



# Judicial Elections, Public Opinion, and Decisions on Lower-Salience Issues

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Scholarship finds that in states with judicial elections, public opinion affects judges' decisions on hot-button campaign issues such as the death penalty or marijuana legalization. Yet the literature leaves open the question of how public opinion affects judicial decisions on less salient issues, which not only dominate the dockets of state supreme courts but also encompass areas of major legal and policy significance. We consider one such issue that infrequently emerges in judicial campaigns, environmental law. Specifically, we collect an original dataset of over 5,000 judicial votes on nearly 1,000 cases heard in 40 state supreme courts from 1990–2014. We find that for the dataset as a whole, there is not a significant effect of public opinion on judicial decisions in any of the major judicial selection systems. However, in the few states in which environmental issues have been the subject of campaign attack ads, we find evidence of such a relationship during the years following the ads. These results contribute to a growing literature that suggests elections can reduce judicial independence from public opinion.

## I. INTRODUCTION

Democracies have long grappled with the tension between judicial independence and accountability. On the one hand, independence from public opinion and other political pressures promotes valuable societal ends such as civil liberties and neutrality in dispute resolution (e.g., Cameron 2002). On the other hand, judicial accountability is often favored by the public and can increase the legitimacy of the courts (e.g., Gibson 2006). Across the U.S. states, courts of last resort or “state supreme courts” exhibit great variation

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in the ways these goals are balanced.<sup>1</sup> Some states choose justices through partisan elections that are similar to ones for the legislative branch. Other states use contested elections but require the ballot to be nonpartisan, akin to the nonpartisan elections that exist in many localities for offices such as mayor. Increasingly, states have chosen to use the “merit” or “retention-commission” plan, which combines appointment with retention elections. In the canonical version of this system, a commission sends a list of nominees to the governor, who makes the initial appointment, after which incumbent justices face periodic uncontested elections in which they retain office given a sufficient threshold of votes. Yet other states select judges through political appointment by other elected officials such as legislators and the governor.

A variety of research argues that the method of judicial selection affects the impact of public opinion on judicial decision making (e.g., Franklin 2002; Kritzer 2015). This scholarship focuses on the salient, hot-button issues that dominate judicial campaigns such as the death penalty and crime (e.g., Gordon & Huber 2007; Brace & Boyea 2008), abortion (Caldarone et al. 2009), and marijuana legalization (Nelson 2014).<sup>2</sup> Yet these high-salience issues are only a minority of the thousands of cases heard by the state supreme courts every year. Moreover, the lower-salience issues include ones of major legal and policy consequence such as challenges to state regulatory actions, conflicts between businesses and consumers, and torts more generally. Despite this significance, the effects of public opinion on judicial decisions for these types of issues has not received much attention from scholars.<sup>3</sup> The consequence is that the literature’s findings are largely based on judicial behavior that is unrepresentative of the work that comprises most of what state supreme court justices do.

The broader literature on representation, which analyzes federal and state institutions beyond the state supreme courts, suggests a variety of potential effects of public opinion for this wider set of issues. Some research indicates that officials are significantly responsive to the public’s general ideological leanings, including in courts with lifetime appointments (e.g., Erikson et al. 2002; Epstein & Martin 2011). Other studies find that policy is driven primarily by organized interests and officials’ own policy preferences, leading to a lack of responsiveness even from political offices that entail regular elections (e.g., Jacobs & Shapiro 2000; Lee et al. 2004). The literature accordingly leaves open the possibility that elected as well as appointed state judges may, or may not, be responsive to public opinion on less salient issues.

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<sup>1</sup>Although not all state courts of last resort are officially called supreme courts, such as the New York Court of Appeals, we use these terms interchangeably.

<sup>2</sup>An important exception is Kritzer (2015:73), who examines tort cases from 1995–1998 and finds “the inconsistent nature of the effects ... precludes drawing clear conclusions ....” Separately, there is research that analyzes selection system effects that are unrelated to public opinion, such as productivity, and groups all areas of law together (e.g., Choi et al. 2010).

<sup>3</sup>Some research analyzes the impact of campaign contributions for issues of lower salience, but this work does not examine the effect of public opinion (e.g., Ware 1999).

We address this question by collecting original data on an issue of low to moderate salience in state judicial campaigns, namely, environmental law. The issue presents a useful combination of importance and salience. It is a regular topic in the state courts, with significant implications for environmental policy and outcomes (e.g., Echeverria 2015; Kane 2017). At the same time, and as a report on the 2013–2014 judicial elections suggests, these cases do not garner even remotely the same level of coverage as ones involving criminal justice or family values (Greytak et al. 2015:60). As the article proceeds, we verify this lower degree of salience for other years.

The main analysis, the examination of judicial decisions, covers environmental issues including permits, violations, challenges to existing laws, and damages. Across the years and states, the data encompass all the major selection systems: partisan elections, nonpartisan elections, commission-retention systems, and ones based purely on appointment. As a part of the undertaking, we also collect data on campaign advertising and employ original estimates of state-level public opinion about environmental policy.

The analyses produce two main sets of findings. First, in the tests of the full dataset, we find that public opinion is not significantly related to how judges vote. This finding holds not only in the systems with appointment and retention elections, but also in ones with partisan and nonpartisan contested elections. Factors such as the type of case and the judge's party matter, as in previous research, but neither public opinion on the environment nor more general state ideology is found to be positively related to judicial decisions. However, the second main finding is that advertisements in states with contested elections are associated with subsequent judicial responsiveness to public opinion in these states. In particular, in the few states in which campaign advertisements attack a sitting justice over a previous environmental decision, the justices become responsive to public opinion in the years following the attack. This result suggests that even on an issue of relatively moderate salience, elections can readily induce the courts to become responsive to plebiscitary pressures. The result also helps illustrate how the relationship between public opinion and judicial voting varies with the political and electoral salience of an issue.

The article is organized as follows. Section II offers a brief history of recent developments in judicial campaigns, and Section III reviews the relevant scholarship on state judicial selection systems as well as the broader theoretical literature on representation. Section IV describes the data, including the cases, judge-votes, and campaign advertisements. In Section V, we discuss the empirical specifications and results. Section VI concludes by discussing the implications of the findings for understanding the interaction of selection systems, public opinion, and judicial decisions.

## II. DEVELOPMENTS IN JUDICIAL CAMPAIGNS

In recent decades, judicial election campaigns have become more similar to those for other elected offices such as legislators. These elections, which scholars dub “new-style judicial campaigns” (e.g., Hojnacki & Baum 1992; Gibson 2008), have since 1980 become increasingly expensive, higher profile, and more likely to involve substantial interest group

participation. Indeed, the elections have come to resemble ones for legislative and political offices (e.g., Geyh 2003).<sup>4</sup> Correspondingly, since 2004 more than 60 percent of contested state supreme court races have involved television advertising (Kritzer 2015:165).<sup>5</sup>

Alongside these developments, campaign ads have become more issue based and likely to attack sitting judges for their votes (e.g., Schotland 2003; Hall 2015). Unlike congressional campaigns, however, judicial attack ads tend to focus on similar issues across years and races. In particular, criminal justice issues such as the death penalty and sentencing are by far the most common topic, with “family values” a distant second (Greytak et al. 2015:60). For instance, in 2013–2014 almost 22,000 judicial election ads concerned criminal justice and approximately 10,000 family values; by comparison, environmental law does not even rank as a separate category within the top themes of advertisements (Greytak et al. 2015:60). This dominance of issues that are not primarily about business does not mean that business groups are sitting out these elections, however. To the contrary, as Baum (2017:910–11) notes, “business-sponsored television commercials often focus on criminal justice rather than on the issues that actually concern the sponsors.” Groups have adopted this strategy given that public opinion overwhelmingly favors prosecution positions, thus it is easier to rally voters to oppose a judge’s reelection for “soft on crime” decisions than for anti-business ones.<sup>6</sup>

Consistent with these efforts, research suggests that the advertising campaigns affect election outcomes (e.g., Baum et al. 2017). Numerous studies document cases in which judges have been attacked for their death penalty or other criminal justice votes and subsequently lost a contested or retention election (e.g., Wold & Culver 1987; Reid 1999). Likewise, in 2010 three Iowa Supreme Court justices lost retention elections after well-financed interest groups ran advertising that criticized the justices’ support for same-sex marriage (e.g., Clopton & Peters 2013). More generally, there is evidence that attack ads reduce incumbents’ vote shares, particularly in nonpartisan election systems (Hall 2015).

All these developments lend credence to the idea that the new-style judicial campaign potentially infringes on judges’ ability to decide cases impartially from public passions (e.g., Franklin 2002). Indeed, scholarship suggests elections affect state supreme court justices’ decision making for the sorts of hot-button issues that are central to judicial campaigns (e.g., Brace & Boyea 2008; Caldarone et al. 2009; Kritzer 2015). However,

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<sup>4</sup>Kritzer (2011, 2015:167) finds that the competitiveness of judicial elections has not strengthened outside the South. However, he recognizes that aggregate advertising and spending have increased since 1980, leveling off in the first decade of the 21st century.

<sup>5</sup>The opportunity for judicial candidates to voice their positions more openly increased after the U.S. Supreme Court’s decision in *Republican Party of Minnesota v. White*, 536 U.S. 765 (2002). In that decision, the Court ruled that state court judges could advertise policy positions conditional on not promising to rule in any particular direction on specific cases.

<sup>6</sup>It is worth noting that even though attack ads are a notable portion of judicial campaign advertisements, these campaigns also have a significant portion of positive ads that promote a candidate without criticizing the opponent (e.g., Hall 2015; Kritzer 2015). For instance, Kritzer (2015:167) shows that between 2000 and 2012, attack ads constituted between 12 percent and 24 percent of the airings, while positive advertisements constituted between 66 percent and 76 percent of the airings.

the question remains: How has the new-style campaign affected decisions on the lower-salience issues that are not typically the subjects of campaign advertisements but dominate the dockets of the state supreme courts? On these issues, we know little about the impact of elections or the new-style campaign on judicial decisions.

### III. RELATED LITERATURE

Various studies analyze how judicial selection affects behavior in the state supreme courts. Most of this work focuses on aspects of judicial decision making other than responsiveness to public opinion. For instance, Choi et al. (2010) find that judges in elected systems hear more cases whereas appointed judges write higher-quality decisions. Other scholarship analyzes campaign contributions and suggests that business contributions are associated with pro-business decisions in systems with partisan elections but not in ones with nonpartisan elections (e.g., Kang & Shepherd 2011).<sup>7</sup>

A subset of this literature explicitly examines the impact of public opinion on state supreme court behavior.<sup>8</sup> Comparisons of elected versus appointed systems indicate that elections induce greater responsiveness to public opinion on issues including the death penalty and abortion (e.g., Brace & Boyea 2008; Caldarone et al. 2009). Several studies that distinguish among types of elections suggest that responsiveness is higher in systems with nonpartisan elections than in ones with partisan elections (e.g., Caldarone et al. 2009; Canes-Wrone et al. 2014; Kritzer 2015; Nelson 2017).<sup>9</sup> These findings support the theory of partisan signals, whereby in nonpartisan election systems the lack of a party label increases the potential for judicial decisions to characterize a judge's ideological leanings (e.g., Canes-Wrone & Shotts 2007). As mentioned earlier, however, this scholarship focuses on the high-salience issues that dominate attack ads.<sup>10</sup>

Cann and Wilhelm (2011) address the matter of salience explicitly, analyzing media coverage of specific cases. More specifically, they examine a cross-section of cases from

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<sup>7</sup>Most research on judicial campaign contributions deals with the possibility of reverse causality (i.e., that judges attract contributions from like-minded groups) by controlling for judicial ideology rather than explicitly modeling the potential endogeneity. An exception is Cann (2007:289), who uses an instrumental variables approach to analyze the effect of contributions from lawyers.

<sup>8</sup>A related literature examines whether trial court judges are responsive to public opinion in their sentencing behavior. For instance, Kuklinski and Stanga (1979) examine this topic for California superior court judges, Gibson (1980) for Iowa circuit court judges, and Huber and Gordon (2004) for Pennsylvania trial court judges.

<sup>9</sup>Research on trial courts also compares among types of selection systems although the election environment for these judges is typically quite different in scale than that for a state supreme court position (e.g., Gordon & Huber 2007; Lim 2013; Lim et al. 2015).

<sup>10</sup>Baum et al. (2017) show that interest group activity in personal injury law has affected Ohio Supreme Court election outcomes, and that this electoral selection has had implications for the rulings emerging from the court. This research does not examine whether the individual justices are responding to public opinion in an attempt to avoid losing office, however.

Brace and Hall's (2001) database of 1995–1998 decisions and find that media coverage is associated with a greater likelihood that a judge's decision reflects the general ideology of the state (as measured by the ideologies of other elected officials) in systems with contested elections. Because their research combines a wide range of issues, it is not possible to know whether the impact derives primarily from a few hot-button issues, such as the death penalty and criminal justice, or is more evenly distributed across issues; it is possible that no responsiveness to public opinion exists outside of high-salience issues. Also unlike our analysis, Cann and Wilhelm do not measure public opinion directly but instead employ estimates based on interest group ratings of legislative incumbents. Still, their analysis provides important evidence that judges are concerned with the likelihood that voters learn about decisions, at least for salient cases.

While the literature on the courts has not focused on issues of lower and moderate salience, at least three general theoretical perspectives offer germane predictions. First, a major perspective from political science is “dynamic representation,” whereby policy making responds dynamically to change in mass opinion due both to turnover in officeholders and proactive efforts by officials within their terms (e.g., Stimson et al. 1995; Erikson et al. 2002). The perspective focuses primarily on federal elected offices, but also provides evidence of responsiveness for the U.S. Supreme Court. The analysis is not at the level of individual issues; instead, it suggests that as the public mood becomes more liberal (conservative), policy making will move in a liberal (conservative) direction. Thus, variation in responsiveness between lower- and higher-salience issues is not an explicit part of the analysis. Nor does the perspective directly consider nonpartisan or retention elections. However, at least for judges in systems with partisan elections or appointment, dynamic representation is consistent with a world in which mass opinion has a significant effect on judicial decision making. Moreover, given the logical foundations, it seems reasonable to extrapolate that this responsiveness should extend to other types of electoral systems.

An alternative perspective to dynamic representation is proposed in research that suggests U.S. politicians are generally unresponsive to public opinion, instead catering to the ideological goals of contributors, parties, and their own personal preferences (e.g., Jacobs & Shapiro 2000; Lee et al. 2004; Barber 2016). Scholars have even expressed concern about “leapfrog” democracy, where policy swings wildly based on the party of a representative and does not reflect constituents' preferences (e.g., Bafumi & Herron 2010). Although that research focuses on offices associated with partisan elections, many of the theoretical foundations, such as officials' inclination to cater to personal preferences or contributors, could apply to other selection systems. Moreover, given the common assertion that courts—even elected ones—should be less politically accountable than other branches of government,<sup>11</sup> the perspective indicates that mass opinion may have no direct influence on judicial behavior. In other words, the responsiveness that

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<sup>11</sup>The seemingly simple matter of defining judicial independence and establishing its origins and consequences is deceptively complex. See Burbank and Friedman (2002) for a broad overview of the myriad perspectives on this issue.

some research has demonstrated with respect to a few hot-button issues should be an exception to a broader pattern of independence from public opinion.

A third perspective, which forms a bridge between the contrasts of the first two, is from work that focuses on issue salience. Numerous studies suggest the salience of a policy area affects elected politicians' responsiveness to public opinion (e.g., Schattschneider 1960; Page & Shapiro 1983; Lax & Phillips 2012). Lax and Phillips (2012), for instance, show that state government policy (i.e., by the legislature and governor) responds to change in mass opinion and that this responsiveness depends significantly on an issue's salience. While they find evidence of responsiveness broadly, the strongest effects are for those areas that receive extensive media attention.<sup>12</sup> The policy areas that Lax and Phillips examine are all of reasonable levels of media salience, however, so it is not clear how the results translate to a broader set of policies.

Overall, the literatures on judicial politics and representation offer a variety of predictions on whether state supreme court justices should be responsive to public opinion on an issue of low or moderate salience. Some work indicates that there should be significant responsiveness across all systems. Other research suggests the responsiveness is likely to be higher in electoral systems, particularly nonpartisan ones. Yet other work indicates that there should not be significant responsiveness in any of the systems. And yet other scholarship indicates that whatever responsiveness exists should correspond to variation in the salience of the issue, as well as be lower on average than that for the high-salience issues that dominate judicial campaigns. The following empirical analysis discriminates among these competing predictions.

## IV. DATA

### *A. Main Sample of Cases*

We analyze the empirical support for these divergent perspectives using environmental law cases issued by state courts of last resort from 1990 through 2014. The issue of the environment has several advantages for purposes of this analysis. First, as previously discussed, the issue is not typically central to judicial campaigns and is therefore of low to moderate salience. Of course, the salience of environmental issues varies across states and time, and the analysis of campaign advertisements below demonstrates that when environmental issues are electorally salient, the relationship between judicial behavior and public opinion changes. Still, as this analysis will verify, it is unusual for the issue to emerge in campaigns. In addition to verifying the lower level of salience in campaigns, we have compared Internet search activity on the environment to that on the issues of the death penalty and abortion using Google Trends, following previous work that uses Google Trends to measure salience (e.g., McCallum & Bury 2013; Mellon 2013). The

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<sup>12</sup>A related but separate tradition is the study of case salience (e.g., Bailey & Maltzman 2011; Cann & Wilhelm 2011). As discussed earlier, existing research on state supreme courts has not previously examined how case salience varies within a given area of law.

comparison suggests that the environment is less salient than either the death penalty or abortion, both over time and across the states.<sup>13</sup>

Second, despite not being a hot-button campaign issue, environmental policy is salient enough that we can collect public opinion data. The analysis can accordingly include estimates of pro-environment public opinion for each state and year. Third, there are multiple types of cases in which the judge's decision is over whether to support an outcome that the public would view as pro-environment due to the outcome involving stricter interpretation of environmental laws or regulatory enforcement. Thus, the cases readily align with a pro-environment scale.

More specifically, we consider four categories of routine civil environmental cases: permitting, challenges to existing laws, violations, and damages. Permitting cases involve situations such as a developer or landowner objecting to a permit denial or an environmental organization objecting to an approval. Challenges to existing laws or ordinances include constitutional challenges, procedural challenges to regulatory authority, and objections to ballot initiative language, among other issues. By comparison, violation cases center on enforcement of existing environmental laws. Finally, the category of damages encompasses tort and other actions to remedy health or property injuries arising from environmental contamination. In focusing on these types of cases, the analysis avoids those that arguably touch on environmental issues but are primarily about other matters, such as disputes over ownership of water. In addition, we do not examine criminal cases because the previous literature suggests the impact of public opinion may differ for criminal justice issues and, separately, the prosecutor must prove guilt beyond a reasonable doubt, a much higher standard of proof than for civil cases.<sup>14</sup>

We collected data on all civil cases from these categories in states with standard systems of partisan elections, nonpartisan elections, commission-based selection combined with retention elections, and appointment. The method of judicial selection was determined from the National Center for State Courts "Judicial Selection in the States" website.<sup>15</sup> Because the theoretical focus is on judges' concerns about reelection or reappointment, states are coded by reselection procedure rather than initial selection. Thus Pennsylvania, in which judges are initially selected through partisan elections and reselected through retention elections, is coded with other retention election states

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<sup>13</sup>The Google Trends data are available since 2004. Mellon (2013) finds that the term "global warming" has the highest validity and correspondence to survey measures of salience, and that the search term "pollution" has content validity. We compared each of these terms to abortion and the death penalty, and neither achieved the same level of salience. Additionally, the main results are not affected by accounting for the variation in salience as measured by Google Trends even though, as later shown, they are affected by the salience associated with campaign ads. A key distinction between Google Trends and the campaign ads is that the latter concern only a small proportion of states and years while the former incorporate more gradual changes in salience across all observations.

<sup>14</sup>Prior research that suggests elections affect judicial decision making often has focused on criminal justice issues (e.g., Huber & Gordon 2004; Lim 2013).

<sup>15</sup>See <http://judicialselection.us> (accessed Jan. 10, 2018).



Table 1: State Selection Systems

<i>Partisan Elections</i>	<i>Nonpartisan Elections</i>	<i>Commission-Retention</i>	<i>Appointment</i>
AL	AR (2001–)	AK	CT
AR (pre-2001)	GA	AZ	HI
NC (pre-2004)	ID	CA	MA**
TN (pre-1994)	MI	CO	ME
TX	MN	FL	NH**
WV	MT	IA	NJ**
	NC (2004–)	IN	NY
	ND	KS	RI**
	NV	MO	SC
	OH	PA	VA
	OR	SD	
	WA	TN (1994–)	
	WI	UT	
		WY	

\*\*System with lifetime appointment (subject to mandatory age-based retirement where relevant). In New Jersey, judges face a seven-year reappointment period, after which they can remain indefinitely until age 70. New Jersey judges are allocated to the lifetime group once reappointed.

despite the fact that it does not have a commission.<sup>16</sup> Excluded are cases from states where justices are selected by district rather than at-large.<sup>17</sup> We also exclude some courts because of lack of comparability. For example, some states have higher thresholds for retaining judges<sup>18</sup> or a separate environmental appellate court.<sup>19</sup>

Table 1 describes the classification of states by selection system.

A few features of the categorization are worth noting. Between 1990 and 2014, some state supreme courts shifted methods of selection. For instance, North Carolina and Arkansas changed from partisan election systems to ones with nonpartisan elections in 2004 and 2001, respectively.<sup>20</sup> Likewise, Tennessee switched from partisan elections to a commission-retention system in 1994. Separately, in a few cases the nomination procedure differs from the general selection method. In particular, Ohio has a partisan

<sup>16</sup>Likewise, California is included with other retention election states, even through the governor makes an initial appointment that is subsequently reviewed by a commission, due to the fact that reselection occurs via retention elections.

<sup>17</sup>These states include Illinois, Louisiana, Kentucky, Maryland, Mississippi, Oklahoma, and Nebraska. However, we include states that the American Judicature Society codes as having statewide retention elections, such as South Dakota (<http://judicialselection.us> (accessed Jan. 10, 2018)).

<sup>18</sup>Since 1989, New Mexico has selected judges through partisan elections and, once elected, judges face retention elections that require 57 percent of the vote to retain their seat. Likewise, we exclude Delaware because it mandates partisan balancing on the court.

<sup>19</sup>This restriction excludes Vermont. Hawaii has had a separate environmental appellate court since 2015.

<sup>20</sup>More recently, North Carolina switched back to a partisan election system in 2016 and West Virginia changed from partisan to nonpartisan elections in 2016.

primary but a nonpartisan general election, while Michigan nominates candidates through a partisan convention followed by a nonpartisan general election. The results are robust to coding Michigan and Ohio as partisan election states.<sup>21</sup> Finally, there are two main types of systems based purely on appointment. Most states require reappointment, typically by elected officials such as the governor and/or legislature.<sup>22</sup> A few state supreme courts have lifetime appointment, including Massachusetts, New Hampshire, and Rhode Island. For simplicity, in most analyses, we present results for all appointment-based systems jointly. In addition, we show findings that differentiate lifetime appointment and reappointment systems; the results do not depend on this classification.

For all states in Table 1, we identified environmental law cases with a Westlaw search of every case appealed to the state supreme court heard between January 1, 1990 and December 31, 2014.<sup>23</sup> The state supreme courts have between five and nine justices and we coded each justice's vote separately, excluding judges sitting by designation or otherwise not active members of the court.<sup>24</sup> This process yielded 924 civil environmental law cases and 5,410 individual judge votes. These data include more than 500 votes cast under each selection system, with the greatest number in the appointment category, which includes 1,829 votes.<sup>25</sup> We carefully read each case, coding for the case type, the prior legal history, and other factors as described below.

## *B. Variables*

The variables concern four main sources of data: the cases, state-level public opinion estimates, judge-level covariates, and campaign advertising. We describe each source in turn.

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<sup>21</sup>These results are available upon request for space reasons. Classifying Ohio and Michigan as nonpartisan election systems is consistent with Bonneau and Hall (2009), Streb and Frederick (2009), and Canes-Wrone et al. (2014) although cf. Bonneau and Cann (2015), which considers them quasi-partisan, and Nelson et al. (2013), who discuss the differing perspectives and argue that elections in Ohio and Michigan could be considered partisan.

<sup>22</sup>We include Hawaii, which both selects and reselects through a commission, because the governor and legislature are heavily involved in the selection of the commission members. All results are robust to excluding Hawaii from the analysis.

<sup>23</sup>Our search query was as follows for cases decided between January 1, 1990 and December 31, 2014: SY, DI(environmental or conservation or wetlands or pollution or pollutants or contamination or groundwater or "natural resources" or "oil #and gas" or sewage or landfill or "hazardous waste" or mining or landfill or water or air or contaminants or "impact assessment" or drilling or fracking or "endangered species" or contaminants or air or water or energy or electric) or SY, DI(permit /p environmental or water or air or mining or drilling or landfill).

<sup>24</sup>We exclude 159 votes because the judge (usually either a retired state supreme court justice or a lower court judge) sat by designation.

<sup>25</sup>These data include all per curiam and unpublished Westlaw cases. However, because the literature at times excludes unpublished cases (e.g., Songer et al. 1994) or types of per curiam cases (e.g., Sala & Spriggs 2004), we have also conducted the analysis without them and the results, which are available upon request, are robust to their exclusion.

## 1. Case-Level Covariates

The main dependent variable is the individual judicial vote. In particular, *Pro-Environment Vote<sub>ij</sub>* is an indicator identifying whether judge *j* voted in a pro-environmental direction in case *i*. Of the votes, 53 percent are in a pro-environmental direction. There is variation across the systems, however. In states with commission-retention systems, 59 percent of the votes are in a pro-environment direction while the respective percentages for systems with partisan elections, nonpartisan elections, and appointment are 48, 50 and 53 percent. (Appendix Table A1 provides descriptive statistics on all variables.)

A key explanatory case-level variable is the system by which judges are selected in a state at the time case *i* is decided. Thus, we create four variables, *Partisan Elections<sub>i</sub>*, *Nonpartisan Elections<sub>i</sub>*, *Commission-Retention<sub>i</sub>*, and *Appointment<sub>i</sub>*, which are binary indicators that equal 1 if case *i* is decided under the given selection system and 0 otherwise. The analysis includes not only these indicators but also interactions between them and the estimates of public opinion, as described below.

For each case, we code legal and factual information. There are numerous fact patterns in environmental cases heard by state supreme courts, ranging from cases dealing with fracking to wetlands permitting to conservation easements on property. We record a series of patterns that determine into which of the four substantive categories a case falls. The indicators *Permitting<sub>i</sub>*, *Violations<sub>i</sub>*, *Challenges<sub>i</sub>*, and *Damages<sub>i</sub>* reflect these categories. Notably, the distribution of the dependent variable varies considerably across them. At one extreme, 64 percent of the judges' votes in violations cases are pro-environment, compared with only 50 percent in permitting cases. Challenges and damages cases fall between these limits, with pro-environment percentages of 54 and 51 percent, respectively.

We also present results with additional controls for the lower court's decision, whether the state has an intermediate appellate court, and, if so, whether the intermediate appellate court upheld or reversed the lower court decision. One might expect that in the absence of discretionary review, the supreme court's ruling would be positively associated with that of the lower court. With discretionary review, this relationship is complicated by the fact that the court may have a heightened incentive to take cases that are likely to be overturned. These variables are included in an alternative specification presented within the text but not as the main specification because a lower or appellate court ruling may itself be affected by public opinion; as subsequently shown, the inclusion does not affect the substantive findings.

## 2. Public Opinion

The analysis requires statewide measures of public opinion about environmental policy. Unfortunately, there do not exist regular polls about environmental policy that include adequate samples to generate state-level estimates of public opinion. Thus, following recent work on measuring public opinion at the state level (e.g., Park et al. 2004; Pacheco 2011; Lax & Phillips 2012), we rely on multilevel regression with poststratification (MRP) to generate a set of state-year estimates of environmental opinion. MRP involves two main

stages. In the first stage, individual responses to polls are modeled as a function of respondents' demographic and geographic characteristics. The second stage then calculates the propensity to express a given position for each possible combination of demographic characteristics as well as for each geographic unit (here, state). Those demographic combinations are weighted by their representation in each state and, when combined with state-level effects, yield valid state-level estimates of opinion.

To gather the individual-level survey responses for the MRP analysis, we searched the Roper Center iPOLL and American National Election Studies (ANES [2010] 2015) databases for recurring questions on how "pro-environment" a respondent is. The most common type of such question that extends through the years of the data asks about a respondent's preferences concerning potential tradeoffs between the environment and economic goals. For instance, a standard question wording asks: "When a trade-off has to be made, which is more important to you—stimulating the economy or protecting the environment?" An attractive feature of this question is that it reflects the tradeoffs in the legal cases that commonly pit development or business interests versus environmental protection. Full details on the question wordings and surveys are in Appendix B. Almost a third of the 52 surveys are CBS-New York Times polls, which are attractive for purposes of state-level estimates because they include large samples for each state and employ random digit dialing (e.g., Erikson et al. 1993).<sup>26</sup> Ten are from the ANES. We also include the ANES questions about whether the respondent favored an increase or decrease in environmental spending, as detailed in the Appendix.

Scholarship suggests that partisanship and ideology strongly predict environmental opinion (Dunlap et al. 2001; McCright 2011; Gromet et al. 2012). Thus, we rely on the two-stage MRP method developed by Kastellec et al. (2015) to separately estimate opinion among Democrats, Republicans, and independents. More generally for the MRP analysis, we include six gender-race categories, four age categories, four educational categories, and a trichotomous indicator of the respondent's partisanship (Democratic, Republican, or independent). Thus, we model responses for  $6 \times 4 \times 4 \times 3 = 288$  respondent demographic combinations. We also include state-level intercepts, which are, in turn, modeled as a function of state-level characteristics. Appendix B provides full details on these characteristics and demographic categories. To poststratify the estimates, we rely on Kastellec et al. (2015), which provides the proportion of each of the gender-race-age-educational-partisan groups in each state. (We cannot simply rely on the Census because it does not tell us the distribution of those characteristics across the three partisan groups.) We then combine the estimates of opinion among each group, weighting them according to the proportion of each state that affiliates as a Democrat, Republican, or independent.

In particular,  $Public\ Opinion_{st[i]}$  measures the proportion of people in state  $s$  in year  $t$  (for case  $i$ ) who support the pro-environment response. The estimate ranges from a low of 0.30 in Utah in 2010 to a high of 0.72 in Rhode Island in 1990. The average across all observations is 0.54. Consistent with earlier work on public opinion about the

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<sup>26</sup>The iPOLL surveys also include ones from Gallup, Pew, and Princeton Survey Research Associates, among others. Appendix B provides full details on the question wordings, organizations, and exact dates of polls.

environment, the measure declines following the 2002 and 2008 recessions and rebounds as the economy improves (e.g., Kahn & Kotchen 2011; Shum 2012).

To assess the validity of the MRP estimates, we compare them with available state polls and state-level estimates from the Congressional Cooperative Election Study (CCES) (Ansolabehere & Pettigrew 2014; Schaffner & Ansolabehere 2015).<sup>27</sup> By searching the Odum Institute's Public Opinion Poll Question Database of state polls<sup>28</sup> as well as individual state poll websites such as the West Virginia Poll and the Oregon Values Project, we collected 29 observations of individual state polls that had relatively similar question wordings to those used for the MRP analysis.<sup>29</sup> In addition, the CCES includes the environment-jobs tradeoff question in multiple years of the survey, and because of its large sample size, scholars use it to estimate state-level opinion (e.g., Bafumi & Herron 2010); in total, the CCES provides a separate 200 observations against which to compare the MRP estimates.

These data suggest that the MRP estimates provide a valid representation of public opinion. The MRP estimates correlate with each of the CCES state-level estimates and the state-level polls at  $\rho = 0.75$ .<sup>30</sup> By comparison, the Enns and Koch (2013) measure of state ideological mood is only correlated with the CCES environment opinion estimates at  $\rho = 0.38$ , indicating that the MRP estimates capture something more than general state ideology or mood. Finally, it is worth noting that the by-party estimates of the state polls and MRP estimates both show an ideological trend identified elsewhere, whereby the environment becomes an increasingly partisan issue over time (e.g., Dunlap et al. 2001).

### 3. Judge-Level Covariates

Several controls account for judge-specific factors that previous research suggests may influence decision making. Scholarship has long emphasized the role that a judge's ideological leanings and partisanship play in determining votes (e.g., Segal & Spaeth 2002). Given government officials' partisanship on environmental policy generally (e.g., Shipan & Lowry 2001), one would expect Republican judges to be less likely to vote in a pro-environment direction than their Democratic counterparts. We determine information about political party in several ways. With partisan elections, of course, the information is on the ballot. In states without partisan elections, we rely on a variety of

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<sup>27</sup>We do not include the CCES polls in the MRP analysis because they involve nonprobability samples. To the best of our knowledge, the properties of MRP applied to nonprobability samples have not been studied in the extant literature.

<sup>28</sup>See <https://dataverse.unc.edu/> (accessed Jan. 11, 2018).

<sup>29</sup>The Odum polls include ones from Arizona, Florida, Georgia, and New Jersey. We secured additional surveys from the following sources: the Arkansas Poll, Civitas Poll (North Carolina), Oregon Values Project, Public Policy Institute of California, Utah Voter Poll by Brigham Young University, West Virginia Poll, and the Winthrop Poll (South Carolina).

<sup>30</sup>These high correlations between the MRP estimates and two other datasets are particularly noteworthy given that the two others have little overlap and no evidence of a positive correlation with each other.

sources, including the state's blue book, biographical dictionaries, state party support in contested elections, local newspapers, and existing datasets (Langer 2002; Canes-Wrone et al. 2012, 2014). In cases where no other source was available and the governor was involved in the initial appointment, the governor's party is employed, as in Choi et al. (2010:301) and Langer (2002:44). Likewise, for such cases where the legislature made the initial appointment, the majority legislative party serves as a proxy.<sup>31</sup> Using these methods, all the judges could be categorized as Republican or Democrat. Across all observations, 57 percent of the decisions involve Democratic judges. This greater Democratic percentage reflects that the South was still somewhat Democratic at the beginning of the time series.

We also gathered multiple variables reflecting the judge's tenure on the court. These include controls for electoral proximity, retirement, and lame-duck status. Research suggests that pressures to respond to public opinion, if they exist, should be strongest in the years prior to running for reelection (e.g., Huber & Gordon 2004; Berdejó & Yuchtman 2013). To account for this possibility, we code for whether a judge faced reelection or reappointment in the next two years, gathering this information from state blue books, election data, and the aforementioned datasets employed in identifying partisan affiliation (Langer 2002; Canes-Wrone et al. 2012, 2014). Because the dependent variable equals whether the judge voted in a pro-environment direction, the control for electoral proximity reflects whether public opinion incentivizes a pro-environment vote. In particular, *Electoral Proximity<sub>ij</sub>* equals 1 if judge *j* faces reselection within two years of the year in which case *i* is decided and pro-environment public opinion is at least 50 percent, 0 if the judge does not face reselection within two years, and -1 if the judge faces reselection within two years and pro-environment opinion is below 50 percent.

We gathered similar data about retirement and lame-duck status. Several studies find that retirement affects judicial behavior (e.g., Brace & Boyea 2008; Kang & Shepherd 2016). Most states have mandatory retirement ages for supreme court justices, usually after a judge reaches the age of 70, 72, or 75. As such, we code for whether a judge faces mandatory retirement at the end of his or her term. The data are from the National Center for State Courts "Judicial Selection in the States" website supplemented by state constitutions and laws where applicable.<sup>32</sup> As with electoral proximity, a trichotomous variable is used. *Retirement<sub>ij</sub>* equals 1 if judge *j* faces mandatory retirement at the end of the term in which case *i* is decided and pro-environment opinion in the state is at least 50 percent, 0 if the judge does not face mandatory retirement, and -1 if the judge faces mandatory retirement and pro-environment opinion is below 50 percent.

For similar reasons, we might expect judges in a "lame-duck" session to be less responsive to public opinion. Lame ducks are judges serving out the remainder of a term after losing reelection or otherwise not seeking reelection/reselection for a reason other

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<sup>31</sup>In a few cases, the judge in question was appointed by Governor Angus King of Maine, an independent. Because King as a U.S. Senator caucuses with the Democrats, we have coded the few judges that depend on King's party as Democrats; coding them as independents does not alter the results.

<sup>32</sup>See <http://judicialselection.us> (accessed Jan. 10, 2018).

than mandatory retirement. As with the variables for electoral proximity and retirement, lame-duck status is coded with a trichotomous variable that reflects whether public opinion supports a pro-environment vote. In systems for which public opinion influences judicial decision making, we expect negative coefficients on both the retirement and lame duck variables, as judges in these systems should be less likely to follow public opinion once freed from reselection pressures.

#### 4. Campaign Activity

The final set of variables concern judicial campaign activity. The Brennan Center for Justice through its Buying Time project has collected state supreme court television advertisements beginning in 2000.<sup>33</sup> We personally read the transcript and/or watched each advertisement to code for whether an advertisement dealt with the issue of environmental law. The use of these advertisement data follows other research that has examined the tone and content of judicial campaign ads (Hall 2015; Kritzer 2015). To the best of our knowledge, however, previous work has not examined how the content of advertisements is associated with judicial decision making.<sup>34</sup>

Conducting a comprehensive analysis of the advertisements, we uncovered 14 campaigns, a small proportion of the total, which broached the topic of the environment. Of those referencing the environment, six explicitly attacked a sitting judge for voting in a way that harmed the environment. For instance, in Michigan in 2010 the state Democratic Party Committee attacked Justice Bob Young for authoring a decision that limited standing in environmental cases.<sup>35</sup> The ad stated:

According to Young, Michigan taxpayers cannot hold Enbridge or any other oil company accountable when they pollute our water. Young overturned a 30 year old law that held polluters accountable.

Likewise, in Alabama in 2010, an advertisement criticized Justice Mike Bolin for allowing “the oil giant (Exxon) cheat Alabama taxpayers.” Only one campaign attacked a judge for favoring the environment over economic development. Specifically, in 2014 the group Americans for Prosperity ran advertisements disparaging Justice Mike Wheat for his votes against domestic energy development. For instance, one ad noted that Justice Wheat “even voted no on clean burning natural gas [thereby] jeopardizing Montana jobs.”

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<sup>33</sup>See <http://www.brennancenter.org/analysis/buying-time> (accessed Jan. 2, 2018). Data on Wisconsin are available going back to 1999 although none of the 1999 Wisconsin advertising concerns the environment.

<sup>34</sup>Shepherd and Kang (2014) examine how the overall volume of campaign advertising on all issues affects the likelihood a state supreme court justice votes for a pro-defendant position on criminal cases; this study does not, however, examine whether there is a linkage between advertisements that focus on criminal justice issues and judicial behavior.

<sup>35</sup>*Michigan Citizens for Water Conservation v. Nestle Waters N. Am.*, 479 Mich. 280 (2007).

Eight additional campaigns contained ads referencing the environment in a general way without attacking a judge's decisions. These included positive advertisements that promote a judge as being good for the environment as well as ones that reference donations from oil or gas companies without linking the judge to his or her decisions. For instance, in North Carolina in 2006, an advertisement for Robin Hudson noted that she would be "fair and impartial" on issues including "the environment."

To reflect these different types of advertising, we construct two types of variables. *Attack Ad<sub>i</sub>* equals 1 if a judicial campaign in the state has criticized a judge for an environment decision before or in the year in which case *i* is heard and 0 otherwise. *General Ad<sub>i</sub>* is coded similarly except that it concerns advertisements that reference the environment without specifically criticizing a judge's decisions. As the description of the econometric models helps to clarify, this setup captures changes in judicial behavior within states and not simply across them, given that judicial behavior is compared within a state before and after an ad airs.<sup>36</sup> Because the advertising data become available for multiple states beginning in 2000, all the advertising analyses only concern the years since 2000. Additionally, because the advertisements appear only in states with contested elections, the analyses are limited to these states.

The contested elections are also ones that commonly experience direct campaign contributions from organized interest groups; by comparison, these campaign contributions are rare in states with retention elections and not relevant to appointment systems.<sup>37</sup> We accordingly account for contributions from relevant organized interests in the analysis of campaign advertising. Using the Database on Ideology, Money in Politics and Elections (DIME) (Bonica 2016), we matched to each judge contributions from environmental interest groups and the types of businesses regularly involved in the four types of environmental cases.<sup>38</sup> For a given judge and year, we consider the total contributions from the previous six years given that the median state supreme court term is six years. With these data, we created *Net Environment Contributions<sub>j|fi</sub>*, which equals the natural log of the total contributions justice *j* received from environmental groups minus the natural log of total contributions from relevant business groups during the six years preceding year *t* in which case *i* is decided. Almost all the contributions are from businesses, with the result that *Net Environment Contributions* is typically negative. As detailed subsequently,

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<sup>36</sup>To allow for the possibility that the impact of any ad is short-lived, we have also analyzed a post-advertisement window of the modal term length of the state supreme courts, which is six years. These results are substantively identical to those presented.

<sup>37</sup>For instance, fewer than 1 percent of the observations associated with retention elections in the data are associated with contributions from an environmental organization or relevant business group.

<sup>38</sup>Since the DIME database only extends until 2012, we gathered data for later years from the National Institute on Money in State Politics at [followthemoney.org](http://followthemoney.org). Contributions from the following business and environmental classifications are included: Agriculture, Construction, Energy/Natural Resources, Finance/Insurance/Real Estate, Ideology/Single Issue, and Miscellaneous Business. Entities within each category are included if they are associated with a pro- or anti-environment alignment in the types of cases heard. For instance, the Sierra Club is coded as pro-environment and oil and gas companies as anti-environment. Further details available upon request.



we examine specifications where this variable is included as an exogenous control as well as instrumental variables analyses that assume contributions are endogenous to a judge's expected decisions.

## V. SPECIFICATIONS AND RESULTS

### A. Analysis of All Selection Systems

The main specification analyzes the likelihood judge  $j$  issues a pro-environment decision on case  $i$  as a function of the above-described variables. The model, which assumes a logit specification, is given formally in Equation (1):

$$\begin{aligned} \Pr(\text{Pro-Environment Vote}_{ij} = 1) = & \Lambda(\alpha_0 + \beta_1 \text{Partisan Elections}_i \times \text{Public Opinion}_{st[i]} \\ & + \beta_2 \text{Nonpartisan Elections}_i \times \text{Public Opinion}_{st[i]} + \beta_3 \text{Commission-Retention}_i \\ & \times \text{Public Opinion}_{st[i]} + \beta_4 \text{Appointment}_i \times \text{Public Opinion}_{st[i]} + \beta_5 \text{Partisan Elections}_i \\ & + \beta_6 \text{Nonpartisan Elections}_i + \beta_7 \text{Commission-Retention}_i + \lambda \text{Controls}_{ij}), \end{aligned} \quad (1)$$

where  $\Lambda$  is the inverse logistic function. In our specification, some controls vary by case  $i$  and judge  $j$  and others only by state  $s$  and/or year  $t$  in which case  $i$  was decided, as previously described. Because judicial decisions may be correlated within a given state, we cluster the standard errors by state.

The coefficients  $\beta_1$ – $\beta_4$  capture the relationship between public opinion and judicial decision making across the different systems. If, for instance, public opinion is positively related to decisions in partisan election systems, then our estimate of  $\beta_1$  should be positive. The coefficients  $\beta_5$ – $\beta_7$  reflect the main associations with the individual systems. The omitted main effect is appointment systems, so that a positive estimate of  $\beta_5$  would suggest that pro-environment decisions are more likely in states with partisan elections than in those with appointment-based systems.

Table 2 presents the results to this estimation.

Column [1] of Table 2 reports the main results. Notably, none of the coefficients on the public opinion interactions are statistically distinguishable from zero at any conventional level of statistical significance. Several of the point estimates are even negative, although, again, not statistically distinguishable from zero. In all the systems, an increase in pro-environment public sentiment is not significantly associated with a change in a judge's likelihood of voting in a pro-environment direction.

Columns [2] through [4] of Table 2 suggest that this finding is not a function of the specification. In Column [2], we additionally control for the lower court decision, the presence of an intermediate appellate court, and the interaction of the lower court decision with whether the state has an intermediate appellate court. The number of observations is slightly lower in this column because a state supreme court can have original jurisdiction, such as on certified questions from the federal courts or cases involving ballot initiative wordings, or a case may be appealed directly from an administrative tribunal. Column [3] removes the year effects, and Column [4] shows a simple model that

Table 2: Public Opinion and Judicial Decisions on Environmental Cases

	<i>Main Specification [1]</i>	<i>Lower Court [2]</i>	<i>Without Year Effects [3]</i>	<i>No Controls [4]</i>
Public opinion	—	—	—	1.16 (0.83)
× Partisan elections	3.11 (2.94)	1.99 (3.49)	4.31 (3.10)	—
× Nonpartisan elections	-2.01 (2.99)	-2.81 (2.83)	-0.01 (1.92)	—
× Commission-retention	0.07 (2.52)	-1.97 (2.85)	2.17 (1.46)	—
× Appointment	-1.49 (2.20)	-1.92 (2.25)	0.70 (0.69)	—
Partisan elections	-2.77 (1.93)	-2.44 (2.14)	-2.05 (1.88)	—
Nonpartisan elections	0.06 (1.18)	0.29 (1.15)	0.29 (1.18)	—
Commission-retention	-0.64 (0.90)	0.25 (1.17)	-0.43 (0.91)	—
Democratic judge	0.35* (0.09)	0.33* (0.09)	0.35* (0.09)	—
Permitting	-0.57* (0.23)	-0.61* (0.25)	-0.55* (0.22)	—
Challenges	-0.41 (0.25)	-0.55* (0.26)	-0.41 (0.24)	—
Damages	-0.57* (0.24)	-0.62* (0.24)	-0.50* (0.22)	—
Electoral proximity	-0.10 (0.07)	-0.10 (0.07)	-0.06 (0.06)	—
Retirement	0.12 (0.11)	0.15 (0.12)	0.11 (0.12)	—
Lame duck	-0.02 (0.19)	-0.04 (0.20)	0.03 (0.19)	—
Lower court decision	—	0.09 (0.25)	—	—
Intermediate appellate court	—	-0.40 (0.28)	—	—
Lower court decision × Intermediate appellate court	—	0.17 (0.37)	—	—
Constant	1.38 (1.32)	1.80 (1.37)	-0.08 (0.45)	-0.51 (0.49)
Year effects	Yes	Yes	No	No
Observations	5410	4992	5410	5410

NOTE: Dependent variable equals Pr(Pro-environment Vote = 1). Standard errors clustered by state and in parentheses below logit coefficients. Omitted case type indicator is Violations and omitted main effect for selection system is Appointment. \* $p < 0.05$ , two-tailed.

estimates a joint effect of public opinion for all systems combined and without controls. In none of these cases do we estimate a statistically significant relationship between public opinion and how judges vote. Furthermore, Appendix Table A2 shows that if each selection system is analyzed individually, the results continue to suggest that judicial decision making is not significantly associated with public opinion in any of the systems.

However, the findings do indicate statistically significant relationships between judges' votes and several of the control variables. For instance, as anticipated, a judge's party is related to the likelihood of a pro-environment decision, with Democratic justices being more likely than Republican ones to vote in a pro-environment direction. Table 2 also provides evidence that the type of case is associated with how judges vote. In particular, permitting and damages cases have a significantly lower likelihood of a pro-environment decision than violations, the omitted case category of cases. Also, the year effects are jointly significant ( $p < 0.05$ , two-tailed), indicating temporal variation in how judges vote. As Column [3] of Table 2 indicates, however, excluding them does not alter the substantive findings; the association with public opinion remains statistically indistinguishable from zero in each of the systems, with or without the year indicators.

Consistent with this lack of evidence of a relationship, the three controls that concern within-judge variation in electoral pressures are also insignificant at any conventional level. Judicial decision making on environmental law appears to be unrelated to the proximity of the next election, whether a judge is facing mandatory retirement, or voting as a lame duck. While some earlier work finds that electoral proximity affects judicial votes, these studies focus on the more salient issues of criminal sentencing (e.g., Huber & Gordon 2004; Gordon & Huber 2007; Berdejó & Yuchtman 2013) and the death penalty (e.g., Canes-Wrone et al. 2014). Moreover, even some work on criminal sentencing fails to find a significant association with electoral proximity (e.g., Lim et al. 2015).

In an effort to assess whether the measurement of public opinion or other specification choice might be masking significant relationships, we conduct several further analyses. First, we consider that judges may not be responsive to opinion on the environment but, instead, to the general liberalism of the state, which might occur if, for instance, the judges have a sense of the public's overall liberalism but not its environmental preferences. As a measure of state ideology, we employ the Enns and Koch (2013) estimates of state policy mood, which extend through 2010 and are analogous to the national policy mood measure of Erikson et al. (2002).

Table 3 presents results from substituting this general ideology measure for public opinion on the environment.

As Column [1] of Table 3 shows, the results are substantively similar to those with the issue-based opinion measure. We find no evidence of a positive correlation between policy mood and how judges vote. (Indeed, there is even a negative relationship in the retention election systems.) Column [2] reports results employing yet another public opinion measure. Conceivably, judges are responsive to large shifts in public opinion even if not the more marginal changes that the continuous measures capture. We therefore substitute for our measure of pro-environment public opinion an indicator for

whether this measure is above 50 percent. Again, the results suggest that public opinion on this issue does not significantly influence judicial decision making.

The analyses reported in Columns [3]–[5] of Table 3 vary the specification in additional ways. In Column [3], systems with reappointment are separated from ones with lifetime appointment. In Column [4], a set of state fixed effects are included, and a conditional fixed effects logit specification is used.<sup>39</sup> The state effects capture any time-invariant features of a state's legal or political setting, such as laws or constitutional provisions, which are constant through the period of analysis and make a pro-environment decision more likely in some states than others. Neither of these modifications alters the substantive findings. The final column considers only years since 2000, forming a baseline comparison to the subsequent analysis of advertising that is limited by data constraints to these later years. Again, public opinion is not significantly related to judicial decision making.

A potential concern with all the specifications in Tables 2 and 3 could be that the null finding is due to the strategic behavior of litigants. For instance, environmental groups could choose to bring only the strongest cases when public opinion is less favorable to environmental regulation and, likewise, businesses could choose to bring more cases—not only stronger but weaker ones, too—in this context. To assess this possibility, we coded the appellant to the supreme court for each case, focusing on environmental organizations and corporations under the assumption that the former favor environmental regulation over development and the latter development over environmental regulation.<sup>40</sup> We then regressed the number of cases brought to the supreme court by each of these types of appellants on pro-environment opinion in that state and year. (Thus, the unit of observation was a state-year and the data included state-years in which there are no cases.) This analysis suggests that there is no significant relationship between pro-environment public opinion and the likelihood that a corporation or environmental organization brings a case to the state supreme court.<sup>41</sup>

In sum, the findings thus far suggest that for an issue that does not dominate judicial campaigns, such as environmental law, the average relationship between public opinion and judicial decision making is insignificant. Even in systems with contested elections, opinion on the environment is not associated with judicial behavior. These findings contrast with those on hot-button campaign issues such as abortion, marijuana legalization, and the death penalty, with which public opinion has a significant relationship, particularly in systems with nonpartisan elections. In combination with this previous

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<sup>39</sup>The number of observations in the model with state fixed effects is slightly lower because one state, Arizona, has only one case and the decision was unanimous.

<sup>40</sup>We separated out the exceptions where this was not the context such as, for instance, if a corporation is developing alternative energy.

<sup>41</sup>While this evidence suggests that the results on judicial decisions are not purely a function of strategic litigant behavior, we acknowledge that the analysis, like other papers in this literature, cannot fully control for case strength.

Table 3: Public Opinion and Judicial Decisions, Alternative Specifications

	<i>Public Mood</i> [1]	<i>Public Opinion Indicator</i> [2]	<i>Lifetime Appointment</i> [3]	<i>State Fixed Effects</i> [4]	<i>Since 2000</i> [5]
Public mood					
× Partisan elections	0.04 (0.04)	—	—	—	—
× Nonpartisan elections	-0.002 (0.03)	—	—	—	—
× Commission-retention	-0.07* (0.03)	—	—	—	—
× Appointment	-0.04 (0.025)	—	—	—	—
Public opinion indicator					
× Partisan elections	—	0.50 (0.32)	—	—	—
× Nonpartisan elections	—	-0.20 (0.31)	—	—	—
× Commission-retention	—	0.17 (0.33)	—	—	—
× Appointment	—	-0.18 (0.44)	—	—	—
Public opinion					
× Partisan elections	—	—	3.58 (3.02)	5.43 (3.70)	3.32 (4.18)
× Nonpartisan elections	—	—	-1.54 (3.01)	1.68 (4.04)	-0.92 (3.68)
× Commission-retention	—	—	0.56 (2.56)	4.65 (4.11)	2.27 (2.76)
× Reappointment	—	—	-0.87 (2.21)	—	—
× Lifetime appointment	—	—	-0.68 (3.00)	—	—
× Appointment	—	—	—	2.26 (4.43)	-0.40 (2.88)
Constant	1.61 (1.17)	0.66 (0.54)	0.69 (1.77)	-2.07 (2.10)	0.72 (1.68)
System main effects	Yes	Yes	Yes	Yes	Yes
Standard controls	Yes	Yes	Yes	Yes	Yes
State effects	No	No	No	Yes	No
Year effects	Yes	Yes	Yes	Yes	Yes
Observations	4601	5410	5410	5405	3140

NOTE: Dependent variable equals  $\Pr(\text{Pro-environment Vote} = 1)$ . Standard errors clustered by state and in parentheses below logit coefficients. \* $p < 0.05$ , two-tailed.

work, the results support research arguing that issue salience should affect responsiveness to public opinion (e.g., Lax & Phillips 2012). In the following analysis, we build on this implication by explicitly examining whether variation in the salience of environmental

issues across judicial campaigns corresponds with similar variation in justices' responsiveness to public opinion.

### *B. Analysis of Campaign Advertising*

As discussed above, we use the Brennan Center's database of judicial campaign advertisements to identify the occasional ad that concerns the environment. These data allow examining how the relationship between public opinion and judicial behavior changes when an issue becomes highlighted in the context of a campaign. To the extent there is evidence of positive relationship in this context, the results corroborate the interpretation that the reason for the null findings in the main analysis is that environmental issues are typically of lower salience than are traditional hot-button issues.

We analyze only states with contested partisan or nonpartisan elections because those are the only systems in which environment-based ads occur. In addition, this analysis begins with the year 2000, as that is the point in time at which the data become available for states beyond Wisconsin. Moreover, given that the environment ads are so infrequent and in earlier analysis there was not a significant difference between the impact of public opinion for nonpartisan and partisan election systems ( $p > 0.10$ , two-tailed), we analyze a joint effect for these systems. This joint analysis is further justified by the fact that Michigan and Ohio are two of the eight states with the environment ads, and scholars have debated whether to code these states as having nonpartisan elections, partisan ones, or hybrid systems (e.g., Nelson et al. 2013; Bonneau & Cann 2015; Kritzer 2015).

Two types of specifications are analyzed. Because campaign contributions may not only influence judicial behavior but also be directed at judges whose preferences are already similar to those of the contributor, we analyze both a two-stage instrumental variables probit model as well as a one-equation probit model for purposes of comparison.<sup>42</sup> Equations (2) and (3) describe the two-stage model:

$$\begin{aligned} \Pr(\text{Pro-Environment Vote}_{ij} = 1) = \Phi & \left( \alpha_0 + \beta_1 \text{Attack Ad}_i \times \text{Public Opinion}_{st[i]} \right. \\ & \left. + \beta_2 \text{Public Opinion}_{st[i]} + \beta_3 \text{Attack Ad}_i + \beta_4 \text{Net Environment Contributions}_{ij} + \lambda \text{Controls}_{ij} \right) \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Net Environment Contributions}_{ij} = \alpha_1 + \gamma_1 \text{State Population} + \gamma_2 \text{Attack Ad}_i \\ \times \text{Public Opinion}_{st[i]} + \gamma_3 \text{Public Opinion}_{st[i]} + \gamma_4 \text{Attack Ad}_i + \delta \text{Controls}_{ij} + \epsilon_{ij} \end{aligned} \quad (3)$$

The second-stage equation, Equation (2), tests how campaign advertising is associated with subsequent judicial decision making. If  $\beta_1$  is significantly positive, then judicial responsiveness to public opinion is significantly higher after an issue has become the

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<sup>42</sup>We use a probit rather than logit specification in the analysis of campaign activity due to the attractive properties of the bivariate normal distribution for purposes of the instrumental variables analysis. In addition, due to the shorter time series, the campaign activity tests include fewer year indicators. We have also conducted the tests excluding the year indicators and the results are substantively identical.

subject of attack advertising in a justice's state. The analysis therefore has a before-after design that compares judicial behavior within a state, in addition to across states. The relationship with public opinion absent any such advertising is captured by  $\beta_2$ .

The first-stage equation, Equation (3), predicts *Net Environment Contributions* as the function of an instrument and all controls, where the instrument *State Population* equals the population in state  $s$  and year  $t$ . Gerber (1998) uses this variable as an instrument for campaign spending given that a higher population increases the media costs and expenses of a campaign. As described earlier, in this dataset almost all the contributions are from businesses, and thus we would expect more contributions from businesses the higher the cost of the campaign. We therefore anticipate *State Population* to be negatively associated with *Net Environment Contributions*, a pattern validated by the analysis. Of course, in the one-equation probit model that serves as a point of comparison, there is no first-stage equation and contributions are modeled as an exogenous variable.

In addition to analyzing attack ads that explicitly criticize a judge's voting record, we also examine advertisements that reference the environment more broadly. For this analysis, the variable *General Ad*, defined previously, substitutes for *Attack Ad*. Finally, we have also conducted a placebo analysis with the variable *Placebo Ad*, which moves the date of the attack ad to five years earlier than it occurred.<sup>43</sup> This placebo analysis assesses whether any observed effect of the ad is the result of preexisting salience on the issue.

Because the number of states with contested elections totals only 16, we do not have enough clusters to estimate unbiased standard errors (e.g., Angrist & Pischke 2009; Cameron et al. 2015). We therefore employ bootstrapped standard errors in which the strata are by state. It is worth noting, however, that the results with clustering by state are substantively identical in terms of the estimated effects of advertisements.<sup>44</sup>

Table 4 presents the findings.

Columns [1] and [2] of Table 4 concern attack ads, with Column [1] reporting the estimates of Equation (2) and Column [2] reporting the second-stage results of the instrumental variables analysis; all first-stage results for Table 4 are in Appendix Table A3. Notably, regardless of the specification, judges' decisions following the attack ads are significantly associated with public opinion. As before, however, there is not a significant main effect of public opinion. Thus, when advertising is absent, public opinion does not appear to influence judicial decision making.

To interpret the magnitude of judicial responsiveness following an attack ad, we estimate the marginal effect at the means of the independent variables, as is standard in probit analyses. In Column [1] of Table 4, the estimates suggest that as pro-environment public opinion increases by 10 percent, a judge's likelihood of issuing a pro-environment decision increases by 19 percentage points. The magnitude is comparable in Column [2], with the identical change in public opinion associated with an 18 percentage point

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<sup>43</sup>We are grateful to an anonymous referee for suggesting the placebo analysis and recommending a five-year window.

<sup>44</sup>The major difference in the results with clustered standard errors by state is that the coefficients associated with contributions are not as significant.

Table 4: Campaign Advertising and Judicial Decisions

	<i>Attack Ads [1]</i>	<i>Attack Ads IV [2]</i>	<i>General Ads [3]</i>	<i>General Ads IV [4]</i>	<i>Placebo Ads [5]</i>	<i>Placebo Ads IV [6]</i>
Attack ad × Public opinion	5.26* (1.91)	4.69* (1.83)	—	—	—	—
General ad × Public opinion	—	—	2.08 (1.41)	1.59 (1.30)	—	—
Placebo ad × Public opinion	—	—	—	—	2.10 (1.65)	2.35 (1.44)
Public opinion	-0.03 (1.31)	1.31 (1.42)	-0.27 (1.44)	0.68 (1.40)	0.36 (1.34)	1.67 (1.25)
Attack ad	- 2.63* (0.93)	- 2.18* (0.91)	—	—	—	—
General ad	—	—	-1.04 (0.70)	-0.65 (0.66)	—	—
Placebo ad	—	—	—	—	-0.99 (0.78)	-0.92 (0.70)
Democratic judge	0.35* (0.09)	0.13 (0.13)	0.37* (0.08)	0.11 (0.12)	0.37* (0.09)	0.13 (0.12)
Permitting	0.007 (0.13)	0.06 (0.13)	0.03 (0.13)	0.05 (0.13)	0.03 (0.13)	0.09 (0.13)
Challenges	0.12 (0.15)	0.08 (0.15)	0.12 (0.14)	0.06 (0.12)	0.12 (0.15)	0.08 (0.13)
Damages	0.01 (0.13)	0.15 (0.14)	0.06 (0.13)	0.17 (0.13)	0.06 (0.14)	0.21 (0.14)
Electoral proximity	- 0.006 (0.09)	0.02 (0.09)	-0.002 (0.12)	0.02 (0.11)	0.001 (0.09)	0.04 (0.11)
Retirement	-0.22 (0.21)	-0.29 (0.21)	-0.16 (0.18)	-0.23 (0.19)	-0.20 (0.22)	-0.29 (0.18)
Lame duck	0.20 (0.18)	0.23 (0.18)	0.18 (0.17)	0.22 (0.17)	0.19 (0.18)	0.22 (0.17)
Net environment contributions	0.02* (0.01)	0.10* (0.03)	0.02* (0.01)	0.10* (0.03)	0.02* (0.01)	0.11* (0.03)
Constant	-0.31 (0.80)	-0.65 (0.79)	-0.24 (0.75)	-0.38 (0.72)	-0.54 (0.81)	-0.86 (0.69)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1128	1128	1128	1128	1128	1128

NOTE: Dependent variable equals  $\Pr(\text{Pro-environment Vote} = 1)$ . Coefficients in Columns [2], [4], and [6] represent coefficients from second-stage IV probit analysis. The instrument for Net Environment Contributions is State Population. First-stage estimates are in Appendix Table A3. State-blocked bootstrapped standard errors in parentheses below probit coefficients. Omitted case indicator is Violations. \* $p < 0.05$ , two-tailed.

increase in the likelihood of a pro-environment vote. These estimated effects indicate that the relationship between public opinion and judicial decisions following an attack ad is not only of statistical significance but also substantively meaningful.

For the analysis of attack ads, the Wald test of exogeneity suggests that the null of exogeneity of contributions can be rejected at conventional levels ( $p < 0.01$ , two-tailed).



In addition, as shown in Appendix Table A3, the effect of the instrument *State Population* is in the expected direction and significant at conventional levels ( $p < 0.05$ , two-tailed), indicating that the system is identified. Moreover, regardless of whether the contributions are modeled as endogenous, the estimates suggest that they are significantly associated with judicial decision making. Indeed, throughout the analyses of Table 4 and consistent prior research (e.g., Cann 2007; Kang & Shepherd 2011), the results imply that contributions are endogenous to judicial decision making and that they correspond to judicial votes in the anticipated direction.

The estimated effect of advertising, however, differs in the other analyses of Table 4. For both general ads and the placebo analysis, there is no evidence of a significant relationship between public opinion and judicial decisions. In Columns [3] and [4], which concern general ads that mention the issue of the environment but do not criticize a judge's decisions, the coefficients associated with the interaction between the ads and public opinion are not significantly different from zero at any conventional level. Thus, judicial decisions do not appear to be affected by advertising in which a candidate claims to be good for the environment or is criticized in ways unrelated to specific rulings. Of course, the number of campaigns with advertisements is small; if this number were large, we would not claim that the environment is an issue of moderate salience. We therefore would not conclude from these results that advertising outside of attack ads never influences judicial decision making. Conceivably, larger amounts of advertising might produce an effect, even for general ads. What we can say is that with the limited number of advertisements devoted to the issue of the environment, only ones that attack judicial decisions are associated with justices' responsiveness to public opinion.

Columns [5] and [6] of Table 4 show the results of the placebo analysis, where the date of the attack ads is set to five years before the actual one occurred. If the attack advertisement merely reflects a heightened salience of the issue and lacks an independent effect on judicial decision making, then we would expect a similar impact in the placebo. Yet as the results show, no such impact occurs. In neither Column [5] nor [6] is there a significant relationship between judicial decision making and the placebo coding of the attack ads occurring five years previously.<sup>45</sup>

In sum, the analysis of campaign activity suggests that justices are responsive to public opinion on an issue once it becomes the subject of attack advertisements in their state. Consistent with this finding, earlier work has found that attack ads affect election outcomes such as lower incumbent vote share (Hall 2015) in systems with nonpartisan elections. Table 4 indicates that these electoral consequences do not go unnoticed by judges and affect subsequent decision making. There is no analogous effect, however, of general ads that do not reference specific judicial decisions. As mentioned earlier, we are cautious with this null finding given that advertisements on the environment are the exception rather than the norm in judicial campaigns. Indeed, the examination of

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<sup>45</sup>Additionally, the results are robust to using a shorter window for the post-advertisement effect. If we base the window on the median length of a state supreme court term, which is six years, the results on attack ads, general ads, and the placebo ads are substantively similar.

campaign activity, by documenting the small number of advertisements on the issue of environmental law, lends credence to the argument that the lack of responsiveness in the full set of cases relates to the lower salience of the issue. In sum, the results suggest that when environmental policy is not electorally salient, the dynamics of judicial responsiveness to public opinion documented in the context of “hot-button” issues do not materialize; however, when the issue is electorally salient, these familiar dynamics do emerge.

## VI. CONCLUSION

In recent years, a variety of research has analyzed how judicial selection systems affect the state courts, including with respect to public legitimacy (e.g., Gibson 2012), citizens’ voting behavior (e.g., Kritzer 2015), and judicial decision making, particularly with respect to hot-button issues (e.g., Brace & Boyea 2008; Caldarone et al. 2009).<sup>46</sup> Yet the impact with respect to public opinion on less salient issues has not been a focus of the literature. This article provides extensive evidence on the question, examining over two decades’ worth of original data on judicial decisions on environmental law. As a part of this analysis, we estimate state-level public opinion on the environment and analyze the effects of campaign advertisements.

Two major findings emerge. First, across all the systems, the average relationship between how judges vote and public opinion is not significant. This finding holds across a variety of specifications, including ones with a general measure of state ideology rather than public opinion on the environment, an indicator for public opinion, and individual regressions for each system, among others. The null result clearly contrasts with the evidence for hot-button issues and, in doing so, suggests that the effects of elections on judges’ incentives to cater to public opinion may not extend to the vast majority of cases.

However, the analysis also finds that when environmental cases are the subject of attack ads, justices subsequently become more responsive to public opinion on the issue. Thus, we demonstrate that even on a relatively low-salience issue, campaigns are associated with changes in judicial behavior. Moreover, the evidence indicates that this relationship is not limited to everyday or “easy” issues for voters such as crime, marijuana legalization, and abortion (e.g., Canes-Wrone et al. 2014; Nelson 2014; Kritzer 2015), but extends to areas of law in which business interests are paramount. The campaign effects do not appear to extend to other types of advertising, however. For advertisements that do not reference specific judicial decisions, we find no significant change in judicial decision making.

The results suggest multiple avenues for future research. First, it would be worthwhile to analyze the effects of campaign advertisements on judicial decisions for highly salient issues. Such an examination would enable assessing whether justices’ responsiveness to public opinion on these issues is associated with the level and type of advertising in a state. Second, while the analysis of advertising accounts for campaign contributions,

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<sup>46</sup>See Kritzer (2015) and Baum (2017) for excellent reviews.

including with specifications that allow for the endogeneity of these contributions, future research should explore how the impact of the groups' financial support is conditioned by the salience of the issue at hand. Third, while research has examined the role of media salience on judicial decisions over criminal justice (e.g., Lim et al. 2015), future work should expand the analysis of this question to other issues that are less commonly central to judicial campaigns.

Overall, our results fall between the most critical views of judicial elections (e.g., American Bar Association 2003) and the rosier (e.g., Bonneau & Hall 2009). From a propitious angle, most areas of law, even ones of major legal and policy significance, are not a hot-button campaign issue, and the analysis here suggests that for these issues, public opinion does not typically influence judicial decision making. On a more inauspicious note, however, once such an area of law becomes the subject of attack ads, the influence of public opinion becomes significant. Thus, the effects of elections go beyond a limited set of recurring hot-button issues. More broadly, the findings raise potentially consequential questions about how issues emerge as fodder for campaign advertising. Resolving those questions requires empirical research that can further guide normative debates over the choice of judicial selection systems.

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## APPENDIX A

*Appendix Table A1: Descriptive Statistics*

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Pro-environment vote	5,410	0.531	0.499	0	1
Public opinion	5,410	0.545	0.082	0.298	0.724
Partisan elections	5,410	0.109	0.311	0	1
Nonpartisan elections	5,410	0.279	0.449	0	1
Commission-retention	5,410	0.274	0.446	0	1
Appointment	5,410	0.338	0.473	0	1
Reappointment	5,410	0.246	0.431	0	1
Lifetime appointment	5,410	0.092	0.289	0	1
Permitting	5,410	0.462	0.499	0	1
Violations	5,410	0.160	0.367	0	1
Challenges	5,410	0.210	0.408	0	1
Damages	5,410	0.167	0.373	0	1
Democratic judge	5,410	0.565	0.496	0	1
Electoral proximity	5,410	0.080	0.406	-1	1
Retirement	5,410	0.062	0.349	-1	1
Lame duck	5,410	0.009	0.166	-1	1
Lower court decision	4,992	0.467	0.499	0	1
Intermediate appellate court	4,992	0.820	0.384	0	1
Public mood	4,601	39.778	5.566	26.299	61.681
Attack ad	1,128	0.100	0.300	0	1
General ad	1,128	0.227	0.419	0	1
Placebo ad	1,128	0.139	0.346	0	1
Net environment contributions (natural log)	1,128	-4.506	4.447	-12.252	1.922
State population (in 1,000,000s)	1,128	6.452	6.491	0.642	26.945

*Appendix Table A2: By-System Analysis*

	<i>Partisan Elections</i> [1]	<i>Nonpartisan Elections</i> [2]	<i>Commission-Retention</i> [3]	<i>Appointment</i> [4]
Public opinion	7.95 (6.90)	-3.46 (4.99)	-2.78 (4.20)	0.03 (4.08)
Democratic judge	0.82* (0.19)	0.43* (0.15)	0.25 (0.18)	0.26* (0.12)
Permitting	-0.77 (1.03)	0.01 (0.32)	-0.52 (0.32)	-0.93 (0.51)
Challenges	-0.37 (0.82)	0.10 (0.43)	-0.43 (0.47)	-0.79 (0.62)
Damages	-1.02 (0.87)	0.27 (0.36)	-0.57 (0.40)	-0.88 (0.45)
Electoral proximity	-0.15 (0.28)	-0.01 (0.11)	-0.09 (0.14)	-0.01 (0.09)
Retirement	0.33 (0.44)	0.05 (0.29)	0.27 (0.20)	0.13 (0.10)
Lame duck	0.06 (0.33)	0.52 (0.39)	-0.31 (0.36)	-0.95* (0.42)
Constant	-4.38 (3.28)	0.86 (2.83)	3.15 (2.14)	2.07 (2.51)
Year effects	Yes	Yes	Yes	Yes
Observations	588	1510	1483	1829

NOTE: Dependent variable equals Pr(Pro-environment Vote = 1). Standard errors clustered by state and in parentheses below logit coefficients. Omitted case type indicator is Violations. \* $p < 0.05$ , two-tailed.



Appendix Table A3: First-Stage Estimates for Table 4

	Attack Ads [1]	General Ads [2]	Placebo Ads [3]
State population	-0.29* (0.02)	-0.29* (0.02)	-0.21* (0.02)
Attack ad × Public opinion	0.20 (5.67)	—	—
General ad × Public opinion	—	4.84 (4.50)	—
Placebo ad × Public opinion	—	—	-3.49 (4.95)
Public opinion	-13.97* (3.95)	-9.22* (4.27)	-12.88* (3.86)
Attack ads	-2.02 (2.69)	—	—
General ads	—	-4.10 (2.27)	—
Placebo ads	—	—	-0.25 (2.40)
Democratic judge	1.74* (0.24)	1.90* (0.23)	1.70* (0.24)
Permitting	-0.72* (0.37)	-0.37 (0.37)	-0.76* (0.36)
Challenges	0.08 (0.43)	0.28 (0.44)	0.08 (0.42)
Damages	-1.31* (0.41)	-0.91* (0.41)	-1.32* (0.41)
Electoral proximity	-0.12 (0.30)	-0.05 (0.30)	-0.16 (0.29)
Retirement	1.11* (0.54)	0.94 (0.56)	1.19* (0.53)
Lame duck	-0.24 (0.56)	-0.23 (0.55)	-0.25 (0.55)
Constant	5.31* (2.30)	3.06 (2.22)	4.79* (2.25)
Year effects	Yes	Yes	Yes
Observations	1128	1128	1128

NOTE: Dependent variable is Net Environment Contributions. Bootstrapped standard errors in parentheses below coefficients in which strata are by state. Omitted case indicator is Violations. \* $p < 0.05$ , two-tailed.

## APPENDIX B: PUBLIC OPINION ESTIMATES

### *Multilevel Regression with Poststratification (MRP)*

The analysis models individuals' responses to survey questions about the environment as a function of respondents' demographic and geographic characteristics. The components of the model include:

#### Demographic Categories

*Gender–race:* white-male, black-male, Hispanic-male, white-female, black-female, and Hispanic-female.

*Age:* 18–29, 30–44, 45–64, and over 65.

*Education:* less than a high school diploma, a high school diploma or equivalent, some college, and a college degree or higher.

*Partisanship:* Democratic, Republican, or independent.

With these categories, we model responses for  $6 \times 4 \times 4 \times 3 = 288$  respondent demographic combinations.

#### Geographic Categories

The primary component that models geographic response variation is a set of state-level intercepts, which we in turn nest into four regional intercepts. The state-level intercepts are modeled as a function of the Democratic vote share in the state in the most recent presidential election, and the proportion of evangelical and Mormon residents in the state, according to the Census.

#### Additional Factors

In addition to respondents' demographic and geographic characteristics, we typically include modeled intercepts for the poll from which a survey response comes as well as the particular question being answered. In some years, we only have a single poll and so cannot include the former, and in some years we only have a single question being asked (even if asked on multiple polls) and so cannot include the latter. However, when we have more than one poll and/or more than one question, we include the relevant intercepts as appropriate.

## Surveys

Question Wording	Survey Organizations and Dates
... when a trade-off has to be made, which is more important to you—stimulating the economy or protecting the environment?	CBS and CBS-New York Times (NYT): Dec 17–22, 2009; Dec. 4–9, 2009; Jan. 11–15, 2009; Apr. 20–24, 2007; Sept. 9–13, 1992; May 27–30, 1992
... Do you agree or disagree ... Protecting the environment is so important that requirements and standards cannot be too high and continuing environmental improvements must be made regardless of cost?	CBS and CBS-NYT: Apr. 20–24, 2007; Oct. 27–31, 2006; Nov. 20–24, 2002; Jan. 21–24, 2002; Jun. 14–18, 2001; Mar. 8–12, 2001; Nov. 23–24, 1997; May 31–Jun. 3, 1996; Oct. 21–23, 1992; May 27–30, 1992; Mar. 30–Apr. 2, 1990
Do you agree or disagree ... We must protect the environment even if it means jobs in your community are lost because of it?	CBS and CBS-NYT: July 13–16, 2000; Nov. 23–24, 1997; Jun. 20–23, 1996; Mar. 28–31, 1993; Sept. 9–13, 1992; Mar. 30–Apr. 2, 1990
This country should do whatever it takes to protect the environment OR ... This country has gone too far in its efforts to protect the environment.	Pew Center for People and Press: Jan. 23–Mar. 3, 2014; Feb.–Mar. 2011; Dec. 1–16, 2004; Aug. 24–Sept. 10, 2000; Jul. 14–Dec. 9, 1999; Oct. 14–20, 1996
Stricter environmental laws and regulations cost too many jobs and hurt the economy OR ... Stricter environmental laws and regulations are worth the cost.	Pew Center for People and Press: Jan. 23–Mar. 3, 2014; Feb.–Mar. 2011; Mar. 13–30, 2008; Nov. 7–26, 2007; May 8–Aug. 13, 2007; Feb. 8–Mar. 7, 2006; Dec. 1–16, 2004; Aug. 24–Sept. 10, 2000; Jul. 14–Dec. 9, 1999; Oct. 14–20, 1996
With which one of these statements about the environment and the economy do you most agree?: 1) Protection of the environment should be given priority even at the risk of curbing economic growth; or 2) Economic growth should be given priority even if the environment suffers to some extent.	Gallup, Gallup/CNN/USA Today, Gallup/Life/If Only Women Ran America, USA Today/Gallup, Public Agenda Foundation: May 24–25, 2010; Jan. 15–30, 2009; Mar. 2003; Apr. 13–16, 2000; Apr. 13–14, 1999; Mar. 12–14, 1999; Apr. 17–19, 1998; Jul. 25–27, 1997; Apr. 17–19, 1995; Mar. 30–Apr. 5, 1992; Apr. 5–8, 1990
What do you think is most important: protecting the environment or producing energy?	CBS and CBS-NYT: Nov. 20–24, 2002; Jun. 14–18, 2001; Apr. 23–24, 2001; Mar. 8–12, 2001
Some people think it is important to protect the environment even if it costs some jobs or otherwise reduces our standard of living ... Other people think that protecting the environment is not as important as maintaining jobs and our standard of living.	American National Elections Study: 2008, 2004, 2000, 1996
Some people think we need much tougher government regulations on business in order to protect the environment ... Others think that current regulations to protect the environment are already too much of a burden on business.	American National Elections Study: 1998, 1996
Should federal spending on environmental protection be increased, decreased, or kept about the same?	American National Elections Study: 2008, 2002, 2000, 1994, 1992, 1990, 1988
Protection of the environment should be given priority, even at the risk of limiting the amount of energy supplies—such as oil, gas and coal—which the United States produces	Gallup: Mar. 2003

<i>Question Wording</i>	<i>Survey Organizations and Dates</i>
(or) development of U.S. energy supplies—such as oil, gas and coal—should be given priority, even if the environment suffers to some extent?	
... Tougher laws and regulations to protect the environment even if it raises prices or costs jobs ...	Public Religion Research Institute: Jan. 28–Feb. 24, 2013
... We must protect environment even if it means increased government spending and higher taxes ...	CBS-NYT: Mar. 20–Apr. 2, 1990
... We need to relax our environmental laws in order to achieve economic growth, OR 2. We need to maintain our present environmental laws in order to preserve the environment for future generations ...	CBS: Apr. 23–24, 2001
... Increasing environmental controls, even if it reduces employment opportunities ...	Princeton Survey Research Associates: May 18–24, 1993