	0.054	(0.013)	-0.058	(0.011)	-0.053	(0.011)
Constant	0.589	(0.028)	0.586	(0.028)	0.561	(0.029)	0.560	(0.028)
Variance								
State	0.011		0.012		0.015		0.015	
Year	0.004		0.004		0.002		0.002	
Residual	0.018		0.018		0.010		0.010	
Observations	19754		19754		15196		15196	
States	49		49		49		49	
Years	7		7		5		5	

Note: Dependent variable is Republican share of the two-party vote for a county. Pooled US House elections for 2006–2018. Pooled US presidential elections for 2000–2016.

Table 3: Coastal Counties and Republican Vote Share, State and Year Fixed Effects

	House				Presidential			
	β	SE	β	SE	β	SE	β	SE
Watershed	-0.040	(0.003)			-0.034	(0.003)		
Shoreline			-0.047	(0.004)			-0.037	(0.003)
Black, logged	-0.037	(0.002)	-0.038	(0.002)	-0.044	(0.001)	-0.045	(0.001)
Latinx, logged	-0.006	(0.002)	-0.007	(0.002)	-0.015	(0.002)	-0.016	(0.002)
Other, logged	-0.028	(0.002)	-0.028	(0.002)	-0.016	(0.002)	-0.016	(0.002)
Unemployment	-0.014	(0.001)	-0.014	(0.001)	-0.018	(0.001)	-0.018	(0.001)
Urbanization	-0.065	(0.004)	-0.064	(0.004)	-0.053	(0.003)	-0.052	(0.003)
High-school	0.001	(0.001)	0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)
Bachelor's	-0.002	(0.001)	-0.002	(0.001)	-0.003	(0.001)	-0.003	(0.001)
GDP, logged	0.104	(0.023)	0.105	(0.023)	-0.105	(0.015)	-0.105	(0.015)
Constant	0.657	(0.013)	0.655	(0.013)	0.582	(0.013)	0.579	(0.013)
Observations	19754		19754		15196		15196	

Note: Dependent variable is Republican share of the two-party vote for a county. Pooled US House elections for 2006–2018. Pooled US presidential elections for 2000–2016. State and year fixed effects are not reported.

Table 4: Coastal Counties and Republican Vote Share, State and Year Fixed Effects with Time-varying Effects

	House				Presidential			
	β	SE	β	SE	β	SE	β	SE
Watershed 2000					-0.013	(0.005)		
Shoreline 2000							-0.016	(0.006)
Watershed 2004					-0.011	(0.005)		
Shoreline 2004							-0.017	(0.006)
Watershed 2006	0.003	(0.007)						
Shoreline 2006			-0.011	(0.008)				
Watershed 2008	-0.024	(0.007)			-0.020	(0.005)		
Shoreline 2008			-0.026	(0.008)			-0.027	(0.006)
Watershed 2010	0.001	(0.006)						
Shoreline 2010			-0.006	(0.008)				
Watershed 2012	-0.037	(0.007)			-0.035	(0.005)		
Shoreline 2012			-0.040	(0.008)			-0.037	(0.006)
Watershed 2014	-0.046	(0.007)						
Shoreline 2014			-0.054	(0.008)				
Watershed 2016	-0.083	(0.007)			-0.084	(0.005)		
Shoreline 2016			-0.084	(0.008)			-0.086	(0.006)
Watershed 2018	-0.092	(0.007)						
Shoreline 2018			-0.103	(0.008)				
Black, logged	-0.036	(0.002)	-0.038	(0.002)	-0.043	(0.001)	-0.044	(0.001)
Latinx, logged	-0.006	(0.002)	-0.007	(0.002)	-0.015	(0.002)	-0.016	(0.002)
Other, logged	-0.030	(0.002)	-0.029	(0.002)	-0.018	(0.002)	-0.016	(0.002)
Unemployment	-0.015	(0.001)	-0.015	(0.002)	-0.018	(0.001)	-0.018	(0.001)
Urbanization	-0.057	(0.004)	-0.057	(0.004)	-0.046	(0.003)	-0.047	(0.003)
High-school	0.001	(0.001)	0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)
Bachelor's	-0.002	(0.001)	-0.002	(0.001)	-0.003	(0.001)	-0.003	(0.001)
GDP, logged	0.088	(0.023)	0.098	(0.023)	-0.119	(0.015)	-.112	(0.015)
Constant	0.643	(0.013)	0.649	(0.013)	0.568	(0.013)	0.572	(0.013)
Observations	19754		19754		15196		15196	

Note: Dependent variable is Republican share of the two-party vote for a county. Pooled US House elections for 2006–2018. Pooled US presidential elections for 2000–2016. State and year fixed effects are not reported.