DO POLITICAL PROTESTS MATTER? EVIDENCE FROM THE TEA PARTY MOVEMENT*

Andreas Madestam
Daniel Shoag
Stan Veuger†
David Yanagizawa-Drott

December 17, 2012

Abstract

Can protests cause political change, or are they merely symptoms of underlying shifts in policy preferences? We address this question by studying the Tea Party movement in the United States, which rose to prominence through coordinated rallies across the country on Tax Day, April 15, 2009. We exploit variation in rainfall on the day of these rallies as an exogenous source of variation in attendance. We show that good weather at this initial, coordinating event had significant consequences for the subsequent local strength of the movement, increased public support for Tea Party positions, and led to more Republican votes in the 2010 midterm elections. Policymaking was also affected, as incumbents responded to large protests in their district by voting more conservatively in Congress. Our estimates suggest significant multiplier effects: an additional protester increased the number of Republican votes by a factor well above one. Together our results show that protests can build political movements that ultimately affect policymaking, and that these effects arise from influencing political views rather than solely through the revelation of existing political preferences.

*We are grateful to Edward Glaeser, as well as to seminar participants at the American Enterprise Institute, BI Norwegian Business School, Bocconi University, the Brookings Institution, the Federal Reserve Board of Governors, the Graduate Institute Geneva, the Harvard Kennedy School, the Harvard Departments of Economics and Government, the Heritage Foundation, MIT, and the Stockholm Institute of Transition Economics for valuable comments. Emma Bennett, Annalise Blum, and Itai Nixon provided excellent research assistance. We are also grateful to Devin Burghart for providing us with Tea Party membership and rally attendance data.

†Corresponding author: American Enterprise Institute, 1150 Seventeenth Street NW, Washington, DC 20036, stan.veuger@aei.org.

I Introduction

How does political change come about? While freedom of speech and assembly are central pillars of democracy, recognized as intrinsically valuable, it is unclear how effective the exercise of these freedoms is in bringing about change. Though there are numerous historical episodes where political change has been associated with or preceded by political demonstrations, such as the French Revolution, the Civil Rights movement, and the recent Arab Spring, it is unclear to what extent these protests *caused* the change. Protests are likely to occur alongside other changes in society, and it is difficult to disentangle whether they cause political change or simply reflect unobservable changes in preferences and beliefs. Empirical evidence of the causal effects of protests is scarce. In fact, to our knowledge, there is almost no empirical work quantifying the causal effects of protests on subsequent political outcomes. It is an open question to what extent political protests can cause political change, and this paper sheds light on these issues.

More specifically, we investigate the impact of the Tea Party movement protests in the United States on policymaking and citizen political behavior. The Tea Party movement is a conservative-libertarian political movement in the United States that has organized protests and supported candidates for elected office since 2009. This setting is a well-suited testing ground for hypotheses regarding the effectiveness of political protests and one of the few such settings on which extensive data are available. The movement propagates an agenda that is systematically to the right of the status quo, which makes the measurement of policy changes in the direction desired by the movement relatively straightforward. In addition, the largest protests in the early stage of the movement were the nation-wide 2009 Tax Day Rallies. As this date was preset, it allows us to test whether the size of the protests on Tax Day affected subsequent political outcomes.

The main empirical challenge in estimating the impact of protests is that unobservable political preferences are likely to determine both policy and the number of protesters. A naive regression

of policy on protest size is therefore unlikely to reflect a causal effect. We address this problem by exploiting variation in rainfall during the day of the protest. The idea is simple: people are more likely to participate in protests if the weather is nice compared to when it rains. Nice weather on the protest day therefore leads to larger protests in certain places. Conditional on the likelihood of rain, rainfall is a random event, and whether it rains on the protest day is arguably uncorrelated with other factors that affect economic, or in the present case, political outcomes. Under the assumption that absence of rainfall affects policy and voting behavior only through the number of protesters, this allows us to estimate the impact of protest size using an instrumental variables approach. Even when relaxing this assumption, our estimates demonstrate the overall importance of these initial coordinating events on the movement's success.

We use data from a large number of sources to measure the influence of the Tax Day protests on the Tea Party. The importance of the initial protests on local movement strength is evident in outcomes as diverse as participation in Tea Party online social networks, political action committee contributions, the number of protesters at subsequent protests, media coverage in local newspapers, and survey measures of local political beliefs. We show that these political protests and the movements they built affected policymaking and voting behavior as well. Incumbent representatives vote more conservatively following large protests in their district, and a rain-free rally in the district increases the likelihood that a Democratic incumbent retires. Larger protests increase turnout in the 2010 elections, primarily favoring Republican candidates. We find evidence of sizable effects. In particular, our baseline estimate shows that every Tea Party protester corresponds to a 14 vote increase in the number of Republican votes. Our most conservative estimate lowers that number to 7. The Tea Party protests therefore seem to cause a shift to the right in terms of policymaking, both directly and through the selection of politicians in elections.

In assessing the mechanisms through which protests affect policy, we find that our results are not consistent with a simple information-revelation model of political demonstrations and movements.

The fact that an exogenous and observable shock to the cost of demonstrating has a persistent affect on local activism suggests that the protests operate by enabling social interactions and altering political preferences. In particular, we find that a temporary positive shock in rally size causes a *persistent* increase in the number of active movement members. Larger Tax Day protests also increase monetary contributions to the movement, where the effect is increasing over time. Beyond that, we show that protests impact subsequent protests, as larger Tax Day rallies drive larger Tax Day protests in the following year. Finally, we provide survey evidence showing that the protests increased support in the general population in favor of the political views promoted by the Tea Party movement, such as the opposition to raising the income taxes of high earners. Together, these results are consistent with larger political protests creating a stronger political movement that is able to more effectively persuade the populace about its policy agenda come election time, which ultimately affects both incumbent behavior and election outcomes.

In addition to providing exogenous variation in rally outcomes, variation in rainfall can be used to assess the statistical significance of these results. In the paper, we compare the effect of rainfall on the true date of the rally to the distribution of placebo estimates of rainfall on other days. We find that none of the placebo dates 1980-2008 produces a cumulative effect as large as the effect estimated for Tax Day 2009. This finding, when combined with numerous additional robustness checks, demonstrates the reliability and significance of the results.

Our results relate to the large body of empirical and theoretical work that has attempted to explain which factors drive political participation. Most empirical work on why people vote has identified simple correlations between political activism and citizen characteristics (see e.g. Blaise 2000 for a review). A limited number of papers have assessed the causes and consequences of political protests. An early contribution is Cicchetti et al.'s (1971) analysis of the November 1969 mobilization in Washington to end the Vietnam War using a travel-cost method to measure the willingness of participants to express their political views. More recent studies using individual-level data from

West Germany (Finkel and Opp 1991; Finkel and Muller 1998) show that political party identification, dissatisfaction with public good provision, a belief that group action can be successful, and a belief in the importance of your own participation is correlated with the choice to participate. While these papers inform us about determinants of political activism, there is little research on the causal impact of political protests. One exception is Collins and Margo's (2004, 2007) work on the effects of the riots following the assassination of Martin Luther King Jr. on income, labor, and housing market outcomes for African-Americans. Similar in spirit to this paper, they exploit rain during the month of April 1968 as an instrument for riot severity. In this respect, we also connect to Madestam and Yanagizawa-Drott's (2011) use of daily rainfall to generate variation in outdoor participation on Fourth of July to study the impact of celebrating Independence Day.

Theoretical work has generally suggested that a sense of civic duty or consumption value drives political involvement (Downs 1957; Riker and Ordeshook 1968; Coate and Conlin 2004; Feddersen and Sandroni 2006). Political theorists rationalizing why people protest highlight explanations based on the importance of peer pressure within smaller political groups, often led by political entrepreneurs who provide selective incentives to protesters (McCarthy and Zald 1977; Uhlaner 1989; Oberschall 1994), on people's (unrealistic) perception that that they can be politically influential (Opp 1989), and on bandwagon effects where the cost of participation decreases in the number of people who attend (Kuran 1989).[1] However, these results leave the question of why protests would matter as instruments for political change unanswered.

One attempt to answer this question focuses on social dynamics within groups and networks of citizens, and their (potentially unintended) influence on individuals' desire to attain certain political goals (Zuckerman 2005). Another influential strand of papers, written by Lohmann (1993, 1994a, 1994b), emphasizes the role of information.[2] Lohmann (1993, 1994a) models the role of visible

[1] In particular, Kuran shows how the turnout of extremists sets of a cascade of events that attracts more moderate participants later on.

[2] See also Bueno de Mesquita (2010) for an information model where a revolutionary vanguard engages in public

political activism in revealing private information to the public at large and to policymakers, and in signaling the costs and benefits of participating per se (1994b). We provide evidence suggesting that this mechanism is unlikely to fully explain our results. First, it is unclear why weather-driven variation in protest size should provide a signal about underlying beliefs or preferences, if weather on the protest day is orthogonal to beliefs and preferences. Second, even if policy responds to protest size because it provides information about beliefs or preferences, differences across districts with and without rainfall on the protest day should decrease as additional information arrives. We find no evidence of the effects on incumbent behavior decreasing over time. In fact, the effects on policy in 2010 are slightly larger than the effects in 2009. Our results are therefore difficult to reconcile with Lohmann's framework. Instead, since the effects are very much local, they suggest that it is personal interaction within small groups of citizens that serves as a crucial channel for the transmission of new political views and that leads to increases in political activism, in line with Zuckerman's (2005) "social logic of politics" and the shaping of a new social context that motivates citizens to "call folk, hustle, [and] outwork [their] foe" (Texans for John Cornyn 2008). In our discussion we argue that Lohmann's information-driven model of the effectiveness of political activism cannot fully explain our results, and that social networks, mobilization and/or habit formation are key missing elements that must be incorporated into a full model of political protests. This argument is broadly consistent with the qualitative evidence presented by Skocpol and Williamson (2011). In their study of the Tea Party movement, based on interviews with activists and an extensive analysis of their (on-line) activity, they emphasize the role rallies played in shaping the movement: "From interviews and tracking local Tea Parties in public sources, we have learned that these groups were often launched by sets of organizers who did not know one another personally before they met in rallies or other protest settings" (Skocpol and Williamson 2011: 93). These local groups then helped sustain the momentum of the movement through regular meetings and grass-

violence to mobilize the protesters.

roots organizing, often but not always facilitated by individual members' previous experience in other social institutions (Skocpol and Williamson 2011: 37-44), which could be seen as analogous to the value of preexisting institutions to the Civil Rights Movement in its heyday (McAdam 1985). We argue that it is through this mechanism, and not solely through the revelation of privately held, pre-existing, policy views per se, that initial rally turnout affected political and policy outcomes for the rest of the election cycle. It is, arguably, personal interaction that is the most effective campaign instrument of all (Green and Gerber 2008).[3]

The remainder of the paper is structured as follows. In Section II we provide background information on the Tea Party movement. Section III contains a discussion of the data we use. In Section IV we present the estimation framework and in Section V our empirical results. Section VI assesses the robustness of the analysis. In Section VII we discuss and interpret our findings before we conclude.

II The Tea Party Movement

II.A. Tea Party Goals and Organization

The 1773 Boston Tea Party has been a potent symbol for American anti-tax activists over the past few decades, and its iconic value has regularly been exploited for protests and fund-raisers (e.g. Holmes 1991, Levenson 2007). More recently, starting in early 2009, a broader political movement coalesced under the Tea Party banner (McGrath 2010; see also Figure 2 for the evolution of Tea Party web searches relative to total search volume). The movement's supporters have come together in a loose coalition of national umbrella organizations that vary in their degree of centralization and ideological focus.[4] Though the movement is unified by opposition to the Democrat-dominated fed-

[3]This is consistent with the finding of Bailey et al. (2011) that higher numbers of Tea Party activists in a given region correlate with more conservative electoral outcomes and Congressional voting patterns.

[4]The main organizations supporting the Tea Party movement are the non-profits Tea Party Express, Tea Party Patriots, Americans for Prosperity, FreedomWorks, and the for-profit Tea Party Nation. Among its leaders are opinion makers such as talk radio host and former Fox New Channel host Glenn Beck, former Vice Presidential Candidate and Alaska Governor Palin, former House Majority Leader and FreedomWorks chairman Dick Armey, but also a range of national,

eral government and mostly supports Republican candidates for office, it is not explicitly partisan. For example, while some scholars have characterized the Tea Party's membership as overwhelmingly white, partisan Republicans with negative views of immigrants and blacks, who are socially conservative and were politically active long before the movement started (Putnam 2011), others see it as an independent, populist grassroots phenomenon that wants to limit the role of government (Rasmussen and Schoen 2010). That said, there is broad consensus that the emanations of their endorsements and exaltations constitute a penumbra desire to shift policy "to the right," in an across-the-board conservative direction (see e.g. Skocpol and Williamson 2011).[5]

II.B. Tea Party Activism

The outbreak of the 2008 financial crisis triggered a substantial policy response from both the outgoing Bush administration and the incoming Obama administration. The Emergency Economic Stabilization Act of 2008 and the American Recovery and Reinvestment Act of 2009, in particular, involved extensive public resources in an effort to stabilize the U.S. economy, but also mobilized resistance on the political right. When CNBC Business News editor Rick Santelli delivered a televised and rapidly popularized attack on the U.S. government's plans to refinance mortgages and called for a "Chicago Tea Party," he inspired several, relatively small, local protests that took place in February 2009. As a broader protest movement started to take shape in the form of online and real-life "Tea Party" groups, plans for larger coordinated protests culminated in the first large national showing of activism on April 15, 2009 (Tax Day), when the groups held a large number of rallies across the United States.

state and local elected officials (Washington Post 2010) including Republican Congressmen Michelle Bachmann (Minnesota 6th District) and Allen West (Florida 22nd District), Senators Mike Lee (Utah) and Jim DeMint (South Carolina) and Governor Nikki Haley (South Carolina).

[5]For example, Tea Party Express, perhaps the best known of the Tea Party groups, claim to stand for six main principles: (1) Reduce the size and intrusiveness of government; (2) Stop raising our taxes; (3) Cease out-of-control spending; (4) No more bailouts; (5) Repeal Obamacare; and (6) Bring back American prosperity. http://www.teapartyexpress.org/mission. Available November 15, 2012.

[Insert Figure 1 about here]

There were approximately 440,000-810,000 individuals protesting nation-wide on Tax Day 2009 (for the data sources, see Section III). Figure 1 shows that more than 500 rallies took place across the United States. These rallies can be seen as the true starting point of the national Tea Party movement, as evidenced, for example, by the fact that it was the moment when most of the Tea Party activists interviewed in Skocpol and Williamson (2011) "got involved for the first time". Data from Google Insights over the period 2007-2011 on the intensity of web searches of the term "Tea Party" largely support this as well. These data are presented in Figure 2, and shows that such web searches became much more common around the time of the rallies in April of 2009. In this paper, we study the effect of these rallies on subsequent movement strength, on political beliefs in the population, and on political outcomes, both in elections and in the legislature.

[Insert Figure 2 about here]

After these initial protests, much of the organizational effort of the different Tea Party groups shifted focus away from public protests to fundraising and the construction of a more localized social-movement infrastructure (Skocpol and Williamson, 2011), and to direct engagement with the institutionalized political process. In the remainder of our paper, we study the importance of the 2009 Tax Day rallies to the effectiveness of these efforts in the year and a half that followed, up to the 2010 midterm elections. On the organizational side, we analyze the recruitment of volunteers by local Tea Party groups in different locales, turnout at the 2010 Tax Day rallies, the fundraising prowess of Tea Party Express' Political Action Committee, Our Party Deserves Better PAC, and

changes in local political preferences. On the more directly policy-focused side, we assess the consequences that the 2009 rallies had for local politicians' decisions to retire, for election results, and for the votes cast by incumbent members of the House of Representatives.

III Data and Summary Statistics

To construct our dataset we extract information from a number of sources in order to collect data on rainfall, Tax Day rally attendance, Tea Party activism, media coverage, political beliefs, voting outcomes, and policymaking. The following subsections present these sources and how they are matched. Details on the data and how the variables are constructed can be found in the Data Appendix.

III.A. Rainfall Data

Information on precipitation comes from the National Oceanic and Atmospheric Administration and contains data from approximately 12,000 weather stations over the period 1980-2010. We construct our rainfall measure by aggregating the weather station data to the appropriate geographic level (county or congressional district) and then extract the mean daily rainfall (in inches). In our baseline measure, days with rainfall below 0.10 inches count as non-rainy; higher precipitation levels are defined as rainy.[6] Based on historical weather observations for the period 1980-2008, we also create a measure of the probability that a county or congressional district will experience at least 0.10 inches of rain on a given day in April.[7]

III.B. Rally Attendance, Movement, and PAC Contributions Data

[6] A priori, it is unclear whether the deterring effect of bad weather is linear, convex, or concave in precipitation. We use the dummy specification primarily because of the simplicity in interpreting the estimates. In Section VI we show that the results are robust to the way rainfall is defined.

[7] We take the fraction of historical days that were rainy as defined by the 0.1 inch threshold. As rain across adjacent days tends to be positively correlated, we restrict our data to April 1, 7, 15, 21, and 30 to ensure that we use independent and identically distributed draws. In the end, this procedure yields 140 past realizations for estimating the rainfall probability. The results are not sensitive to the set of historical days we use. For example, the findings are robust to employing only April 15, or all days in April.

Three different sources allowed us to collect attendance estimates for the Tax Day rallies held on April 15, 2009: the Tea Party self-reports (SurgeUSA.org 2009), the New York Times (Silver 2009), and the Institute for Research and Education on Human Rights (IREHR 2010), a think tank in Missouri. Figure 1 depicts a map of the 542 reported rallies that we have in our dataset. In the analysis, turnout is aggregated by county. As the sources sometimes differ in the number of attendees, we use the mean across all three as well as the maximum reported. While the mean is a reasonable approximation if the measurement error is classical, our estimates could be biased if discrepancies in the reports lead to a measurement error that is non classical.[8] If less attended rallies occur in counties with small populations, and these events are more likely to be neglected, the measurement error would be correlated with population size. Our data show that the likelihood that one source fails to report a rally in a county when the other two do report declines in the county population. In addition, the within-county cross-source variance in turnout is decreasing in population size.[9] To alleviate the concern of systematic misreporting, we therefore present estimates using both the mean and the maximum attendance across the three sources. We also report population-weighted per capita estimates to account for any population-driven variance. Overall, the mean and maximum suggest that approximately 440,000-810,000 individuals protested nation-wide on Tax Day 2009.

To measure local Tea Party activism, we use data from IREHR on the number of social network profiles posted on the websites of the five main Tea Party non-profit organizations and from Federal Election Commission campaign finance reports on donations to Tea Party Express. Our dataset includes the total number of profiles of the following factions: Tea Party Patriots, Americans for Prosperity and FreedomWorks, discussed above, as well as two smaller organizations, 1776 Tea Party and ResistNet. These groups maintain their own social networking sites, with minimal pri-

[8] A simple OLS regression of election outcomes on rally size results in attenuation bias if there is classical measurement error. In the appendix, we show that the OLS estimates are indeed smaller in magnitude than the instrumental variable estimates.

[9] See Figure A1 for these discrepancies in reported rally size.

vacy protections, allowing the IREHR to collect data on a daily basis since 2010. The "members" included are typically the leadership of local chapters. Though Tea Party affiliation is largely unofficial, these online profiles, much like donations to Tea Party Express, serve as reasonable proxies for the number of activists involved in local Tea Party organizing. The total number of profiles posted on these sites nationwide was approximately 150,000 in 2010. In addition to the membership measures we also gauge local Tea Party activism by including attendance data for 2010 Tax Day rallies from EconomyPolitics (2010).

Information on financial contributions in 2009 and 2010 to Our Country Deserves Better PAC, the fund-raising wing of the Tea Party Express, was obtained from the Federal Election Commission campaign finance reports. As the data is available at the individual donation level, we aggregate the information to the county level. The advantage of using this particular PAC is that it has no ties to a particular officeholder or region, and that federal campaign finance legislation limits individual contributions to $5,000 per annum. It therefore provides a reasonable measure of grassroots support of the national Tea Party movement.

III.C. Media Coverage

To measure local media coverage of the protests we use news articles from the NewsLibrary database matched with the Audit Bureau of Circulations county-level circulation data. Newslibrary.com archives over 4,000 titles, but not those of large national newspapers such as the Wall Street Journal or the New York Times. We collected information on all articles from newspapers with circulation over 15,000 containing the phrase "Tea Party" from January 1, 2009 through June 20, 2010 and merged these data to geographic regions using the county-level circulation information. In the end, we were able to find location data for 255 publications across 46 states. To decide whether the area covered by a newspaper was rainy or not on a given day, we use the circulation-weighted amount of precipitation (and, as we do throughout, a cutoff of 0.10 inches). Over this

time period, these publications contained some 40,000 articles including the term "Tea Party."

III.D. Political Beliefs

To study whether the rallies affected public support for the Tea Party movement as well as political beliefs more broadly, we use the Evaluations of Government and Society Study from the American National Election Studies (ANES). Interviews were conducted in October 2010, weeks before the midterm election, and include a set of questions about the Tea Party and political opinions associated with the movement's leaders. The data also contain socio-demographic variables, voting behavior in the 2008 election, and each respondent's reported likelihood of voting in the 2010 midterm election. We have information for a total of 42 states at the congressional district level that we match with rainfall, census, and survey data.[10]

III.E. Election, Policy-making, and Demographic Data

Our political outcomes include election results in the 2010 midterm elections for the House of Representatives, the decisions of incumbent congressmen to retire prior to the 2010 midterms, and congressional voting assessments. To control for past electoral outcomes we use county- and congressional district-level data for the U.S. House of Representatives elections in 2006 and 2008 and the 2008 presidential election. The election data come from David Leip's Atlas of U.S. Presidential Elections. Information on incumbent congressmen's decision not to seek reelection was obtained from Wikipedia, while the ideological bent of congressional voting records is measured using yearly roll-call ratings from the American Conservative Union. Finally, socio-demographic county- and district-level data (income, population, race, immigrants, and unemployment) come from the 2000 and 2010 Census and the 2009 American Community Survey.

Table 1 presents summary statistics for our county-level pre-rally variables.[11] It shows that the

[10] The ANES lack county identifiers, barring an analysis at the county level.

[11] There are 2,758 counties in our sample. We lose some counties because of a combination of lack of data on precipitation, demographics, and election outcomes.

counties that were plagued by rain are fairly similar in terms of past voting behavior, past donations to the Tea Party Express PAC, population, racial composition of the population, and unemployment compared to the rainless counties. Appendix Tables A1.a, A1.b, and A1.c contain descriptive statistics at the county, district, and individual respondent level for the precipitation measures and our outcome variables.

[Insert Table 1 about here]

IV Empirical Framework

The main challenge in measuring the effectiveness of these protests, and of political activism in general, is that unobserved political beliefs or a culture of activism are likely to be correlated with both the number of protesters and other political behavior such as voting.

How then do we assess the impact of larger rally attendance? We investigate the Tea Party Tax Day rallies held on April 15, 2009, but to estimate their effects we cannot simply assume that the variation in turnout is orthogonal to future developments in the same local area. Instead we rely on an approach that exploits the fact (established below) that people are less likely to attend a rally if it rains. This allows us to estimate the causal impact of variation in rally attendance if we are willing to assume that rainfall on the rally day only affects the outcomes of interest, for example, voting for the Republicans in the 2010 mid-term elections, through rally attendance. This exclusion restriction seems plausible, though a valid concern is that bad weather may make a rally less pleasant for actual attendees, which itself energizes the attendees and the consequent movement less. We would then be measuring the effect of a combination of rally size and rally impact per attendee as determined, among other things, by the likelihood of new social ties forming.

A similar concern is that weather directly, rather than through the number of attendees, affects the likelihood that mass media cover the protests. If there is such a direct effect and media coverage of political protests affects voting behavior and policy-making, then the exclusion restriction would be violated. With these potential caveats in mind, we nevertheless believe it is useful to scale the effects of weather by rally attendance in order to get a quantitative measure of the importance of the Tea Party protests. We also present reduced form effects of protest day rainfall for all outcomes, where the exclusion restriction is not a necessary identifying assumption for our interpretations. These results demonstrate the overall importance of the demonstrations for future outcomes.

IV.A. Specifications and Hypotheses

To estimate the effect of the protests, we first investigate whether rainfall decreases attendance by regressing the number of protesters in a county on a dummy variable that indicates whether there was significant rain in the county. Specifically, we estimate the following equation:

$$Protesters_c = Rainy\ Rally_c\theta' + Probability\ of\ Rain_c\delta' + \mu_r + x_c\gamma' + \varepsilon_c, \tag{1}$$

where *Protesters* is a measure of rally attendance in county c, *Rainy Rally* is a dummy equal to one if there was rain in the county on the day of the rally (April 15, 2009), *Probability of Rain* is a set of dummies controlling for the likelihood of rain on the day of the protest, μ captures four U.S. Census region fixed effects, and x is a vector of pre-determined county covariates. In order to exploit weather variation across counties with similar baseline likelihoods of rainfall on the protest day, we control for the rain probability flexibly. Specifically, we include dummy variables corresponding to the deciles in the historical rain probability distribution. Since rainfall is likely to decrease attendance at the rallies, we expect $\theta < 0$.[12]

Our baseline specification includes a set of pre-determined county controls. This inclusion is not

[12] As described in the data section, we use the average rally attendance from the three sources.

necessary for our identification strategy if rainfall is uncorrelated with other determinants of political outcomes, but will have the benefit of reducing residual variation and thus improve the precision of our estimates.[13] The standard set of covariates include flexible controls for population size (decile dummies) and other demographic controls: log of population density, log of median income, the unemployment rate, the increase in unemployment between 2005-09, the share of white population, the share of black population, the share of Hispanic population (the omitted category consists of other races and ethnicities), and the share of immigrant population (in 2000). We also include election covariates: the county vote share for Barack Obama in the 2008 Presidential election and outcomes from the two preceding U.S. House of Representatives elections (the Republican Party vote share, the number of votes for the Republican Party in total or per capita, the number of votes for the Democratic Party in total or per capita, and turnout in total or per capita). Since the true functional form relating rainfall to attendance and later political outcomes is unknown, we present regressions with outcomes both in levels and per capita, where the per capita regressions are population weighted.[14] For regressions in levels (per capita), we include election controls in levels (per capita) to match the outcome variables. The Appendix contains a detailed description of how the variables are defined and constructed.

[13] In Section VI we investigate the sensitivity of the estimates to the set of control variables and fixed effects. In general, the results are qualitatively and quantitatively similar. As described in the data section, we use the latest possible values (mostly from 2009), unless otherwise stated.

[14] Dickens (1990) demonstrates that population-weighting in geographically grouped data is only desirable when group sizes are small enough that the variance of the average of individuals is larger than the variance of the group component. For county-level observations group sizes are frequently quite small. More than 10% of the counties in our data have fewer than 5,000 residents, meaning that the individual error component in per capita election and (especially) Tea Party movement outcomes is large. While population-weighting can induce heteroskedasticity, a test recommended by Dickens to gauge this effect (i.e. regressing the squared residuals from the WLS attendance regression on population size) returns a small and statistically insignificant result. Additionally, measurement error is likely to be more problematic in small counties. For example, the gap between the largest and smallest rally attendance estimate in per capita terms declines with population size, and that relationship is statistically significant (see Appendix Figure A.1). Thus population weighting, or alternately a minimum population filter, is the correct approach and improves the precision of the per-capita specifications. Nevertheless, to demonstrate the robustness of our results, we include unweighted specifications for key outcomes in Appendix Table A.10. These tests similarly find that rain on April 15, 2009 negatively affected attendance and Tea Party outcomes.

Finally, we cluster the standard errors at the state level in all regressions.[15]

We then examine whether the protests affected the strength of the Tea Party movement and voting behavior, by using rainfall as a proxy for protest effectiveness in the second stage of our estimation:

$$y_c = \textit{Rainy Rally}_c\kappa' + \textit{Probability of Rain}_c\delta' + \mu_r + x_c\gamma' + \varepsilon_c, \tag{2}$$

where y is a variety of post-rally outcomes.

A limitation of these estimates is that it may be hard to interpret the size of κ, the coefficient on our rainfall dummy. We therefore also produce estimates that provide a per attendee scaling of the weather effect on later outcomes:

$$y_c = \textit{Predicted Protesters}_c\lambda' + \textit{Probability of Rain}_c\delta' + \mu_r + x_c\gamma' + \varepsilon_c, \tag{3}$$

where y again represents a variety of post-rally outcomes. Now, rainfall may affect political outcomes through other channels than solely the number of attendees (e.g., if bad weather deters journalists from attending and cover the protests, which in turn hampers the local Tea Party movement's ability to promote or pursue its conservative agenda). If that is the case, λ cannot be strictly interpreted as the "causal" effect of protest size under identical weather conditions.[16] If rainfall affects outcomes only through the size of the rally, we can give a strict causal interpretation to λ, which would be a consistent instrumental-variable estimator of the causal effect an additional protester on outcomes. If protests have heterogeneous effects on outcomes, we will identify the local average treatment effect (LATE) on counties where attendance is sensitive to whether it rains.

[15] Figure 3 depicts the residual variation in rainfall that identifies the model. As can be seen in the figure, there is variation within the various regions of the country. Clustering at the state level allows for arbitrary within-state correlation and assumes that there is no cross-state correlation. If there is substantial spatial correlation, this assumption may be too strong. In the robustness section, we show that inference is robust to alternative methods.

[16] According to Holland (1986), there can be "no causation without manipulation." In our case, the manipulation in attendance is the result of random weather shocks. In our concluding discussion we interpret the estimates as being driven by a change in the costs of protesting.

For example, if attendance by relative moderates is lower under worse weather conditions and has a larger spillover effect on other individuals, the LATE would be larger than the average effect.

As described in the data section, for a given county we use mean rally attendance from three reporting sources. In several cases the sources differ in the reported number of attendees, which indicates that there is measurement error. Using the mean is reasonable if the measurement error for a source is classical, since we will get unbiased estimates. Alternatively, these differences may be non-classical due to under-reporting, as one or two sources occasionally fail to report a rally that seems to in fact have taken place. To address this possibility, we also report estimates using the maximum reported attendance across the three sources. With this framework in mind, our main hypothesis is that the protests strengthened the consequent Tea Party movement and had a positive impact on votes for the Republican Party, $\lambda > 0$.

A natural channel through which the rallies may have had long-run effects is through increased local media coverage of the protests. Media coverage of a political movement can potentially serve as a device for spreading information about a movement's policy agenda, which in turn may energize and grow the movement, or persuade voters and policy-makers. To test this mechanism, we estimate the effects of weather on the protest day on local newspapers' coverage of the Tea Party movement by calculating weekly article totals for the Newslibrary sample of local newspapers that were matched to the Audit Bureau's geographic circulation information. For each paper, we calculate the average precipitation in the counties it serves weighted by each county's share of the paper's overall circulation. We then run cross-sectional regressions week-by-week at the paper level, where the dependent variable is a count of the number of articles containing the phrase "Tea Party" and the independent variable is the previously described measure of rain on Tax Day 2009. By estimating week-by-week effects using an equation analogous to equation 2, we can test whether rainfall affects media coverage immediately after the rallies, as well as whether there is an

effect on later events that were important to the Tea Party movement.[17]

To assess whether the protests increased support for the movement and its political views, we use the ANES survey data on political beliefs. District identifiers for survey participants are matched with district rainfall, which enables us to estimate a specification that is essentially identical to equation 2, using respondent outcomes, covariates, district rain probability and population size decile dummies, log population density, and region fixed effects:

$$y_i = \textit{Rainy Rally}_i\beta' + \textit{Probability of Rain}_i\delta' + x_i\gamma' + x_d\theta' + \varepsilon_i, \tag{4}$$

The covariates on socio-demographics are age, education, race, income, unemployment status, rural, and foreign-born status. Pre-determined election covariates, from 2008, are dummies indicating whether the respondent voted for the Republican Party in the election for the House of Representatives.[18]

Finally, political protests can affect not only election outcomes, but also policymaking. The Tea Party movement, generally speaking, pushed for more conservative policies. To investigate whether the Tea Party protests were successful in achieving this goal, we estimate the reduced-form relationship between rain during the protests and later policy-making outcomes in congressional districts, where the outcome variable is a measure of conservative roll-call votes as provided by the American Conservative Union (ACU), or a dummy variable indicating whether the incumbent congressman decided to retire prior to the 2010 midterm election. The scores measure the percentage of the scored votes that accord with the ACU position and are scaled from 0 (most liberal) to 100 (most conservative). As the ACU scores are available for every year, we estimate separate cross-sectional

[17] As we do not have election and demographic data at the newspaper level, the media regressions are estimated without these covariates. Since the unit of observation is different from counties, we also do not scale the effects by rally size.

[18] Since we do not have rally attendance at the district level, we are unable to scale the weather effect by attendees.

regressions for 2009 and 2010 along the lines of equation 2:[19]

$$y_d = \textit{Rainy Rally}_d\beta' + \textit{Probability of Rain}_d\delta' + \mu_r + x_d\gamma' + \varepsilon_d, \tag{5}$$

where we include the same set of demographic and election controls employed in the county-level regressions. In addition, we also account for the past two years of ACU scores (decile dummies) and the identity of the victorious party in the last two elections (dummy variables identifying whether the past two elections were won by the Democrats, Republicans or a combination of the two).[20] We use equation 5 to test the hypothesis that the Tea Party protests affected policymaking in a conservative direction through roll-call voting by incumbent congressmen, or through selection of politicians by differentially affecting Republican and Democratic incumbents' likelihood of retirement. Our hypothesized underlying mechanism for this effect is that a lack of rain increased protest attendance (equation 1), which strengthened the Tea Party movement and shifted the electorate towards more conservative policies (equations 2-4), which policy-makers ultimately responded to for re-election purposes (equation 5, $\beta < 0$).[21]

IV.B. Exogeneity Check

A key identifying assumption is that rainfall in equation 1 is uncorrelated with other determinants of political outcomes. As shown in Table 1 above, rainy and non-rainy counties are quite similar on average. To more carefully address potential concerns regarding our identifying assumption in equations 1-5, we present exogeneity checks at both the county and the district level. Table 2.a shows the estimates produced by regressing pre-rally values of outcome variables on a dummy variable representing whether it rained on Tax Day 2009. The dependent variables used include

[19] In later sections, we discuss how the dynamics provide useful information about the underlying mechanisms.

[20] As the ACU score distribution is bi-modal with Democrats and Republicans clustered around different means, a change from one party to the other can have a large impact making our estimates imprecise. We increase precision by including controls for such shifts in the past to capture prior differences across districts that account for the switching.

[21] In the final section we present a simple conceptual framework for why rainfall would have reduced-form effects on policy-making, and how leading alternative mechanisms would be difficult to reconcile with such effects.

the results of the 2008 House and presidential elections, as well as pre-rally donations to Tea Party Express. The regressors are identical to equation 1, with the exception that the 2008 political covariates are omitted and instead constitute the outcome variables. Table 2.a shows that the rainfall dummy in our specification is not significantly correlated with any of the pre-rally political outcomes.

Table 2.b presents the district-level estimates for the regression equivalent of equation 5 for the American Conservative Union's roll-call scores in years before the rally, where covariates analogous to the those in equation 5 are included for roll-call scores and election outcomes in preceding years. The rain dummies do not contribute significantly to explaining the variation in roll-call scores in any of these cases. Together, Tables 2.a and 2.b lend credibility to our identification strategy.

[Insert Table 2.a and 2.b about here]

Tables 3 through 8 contain our central results, which we are now ready to explore.

V Results

V.A. The Effect of Rainfall on Rally Attendance

Table 3 presents the estimates of equation 1. It shows that rainfall during the day of the protests decreased attendance at the Tea Party Tax Day rallies. Columns 1-4 estimate the effects in levels, where the dependent variable is measured in thousands of protesters. The estimate in column 1 uses the mean attendance across the reporting sources, and implies that rainfall decreased attendance by 96 protesters ($t = 4.25$) on average. Given a sample mean of 160 protesters, rainfall decreases rally size by approximately 60 percent. To address the possibility of measurement error

and under-reporting, which may lead us to overestimate the importance of rally size (see section IV.A.), column 2 estimates the effect using the highest reported attendance across the three sources. The estimate indicates that bad weather decreased attendance by 190 protesters ($t = 3.71$), or, analogously, a 65 percent reduction in rally size. Column 3 further shows there is a significant relationship when we instead use the precipitation amount (hundreds of inches), and column 4 shows that rainfall decreases attendance when the equation is estimated on the sample of 542 counties for which there was a reported rally.[22] Columns 5-8 present results for analogous specifications where the outcome variable is scaled by population size, and show a similar pattern of highly significant coefficients. The estimates in column 5 imply that rainfall on the day of the rally decreased the share of the county population protesting by 0.082 percentage points (t=3.98), and the upper bound estimate using the highest reported number of attendees in column 6 implies a 0.17 percentage point (t=3.69) deterrent effect of bad weather.[23] Finally, when the dependent variable is scaled in logs, we find that rainfall decreases the rally size by approximately 60 percent (0.473 log points, column 9), which is consistent with the previous results.[24]

[Insert Table 3 about here]

[22] Conditioning the sample will introduce a bias if rainfall decreases the likelihood that there is a rally, so this estimate should be interpreted with caution. In fact, precipitation is negatively correlated with the likelihood of having a reported rally (results not shown for brevity). Nevertheless, we present the estimated coefficient for the interested reader.

[23] In Appendix Table A8, we investigate whether the "complier" counties, i.e. counties where the protest size responds to rainfall, are counties of a particular political leaning. We do so by dividing counties into categories reflecting whether they are Republican leaning, Democratic leaning, or swing counties in the 2010 midterm election, based on the predicted Republican vote share from previous elections and socio-demographics. We show that weather has an effect on protest size in all three types of counties, which is useful to keep in mind when interpreting the effects of the protests on other outcomes presented below.

[24] Since the natural logarithm is undefined at zero, this regression is estimated on the sample of reported rallies. Also, to be consistent across specifications the election covariates are measured in logs (see section IV), which reduces the sample further by excluding observations where there were zero votes for a party in the preceding elections (i.e., uncontested races). The point estimate is, however, very similar whether the election covariates are measured per capita or completely dropped.

V.B. Movement Outcomes

One of the primary mechanisms through which protests are thought to influence policy is by strengthening their associated political movements. Historically, it has been difficult to obtain data on this type of activity, but the Tea Party's online-era birth allows us to measure local activism along some dimensions. For example, though Tea Party affiliation is largely informal, the number of social network profiles posted on the websites of the five main Tea Party factions is a good proxy for the number of activists involved in local Tea Party organizing. As discussed in the data section, the IREHR has been scraping data on the number of profiles and it has provided us with geocoded tallies as of July 1, 2010. In addition, we use information on numbers of donors to Tea Party Express. Table 4 shows that lack of rain during the 2009 Tax Day rallies caused more local organizers; column 1 implies non-rainy counties on average have 11 more organizers compared to rainy counties (significant at the one percent level), or approximately an increase of 19% from a sample mean of 57. When estimated as a percentage of population (the dependent variable is between 0 and 100 percentage points), the coefficient in column 2 implies that a lack of rain leads to 0.0077 percentage points lower share of the population self-declaring to be local Tea Party organizers. When making the additional assumption that the effects are driven by larger attendance at the rally, the 2SLS estimates of equation 3 imply that 100 additional protesters lead to 5.7-11.3 additional local organizers on average (columns 3 and 4). Alternatively, a one percentage point increase in the number of protesters caused a 0.045-0.093 percentage point increase in the share of the local population joining the Tea Party movement as self-proclaimed organizers (columns 5 and 6). While the absolute magnitudes are modest, relative to overall activity measured by these social networking sites, the effect of Tax Day rain is substantial. The overall impact of Tax Day rain on participation may be considerably larger if unmeasured involvement is similarly effected.

We provide further evidence that protests can function as a device to build a movement and have a persistent effect on future activism, by estimating whether they increased participation in the Tax

Day rallies the following year (i.e., on April 15, 2010).[25] Columns 7 and 8 of Table 4 show that a lack of rain during the 2009 rallies indeed led to higher attendance during the 2010 rallies; a rain-free rally in 2009 caused 73 more attendees in 2010 (column 7, significant at the one percent level), or, alternatively, a 0.065 percentage points higher share of the population (significant at the five percent level). This is a non-trivial effect, since the average number of attendees in 2010 was 69 protesters, which implies that lack of rain in 2009 approximately doubled the size of the protests locally the following year.[26] Scaled by attendees, the 2SLS estimates in columns 9 and 10 indicate that 100 additional protesters in 2009 caused an additional 38.5-76.0 protesters in 2010.[27] Thus, Table 4 lends credence to the idea that protests can facilitate the building of a movement, and that protests beget protests.

[Insert Table 4 about here]

.

V.C. Monetary Contributions

The strength of a political movement can partly be assessed by the willingness of its supporters to contribute in monetary terms. Table 5 presents the effect of rain on the day of the rally on contributions to one of the key Tea Party Political Action Committees (Our Country Deserves

[25] In a previous version of the paper we also studied a small number of anti-Affordable Care Act townhall meeting protests held during the summer of 2010. However, these findings proved sensitive to the construction of the rain measure, and we are not confident enough in those results to claim that turnout at these protests was higher in districts where it rained on Tax Day 2009.

[26] This effect is quite large, but partly comes from the fact that attendance in 2010 was lower across the board than in 2009 (average of 1,601). One explanation for this decline in rally attendance is provided by Skocpol and Williamson (2011: 85): "Following the big DC rally in September 2009, more of the same seemed "anticlimactic," explains Lynchburg Tea Partier *John Patterson*.

[27] Since we lack data to identify which individuals that attend the protests, it is unclear to what extent it is the same individuals that show up at the protests the following year, or whether the initial protests lead to new protesters.

Better PAC). The reduced-form regressions in Columns 1 through 6 demonstrate that lack of rain on the date of the rally significantly reduced contributions from the individuals residing in the county. The estimates on the rain dummy in columns 1 and 2 are for 2009 post-rally contributions, and imply that good weather caused approximately a $76 increase, or a 0.00032 U.S. dollar per capita increase (significant at the ten and five percent level, respectively). Columns 3 and 4 provide further evidence that the protests had a persistent and strong effect on support for the movement, as rain-free rallies lead to a $286 increase in 2010 contributions ($0.0011 per capita).[28] Given the sample means, they correspond to a 38 percent increase in 2009 contributions and 33 percent increase in 2010. Columns 5-10 estimate the effect on the sum across the two years. The scaled results in columns 7 and 8 indicate that an additional 100 protesters increased contributions by $190-375, or, alternatively, that a one percentage point increase in the population protesting lead to $0.8-1.7 increase in per capita contributions.[29] Together with the effects presented in Table 4, our results show that political rallies can trigger both growth of and support for a movement as individuals volunteer as organizers and contribute monetarily, and that such effects can last for extended periods of time.

[Insert Table 5 about here]

.

V.D. Media Coverage

[28] Since we are interested in how the protests and the movement affected the 2010 midterm elections, the 2010 data contain contributions up to the November elections.

[29] This increase in monetary contributions may seem small in absolute terms, but the data we use are for only one specific PAC. As mentioned above, the advantage of using this particular PAC is that it has no ties to a particular officeholder or region. Federal campaign finance legislation also limits individual contributions to $5,000 per annum, which makes it unlikely that a few individual donors drive the results, as would be the case for many 527s. Again, if contributions to other affiliated groups are similarly affected, the total monetary impact could be substantial.

An additional mechanism through which protests can create support for a movement and further its policy agenda is media coverage. That is, if mass media report on the protests and the policies promoted by the protesters, the movement may itself be energized, or get the attention of the general population and, ultimately, policy-makers. Figure 4 plots the time series of the estimated coefficient and confidence intervals. As expected, rain on April 15, 2009 had no significant effect on the level of media coverage prior to the Tax Day rallies, which is marked in red. On Tax Day itself, a rainy rally leads to a statistically significant decrease of one article per week and newspaper or about 20-25% of the mean level of coverage. We interpret this effect as resulting from media finding it worthwhile to cover and report on a protest if it is sufficiently large, rather than small and insignificant (or, of course, non-existent). The remainder of the figure tracks the effect of rain on April 15, 2009 on coverage in subsequent weeks. For most of the sample, the measured effect is slightly negative (though close to zero) and statistically insignificant. This coefficient becomes significant for only four events. Interestingly, all four statistically significant dates correspond to important events for the Tea Party movement. A drop in coverage of a size similar to the Tax Day 2009 drop occurs on Tax Day 2010, when attendance, as we have seen elsewhere, was driven down by rainfall on Tax Day 2009. This is consistent with the idea that media report on political activism once it is sufficiently substantial in magnitude. Smaller but still statistically significant differentials were also found around July 4th, when there were many local events (Freedomworks 2009), as well as around the 2009 off-year elections. This means that even though there is no clear constant increase in media coverage of the movement in rain-free areas, we cannot exclude that some of the effects we find are reinforced by spikes in media coverage around key protest dates.

[Insert Figure 4 about here]

V.E. Political Beliefs

As mentioned in Section II, the protesters commonly displayed discontent with the state of affairs in the country, and the movement was broadly promoting a conservative-libertarian political agenda. Table 6 presents survey evidence showing that the protests increased popular support for the movement, and that the local population adopted political opinions typically expressed by the protesters and the Tea Party's leaders.[30]

[Insert Table 6 about here]

Respondents in non-rainy districts are approximately 6 percentage points more likely to express strong support for the Tea Party movement (column 1). From a sample mean of 12.0 percent, this corresponds to approximately a 45 percent increase in the number of Tea Party supporters a year and a half later. Good weather also produced more favorable views towards former Alaska Governor Sarah Palin (column 2), who was one of the movement's most outspoken leaders in 2010.[31] According to the estimates, the discontent expressed by the protesters spilled over to the local population, as 26 percent more individuals in non-rainy districts report they feel outraged about the way things are going in the country (column 3 shows a 4.6 percentage point increase). There is also evidence that the protesters' and movement's small-government, largely libertarian and anti-Obama views spilled over to the population: respondents are 5.8 percentage points more likely to oppose raising taxes on incomes above $250,000 (column 4), 6.5 percentage points more likely to believe that Americans have less freedom compared to 2008 (column 5), and 4.6 percentage points

[30] All regressions include demographic controls. The results are robust to the exclusion of the controls, with similar point estimates, and significance at least at the same levels (results not shown for brevity). As attendance data is not available at the district level, we do not scale these estimates.

[31] For example, she participated as a speaker in the rallies organized throughout the country as a part of the Tea Party Express Bus Tours of 2009 and 2010. She was, of course, also the Republican Vice-Presidential candidate in 2008.

more likely to have unfavorable feelings towards President Obama (column 6). Following Kling et al. (2004) we also derive the average effect across all outcomes.[32] Column 7 presents the average belief effect of rally rainfall on the family of political beliefs and shows that rain reduced preferences in line with the Tea Party's agenda by 0.13 standard deviations, on average (significant at the one percent level). Finally, column 8 provides evidence suggesting that the protests (and consequent growth of the Tea Party movement) not only affected beliefs in a conservative direction, but also faciliated mobilization of voters. When asked to assess the percentage likelihood that the respondent will vote in the midterm elections, individuals living in non-rainy districts report a 6.7 percentage point higher likelihood of turning out.[33] Next, we investigate how the Tea Party protests affected actual voting behavior during the 2010 midterm elections.

V.F. Election Outcomes

Were the Tea Party protests effective? One of the key goals for any movement is to convince the general population of the desirability of its policy agenda. We assess the effectiveness, or success, of the Tea Party protests by estimating how they affected voting in the 2010 U.S. House elections. Table 7 provides evidence that the rallies led to more votes for Republicans as well as a larger Republican vote share. Columns 1 and 2 present the reduced-form effects, which show that counties that lacked rain during the protests saw 1,370 additional Republican votes on average, or a 1.04 percentage points larger share of the population voting for the Republican Party in the county. Scaling the effect by the number of protesters, columns 3-6 suggest that 100 additional protesters led to 720-1,420 additional Republican votes, or, alternatively, that a ten basis point increase in the population protesting increased the share of the population voting for the Republican Party by 0.6-1.2 percentage points (significant at the one percent level). Columns 7-12 show that there is little

[32] Kling et al. consider the measure of average effect size τ over the family of K outcomes in which each effect of rainfall (in our case) is normalized by the comparison non-rainfall district's standard deviation of the outcome. See Section VI for an extensive discussion of how we construct the average-effect measure for our study.

[33] The survey was conducted approximately two weeks before election day.

evidence that the protests affected votes for the Democratic Party, which suggests that the Tea Party protests, together with the consequent increase in media coverage and the support of the movement, affected turnout in favor of the Republican Party. Since the marginal protester brings an additional 7 to 14 votes to the Republican camp, these estimates provide additional evidence indicating that political protests have large spillover effects on non-protesters.[34] Columns 13-16 estimate the electoral advantage for the Republican Party, where the outcome variable is the Republican vote share. The effects are non-trivial, implying that lack of rain increased the Republican vote share by 1.55 percentage points (significant at the five percent level), and that a 0.1 percentage point increase in the share of the population protesting led to a 0.9-1.8 percentage points increase in the Republican vote share.[35] Column 16 shows the implications at the congressional-district level: good rally weather raises the Republican vote share by almost 2%.[36] In other words, our results show that the Tea Party protests were highly effective in getting voters out and bringing electoral success to Republicans in the 2010 House of Representatives election.

[Insert Table 7 about here]

[34]The 95 percent confidence interval also rejects the null hypothesis that the coefficient is equal to 1 (i.e., that there are no multiplier effects). We provide a discussion below as to how such spillover effects may arise. Also, the number of additional Republican votes generated may seem large at first glance, but it is important to realize that extra protesters lead to larger membership, higher contributions, and more conservative beliefs locally, thereby creating momentum reminiscent of the momentum caused by the early voters in Knight and Schiff (2010), who find that early voters in Democratic primaries have "up to 20 times the influence of late voters in the selection of candidates."

[35]In Appendix Table A9, we compare the scaling estimates to the OLS estimates. In general, the OLS estimates are smaller in magnitude. This may be due to several reasons. First, as described in the data section and depicted in Figure A1, there is non-trivial measurement error in the reported rally size. This can lead to attenuation bias that the scaling estimates are not subject to, since measurement error is purged in these estimate. Also, as the measurement error is likely to be non-classical and driven by under-reporting for small counties, population weighting partly addresses this. Unweighted regressions result in even larger 2SLS estimates, shown in Appendix Table A9, since more weight is put on smaller counties with under-reported rally size. Second, under the exclusion restriction and heterogeneous effects, the scaling estimate captures the local average treatment effect. This may be larger than the average effect of protest size. One reason for this may be that weather also affects attendance in counties with many potential swing voters that are more easily swayed to vote for the Republican Party (see Appendix Table A8). Finally, as mentioned in section IV, rainfall may affect voting behavior not only through the size of the protests, but also by directly increasing media coverage of the protests, which in turn has an effect on voting behavior.

[36]As the rally size data is at the county level, we do not scale the effects in terms of per-rally attendees.

Assessing the nation-wide impact of the Tea Party protests based on our estimates is a difficult task. First, there could be spillover effects that we are not able to capture within our regression framework. Also, the scaled estimates using rainfall as an instrument will capture the local average treatment effect, which may differ from the average effect of protesters, or the effect under identical weather conditions. Finally, if the functional form is miss-specified or the exclusion restriction of equation 2 is violated, the estimates would misrepresent the true average causal effect. With these caveats in mind, we do a simple back-of-the-envelope calculation assessing the nation-wide impact of the Tea Party protests, using the most conservative estimates of equation 2. According to our data across all 542 reported rallies, there were an approximate 440,000-810,000 individuals protesting nation-wide on Tax Day 2009. When we use our most conservative per-protester estimate (that is, the regressions with the maximum number of protesters for the rally size), the protests lead to an estimated 25,000-46,000 additional local Tea Party organizers, 170,000-310,000 additional protesters during the 2010 Tax Day rallies, and an increase in donations to the Tea Party Express's PAC of $840,000-$1,540,000. Furthermore, these protests had an estimated nation-wide effect on the 2010 midterm election corresponding to 3.2-5.8 million additional votes for the Republican Party in the 2010 House elections.[37] Our results can thus be seen as providing support for the commonly held notion that the Tea Party Movement played an important role in the Republican Party's landslide win in the 2010 House elections. Our results also indicate that the initial nation-wide Tea Party protest during Tax Day in 2009 was key in building the Tea Party movement and driving the conservative shift in the electorate.

V.G. Policy Outcomes

Ultimately people care about political rallies and movements because they have the potential to

[37]The calculations are based on multiplying the total number of protesters with the per-protester scaled estimates. They are taken from column 4 and 10 of Table 4, column 8 of Table 5, and column 4 of Table 7, respectively. These are, of course, point estimates, and as such one should take into account that there is uncertainty about the true value of the coefficient. For a highly conservative measure, one can take the lower bound of the 95 percent confidence interval, in which case the estimated nation-wide effects are much smaller.

change policy. One channel is through elections. Another is through policy-making by incumbents. Though the Tea Party umbrella encompasses many policy positions, in practice the vast majority of these positions are to the right of the median voter. We therefore test whether exogenous movements in the size of Tea Party rallies across districts impacted the voting record of representatives as evaluated by a group with similar political preferences. Each year the American Conservative Union assigns each congressman a score based on their votes on a select number of bills in the House. This score, which ranges from zero to one hundred, measures the extent to which the votes accord with the preferences of the ACU, which we treat as a proxy for Tea Party preferences. In Table 8, we explore the effect of protest attendance on this measure of voting behavior. Since we do not have rally turnout at the district level, we only report reduced-form results from estimating equation 5.

[Insert Table 8 about here]

Columns 1 through 4 indicate that rain on the date of the rally had significant effects on voting records in 2009 and 2010, in spite of the fact that Representatives from rainy and non-rainy rally districts had similar voting records through 2008. The estimates indicate that scores in districts with smaller rallies due to rain were less conservative by 1.9 to 2.8 ACU points in 2009 (significant at the five and one percent level, respectively), when the sample mean equaled 41.[38] For comparison, the difference between the average Democrat and the average Republican is about 85, while the standard deviation within the Republican caucus is about 12.5. The effect in 2010 is estimated at 3.2-4.3 points (significant at the one and five percent level), with slightly lower point estimates

[38] In column 1 we estimate the effect on the full sample of all congressmen. However, since a substantial fraction of representatives did not vote on all the bills scored by the ACU, we provide estimates on the sample of representatives that actually voted on all the 25 scored bills in 2009 (24 in 2010). The sample size is therefore smaller.

when taking the 2010-08 difference. As the ACU score is based on 24 roll call votes on which the ACU has an explicit position, with one vote for the conservative position giving a score of 100/24, the effect of non-rainy rallies corresponds to approximately 1 additional conservative vote in 2010 on average. The fact that the estimates in 2010 are slightly larger suggests, again, that the policy impact of the initial rallies does not fade over time. It is also important to note that changes take place before the congressional elections in 2010 replaces individual House members. Thus, these results demonstrate that the politicians in office respond to the rallies and the perceived beliefs of their constituents. Of course, not every change in voting behavior has direct legislative effects, as many pieces of legislation would have passed or not regardless. Still, the significant impact of Tax Day rain suggests that these results may indicate substantive shifts in voting records rather than just symbolic changes. Also, columns 7 and 8 show that there is an additional selection effect through the re-election behavior of incumbents: no rain on the day of the rally is estimated to make it about 9.4 percentage points likelier for Democrat incumbents to retire, while there is no such effect for Republican incumbents. This suggests that the Tea Party protests were effective in shifting the electorate towards more conservative policies (as shown in Tables 6 and 7), which forced some Democratic incumbents into retirement.

To summarize, we find that the weather-driven exogenous variation in rally attendance on Tax Day 2009 affected the eventual impact of these rallies. Where it did not rain, the number of local Tea Party activists was larger than where it did. Grassroots organizing increased, as did contributions to associated PACs and attendance at subsequent rallies. The population at large adopted the conservative-libertarian views of the protesters, and voter mobilization rose. This then led to more conservative voting both in the 2010 midterm elections and in the U.S. House of Representatives, and encouraged Democrat incumbents to retire.

VI Robustness

To assess the sensitivity of the results to our baseline econometric specifications we perform a set of robustness tests. The outcomes of these tests are presented in a series of tables in the Appendix.

VI.A. Specification

First, in Tables A2.a and A2.b we show that the main results are robust to how the covariates are specified. Specifically, we run regressions excluding the demographic covariates (panel A) or the region fixed effects (panel B), as well as a specification with flexible covariates (panel C).[39] The estimated coefficients in these regressions are of the same sign, similar in magnitude and significant at the five percent level for all outcomes.[40] It should be noted that the point estimates are generally less precisely estimated when covariates are excluded (e.g., see Table 7, columns 13 and 16, for comparisons with our baseline specification). When covariates are excluded for the Republican vote share outcome, the point estimate is significant at the ten percent level or insignificant at the county level, while it remains significant at the five percent level at the congressional-district level (panel A and B, columns 13 and 14). The district-specific results in Table A2.b are quite similar to the main results in terms of significance and magnitude for ACU scores, incumbents' decision to retire, as well as average political belief effect. In sum, our findings are practically insensitive to the set of covariates included in our baseline specification.

Second, we present results using different measures of rain on the day of the protest in Tables A3.a and A3.b. In particular, we use a higher precipitation threshold for the rainfall dummy (panel A), the natural logarithm of the precipitation amount (panel B), or a rainfall dummy that uses all weather stations within 10 miles of the county centroid as opposed to the stations within a county's borders (panel C). In Panel A, the coefficients are estimated using a precipitation threshold for significant rain defined at 0.35 inches, instead of the baseline specification of 0.1 inches.[41]

[39] In the flexible controls specification, we include 9 dummies for each variable, where each dummy corresponds to a decile in that variable's distribution (one decile is the omitted category).

[40] As can be seen in panel C, the point estimates are larger for a majority of the outcomes when using flexible controls.

[41] In a previous working paper version we used a 0.35 inch threshold in some of the specifications.

Essentially all the coefficients in both the county and district-level regressions are equal to or larger than those flowing from the baseline specification, and significant at the five or ten percent level.[42] The estimates in Panel B show that the results are qualitatively similar when using a continuous measure of rainfall on the protest day. Finally, restricting rainfall to a circle with a 10-mile radius around the county or district centroid (Panel C) changes little for our county results whereas some of our findings on the district level are more sensitive to this rainfall definition.[43] For example, the 2009 ACU score and the average effect on political beliefs are no longer significant and smaller in magnitude. Taken together, however, the robustness tests indicate that the results are quite insensitive to the construction of the rainfall variable on the day of the protest.

Third, in Table A4 we estimate the coefficients using a nonparametric estimation method, by checking the robustness of our results using the nearest-neighbor matching estimator (Abadie et al. 2004). Each county with rainfall is matched to the four non-rainy counties with the closest values of the controls using a procedure that is bias-corrected and includes robust standard errors. The match is based on the discrete distribution of the controls employed in our baseline specification (identical to Table A2.a, panel C). The estimates are significant at the five percent level and similar or larger in magnitude compared to the OLS estimates.

Fourth, in Tables A5 and A6 we restrict the sample in two ways. Table A5 shows the results when we exclude counties with a population size below 10,000 and above 1,000,000 people. Our findings hold up well in this setting suggesting that outliers in terms of population size are unlikely to drive the results. Table A6 limits the data to those counties where at least one of the three sources reports that a rally was held on Tax Day in 2009. Restricting the sample in this way will lead to unbiased estimates under the assumption that rainfall does not affect the likelihood of holding a rally, or being of significant enough size for the rally to be reported (i.e., the extensive margin is not

[42] The share of counties with a rainfall dummy equal to one decreases from 0.2 to 0.08 when we use the higher precipitation threshold. As there is less variation in the rainfall variable, the standard errors become larger.

[43] Since there are counties without rainfall stations within 10 miles of the county radius, the sample size is smaller.

affected). This assumption may not be realistic, however, as behavioral mechanisms or preferences that drive lower attendance on the intensive margin are likely to affect the extensive margin as well.[44] Nevertheless, for the interested reader, we show that the results are qualitatively similar when the sample is conditioned on counties that had a reported rally.

VI.B. Inference

The baseline specification clusters the standard errors at the state level, which requires an assumption of zero cross-state spatial correlation. Since this assumption may be rather strong, we conduct three robustness tests to assess the sensitivity of the results to spatial correlation.

First, we calculate standard errors that account for spatial dependence parametrically, following the procedure developed by Conley (1999). This procedure allows for spatial dependence in each spatial dimension (latitude and longitude) that declines in distance between units (county or district centroids, in our case) and equals zero beyond a maximum distance. Since it is not known what the maximum distance is in reality, we provide standard errors with four different maximum distances: 5, 10, 15 and 20 degrees, respectively.[45] Table A7 presents the results together with the state-clustered standard errors for the main outcomes.[46] In general, the results are still significant when using these alternative ways of calculating the standard errors, and the magnitude of the spatial standard errors is broadly comparable to that of the state-clustered ones.[47]

Second, to assess whether our effects are driven by an influential county or area, we run regressions where we drop each state. Figure 5 plots the distribution of coefficients, and shows that the results

[44] In fact, depending on the specification, we can reject the null hypothesis that rainfall does not affect the likelihood of having a reported rally.

[45] A degree is approximately 68.3 miles (110 kilometers), depending on where on earth it is measured. Alternatively, 5 degrees is about the shortest east-west distance of Utah's state boundaries.

[46] The procedure developed by Conley does not allow for population-weighted regressions. However, if unweighted regression spatial standard errors are comparable in magnitude to the unweighted state-clustered standard errors, there is no obvious reason why one would suspect population-weighted standard errors not to be comparable.

[47] In fact, for some outcomes the spatial standard errors are smaller in magnitude than the state-clustered ones. This suggests that clustering at the state level does lead to underestimated standard errors in this case.

are not driven by a particular state.[48]

[Insert Figure 5 about here]

Third, and perhaps most importantly, we conduct a series of placebo tests using rainfall on other historical dates in April. These placebos are drawn from the same spatially correlated distribution as rainfall on 4/15/2009. If rainfall on the protest day has a causal effect, the actual estimate of rainfall ought to be an outlier in the distribution of placebo coefficients. To implement this procedure, we rerun each regression (for the main outcomes) replacing the rainfall dummy on the protest day (April 15, 2009) with the rainfall dummy from a historical day in April between 1980 and 2008. Since there are days when there are no (or very few) counties in the entire country that experienced significant rain, we run the placebo regression only on the dates where at least ten percent of the counties experienced significant rain.[49] There are 627 placebo dates in the sample at the county level. Figure 6 presents the cumulative distributions of placebo coefficients for the main outcomes, together with the actual estimate from the 2009 protest day (the black line). It also reports the fraction of placebo estimates that are larger in magnitude than the actual estimate (in absolute terms, or in terms of a larger negative value). It shows that the actual estimate is indeed an outlier in the distribution of placebo dates in essentially all regressions. For example, only 0.6 percent of the placebo estimates for the estimate of the effect of rainfall on Republican

[48] Region-by-region and state-by-state Fama-MacBeth regressions show similar results.

[49] By requiring that there is at least some non-trivial amount of variation in rainfall across counties, we help avoid that each placebo estimate is driven by a few outlier counties (e.g., using draws where only a few counties in Democratic-leaning and typically rainy Oregon experienced rain, but the rest of the country did not). Moreover, as the mean share of counties with significant rainfall across dates in the placebo sample is 0.20, and the actual share of counties with significant rainfall on the April 15 2009 protest day is 0.22, the actual rainfall realization can be viewed as a typical draw from the placebo date distribution (number of observations: 627, standard deviation: 0.11, minimum: 0.10, maximum: 0.54). This procedure strengthens the intuition that if the actual rainfall protest day estimate is an outlier in the placebo distribution, it is likely to be the result of a true non-zero effect.

votes (in levels, or in percentage of the population) are more negative than the actual estimate, and 1.2 percent of the estimates are larger in absolute magnitude. For roll-call votes in 2009 (2010), 2.6 (3.2) percent of the estimates are more negative, and 4.7 (9.1) percent are larger in absolute magnitude. These tests strengthen the claim that the rainfall truly caused a stronger Tea Party movement, and more conservative policy-making and voting behavior in the general population.

[Insert Figure 6 about here]

Finally, our findings do not rest on any individual result alone, but on the fact that so many different measures of Tea Party strength and impact are affected in the hypothesized direction. To evaluate the likelihood of finding so many consistent results, we follow the method used in Kling et al. (2004) and Clingingsmith et al. (2009) and construct a summary average-effect measure. Specifically, we define the average-effect size for K outcomes as:

$$\tau = \frac{1}{K} \sum_{k=1}^{K} \frac{\pi_k}{\sigma_k} \tag{6}$$

where π_k is equal to the effect of rainfall on outcome k, and σ_k is the standard deviation of outcome k in the comparison non-rainfall group. We construct this measure using all outcome variables (contributions, percentage of votes, vote share, political beliefs, organizers, ACU scores, and subsequent rally attendance in both level and per capita terms, where relevant) for the weather of every day in April from 1980 to 2008.

In Figure 7 we plot the distribution of these placebo average effects against the average effect measured for the day of the rally, April 15 2009. We present placebos for all the main groups

of outcomes as well as the average standardized effect across all outcomes together (bottom-right graph). The standardized effect across all outcomes shows that the true average effect has a larger negative value than any given placebo draw, with only 2.9 percent of the placebos being larger in absolute magnitude. This is further evidence that our results are statistically meaningful even when drawn from a distribution with the same patterns of spatial correlation.

[Insert Figure 7 about here]

To summarize, our robustness tests indicate that it is highly unlikely that the results were driven by random weather patterns that did not have a true causal effect on the Tea Party protests, the movement, and consequent local political dynamics.

VII Discussion and Conclusion

This paper provides novel evidence on the effects of political protests on policymaking and elections. The existing political-economy framework that analyzes how protest size affects voting behavior and policy was first developed by Lohmann (1993, 1994a), as discussed in the introduction. We assess here whether this framework can sufficiently explain our main results, particularly those related to policymaking. In Lohmann's framework, protests affect policy through a Bayesian learning process. We present a simplified version of the model here. Specifically, when the distribution of policy preferences in society is unobservable and when protesting is costly, the number of protesters expressing their beliefs in favor of a policy change is a sufficient statistic describing the distribution of beliefs. When they observe a surprisingly large number of protesters, policymakers update their beliefs about preferences and the policy they choose to set.[50]

[50] We assume heterogeneous preferences among voters. Lohmann (1994a) uses heterogeneous beliefs with common preferences. For our purposes, the distinction is not important.

VII.A. A Simple Information Revelation Model

Suppose that there is a continuum of voters in a congressional district, where the population measure is normalized to one. Let $g_{c,t}$ be the policy position set by the incumbent in district c at time t. We can think of $g_{c,t}$ as corresponding to the left-right political spectrum on the real line, where a higher $g_{c,t}$ corresponds to more conservative roll-call voting. Each voter i has single-peaked preferences in g and therefore a strictly preferred (bliss) policy. The distribution of voters' preferred policy in a district is $g_{i,c}\ f(\bar{g}_c, \sigma)$, where f the is normal probability density function. Since the distribution is symmetric, $\bar{g}_c$ is also the preferred policy of the median voter. There is uncertainty about the median voter so that $g_c = \bar{g}_c + e_c$, where e_c is drawn from a normal distribution with mean zero and standard deviation σ_e and only $\bar{g}_c$ is observable.

Incumbents set policy in order to maximize the likelihood to becoming reelected. To avoid an involved electoral competition model, suppose that it is always optimal for the incumbent to set policy $g_{c,t}$ equal to the median voter's preferred policy.[51] Since the distribution of voters' preferences is not directly observable, the incumbent in district c will set policy at time t based on his expectation of the median voter:

$$g_{c,t} = E_t[g_c|I_{c,t}]. \tag{7}$$

Initially, the policy is $g_{c,0}$. Suppose that at time $t = 1$, before policy is set, voters can protest for a more conservative policy g_p, where $g_p > g_{c,0}$. We can think that some leader coordinates the protests and exogenously sets the protester's policy g_p. Only voters with sufficiently conservative preferences will therefore prefer the proposed policy. Protesting is associated with some cost,

[51] Of course, the optimal policy for the incumbent could be based on the entire distribution. However, in the classical one-period Downsian electoral competition model with single-peaked preferences where political candidates can commit to a policy, the equilibrium policy of the two candidates is indeed the median voter's.

q_c, for example because it is unpleasant to stand outdoors in bad weather, or because there is an opportunity cost. Given our empirical strategy, we focus on how weather affects the costs. Protesting in the rain is unpleasant, and so the cost of protesting is higher on a rainy day, q_r, than on a sunny day, q_s, so that $q_r > q_s$. For simplicity's sake, we assume that the cost is homogeneous among voters in a given district and that the weather is observable to voters and policymakers alike.

For simplicity, we assume that people protest sincerely, because they like to express their political preferences. We make the natural assumption that the payoff from protesting, $h(g_{i,c})$, is strictly increasing in the benefit of the proposed policy, $h' > 0$.[52] There is, therefore, a cutoff value above which voters will protest and below which they will not, i.e., only those with sufficiently conservative preferences will protest:

$$h(g_i, c) > q_c. \tag{8}$$

It follows that the number of protesters in a district, $p_c = Prob(h(g_i, c) > q_c)$, depends on the weather, $p_c(q_c)$. Similarly to Lohmann's work, p_c is a sufficient statistic for identifying the median voter. Incumbents will thus, in periods $t > 0$, update their beliefs and set policy conditional on the number of protesters in $t = 1$.

Now suppose there are N of these congressional districts. Define β_t as the mean difference between policy set in rainy and sunny districts. From (1), this difference will reflect the difference between incumbents' expectations of the median voter's bliss policy in the two types of districts,

[52] Even in a more sophisticated game with strategic protesting and collective action problems, such as in Lohmann (1994a), those with sufficiently conservative preferences are going to protest, as they will benefit from the policy change the most.

$$\beta_t = E[g_{c,t}(rain) - g_{c,t}(sun)] = E[g_c|rain] - E[g_c|sun] \tag{9}$$

Our key question is what this framework predicts for the reduced-form effect of weather on policy, β_t. If weather and p_c are both perfectly observable to policymakers, it is obvious that policy should not differ across districts ($\beta_t = 0$). Policymakers will simply adjust the number of protesters for the weather effect. This simple case suggests that information revelation *with no changes in political preferences among voters* is unlikely to drive our results.[53] That said, it is, indeed, a simple example. Suppose, instead, that the quality of information through which protest size reflects underlying preferences depends on the weather. Weather could then affect incumbents' beliefs about voter preferences. A straightforward example is a situation in which policymakers get their information from newspapers, and newspapers only view large protests as newsworthy.[54] To formalize this, suppose that incumbents only observe p_c when it is sunny.[55] This implies that in sunny districts the median voter is revealed at $t = 1$, whereas in rainy districts uncertainty persists past t=1. In rainy districts the incumbent will then only fully discover the underlying preferences through independent information over time. The key implication is that in any time period $t > 0$, as long as additional information about voters' preferences continues to arrive (e.g. in the form of opinion polls or additional protests), the absolute difference in policy between the two types of districts should decrease.

[53] This statement is of course also directly supported by the survey evidence showing that political beliefs shifted in the conservative direction. Also, the Republican vote share increased, which could be because policy preferences changed, or that they *effectively* changed because of increased turnout among Republicans.

[54] Another, slightly more complicated, mechanism could be that protesting is strategic instead of sincere, so that voters can signal their preferences by protesting. In a classic signaling model the difference between a pooling and separating equilibrium depends on the cost of taking action. Rain everywhere may then be necessary for there to be a separating equilibrium where protesting provides a signal.

[55] The same argument would hold if the incumbent only observes protest size if there is rain, or, more generally, when the precision of the signal depends on the weather.

We thus claim the following: if weather on the protest day has no effect on preferences and only affects policy through learning, then any initial learning effect should decrease over time as additional information makes its way to the rainy districts:

$$|\beta_t| > |\beta_{t+1}| \tag{10}$$

However, when we investigate the effects on policy, we find no evidence that the effects decrease over time. The results in table 8 show that the effects in 2010 are, if anything, larger than the effects in 2009. It is thus unlikely that protest size only affects policymaking through the learning mechanism proposed by the standard framework. Instead, this suggests that preferences in the voting population actually shifted differentially, so that the median voter position (g_c in this stylized example) became more conservative in sunny districts as compared to rainy districts.[56] The next section highlights some alternative mechanisms that would be consistent with such a shift.

VII.B. Alternative Mechanisms

If Bayesian learning does not fully explain our results, a natural question is what does. One strand of literature that would be consistent with political beliefs actually shifting is the social interactions literature (e.g. Glaeser et al. 1996, 2003; Topa 2001; Calvo and Jackson 2004). The implication of this literature is that protesters may be affected by interactions with other protesters at the Tea Party rally, and non-protesters may be affected by interactions with protesters after the rally has taken place. For example, one mechanism could be that moderate independents are on the margin before the protests, but become persuaded by the Tea Party policy agenda at the protests. Convinced conservatives may feel energized when many people show, even if only because of nice weather,

[56]Note that when turnout is less than full, the median voter can shift to the right because of increased turnout among more conservative citizens. Therefore, this argument does not hinge on any individual's preferences actually being shifted.

and become more passionate proselytizers, as seems to be the case for many of the local Tea Party activists portrayed by Skocpol and Williamson (2011). This may be highly effective, as interactions in person or on the phone are the most effective campaign instruments available, at least when it comes to raising voter turnout (Green and Gerber 2008). Furthermore, if political beliefs spread in social networks, protesters may persuade non-protesters. This would explain why a shift occurred in the voting population towards the conservative position, and why that shift went beyond those voters initially involved in the Tax Day rallies.[57]

Another potential mechanism is that protests build a stronger political organization with the resources to support candidates in elections. The lobbying literature predicts that if a group of voters in society is politically organized, policy is more likely to be set according to this group's policy preferences (Baron 1994; Grossman and Helpman 1996; Persson and Tabellini 2000). The crucial mechanism here is that candidates interested in maximizing the probability of winning an election will find it optimal to cater to the organized group, since otherwise the group will provide support to other candidates. This mechanism goes a long way in explaining our findings regarding incumbent behavior.

Finally, the estimated persistence in political activism is consistent with habit formation models (Murphy and Shleifer 2004; Mullainathan and Washington 2009; Gerber et al. 2010). According to this literature, the act of protesting itself makes people more committed to the proposed policy agenda, and political attitudes shift as a result of having protested. This would explain why we see that attendance at future protests increases when many people protested initially. This would not, however, explain why we estimate increases in number of Republican votes that are larger than the total number of protesters.

[57] This argument parallels the findings of Banerjee et al. (2012). Studying the diffusion of a microfinance intervention, they show that one-third of the impact detected on the diffusion of the program comes from people who themselves were not active in taking up the program. Translated to our setting, this may explain why arguably small groups of rally attendees can have a large effect as they interact with people who themselves were not necessarily present at the initial rallies but who sway other citizens through personal interactions in turn.

One could, of course, imagine that (combinations of) all three of these alternative mechanisms are relevant. Since the data do not allow us to fully separate between these potential alternative mechanisms, it would be helpful if further research pinpointed the precise mechanisms through which protests affect voting behavior and policymaking, and under which conditions.

VII.C. Conclusion

We show that larger political protests can both strengthen the movement they are meant to support, and help advance the political and policy agenda of the movement. We find that the 2009 Tax Day Tea Party protests increased turnout in favor of the Republican Party in the subsequent congressional elections, and increased the likelihood that incumbent Democratic representatives decided to retire prior to the elections. Incumbent policymaking was also affected, as representatives responded to large protests in their district by voting more conservatively in Congress. In addition, we provide evidence that these effects were driven by a persistent increase in the movement's strength. Protests led to more grassroots organizing, to larger subsequent protests and monetary contributions, and to stronger conservative beliefs, as documented qualitatively by Skocpol and Williamson (2011). Finally, the estimates imply significant multiplier effects: for every protester, Republican votes increased by seven to fourteen votes. Our results suggest that political activism does not derive its usefulness solely from the provision of information or its consumption value, but that the interactions produced at rallies and protests can affect citizens' social contexts in ways such that a movement for political change persists autonomously. This confirms the importance of social dynamics in networks of citizens for the realization of political change, and seems of relevance not only in the context of representative democracies, but also at the onset of revolutionary movements.

Department of Economics, Stockholm University

Harvard Kennedy School

American Enterprise Institute

Harvard Kennedy School

References

Abadie, Alberto, Guido W. Imbens, David Drukker, and Jane L. Herr, "Implementing Matching Estimators for Average Treatment Effects in Stata, *STATA Journal*, 4 (2004), 290-311.

Bailey, Michael A., Jonathan Mummulo, and Hans Noel, "Tea Party Influence: A Story of Activists and Elites," *American Politics Research*, forthcoming.

Banerjee, Abhijit, Arun G. Chandrasekhar, Esther Duflo, and Matthew O. Jackson, "The Diffusion of Microfinance," *NBER Working Paper 17743*, 2012.

Baron, David P., "Electoral Competition with Informed and Uninformed Voters," *American Political Science Review*, 88 (1994), 33-47.

Barro, Robert, "The Control of Politicians: An Economic Model," *Public Choice*, 14 (1973), 19-42.

Besley, Timothy J., and Stephen Coate, "An Economic Model of Representative Democracy," *Quarterly Journal of Economics* 112 (1997): 85-114.

Blais, André, *To Vote Or Not To Vote? The Merits and Limits of Rational Choice Theory*. (Pittsburgh: Pittsburgh UP, 2000.)

Bueno De Mesquita, Ethan, "Regime Change and Revolutionary Entrepreneurs," *American Political Science Review*, 104 (2010), 446-466.

Calvó-Armengol, Antoni, and Matthew O. Jackson, "The Effects of Social Networks on Employment and Inequality," *American Economic Review*, 94 (2004), 426-454.

Campbell, David E., and Robert D. Putnam, "Crashing the Tea Party." *New York Times*, August 16, 2011.

Cicchetti, Charles J., A. Myrick Freeman III, Robert H. Haveman, and Jack L. Knetsch, "On the Economics of Mass Demonstrations: A Case Study of the November 1969 March on Washington,"

American Economic Review, 61 (1971), 719-724.

Clingingsmith, David, Asim Ijaz Khwaja, and Michael Kremer, "Estimating the Impact of the Hajj: Religion and Tolerance in Islam's Global Gathering," *Quarterly Journal of Economics*, 124 (2009), 1133-1170.

Coate, Stephen, and Michael Conlin, "A Group Rule-Utilitarian Approach to Voter Turnout: Theory and Evidence," *American Economic Review*, 94 (2004), 1476-1504.

Collins, William J., and Robert A. Margo, "The Labor Market Effects of the 1960s Riots," in *Brookings-Wharton Papers on Urban Affairs 2004*,William G. Gale and Janet Rothenberg Pack, ed. (Washington, DC: Brookings Institution, 2004).

Collins, William J., and Robert A. Margo, "The Economic Aftermath of the 1960s Riots in American Cities: Evidence from Property Values," *The Journal of Economic History*, 67 (2007), 849-883.

CollectiveDisorder.com, "http://www.collectivedisorder.com".

Conley, Timothy G., "GMM Estimation with Cross Sectional Dependence," *Journal of Econometrics*, 92 (1999), 1-45.

Dickens, William T., "Error Components in Grouped Data: Is it Ever Worth Weighting?" *Review of Economics and Statistics*, 72 (1990), 328-333.

Downs, Anthony, *An Economic Theory of Democracy*. (New York: Harper and Row, 1957.)

EconomyPolitics, "How Many People Have Attended The Tea Parties? (Update 6)," "http://www.economypolitics.com", April 17, 2010.

Feddersen, Timothy, and Alvaro Sandroni, "A Theory of Participation in Elections," *American Economic Review* 96 (2006), 1271-1282.

Ferejohn, J, "Incumbent Performance and Electoral Control," *Public Choice* 50 (1986), 5-25.

Finkel , Steven E., and Karl-Dieter Opp, "Party Identification and Participation in Collective Political Action," *The Journal of Politics* 53 (1991), 339-371.

Finkel , Steven E., and Edward N. Muller, "Rational Choice and the Dynamics of Collective Political Action: Evaluating Alternative Models with Panel Data," *American Political Science Review* 92 (1998), 37-50.

Freedomworks.org, "What's Next?," Google Map, "http://tinyurl.com/cghcfm".

Gardner, Amy, "Gauging the scope of the tea party movement in America," *Washington Post*, October 24, 2010.

Gerber, Alan S., Gregory A. Huber and Ebonya Washington, "Party Affiliation, Partisanship, and Political Beliefs: A Field Experiment," *American Political Science Review*, 104 (2010), 720-744.

Glaeser, Edward L., Bruce Sacerdote, and José A. Scheinkman, "Crime and Social Interactions," *Quarterly Journal of Economics* 111 (1996), 507-548.

Glaeser, Edward L., Bruce Sacerdote, and José A. Scheinkman, "The Social Multiplier," *Journal of the European Economic Association*, 1 (2003), 345-353.

Green, Donald P., and Alan S. Gerber, *Get Out The Vote: How to Increase Voter Turnout*, 2nd edition. (Washington, DC: Brookings Institution Press, 2008.)

Grossman, Gene M., and Elhanan Helpman, "Electoral Competition and Special Interest Politics," *Review of Economic Studies*, 63 (1996), 265-286.

Institute for Research and Education on Human Rights, " *Tea Party Nationalism*, Special Report, Fall, 2010.

Holland, Paul W., "Statistics and Causal Inference," *Journal of the American Statistical Association*, 81(1986), 945-960.

Holmes, Michael, "Republicans urge tea for Texas/Legislators seek cuts before taxes," *Houston Chronicle*, December 7, 1991.

Kling, Jeffrey R., Jeffrey B. Liebman, Lawrence F. Katz, and Lisa Sanbonmatsu, "Moving to Opportunity and Tranquility: Neighborhood Effects on Adult Economic Self-Sufficiency and Health from a Randomized Housing Voucher Experimnent," Mimeo, NBER, October 2004.

Knight, Brian, and Nathan Schiff, "Momentum and Social Learning in Presidential Primaries," *Journal of Political Economy*, 118 (2010), 1110-1150.

Kuran, Timor, 1989, "Sparks and prairie fires: A theory of unanticipated political revolution," *Public Choice*, 61(1989), 41-74.

Kurrild-Klitgaard, Peter, "It's the Weather, Stupid! Individual participation in collective May Day demonstrations," *Public Choice*, forthcoming.

Levenson, Michael, "Ron Paul raises millions in today's Boston Tea Party event," *Boston Globe*, December 16, 2007.

Lohmann, Susanne, "A Signaling Model of Informative and Manipulative Political Action," *American Political Science Review*, 87 (1993): 319-333.

Lohmann, Susanne, "Information Aggregation Through Costly Political Action," *American Economic Review*, 84 (1994a), 518-530.

Lohmann, Susanne, "The Dynamics of Informational Cascades: The Monday Demonstrations in Leipzig, East Germany, 1989-91," *World Politics* 47 (1994b), 42-101.

Madestam, Andreas, and David Yanagizawa-Drott, "Shaping the Nation: The Effect of Fourth of July on Political Preferences and Behavior in the United States," Mimeo, Stockholm University and Harvard Kennedy School.

McAdam, Doug, *Political Process and the Development of Black Insurgency, 1930-1970*. Chicago: University of Chicago Press, 1985.

McCarthy, John D., and Mayer Zald, "Resource Mobilization and Social Movements: A Partial Theory," *American Journal of Sociology*, 82 (1977), 1212-1241.

McGrath, Ben, "The Movement: The Rise of Tea Party Activism," *The New Yorker*, February 1, 2010.

Mullainathan, Sendhil, and Ebonya Washington, "Sticking with Your Vote: Cognitive Dissonance and Political Attitudes," *American Economic Journal: Applied Economics*, 1 (2009), 86-111.

Murphy, Kevin M., and Andrei Shleifer, "Persuasion in Politics," *American Economic Review*, 94 (2004), 435-439.

Oberschall, Anthony R., "Rational Choice in Collective Protests," *Rationality and Society*, 6 (1994), 79-100.

Opp, Karl-Dieter, *The Rationality of Political Protest: A Comparative Analysis of Rational Choice Theory*. (Boulder, Colorado: Westview, 1989.)

Osborne, Martin J., and Al Slivinski, "A Model of Political Competition with Citizen-Candidates," *Quarterly Journal of Economics*, 111 (1996), 65-96.

Persson, Torsten, and Guido Tabellini, *Political Economics: Explaining Economic Policy*. (Cambridge, MA: MIT Press, 2000.)

Rasmussen, Scott, and Doug Schoen, *Mad As Hell: How the Tea Party Movement Is Fundamentally Remaking Our Two-Party System*. (New York, NY: Harper, 2010.)

RecessRally.com, "Recess Rally Updates," "http://www.recessrally.com", December 14, 2009, archived at "http://web.archive.org/web/20091214203019/http://recessrally.com/".

Riker, William H., and Peter C. Ordeshook, "A Theory of the Calculus of Voting," *American Political Science Review*, 62 (1968), 25-42.

Skocpol, Theda, and Vanessa Williamson, *The Tea Party and the Remaking of Republican Conservatism*. (New York, NY: Oxford University Press, 2011.)

Silver, Nate, "How Many Attended The Tea Parties?," ''http://www.fivethirtyeight.com/2009/04/how-many-attended-tea-parties.html", April 15, 2009.

SurgeUSA.org, "Nationwide estimates of Tax Day Tea Party protest crowds," ''http://www.surgeusa.org/actions/teapartycrowds.htm#crowds", May 23, 2009.

Texans for John Cornyn, Inc., "Big John," Texas Republican Party Convention Video, 2008.

Topa, Giorgio, "Social Interactions, Local Spillovers and Unemployment," *Review of Economic Studies*, 68 (2001), 261-295.

Uhlaner, Carole J., "Rational Turnout: the Neglected Role of Groups," *American Journal of Political Science*, 33 (1989), 390-422.

Zuckerman, Alan S., ed., *The Social Logic of Politics: Personal Networks as Contexts for Political Behavior*. (Philadelphia: Temple UP, 2005.)

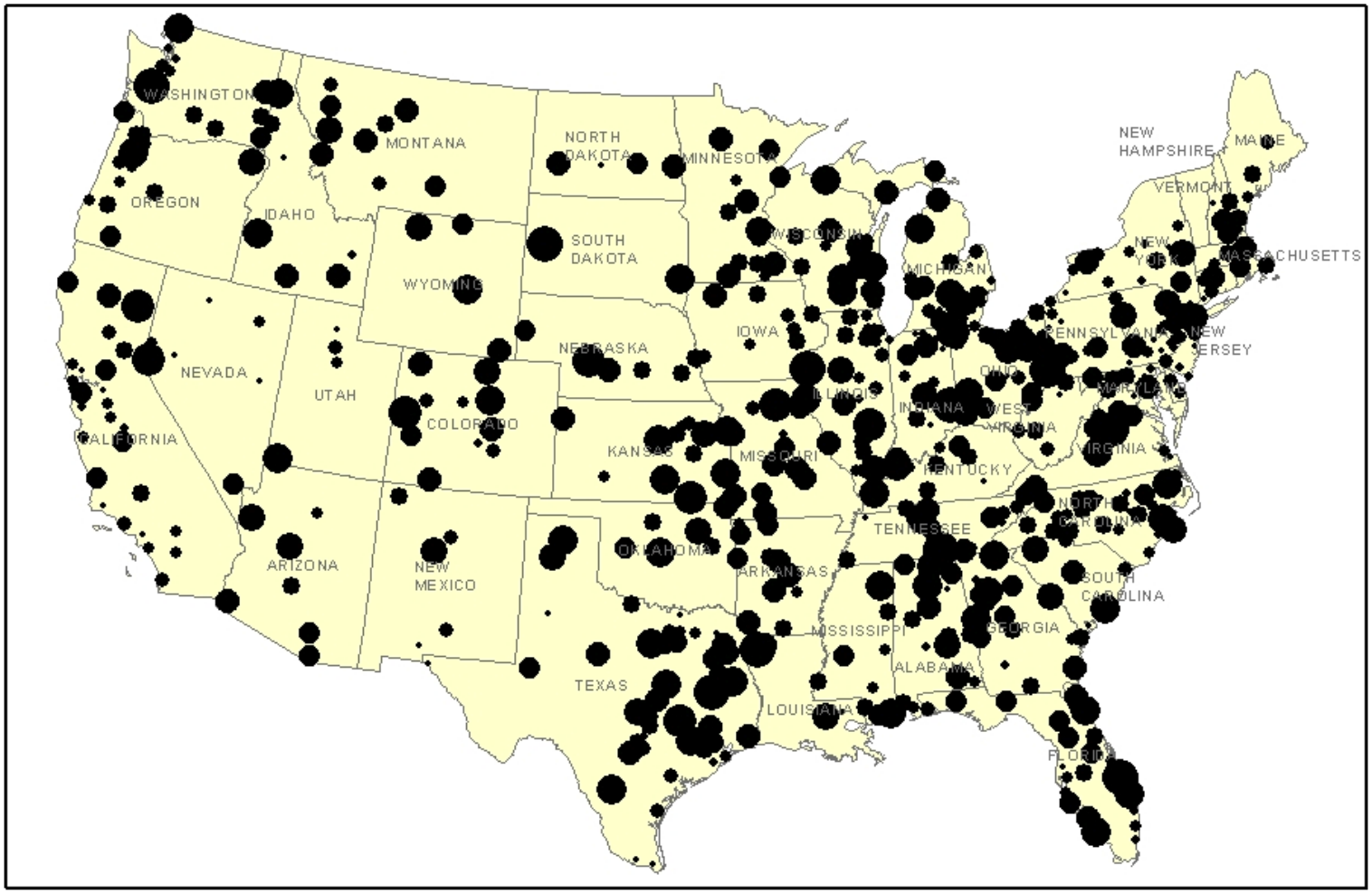

Figure 1. Tea Party Rallies on April 15, 2009. Total number of counties with rallies is 542, with a mean attendance of 815 and a standard deviation of 1,506. The size of the circles reflect the share of the population turning out to protest.

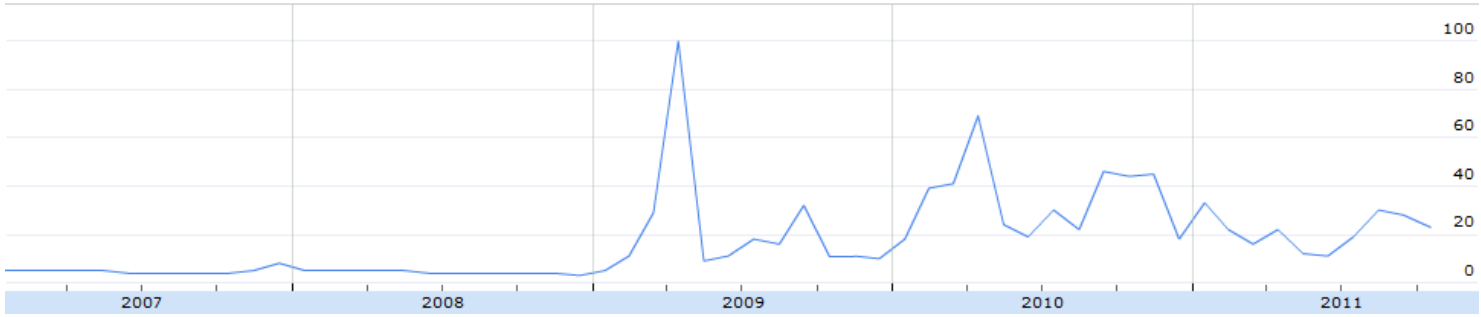

Figure 2. Web Search Level of Interest. This graph shows the evolution of the number of Google web searches for “Tea Party,” excluding “Boston Tea Party” searches, normalized by total web search volume and indexed to a peak search level of 100.

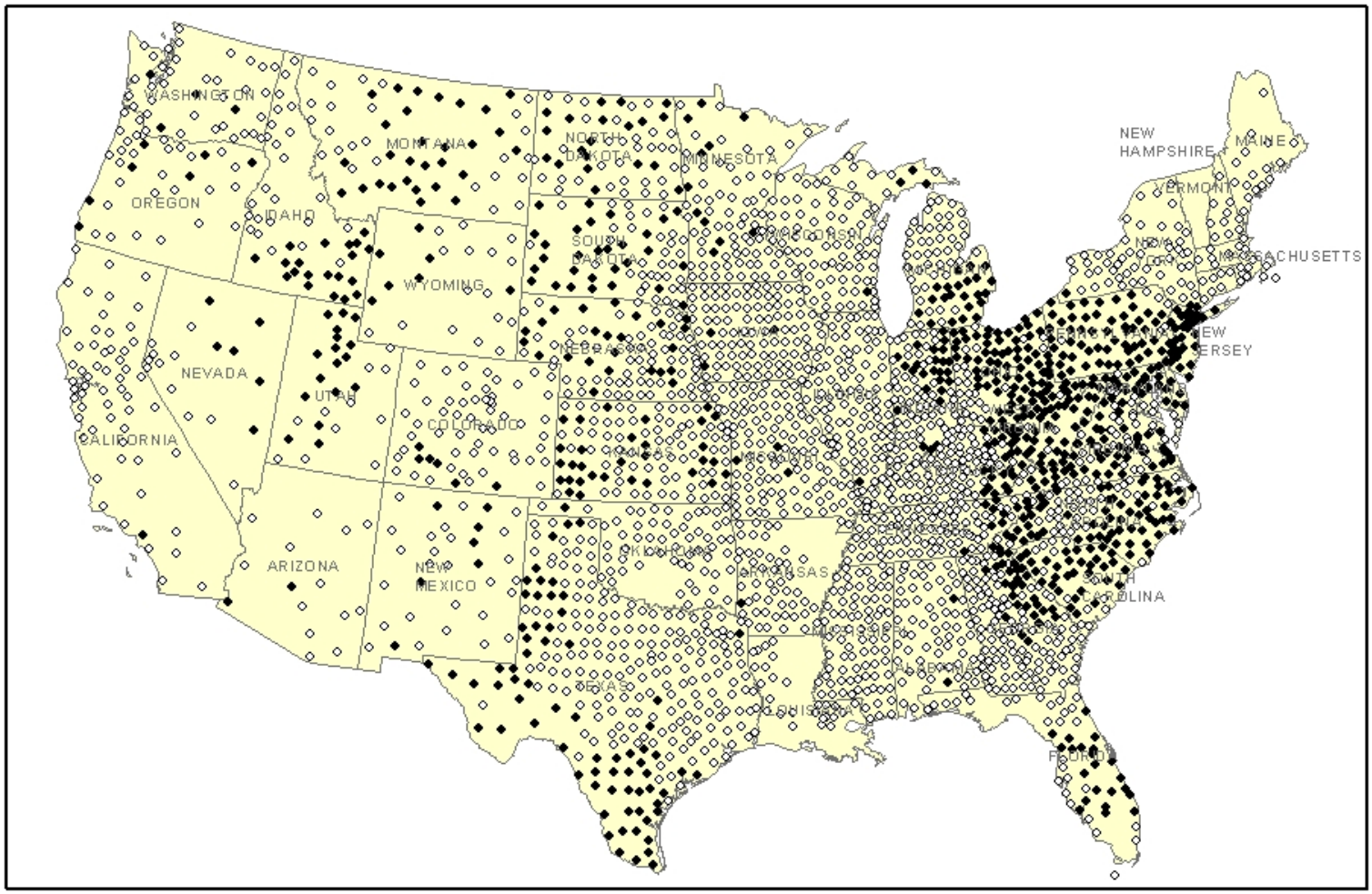

Figure 3. Rainfall residuals on April 15, 2009. The map shows the geographic distribution of the rain residuals in equation 1. Black dots indicate positive rain shocks, and white dots indicate negative shocks.

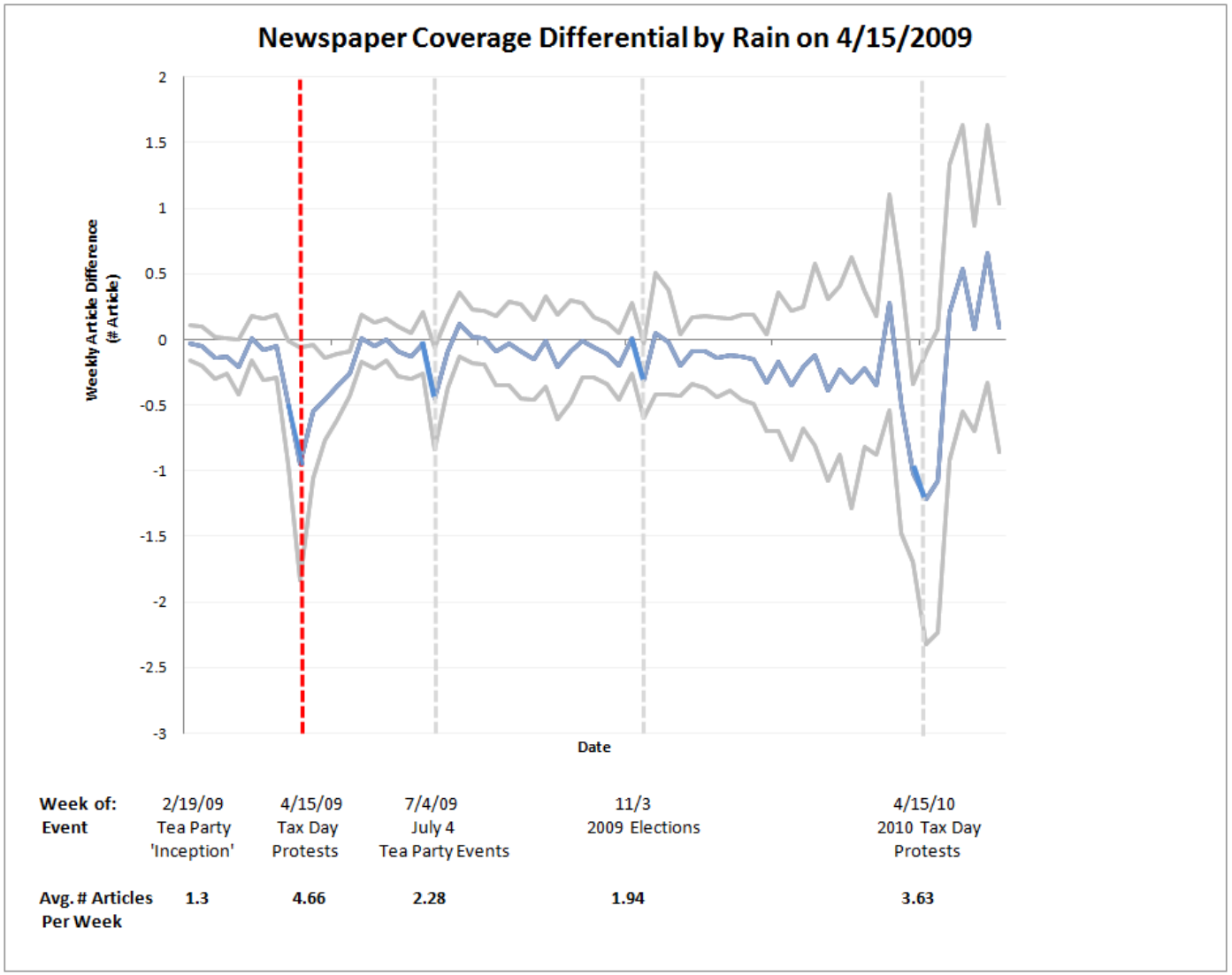

Figure 4. This graph shows the evolution of local media coverage of the Tea Party, as a function of rainfall on the day of the Tea Party rallies (April 15, 2009). The blue line represents the point estimates, with gray lines corresponding to the 95 percent confidence intervals.

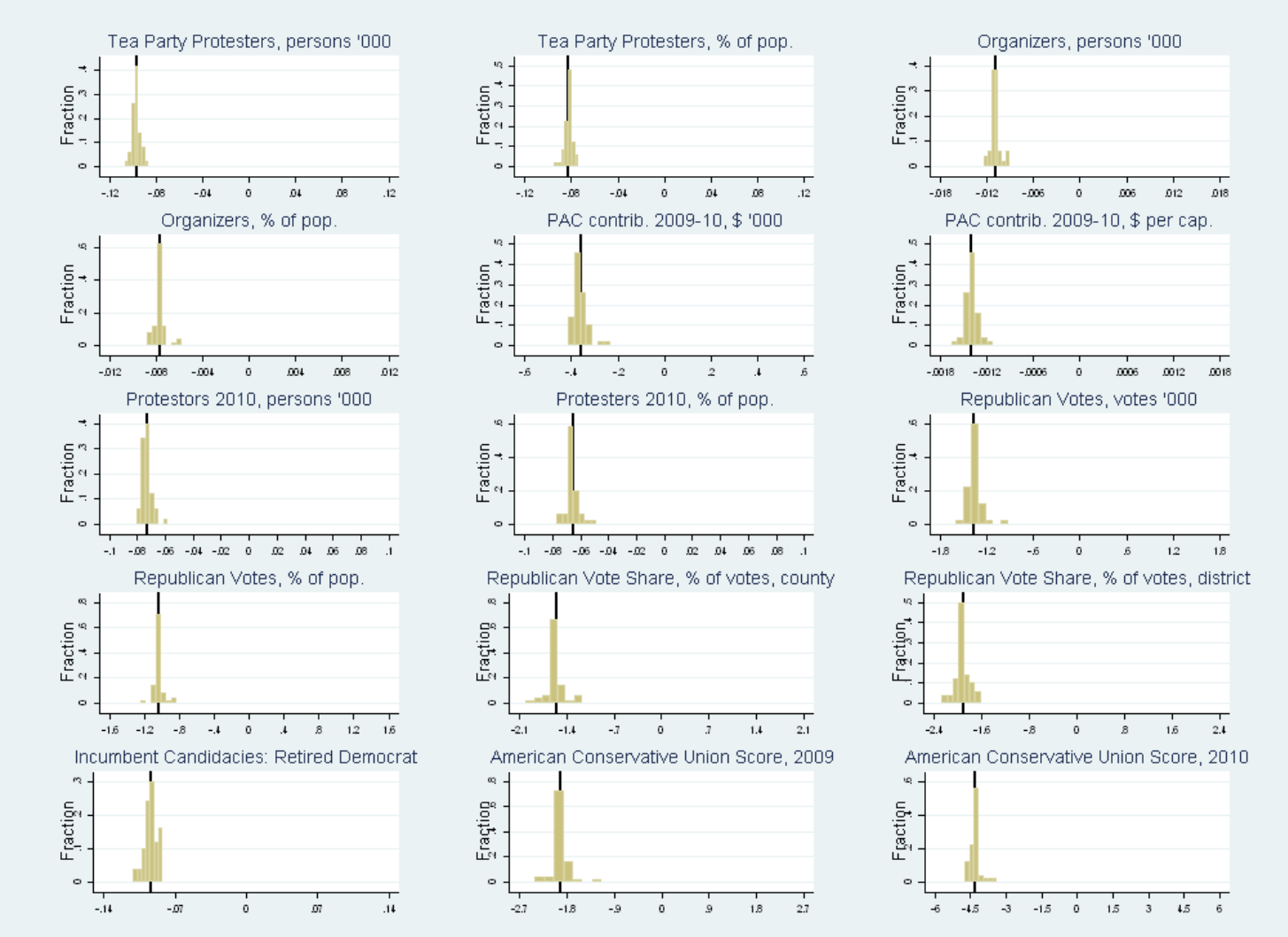

Figure 5. The histograms show the distribution of the effect of rainfall on the day of the Tea Party rallies (April 15, 2009), when states are dropped one by one. Black lines indicate the estimated coefficient using the full sample.

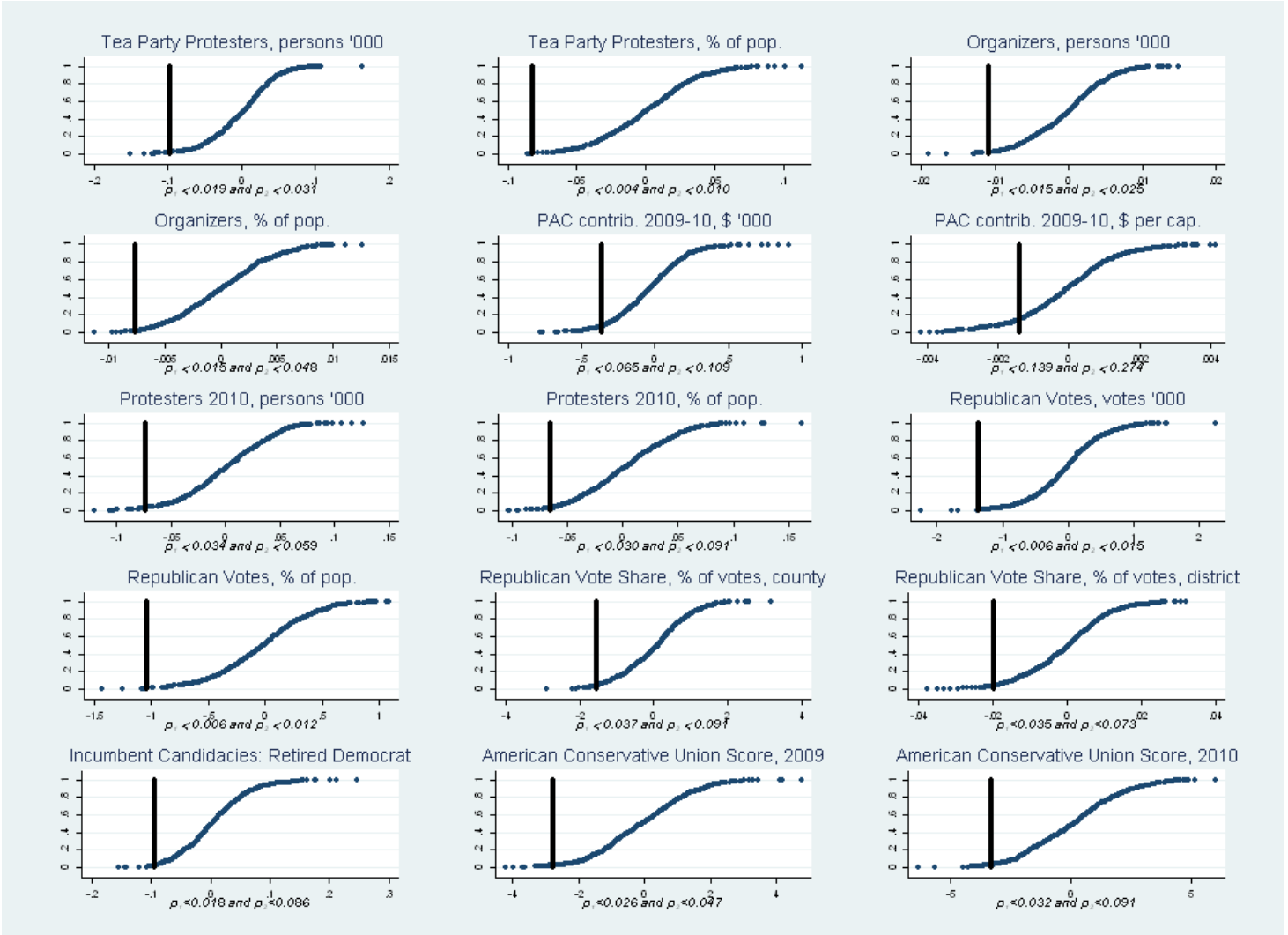

Figure 6. The graphs show the main effect of rainfall on the day of the Tea Party rallies (April 15, 2009), compared to the cumulative distribution of estimates for rainfall from the placebo dates. The placebo dates consist of each day in April between 1980 and 2008 where at least ten percent of the counties experience rain. The black line indicates the estimated coefficient on the day of the rallies. Under each graph two summary statistics are presented, where p_1 is the fraction of placebo estimates with more negative values compared to the estimate on the day of the rally, and p_2 is the fraction with larger absolute values.

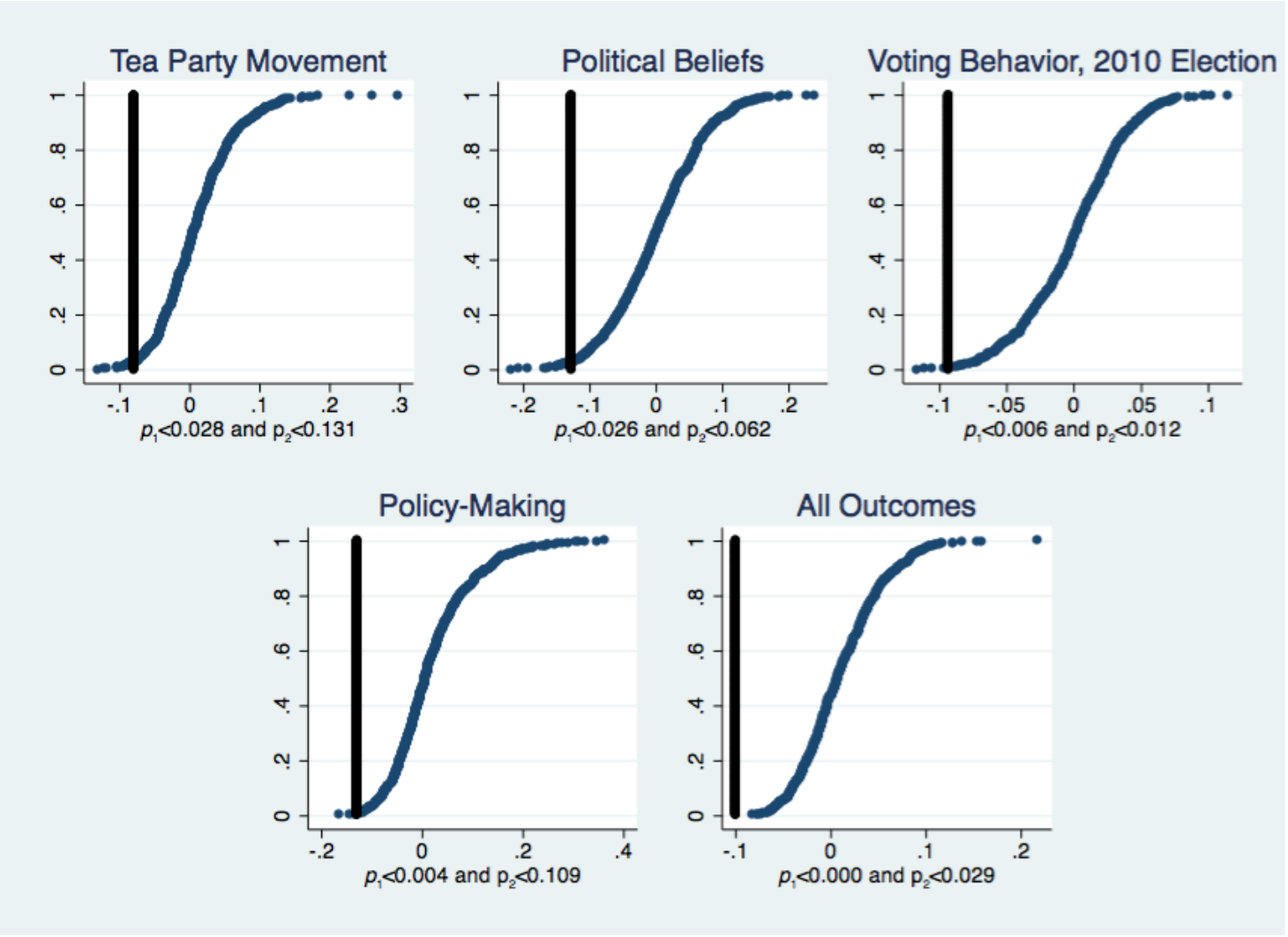

Figure 7. The graphs show the average standardized effect of rainfall on the day of the Tea Party rallies (April 15, 2009), compared to the cumulative distribution of estimates from the placebo dates. The placebo dates consist of each day in April between 1980 and 2008 where at least ten percent of the counties experience rain. The black line indicates the estimated coefficient on the day of the rallies. The outcomes are: Tea Party Movement (Organizers 2010, Protesters 2010, and PAC contributions, both the level and per-capita specifications of Tables 4 and 5); Political Beliefs (same as columns 1-6, of Table 6); Voting Behavior in the 2010 Election (Republican Party votes and vote share, same as columns 1, 2 and 13 of Table 7), and; Policy-Making (ACU Score 2009, ACU Score 2010, and Retirement of Democrats, same as columns 1-4 and 8 of Table 8). The bottom-right graph is the average standardized effect across all those outcomes. Under each graph two summary statistics are presented, where p_1 is the fraction of placebo estimates with more negative values compared to the estimate on the day of the rally, and p_2 is the fraction with larger absolute values.

Table 1. County-Level Summary Statistics

	Rain	No Rain	Difference
Weather April 15, 2009			
Precipitation (hundredths of inches)	0.386	0.008	0.379***
	(0.021)	(0.002)	(0.021)
Probability of Rain	0.248	0.199	0.049***
	(0.015)	(0.014)	(0.018)
Election 2008			
Republican House Vote (percent of all votes)	50.368	51.829	-1.461
	(2.993)	(2.916)	(3.965)
Republican House Votes ('000)	21.900	16.238	5.662
	(4.050)	(2.273)	(4.252)
Republican House Votes (percent of population)	21.996	22.406	-0.410
	(1.479)	(1.144)	(1.704)
Votes for Obama (percent of all votes)	42.766	40.848	1.917
	(1.460)	(1.684)	(1.996)
Democratic House Votes ('000)	26.697	19.747	6.950
	(5.520)	(3.756)	(6.388)
Democratic House Votes (percent of population)	20.189	19.713	0.477
	(1.218)	(1.613)	(1.889)
Total House Votes ('000)	49.568	37.142	12.426
	(9.646)	(6.071)	(10.716)
Total House Votes (percent of population)	42.970	43.180	-0.210
	(1.135)	(1.282)	(1.508)
Election 2006			
Republican House Vote (percent of all votes)	51.953	51.697	0.255
	(2.207)	(2.047)	(2.916)
Republican House Votes ('000)	14.880	11.101	3.779
	(2.738)	(1.630)	3.779
Republican House Votes (percent of population)	16.226	16.146	0.081
	(1.237)	(0.823)	(1.302)
Democratic House Votes ('000)	17.122	12.780	4.343
	(3.867)	(2.429)	(4.389)
Democratic House Votes (percent of population)	13.716	14.778	-1.062
	(0.716)	(1.271)	(1.343)
Total Votes ('000)	32.638	24.557	8.081
	(6.621)	(4.104)	(7.388)
Total Votes (percent of population)	30.519	31.595	-1.075
	(1.461)	(1.643)	(1.865)
TeaPartyMovement			
Tea Party Express Donations	0.026	0.018	0.007
pre-Tax Day 2009 ('000)	(0.011)	(0.006)	(0.012)
Demographic Controls 2009			
Median Household Income	43,477	42,544	933.064
	(1,648)	(811)	(1,686)
Unemployment Rate (percent)	9.819	8.820	1.000*
	(0.512)	(0.467)	(0.571)
Population	114,816	94,164	19,652
	(21,885)	(17,646)	(26,501)
Rural Population (percent)	57.061	60.286	-3.225
	(3.325)	(1.797)	(3.571)
White Population (percent)	85.750	87.347	-1.597
	(2.789)	(1.867)	(2.927)
African-American Population (percent)	10.699	8.105	2.594
	(2.713)	(1.904)	(2.828)
Foreign-Born Population (percent)	3.899	4.367	-0.468
	(0.709)	(0.698)	(0.933)
Hispanic Population (percent)	4.873	9.495	-4.623
	(0.898)	(2.873)	(2.937)
Number of observations	588	2,170	

Note: The unit of analysis is a county. It is defined as rainy if there was significant rain in the county (at least 0.1 inches) on the rally day (April 15, 2009). The variables and the data sources are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. Robust standard errors in parentheses, clustered at the state level. The column $Difference$ reports *** 1% , ** 5% , * 10% significance.

Table 2. a. Exogeneity Check at the County Level

	Republican Votes, U.S. House 2008, '000						Democratic Votes, U.S. House, 2008				Turnout, U.S. House 2008				Obama Vote Share, 2008		PAC Contributions 2009 pre-protests	
Dependent Variable	Votes, '000		Votes, % of pop		Votes, % of votes		Votes, '000		Votes, % of pop		Votes, '000		Votes, % of pop		Obama Vote Share, 2008		$, per capita	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Rainy Protest	0.13	0.18	0.53	0.46	0.61	0.99	0.71	0.81	0.66	0.23	0.58	0.73	0.93	0.47	1.25	0.58	0.00006	0.00007
	(0.57)	(0.59)	(0.50)	(0.52)	(1.25)	(1.32)	(0.96)	(0.86)	(0.63)	(0.62)	(1.16)	(1.04)	(0.63)	(0.62)	(1.39)	(1.00)	(0.00008)	(0.00008)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
R-squared	0.96	0.98	0.77	0.79	0.74	0.76	0.98	0.98	0.76	0.79	0.98	0.98	0.73	0.78	0.66	0.81	0.02	0.03
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
Dep. Var. Mean	17.4	17.4	22.3	22.3	51.5	51.5	21.2	21.2	19.8	19.8	39.8	39.8	43.1	43.1	41.3	41.3	0.0002	0.0002

Note: The unit of analysis is a county. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The 2006 election controls account for the outcomes of the U.S. House of Representatives elections in 2006. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 2. b. Exogeneity Check at the Congressional District Level

Dependent Variable	ACU Score							
	2006		2007		2008		Δ Score 2008-2006	
	Full	All Votes	Full	All Votes	Full	All Votes	Full	All Votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rainy Protest	-0.775	-0.998	1.736	1.859	-1.161	-0.893	-0.890	-0.142
	(1.124)	(1.355)	(1.121)	(1.461)	(1.094)	(1.322)	(1.192)	(1.674)
Observations	435	316	435	307	435	280	435	209
R-squared	0.961	0.965	0.962	0.951	0.951	0.973	0.826	0.923
P-value	0.494	0.465	0.128	0.210	0.294	0.600	0.485	
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y
Prior Roll Call Controls	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	53.06	54.81	42.91	40.51	41.62	38.14	-11.44	-13.09

Note: The unit of analysis is a congressional district. *Rainy Protest* is based on the precipitation amount in the district on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the district (at least 0.1 inches) and zero otherwise. *Full* denotes using the full sample of all congressmen. *All votes* includes only the congressmen that voted on all scored votes. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The prior roll call controls account flexibly for the past two years of ACU scores. The election controls include the identity of the victorious party, the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout in the last two elections to the U.S. House of Representatives. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 3. The Effect of Rain on the Number of Tea Party Protesters in 2009

Dependent Variable	Protesters, '000				Protesters, % of pop.				log(Protesters)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rainy Protest	-0.096***	-0.190***	-0.165***	-0.228**	-0.082***	-0.170***	-0.128***	-0.108***	-0.473**
	(0.023)	(0.051)	(0.055)	(0.096)	(0.021)	(0.046)	(0.036)	(0.034)	(0.211)
Observations	2,758	2,758	2,758	542	2,758	2,758	2,758	542	478
R-squared	0.41	0.41	0.41	0.40	0.16	0.14	0.15	0.22	0.43
Protesters Variable	Mean	Max	Mean	Mean	Mean	Max	Mean	Mean	Mean
Rain Variable	Dummy	Dummy	Continuous	Dummy	Dummy	Dummy	Continuous	Dummy	Dummy
Sample Counties	All	All	All	Protesters >0	All	All	All	Protesters >0	Protesters >0
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.160	0.293	0.073	0.815	0.073	0.153	0.073	0.371	5.36

Note: The unit of analysis is a county. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. The continuous variable is the precipitation amount in inches. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. Column 9 takes the natural logarithm of the election controls. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. *Max* is the highest reported turnout in any given location. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 4. The Effect of Tea Party Protests on Local Tea Party Activity

Dependent Variable	Tea Party Organizers, 2010						Tea Party Protesters, 2010					
	Persons, '000	% of pop.	Persons, '000	Persons, '000	%of pop.	% of pop	Persons, '000	% of pop	Persons, '000	Persons '000	% of pop	% of pop
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Rainy Protest	-0.011***	-0.0077**					-0.073***	-0.065**				
	(0.004)	(0.0030)					(0.024)	(0.027)				
Per Protester Scaling			0.113***	0.057***					0.760***	0.385***		
			(0.036)	(0.021)					(0.236)	(0.109)		
% of Pop. Protesting Scaling					0.0931**	0.0451**					0.794***	0.384***
					(0.0382)	(0.0211)					(0.277)	(0.126)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
R-squared	0.891	0.0356	-	-	-	-	0.14	0.05	-	-	-	-
Protesters Variable	-	-	Mean	Max	Mean	Max	-	-	Mean	Max	Mean	Max
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.057	0.074	0.057	0.057	0.074	0.074	0.069	0.020	0.069	0.069	0.020	0.020

Note: The unit of analysis is a county. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. *Per Protester Scaling* is based on the number of people attending the protests (scaled by 1,000) on the rally day. *% of Pop. Protesting Scaling* is based on the percent of people attending on the rally day relative the county population. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data, and *max* is the highest reported number. The scaling estimates (columns 3-4 and 9-12) use 2SLS. All other regressions use OLS. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 5. The Effect of Tea Party Protests on PAC Contributions

Dependent Variable	PAC Contributions									
	2009		2010		2009-2010					
	$, '000	$, per capita	$, '000	$, per capita	$, '000	$, per capita	$, '000	$, '000	$, per capita	$, per capita
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Rainy Protest	-0.076*	-0.00032**	-0.286**	-0.0011***	-0.362**	-0.0014***				
	(0.038)	(0.00013)	(0.127)	(0.0004)	(0.162)	(0.0005)				
Per Protester Scaling							3.751**	1.900**		
							(1.837)	(0.891)		
% of Pop. Protesting Scaling									1.700**	0.823**
									(0.698)	(0.347)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
R-squared	0.69	0.16	0.72	0.20	0.74	0.23	-	-	-	-
Protesters Variable	-	-	-	-	-	-	Mean	Max	Mean	Max
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.199	0.0013	0.844	0.006	1.042	0.007	1.042	1.042	0.007	0.007

Note: The unit of analysis is a county. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. *Per Protester Scaling* is based on the number of people attending the protests (scaled by 1,000) on the rally day. *% of Pop. Protesting Scaling* is based on the percent of people attending on the rally day relative the county population. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data, and *max* is the highest reported number. The scaling estimates (columns 7-10) use 2SLS. All other regressions use OLS. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 6. Political Beliefs, ANES Survey 2010

Dependent Variable	Strongly supports the Tea Party movement, dummy	Favorable view on Sarah Palin, dummy	Feels outraged about the way things are going in country, dummy	Opposes raising taxes on income>$ 250K, dummy	Believes Americans today have less freedom compared to 2008, dummy	Unfavorable feelings towards President Obama, dummy	Average belief effect	Reported likelihood of voting in the 2010 midterm election
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rainy Protest	-0.057**	-0.057**	-0.046**	-0.058*	-0.065**	-0.046*	-0.13***	-0.067***
	(0.025)	(0.026)	(0.021)	(0.030)	(0.026)	(0.024)	(0.037)	(0.024)
Observations	1,146	1,140	1,142	1,140	1,138	1,145	-	1,092
R-squared	0.172	0.300	0.101	0.226	0.120	0.292	-	0.303
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.120	0.311	0.174	0.228	0.438	0.245	-	0.701

Note: The unit of analysis is a survey respondent, from the 2010 ANES survey data. The survey took place in October 2010. *Rainy Protest* is based on the precipitation amount in the district on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the district (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for whether the respondent voted for the Republicans in the U.S. House of Representatives elections in 2008. The demographic controls include age, education, race (white, African American, Hispanic), household income, unemployment status (currently working), living in a rural area, and foreign born. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 7. The Effect of Tea Party Protests on Voting Behavior, 2010 U.S. House

Dependent Variable	Republican Party Votes						Democratic Party Votes						Republican Vote Share			
	Votes, '000	% of pop	Votes, '000		Votes, % of pop.		Votes, '000	% of pop	Votes, '000		Votes, % of pop.		County % of all votes			District % of all votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rainy Protest	-1.37**	-1.04***					-0.47	-0.14					-1.55**			-1.917***
	(0.51)	(0.30)					(0.52)	(0.35)					(0.69)			(0.675)
Per Protester Scaling			14.20***	7.19***					4.83	2.45						
			(4.77)	(2.56)					(5.31)	(2.58)						
% of Pop. Protesting Scaling					12.59***	6.10***					1.73	0.84		18.81**	9.11**	
					(4.21)	(2.22)					(4.18)	(1.99)		(7.85)	(4.44)	
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	435
R-squared	0.97	0.88	-	-	-	-	0.99	0.87	-	-	-	-	0.89	-	-	0.91
Protesters Variable	-	-	Mean	Max	Mean	Max	-	-	Mean	Max	Mean	Max	-	Mean	Max	-
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	14.9	19.6	14.9	14.9	19.6	19.6	12.7	11.5	12.7	12.7	11.5	11.5	61.2	61.2	61.2	50.86

Note: The unit of analysis is a county except for column (16) where we analyze the congressional district. *Rainy Protest* is based on the precipitation amount in the county (or district) on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (or district) (at least 0.1 inches) and zero otherwise. *Per Protester Scaling* is based on the number of people attending the protests (scaled by 1,000) on the rally day. *% of Pop. Protesting Scaling* is based on the percent of people attending on the rally day relative the county population. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. In addition, the congressional-district specification in column 16 also includes prior roll call controls to account flexibly for the past two years of ACU scores and election controls of the identity of the victorious party of the past two elections. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data and *Max* is the highest reported number. The scaling estimates (columns 3-6, 9-12, and 14-15) use 2SLS. All other regressions use OLS. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table 8. Policy-Making Impact

Dependent Variable	ACU Score						Retirement	
	2009		2010		Δ Score 2010-2008			
	Full	All Votes	Full	All Votes	Full	All Votes	Republicans	Democrats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rainy Protest	-1.922**	-2.827***	-4.296***	-3.181**	-3.371**	-2.405	0.049	-0.094***
	(0.937)	(1.021)	(1.258)	(1.411)	(1.310)	(1.849)	(0.064)	(0.034)
Observations	435	327	435	279	435	191	179	256
R-squared	0.979	0.982	0.961	0.973	0.804	0.894	0.242	0.235
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	41.14	41.44	41.45	39.17	-0.164	-0.157	0.0447	0.0469

Note: The unit of analysis is a congressional district. *Rainy Protest* is based on the precipitation amount in the district on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the district (at least 0.1 inches) and zero otherwise. *Full* denotes using the full sample of all congressmen. *All votes* includes only the congressmen that voted on all scored votes. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The prior roll call controls account flexibly for the past two years of ACU scores. The election controls include the identity of the victorious party, the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout in the last two elections to the U.S. House of Representatives. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Appendix

I. Tables
II. Figures
III. Data Appendix

Table A 1. a. County-Level Summary Statistics

	Counties		
	Obs	Mean	S.D.
Weather April 15, 2009			
Precipitation (hundredths of inches)	2,758	0.0884	0.208
Probability of Rain	2,758	0.209	0.0855
Rainy Protest, rainfall above 0.10 inch	2,758	0.213	0.410
Tea Party Protests April 15, 2009			
Persons, '000, mean	2,758	0.160	0.742
% of pop. Mean	2,758	0.0729	0.294
Persons, '000, max	2,758	0.293	1.286
% of pop. Max	2,758	0.153	0.615
Tea Party Organizers, 2010			
Persons, '000	2,758	0.0572	0.155
% of pop.	2,758	0.0741	0.472
Tea Party Protesters, 2010			
Persons, '000	2,758	0.0691	0.667
% of pop.	2,758	0.0203	0.305
PAC Contributions 2009-10			
$, '000	2,758	1.043	5.061
$, per capita	2,758	0.00749	0.0339
Republican Votes, U.S. House 2010			
Votes, '000	2,758	14.88	35.61
% of pop.	2,758	19.60	6.953
% of votes	2,758	61.18	16.25
Demographic Controls 2009			
Median Household Income	2,758	42,744	10,893
Unemployment Rate (percent)	2,758	9.033	3.278
Population	2,758	99,354	322,404
White Population (percent)	2,758	87.006	15.234
African-American Population (percent)	2,758	8.658	13.97
Foreign-Born Population (percent)	2,758	4.267	5.311
Hispanic Population (percent)	2,758	8.510	13.56
Demographic Controls 2000			
Rural Population (Percent)	2,758	59.60	30.71
Tea Party Movement			
Tea Party Express Donations pre-Tax Day 2009 ('000)	2,758	0.0198	0.169
Election 2008			
Republican House Vote (percent of all votes)	2,758	51.52	22.44
Republican House Votes ('000)	2,758	17.45	41.80
Republican House Votes (percent of population)	2,758	22.32	10.61
Votes for Obama (percent of all votes)	2,758	41.26	13.71
Democratic House Votes ('000)	2,758	21.23	72.24
Democratic House Votes (percent of population)	2,758	19.81	10.21
Total House Votes ('000)	2,758	39.79	111.8
Total House Votes (percent of population)	2,758	43.14	9.041
Election 2006			
Republican House Vote (percent of all votes)	2,758	0.518	0.200
Republican House Votes ('000)	2,758	11.91	28.94
Republican House Votes (percent of population)	2,758	16.16	7.799
Democratic House Votes ('000)	2,758	13.71	45.20
Democratic House Votes (percent of population)	2,758	14.55	8.088
Total Votes ('000)	2,758	26.28	72.41
Total Votes (percent of population)	2,758	31.37	9.859

Note: The unit of analysis is a county. The variables and the data sources are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix.

Table A 1. b. District-Level Summary Statistics

	Districts		
	Obs	Mean	S.D.
Republican Votes, U.S. House 2010			
% of votes	435	50.86	19.29
Policymaking			
ACU Score 2009	435	41.14	42.96
ACU Score 2010	435	41.45	44.13
Retired Republicans	435	0.0447	0.207
Retired Democrats	435	0.0469	0.212
Demographic Controls 2009			
Median Household Income	435	51,985	13,875
Unemployment Rate (percent)	435	10.00	2.734
Population	435	704,384	73,848
White Population (share)	435	0.746	0.173
African-American Population (share)	435	0.126	0.147
Foreign-Born Population (share)	435	0.125	0.111
Hispanic Population (share)	435	0.155	0.175
Demographic Controls 2000			
Rural Population (share)	435	0.210	0.198
Election 2008			
Republican House Vote (percent of all votes)	435	41.19	22.49
Republican House Votes ('000)	435	120.0	70.40
Republican House Votes (percent of population)	435	0.168	0.0953
Votes for Obama (percent of all votes)	435	53.75	14.82
Democratic House Votes ('000)	435	150.0	57.39
Democratic House Votes (percent of population)	435	0.216	0.0881
Total House Votes ('000)	435	277.5	67.97
Total House Votes (percent of population)	435	0.395	0.0927
Election 2006			
Republican House Vote (percent of all votes)	435	42.11	22.36
Republican House Votes ('000)	435	97,061	41,380
Republican House Votes (percent of population)	435	0.141	0.0641
Democratic House Votes ('000)	435	82,470	48,836
Democratic House Votes (percent of population)	435	0.116	0.0680
Total Votes ('000)	435	184,031	56,405
Total Votes (percent of population)	435	0.263	0.0823

Note: The unit of analysis is a congressional district. The variables and the data sources are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix.

Table A 1. c. Summary Statistics, ANES Survey 2010

	Individuals		
	Obs	Mean	S.D.
Political Beliefs			
Supports the Tea Party movement	1,146	0.120	0.323
Favorable view on Sarah Palin	1,140	0.311	0.461
Feels outraged about the way things are going in the country	1,142	0.174	0.379
Opposes raising taxes on income >$250K	1,140	0.228	0.418
Believes Americans today have less freedom compared to 2008	1,138	0.438	0.496
Unfavorable feelings towards President Obama	1,145	0.245	0.431
Reported likelihood of voting in the 2010 midterm election	1,092	0.701	0.398
Demographic Controls			
Age	1,146	49.032	16.733
Education, Categorical (1-4)	1,146	2.778	1.035
Household Income, Categorical (1-19)	1,146	10.945	4.293
Currently Working (share)	1,146	0.541	0.498
White (share)	1,146	0.803	0.398
African American (share)	1,146	0.094	0.292
Hispanic (share)	1,146	0.076	0.266
Foreign Born (share)	1,146	0.028	0.159
Rural (share)	1,146	0.178	0.382
Voted for the Republican Party to the House of Representatives, 2008 (share of all votes)	1,146	0.348	0.477

Note: The unit of analysis is a survey respondent from the 2010 ANES survey data. The variables and the data sources are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix.

Table A 2. a. The Reduced-Form Effect of Rain, Robustness to the Set of Control Variables Used

Dependent Variable	Tea Party Protesters, 2009				Tea Party Organizers, 2010		Tea Party Protesters 2010		PAC Contributions 2009-10		Republican Votes U.S. House 2010			
	Persons, '000 mean	% of pop. mean	Persons, '000, max	% of pop. max	$ '000	$, per capita	Persons '000	% of pop.	Persons, '000	% of pop	Votes '000	% of pop	County % of votes	District % of votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Panel A: No Demographic Controls														
Rainy Protest	-0.087***	-0.076***	-0.178***	-0.160***	-0.010***	-0.0060**	-0.070***	-0.065**	-0.378**	-0.0017***	-1.34**	-0.89**	-1.28	-1.851**
	(0.023)	(0.020)	(0.049)	(0.044)	(0.004)	(0.0029)	(0.024)	(0.025)	(0.173)	(0.0006)	(0.51)	(0.36)	(0.82)	(0.728)
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Region FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Panel B: No Region Fixed Effects														
Rainy Protest	-0.110***	-0.092***	-0.221***	-0.189***	-0.008**	-0.0064**	-0.075***	-0.063**	-0.288*	-0.0013**	-0.99**	-0.98***	-1.36*	-1.859***
	(0.027)	(0.023)	(0.053)	(0.048)	(0.003)	(0.0029)	(0.024)	(0.026)	(0.143)	(0.0006)	(0.42)	(0.28)	(0.71)	(0.690)
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region FE	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Panel C: Flexible Election Controls														
Rainy Protest	-0.121***	-0.075**	-0.238***	-0.152**	-0.020***	-0.0068***	-0.086***	-0.046**	-0.765**	-0.0014***	-3.51**	-1.08***	-2.36**	-1.760*
	(0.031)	(0.029)	(0.061)	(0.059)	(0.007)	(0.0021)	(0.027)	(0.023)	(0.315)	(0.0004)	(1.38)	(0.27)	(0.98)	(0.968)
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	435
Rain Variable	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy
Dep. Var. Mean	0.160	0.073	0.293	0.153	0.057	0.074	0.069	0.02	1.043	0.007	14.88	19.60	61.18	50.86

Note: The unit of analysis is a county except for column (14) where we analyze the congressional district. *Rainy Protest* is based on the precipitation amount in the county (or district) on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (or district) (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain and population. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. In addition, the congressional district specification in column 14 also includes prior roll call controls to account flexibly for the past two years of ACU scores and election controls of the identity of the victorious party of the past two elections. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. In Panel C, the election controls and demographic controls consist of 9 dummy variables based on their respective distribution, one for each decile, equal to 1 if the probability in a county (or district) falls within the given range and 0 otherwise. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. *Max* is the highest reported turnout in any given location. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 2. b. The Reduced-Form Effect of Rain, Robustness to the Set of Control Variables Used

Dependent Variable	ACU Score				Retirement		Average Effect
	2009		2010				
	Full	All Votes	Full	All Votes	Republicans	Democrats	Political Beliefs
	(1)	(2)	(3)	(4)	(5)	(6)	
Panel A: No Demographic Controls							
Rainy Protest	-1.455	-2.613***	-3.740***	-2.210*	0.055	-0.081**	-0.139***
	(0.893)	(0.952)	(1.116)	(1.235)	(0.055)	(0.032)	(0.035)
Election Controls	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	N	N	N	N	N	N	N
Region FE	Y	Y	Y	Y	Y	Y	Y
Panel B: No Region Fixed Effects							
Rainy Protest	-2.070**	-3.019***	-4.024***	-3.386**	0.020	-0.083**	-0.107**
	(0.980)	(1.074)	(1.174)	(1.373)	(0.056)	(0.031)	(0.043)
Election Controls	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y
Region FE	N	N	N	N	N	N	N
Panel C: Flexible Election Controls							
Rainy Protest	-1.949**	-2.923**	-4.312***	-3.080*	0.205	-0.138**	-0.228**
	(0.958)	(1.220)	(1.535)	(1.827)	(0.252)	(0.065)	(0.05)
Election Controls	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y	Y
Observations	435	327	435	279	179	256	-
Dep. Var. Mean	41.14	41.44	41.45	39.17	0.0447	0.0469	-

Note: The unit of analysis is a congressional district. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. *Full* denotes using the full sample of all congressmen. *All votes* includes only the congressmen that voted on all scored votes. All regressions include flexible controls for the probability of rain, and population. The prior roll call controls account flexibly for the past two years of ACU scores. The election controls include the identity of the victorious party, the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout in the last two elections to the U.S. House of Representatives. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. In Panel C, the election controls and demographic controls consist of 9 dummy variables based on their respective distribution, one for each decile, equal to 1 if the probability in a district falls within the given range and 0 otherwise. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 3. a. The Reduced-Form Effect of Rain, Different Rainfall Measures

Dependent Variable	Tea Party Protesters 2009, First Stage				Tea Party Organizers		Tea Party Protesters 2010		PAC Contributions 2009-10		Republican Party Votes			
	Persons, '000, mean	% of pop. mean	Persons, '000, max	% of pop. max	Persons, '000	% of pop.	Persons, '000	% of pop.	$, '000	$, per capita	votes, '000	% of pop	County % of votes	District % of votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Panel A: Higher rainfall cutoff														
Rainy Protest, dummy	-0.126***	-0.096***	-0.255***	-0.195***	-0.013**	-0.0067*	-0.082**	-0.053*	-0.623**	-0.0016**	-1.63**	-0.94**	-1.64**	-1.297*
	(0.031)	(0.023)	(0.064)	(0.052)	(0.005)	(0.0036)	(0.032)	(0.031)	(0.242)	(0.0007)	(0.72)	(0.36)	(0.76)	(0.733)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	435
Panel B: Rainfall using log of precipitation														
Rainy Protest, log(precipitation)	-0.027***	-0.019***	-0.052***	-0.038***	-0.003***	-0.0020**	-0.025***	-0.020**	-0.133**	-0.0004***	-0.46***	-0.33***	-0.51**	-0.503**
	(0.007)	(0.006)	(0.014)	(0.012)	(0.001)	(0.0009)	(0.007)	(0.007)	(0.050)	(0.0001)	(0.15)	(0.09)	(0.23)	(0.246)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	435
Panel C: Rainfall within 10 mile radius														
Rainy Protest, dummy	-0.103***	-0.083***	-0.210***	-0.179***	-0.009**	-0.0071***	-0.094***	-0.080***	-0.381*	-0.0017**	-1.18*	-1.09***	-1.41*	-1.031
	(0.028)	(0.025)	(0.058)	(0.045)	(0.004)	(0.0025)	(0.029)	(0.026)	(0.192)	(0.0007)	(0.60)	(0.32)	(0.75)	(1.196)
Observations	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	330
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.160	0.073	0.293	0.153	0.057	0.074	0.069	0.020	1.043	0.007	14.88	19.60	61.18	50.86

Note: The unit of analysis is a county, except in column 14. In Panel A, *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.35 inches) and zero otherwise. In Panel B, *Rainy Protest* is log(precipitation+1), where precipitation is rainfall in one-hundredths of a an inch in the county on the rally day (April 15, 2009). In Panel C, *Rainy Protest* is based on the average precipitation amount of all rain stations within a 10 mile radius of the county centroid. The dummy variable is equal to one if there was significant rain in the county (at least 0.10 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. In addition, the congressional district specification in column 14 also includes prior roll call controls to account flexibly for the past two years of ACU scores and election controls of the identity of the victorious party of the past two elections. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 3. b. The Reduced-Form Effect of Rain, Different Rainfall Measures

Dependent Variable	ACU Score				Retirement		Average Effect
	2009		2010				
	Full	All Votes	Full	All Votes	Republicans	Democrats	Political Beliefs
	(1)	(2)	(3)	(4)	(5)	(6)	
Panel A: Higher rainfall cutoff							
Rainy Protest, dummy	-1.989*	-2.329*	-4.388***	-2.773*	-0.028	-0.090***	-0.13***
	(1.044)	(1.374)	(1.386)	(1.493)	(0.077)	(0.029)	(0.038)
Panel B: Rainfall using precipitation amount							
Rainy Protest, log(precipitation)	-0.545*	-0.823***	-0.978***	-0.721**	0.004	-0.030**	-0.031***
	(0.278)	(0.292)	(0.359)	(0.353)	(0.014)	(0.012)	(0.012)
Panel C: Rainfall within county radius							
Rainy Protest, dummy	-1.517	-2.180*	-3.099**	-1.894	-0.030	-0.122***	-0.01
	(0.948)	(1.099)	(1.428)	(1.790)	(0.104)	(0.044)	(0.046)
Election Controls	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	41.14	41.44	41.45	39.17	0.0447	0.0469	-

Note: The unit of analysis is a congressional district. *Full* denotes using the full sample of all congressmen. *All votes* includes only the congressmen that voted on all scored votes. In Panel A, *Rainy Protest* is based on the precipitation amount in the district on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the district (at least 0.35 inches) and zero otherwise. In Panel B, *Rainy Protest* is log(precipitation+1), where precipitation is rainfall in one-hundredths of a an inch in the county on the rally day (April 15, 2009). In Panel C, *Rainy Protest* is based on the average precipitation amount of all rain stations within a 10 mile radius of the district centroid. The dummy variable is equal to one if there was significant rain in the district (at least 0.10 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The prior roll call controls account flexibly for the past two years of ACU scores. The election controls include the identity of the victorious party, the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout in the last two elections to the U.S. House of Representatives. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 4. Nearest-Neighbor Matching Estimator

Dependent Variable	Tea Party Protesters 2009, First Stage				Tea Party Organizers		Tea Party Protesters 2010		PAC Contributions 2009-10		Republican Party Votes		
	Persons, '000 mean	% of pop mean	Persons, '000 max	% of pop max	Persons, '000	% of pop	Persons, '000	% of pop	$, '000	$, per capita	votes, '000	% of pop	% of vote
	(1)			(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Rainy Protest	-0.093***	-0.073***	-0.191***	-0.137***	-0.018***	-0.011***	-0.043*	-0.031**	-0.466***	-0.006***	-2.949***	-1.253***	-2.158***
	(0.022)	(0.019)	(0.036)	(0.03)	(0.004)	(0.001)	(0.024)	(0.013)	(0.147)	(0.001)	(0.895)	(0.161)	(0.554)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
Protesters Variable	mean	mean	max	max	mean	mean	mean	mean	mean	mean	mean	mean	mean
Rain Variable	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy	dummy
Sample	full	full	full	full	full	full	full	full	full	full	full	full	full
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dependent Variable Mean	0.16	0.073	0.293	0.153	0.057	0.074	0.069	0.020	1.043	0.007	14.88	19.60	61.18

Note: The unit of analysis is a county. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. The specifications report the estimates of the average treatment effects for the nearest-neighbor matching estimator, based on matching on the probability of rain, population, region fixed effects, election controls, and demographic controls. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. All controls except the region fixed effects consist of nine dummy variables based on their respective distribution, one for each decile, equal to 1 if the probability in a county falls within the given range and 0 otherwise. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. The estimates average the treatment for the closest four matches and are bias-corrected (Abadie et al., 2004). *Mean* denotes the average across the three sources of attendance data and max is the highest reported number. Robust standard errors in parentheses, with *** 1% , ** 5% , * 10% significance.

Table A 5. The Reduced Form Effect of Rain, Dropping Small and Large Counties

Dependent Variable	Tea Party Protesters, 2009				Tea Party Organizers, 2010		Tea Party Protesters 2010		PAC Contributions 2009-10		Republican Votes, U.S. House 2010		
	Persons, '000 mean	% of pop. mean	Persons, '000, max	% of pop. max	$ '000	$, per capita	Persons '000	% of pop.	Persons, '000	% of pop	Votes '000	% of pop	% of votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Rainy Protest	-0.097***	-0.074***	-0.196***	-0.152***	-0.009**	-0.0062**	-0.051*	-0.050**	-0.175*	-0.0012	-1.30***	-1.24***	-1.80**
	(0.024)	(0.019)	(0.053)	(0.040)	(0.003)	(0.0030)	(0.029)	(0.024)	(0.101)	(0.0007)	(0.46)	(0.28)	(0.77)
Observations	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467	2,467
R-squared	0.33	0.33	0.15	0.14	0.85	0.32	0.12	0.06	0.48	0.13	0.97	0.84	0.87
Rain Variable	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: The unit of analysis is a county, where counties with a population size below ten thousands and above one million are excluded. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. *Max* is the highest reported turnout in any given location. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 6. The Reduced Form Effect of Rain, Conditional on Having a Rally

Dependent Variable	Tea Party Protesters 2009				Tea Party Organizers, 2010		Tea Party Protesters, 2010		PAC Contributions 2009-10		Republican Votes, U.S. House 2010		
	Persons, '000, mean	% of pop pop. mean	Persons, '000, max	% of pop. max	Persons, '000	% of pop.	Persons, '000	% of pop.	$, '000	$, per capita	Votes, '000	% of pop.	% of votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Rainy Protest	-0.228**	-0.108***	-0.518***	-0.236***	-0.025**	-0.0070**	-0.180**	-0.076*	-1.533***	-0.0020***	-3.38**	-0.97***	-1.46*
	(0.096)	(0.034)	(0.187)	(0.077)	(0.010)	(0.0027)	(0.087)	(0.043)	(0.432)	(0.0007)	(1.36)	(0.33)	(0.85)
Observations	545	545	545	545	545	545	545	545	545	545	545	545	542
R-squared	0.40	0.40	0.22	0.23	0.91	0.55	0.17	0.14	0.77	0.42	0.97	0.89	0.91
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.815	0.371	1.491	0.777	0.187	0.069	0.322	0.064	4.052	0.010	46.66	17.20	57.71

Note: The unit of analysis is a county, restricted to counties that had a reported rally according to at least one source. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. *Max* is the highest reported turnout in any given location. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 7. Standard Errors with Spatial Dependence

Dependent Variable	Tea party Protesters, '000				PAC Contributions 2009-10, $ '000	PAC Contributions 2010, $ '000	Tea Party Organizers 2010 '000	Tea Party Protesters 2010, '000	Republican Votes U.S. House 2010, '000	Democratic Votes, U.S. House 2010, '000	ACU 2009 Score	ACU 2010 Score	ACU 2010-2008 Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Rainy Protest	-0.094	-0.185	-0.160	-0.226	-0.355	-0.279	-0.011	-0.072	-1.22	-0.42	-1.922	-4.296	-3.371
State-clustered standard errors	[0.022]***	[0.051]***	[0.054]***	[0.095]**	[0.161]**	[0.126]**	[0.004]***	[0.024]***	[0.51]**	[0.52]	[0.937]**	[1.021]***	[1.307]***
Spatial dependence <5 degrees	(0.028)***	(0.054)***	(0.056)***	(0.101)**	(0.170)**	(0.135)**	(0.003)***	(0.025)***	(0.48)**	(0.47)	(0.767)**	(1.140)***	(1.122)***
Spatial dependence <10 degrees	(0.024)***	(0.050)***	(0.051)***	(0.083)***	(0.171)**	(0.139)**	(0.003)***	(0.023)***	(0.49)**	(0.49)	(0.580)***	(0.794)***	(0.881)***
Spatial dependence <15 degrees	(0.024)***	(0.051)***	(0.047)***	(0.074)***	(0.159)**	(0.129)**	(0.002)***	(0.023)***	(0.46)***	(0.51)	(0.542)***	(0.700)***	(0.803)***
Spatial dependence <20 degrees	(0.024)***	(0.048)***	(0.046)***	(0.069)***	(0.151)**	(0.123)**	(0.002)***	(0.023)***	(0.43)***	(0.53)	(0.476)***	(0.608)***	(0.764)***
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	435	435	435
Unit of Analysis	County	County	County	County	County	County	County	County	County	County	District	District	District
Rain Variable	Dummy	Dummy	Continuous	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy	Dummy
Protesters Variable	Mean	Max	Mean	Mean	-	-	-	-	-	-	-	-	-
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Note: The unit of analysis is a county except for columns (11)-(13) where we analyze the congressional district. *Rainy Protest* is based on the precipitation amount in the county (or district) on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (or district) (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. Robust standard errors in round parentheses, clustered at the state level. Standard errors in square brackets are clustered at the state level. Standard errors in parentheses are adjusted for spatial correlation using Conley (1999). Asymptotic covariance matrices for moment conditions are estimated as weighted averages of sample autocovariances. The weight for each term is the product of weight functions in each spatial dimension (latitude and longitude) that decline linearly and are zero beyond a cutoff distance. Standard errors with four different cutoffs are presented: 5, 10, 15 and 20 degrees, respectively.

Table A 8. Complier Counties

	Protesters, '000		Protesters, % of pop	
	(1)	(2)	(3)	(4)
Rainy Protest, Republican Leaning County	-0.069***	-0.124***	-0.062**	-0.119**
	(0.022)	(0.044)	(0.025)	(0.048)
Rainy Protest, Swing County	-0.156***	-0.320***	-0.081***	-0.183***
	(0.043)	(0.087)	(0.026)	(0.062)
Rainy Protest, Democratic Leaning County	-0.141	-0.322**	-0.120***	-0.246***
	(0.095)	(0.155)	(0.043)	(0.064)
Observations	2,758	2,758	2,758	2,758
R-squared	0.406	0.411	0.157	0.141
Protesters Variable	Mean	Max	Mean	Max
Demographic Controls	Y	Y	Y	Y
Election Controls	Y	Y	Y	Y
Dep. Var. Mean	0.160	0.293	0.073	0.153

Note: The unit of analysis is a county. A *Republican leaning county* is a dummy variable indicating a predicted 2010 Republican vote share in the U.S. House above 0.55, a *Swing County* has a predicted Republican vote share between 0.45-0.55, and a*Democratic leaning county* below 0.45. The predicted vote share is the linear prediction from a regression of 2010 Republican vote share on all regressors of equation 1 (i.e., previous election controls, demographics, region fixed effects, and the rain probability), except that it excludes the *RainyProtest* dummy. Each estimate is for the coefficient of the interaction with *Rainy Protest*. *Rainy Protest* is based on the precipitation amount in the county on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data. *Max* is the highest reported turnout in any given location. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level.*** 1% , ** 5% , * 10% significance.

Table A 9. The Effect of Tea Party Protests on Voting Behavior, OLS and 2SLS

Dependent Variable	Tea Party Organizers, 2010			Tea Party Protesters, 2010			PAC Contributions 2009-10			Republican Votes, U.S. House 2010					
	% of pop			% of pop			$ per capita			% of pop			% of votes		
	OLS	OLS	2SLS	OLS	OLS	2SLS	OLS	OLS	2SLS	OLS	OLS	2SLS	OLS	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Protesters, % of pop.	0.013***	0.012***	0.093**	0.286***	0.285***	0.794***	0.220*	0.209*	1.700**	0.769*	0.446**	12.594***	1.531	0.695	18.808**
	(0.003)	(0.003)	(0.038)	(0.053)	(0.052)	(0.277)	(0.112)	(0.114)	(0.698)	(0.383)	(0.192)	(4.209)	(1.342)	(0.641)	(7.847)
Demographic Controls	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Election Controls	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
R-squared	0.033	0.036	-	0.095	0.107	-	0.216	0.232	-	0.680	0.871	-	0.508	0.889	-
Dep. Var. Mean	0.074	0.074	0.074	0.020	0.020	0.020	0.007	0.007	0.007	19.60	19.60	19.60	61.18	61.18	61.18

Note: The unit of analysis is a county. The 2SLS estimates use *Rainy Protest* as an instrument in equation 2, and is based on the precipitation amount in the county on the rally day (April 15, 2009). It is a dummy variable equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. The per capita regressions are population weighted. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

Table A 10. The Effect of Tea Party Protests on Voting Behavior, Unweighted Regressions

Dependent Variable	Protesters, % of pop		Republican Party Votes % of pop.			Democratic Party Votes % of pop.			Republican Vote share % of all votes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Rainy Protest	-0.030***	-0.069***	-0.71***			-0.03			-1.31**		
	(0.010)	(0.021)	(0.26)			(0.30)			(0.59)		
Per Protester Scaling				24.10***			1.15			44.37**	
				(8.71)			(9.95)			(19.27)	
% of Pop. Protesting Scaling					10.40***			0.50			19.15**
					(3.78)			(4.31)			(7.72)
Observations	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758	2,758
R-squared	0.073	0.061	0.83	-	-	0.81	-	-	0.83	-	-
Protesters Variable	Mean	Max	-	Mean	Max	-	Mean	Max	-	Mean	Max
Election Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dep. Var. Mean	0.073	0.153	19.6	19.6	19.6	11.5	11.5	11.5	61.2	61.2	61.2

Note: The unit of analysis is a county. *RainyProtest* is based on the precipitation amount in the county (or district) on the rally day (April 15, 2009). The dummy variable is equal to one if there was significant rain in the county (at least 0.1 inches) and zero otherwise. *Scaling* is based on the number of people attending the protests (scaled by 1,000) on the rally day. *% of Pop. Protesting* is based on the percent of people attending on the rally day relative the county population. All regressions include flexible controls for the probability of rain, population, and region fixed effects. The election controls account for the outcomes of the U.S. House of Representatives elections in 2008. In the level regressions we include the Republican Party vote share, the total number of votes for the Republican Party, the total number of votes for the Democratic Party, and total turnout. The per-capita regressions include the Republican Party vote share, the number of votes for the Republican Party per capita, the number of votes for the Democratic Party per capita, and turnout per capita. The demographic controls include log of population density, log of median income, the unemployment rate, the change in unemployment between 2005-2009, the share of white population, the share of African-American population, the share of Hispanic population, the share of immigrant population, and the share of the population that is rural. More information on the variables, the data sources, and our specification are described in Section III (Data and Summary Statistics), Section IV.A (Specifications and Hypotheses), and in the Appendix. *Mean* denotes the average across the three sources of attendance data and *Max* is the highest reported number. The scaling estimates (columns 4-5, 7-8, and 10-11) use 2SLS. All other regressions use OLS. Robust standard errors in parentheses, clustered at the state level. *** 1% , ** 5% , * 10% significance.

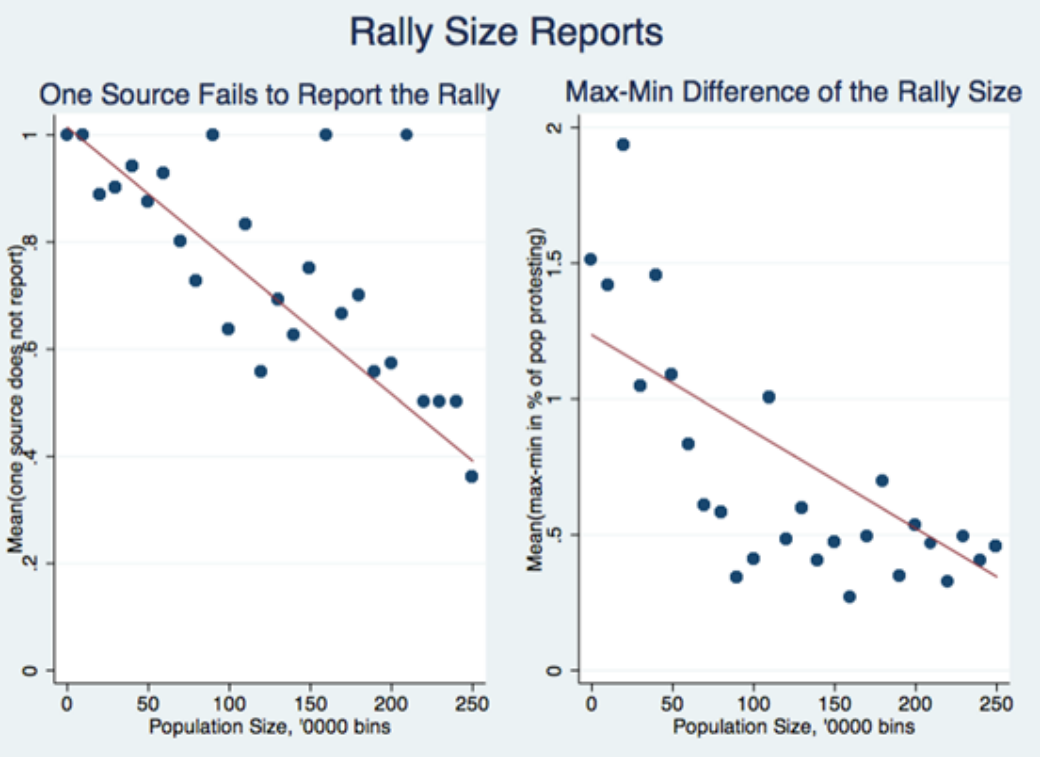

Figure A.1. County Population Size and Measurement Error in Rally Size. This figure shows that measurement error decreases in population size. The x-axis is the county population size in bins of 10,000, where the highest bin includes all counties with a population of 250,000 and above. The graph on the left plots the share of counties within each population bin for which two of three sources report of a rally, but one source fails to do so. The graph on the right plots the mean difference between the highest and lowest rally size for each county with at least one source reporting a rally. The lowest rally size includes sources not reporting a rally, which implies a reported rally size of zero for that source. A value of 1 on the y-axis means that the max-min difference is 1% of the population reported protesting. The figure shows that rally size reports are more precise for larger counties.