THE GENERALIZABILITY OF SOCIAL PRESSURE EFFECTS ON TURNOUT ACROSS HIGH-SALIENCE ELECTORAL CONTEXTS: FIELD EXPERIMENTAL EVIDENCE FROM 1.96 MILLION CITIZENS IN 17 STATES

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May 31, 2016

Abstract

Prior experiments show that campaign communications that reveal subjects' past vote history and apply social pressure to vote (the "Self" treatment) increase turnout. However, these studies are conducted in low salience elections, raising concerns that published findings are not generalizable and are an artifact of sample selection and publication bias. We address the need for further replication in high salience elections and analyze data from a field experiment involving 1.96 million subjects where a nonpartisan campaign randomly sent Self treatment mailers, containing a subject's vote history and a comparison of each history to the median registrant's turnout behavior in a subject's state, in high salience elections across 17 states in 2014. Sending the Self treatment mailer increases turnout by 0.7 points, or 2.2%. This effect is consistent across states and across subjects with varying baseline turnout propensities. Our study provides precise evidence that social pressure effects on turnout are generalizable.

Keywords: social pressure, voter mobilization, voter turnout, field experiment, generalizability

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Many individuals believe that voting is socially desirable regardless of which candidate one supports (Gerber, Green and Larimer 2008). In political science, field experiments have tested whether campaign communications applying social pressure to vote are effective at increasing turnout by activating the norm of voting (Gerber, Green and Larimer 2008; Davenport 2010; Davenport et al. 2010; Green and Gerber 2010; Panagopoulos 2010; Gerber, Green and Larimer 2010; Mann 2010; Abrajano and Panagopoulos 2011; Murray and Matland 2014; Panagopoulos, Larimer and Condon 2014). Many of these experiments test the effectiveness of the "Self" treatment mailing, which operationalizes social pressure by presenting to an individual their turnout record and notifying the individual that her turnout will be observed after the election. Past research suggests that social pressure treatments, and the Self treatment in particular, are effective at increasing turnout by activating social incentives to vote because they generate the expectation that one's turnout behavior will be monitored by others (Green and Gerber 2010). Although the specific treatments vary, these experiments broadly suggest that social pressure is a real mechanism to influence turnout behavior.

At the same time, there remains a need to understand whether these effects generalize beyond the selected contexts examined in prior research. The generalizability of past experiments testing the effects of the Self mailer treatment have been limited in three ways. First, all previously published experiments were conducted during low salience elections characterized by minimal mobilization activity and low turnout in the absence of treatment (Gerber, Green and Larimer 2008, 2010; Mann 2010; Panagopoulos 2010; Abrajano and Panagopoulos 2011; Sinclair, McConnell and Green 2012; Murray and Matland 2014; Panagopoulos, Larimer and Condon 2014).[1] High salience electoral contexts present a harder test of social pressure effects on turnout than lower salience electoral contexts because the expected mean turnout rate in the control group is lower in a low salience race than in a high salience race and treatment effects will therefore be more pronounced in low salience elections (Green and Gerber 2015; Addonizio 2011; Arceneaux and Nickerson 2009; Gerber, Green and Kern 2010). Additional tests in high salience elections are needed to assess whether social pressure effects on turnout are generalizable. Second, most social pressure experiments are conducted in one and at most two electoral contexts, such as in a single city or county (Gerber, Green and Larimer 2008, 2010; Mann 2010; Panagopoulos 2010; Abrajano and Panagopoulos 2011; Sinclair, McConnell and Green 2012; Panagopoulos, Larimer and Condon 2014). The third and related limitation of past social pressure experiments that hinders generalizability is their size and scope. The sample sizes of previously published experiments range from 6,931 to 365,973 with an average of 108,990 subjects. When expected treatment effects are small, the modest scale of many of these experiments both increases the likelihood of generating false positives and reduces the likelihood of detecting a true but smaller effect. Taken together, these concerns raise questions about the generalizability of published findings and whether published effect estimates are an artifact of sample selection and publication bias. To address this concern and to avoid a potential "file drawer problem" arising from the lack of published null results (Rosenthal 1979), we conduct the same experiment across a diversity of electoral contexts.

In this article, we analyze data from a social pressure experiment involving 1.96 million subjects that was conducted across 17 states[2] during the 2014 midterm general election. This experiment allows us to address the question of whether social pressure effects on turnout exist in higher salience elections[3] and in doing so allows us to conduct a hard test of the hypothesis that social pressure affects turnout. In addition, the size of the experiment includes more subjects than all previous social pressure experiments combined, which allows us to minimize both the likelihood of false positives and of failing to detect smaller but real effects. Lastly, because the experiment was conducted simultaneously in 17 different states across a diverse array of electoral contexts including both competitive and uncompetitive races, a range of voting alternatives, and other state-specific differences, we minimize the risk that our findings are driven by sample selection.

To briefly summarize the experiment's design and results, a nonpartisan voter mobilization organization implemented a randomized mailer campaign. The mailer consists of a letter containing a "report card" describing the targeted individual's vote history in the past four elections and a small bar graph comparing her turnout to the average turnout in the individual's state. We find that this mailing increases turnout by 0.7 percentage points across our entire sample, translating to a

2.2 percent increase in the sample's turnout rate. We also find very little difference in treatment effects by state or by an individual's baseline probability of voting. In doing so, we replicate and extend prior research and show that the effects of social pressure on voting delivered through the Self treatment mailer is generalizable over a range of high salience electoral contexts.

Relevant Literature

In the experimental literature on the effectiveness of direct mail campaigns to increase turnout, the "Self" treatment has been widely studied.[4] The Self treatment notifies subjects about their past voting history and encourages them to vote in the upcoming election (Gerber, Green and Larimer 2008, 2010; Mann 2010; Panagopoulos 2010; Abrajano and Panagopoulos 2011; Murray and Matland 2014; Panagopoulos, Larimer and Condon 2014). Past research suggests that Self treatments have four properties that make them both effective at increasing turnout while minimizing the potential for negative externalities. First, the Self treatment reveals the social norm of voting with a message about voting to fulfill one's civic duty. Second, these treatments make clear that someone is monitoring whether one votes. Third, individuals are less likely to become angered by it compared to more invasive social pressure treatments, such as the "Neighbors" treatment, that reveal one's voting history, compare it to the voting history of one's peers, and more generally invoke the idea that personal data on vote history are being revealed to other social companions (Mann 2010; Gerber, Green and Larimer 2008).[5] And perhaps most importantly, past research has shown that the Self treatment causes an increase in turnout that can persist across subsequent elections (Davenport et al. 2010).

Table 1 summarizes previously published field experiments testing the effect of Self treatment mailers on turnout. Taken together, published findings in the literature report that the Self treatment increases turnout levels by between 1.6 and 4.8 percentage points when compared to a control group. We argue, however, that whether the observed effects of the Self treatment from past experiments generalize beyond the study contexts selected remains an open empirical question. We identify three reasons why the generalizability of published Self treatment effects in the literature remains a concern.

TABLE 1 HERE

First, prior field experiments were conducted in low salience elections. As shown in Column 3 of Table 1, five out of the six studies have low control turnout rates that ranges from 3% to 30%. The social pressure field experiments shown in Table 1 include low salience municipal elections (Gerber, Green and Larimer 2010; Panagopoulos 2010; Abrajano and Panagopoulos 2011; Sinclair, McConnell and Green 2012; Panagopoulos, Larimer and Condon 2014), a primary election (Gerber, Green and Larimer 2008), and three gubernatorial elections (Mann (2010) was statewide and Murray and Matland (2014) include one county from two different states). Low salience elections typically involve little to no mobilization effort by nonpartisan and partisan groups. Thus, subjects in both the treatment and control groups are unlikely to be primed to turnout from some other mobilization effort unrelated to the experiment, and the magnitude of the effects of social pressure mailers on turnout in low salience elections may be unusually large because the expected mean control turnout rate is low (Green and Gerber 2015). Moreover, in low salience elections, the treatment may affect turnout through mechanisms other than social pressure, such as notifying otherwise unaware registrants about an upcoming election. Consequently, replication in high salience elections is needed to provide a hard test of the generalizability of Self mailer effects.

Second, there is little variance in the types of electoral contexts associated with published experimental evaluations of the Self treatment, because they typically involve a single city or state with narrowly defined populations of interest. Existing studies have imposed a range of sample restrictions, limiting the definition of subjects to include only unmarried women (Mann 2010), only Latino voters in single-voter homes (Abrajano and Panagopoulos 2011), and only municipal-level voters in a nonpartisan election (Panagopoulos, Larimer and Condon 2014), for example. Even the sample used in the preeminent social pressure experiment was highly selective and excluded voters who were African American, Hispanic, single females, individuals born between 1930 and 1959, and any other individual who had characteristics resembling a Democratic voter (Gerber, Green and Larimer 2008). Only a single study by Murray and Matland (2014) includes more than one electoral context, but their study setting is limited to only two counties. Therefore, it is unclear if past results are dependent on specific electoral contexts and samples. Third, prior published experiments are limited in scale and typically involve small sample sizes. This leads to two concerns. First, with relatively small sample sizes, existing experiments may have inadequate statistical power to detect small effects and to minimize the likelihood of false positives. Second, of the experiments that exist, there are not enough studies with adequate power to assess the robustness of observed effects.

Taken together, these limitations raise the concern that the results reported in published experiments testing the effectiveness of Self mailer treatments on turnout may not be generalizable and may be an artifact of sample selection and publication bias. To address these concerns and to avoid a potential "file drawer problem" (Rosenthal 1979), we replicate prior work and assess the effect of the Self mailer on turnout in a large-scale experiment conducted across a range of high-salience electoral contexts in the same field experiment.

Experimental Design

We analyze data from a large-scale field experiment that was designed and implemented during the 2014 election by the Voter Participation Center (VPC), a nonprofit, nonpartisan organization whose mission is to increase turnout among historically underrepresented groups.[6]

Treatment Definition

The VPC sent a Self treatment mailer, specifically a mailing containing information about a subject's voting history in the form of a report card, to those assigned to the treatment condition. The control group was not contacted. Mailers were sent to subjects in the treatment group six days before the election (October 29, 2014) and were printed on official letterhead displaying the organization's logo and name. On the mailing, the group emphasized its status as a "non-government, nonprofit, and nonpartisan 501(c)(3) organization." The letter contained language about taking pride in voting, whether or not the targeted individual voted in each of the past four even-year general elections (2006, 2008, 2010, and 2012), and a graph comparing that person's past turnout behavior (i.e., the number of the past four general elections in which the subject voted) to the median turnout behavior in her state of residence in the same set of elections (i.e., the median number of the past four general elections in which registrants voted in a subject's state). Finally, in the last two sentences, the VPC reminded subjects that their voting behavior would be monitored. As an example, Figure 1 displays an anonymized report card for a hypothetical subject in South Dakota.

FIGURE 1 HERE

Subjects in the treatment group could receive one of three ratings summarizing the comparison between the subject's past turnout behavior and the median turnout behavior in the subject's state of residence in the last four elections: below average, average, or above average. A below average rating means that the subject voted in a fewer number of elections than the state median, an average rating means that the subject voted in the same number of elections as the state median, and an above average rating means that the subject voted in a greater number of elections than the state median.[7]

Randomization Procedure and Definition of Subjects

The experiment proceeded in several stages.[8] First, the VPC obtained a list of 2,424,037 eligible registrants from an outside private vendor. The vendor regularly collects and cleans voter file data, merges it with vote history records and demographic information obtained from consumer files, and verified subjects' addresses using a National Change of Address filter. Subjects without validated vote history (n=2887) were excluded prior to randomization because the details of the report card treatment are undefined without validated vote history data.

The remaining 2,423,817 subjects were then randomly assigned by the VPC to a report card treatment (n=2,267,826) or to a pure control group (n=155,991) at the household-level by state. However, we conducted a series of diagnostic checks which revealed that the randomization procedure was mishandled for subjects in multi-person households. Specifically, we attempted but failed to replicate unique household identifiers and we found different treatment assignments across subjects in the same household despite the purported use of household-level cluster randomization. We therefore exclude from the analysis sample any subject who belonged to a household with more than one person (n=416,436 from the treatment group, n=25,679 from the control group). We also found that the randomization procedure was mishandled among subjects 23 years old and younger in North Carolina, where subjects intended to be excluded from the intervention were accidentally included with unknown treatment assignment probabilities. For this reason we also exclude from the analysis sample subjects who are age 23 and younger in North Carolina (n=9,499 from the treatment group, n=2,304 from the control group).[9]

The sample analyzed includes 1,969,899 subjects from single-person households, of whom 1,841,891 were assigned to treatment and 128,008 were assigned to control. The state-specific probabilities of assignment to treatment range from about 85% to 95% and are summarized in Table 2.

TABLE 2 HERE

We conduct a randomization check by regressing treatment assignment on a battery of pre-treatment covariates[10] using ordinary least squares and test whether these covariates are jointly prognostic of treatment assignment vector. We fail to reject the null hypothesis that the covariates are jointly prognostic of treatment ($F = 1.14, p = 0.26$) and infer that the randomization procedure did not fail.[11]

Quantities of Interest and Estimation Strategy

We specify three sets of quantities of interest. First, we examine the causal intent-to-treat (ITT) effect of sending a report card mailer on turnout, or $E[Y_i(Z = 1) - Y_i(Z = 0)]$ where $Z = 1$ if assigned to the report card treatment and $Z = 0$ if assigned to control. The outcome variable Y_i denotes subject i's turnout behavior in the 2014 election and equals 1 if the subject voted and 0 otherwise. Turnout data are obtained from state voter files. We identify this quantity by estimating the following equation:

$$Y_i = \alpha_1 + \beta_1 Z_i + \gamma_1 X_i + \varepsilon_{1i} \tag{1}$$

where Z_i is the treatment condition to which subject i is assigned, β_1 is the ITT effect of sending a report card on turnout, and X_i is a vector of covariates included to improve precision. These covariates include age, missing age,[12] age squared divided by 100, past turnout (in 2006, 2008, 2009, 2010, 2011, 2012, and 2013), marital status, race dummies, and sex. We also include state fixed effects, vote history (i.e., report card rating) stratum dummies, state-by-covariate interactions, state-by-stratum interactions, stratum-by-covariate interactions, and state-stratum-covariate interactions. For each analysis, we estimate weighted regressions where weights are defined as the inverse of the probability of each subject's assignment to their observed treatment assignment in order to account for heterogeneous treatment assignment probabilities.[13]

Second, we examine whether the ITT effect of the report card varies by vote history stratum, which is the the rating one would be informed about in the report card mailer if assigned to treatment. We estimate the following equation:

$$Y_i = \alpha_2 + \beta_2 Z_i + \beta_3 A_i + \beta_4 B_i + \beta_5 Z_i A_i + \beta_6 Z_i B_i + \gamma_2 X_i + \varepsilon_{2i} \tag{2}$$

where A_i is a binary indicator equal to 1 if subject i's past turnout rate is above their state's median turnout rate in the last four general elections and 0 otherwise (i.e., received an above-average rating), B_i is a binary indicator equal to 1 if subject i's past turnout rate is below their state's median turnout rate in the last four general elections and 0 otherwise (i.e., received a below-average rating). In this specification, β_2 is the estimated ITT effect among subjects with an average rating (i.e., the omitted vote history stratum reference group), β_5 is the difference in ITT effects of the report card treatment on turnout between subjects with an above average rating and subjects with an average rating, and β_6 is the difference in ITT effects of the report card treatment on turnout between subjects with a below average rating and subjects with an average rating. The coefficients on the treatment-by-covariate interactions, β_5 and β_6, are observational quantities because they make comparisons between subgroup-specific causal ITT estimates where the subgroup is defined by a pre-treatment covariate that is not randomly assigned.

Third, we take advantage of the fact that the experiment includes a large number of subjects and conduct two sets of exploratory analyses assessing heterogeneous ITT effects of sending a report card on turnout by electoral context and by subjects' predicted baseline propensity to vote in the 2014 election. For both exploratory analyses, we are principally interested in the extent to which subgroup ITT estimates differ from the pooled ITT estimate. To explore heterogeneous effects across electoral contexts, we first operationalize variation in electoral context as variation by state. Table 3 summarizes the state political contexts for each state in the experiment.

TABLE 3 HERE

As the table shows, the experiment was conducted in states that included a range of high-profile, competitive contests with both state and national implications. Fourteen of the 17 states held elections for contested Senate seats and of those 14 Senate races, 9 were considered a "toss-up" by the Cook Political Report (November 14, 2014). Thirteen of the 17 states in the study had contested gubernatorial elections as well, and 7 of those 13 gubernatorial races were considered a "toss-up" by the Cook Political Report. In addition to these competitive statewide races, most states had ballot initiatives and a range of alternatives to Election Day voting that could have influenced baseline turnout rates. Given this operationalization, we then partition the analysis sample by state and re-estimate Equations 1 and 2 (but excluding from the model specification both state fixed effects and interaction terms that include state variables) for each state.

To explore heterogeneous effects by subjects' predicted baseline propensity to vote, we implement the following procedure. We first use ordinary least squares to model turnout in the 2014 election as a function of all of the control variables from Equation 1 (except the three-way state-stratum-covariate interaction terms[14]) among the control group only.[15] Using the estimates from this model, we predict turnout in the 2014 midterm election across the full analysis sample. Higher values of this predicted vote score correspond to a higher probability each subject will vote in the

2014 midterm election at baseline in the absence of treatment. We bin the baseline predicted vote score measure by identifying 20 quantiles as cutpoints and we estimate Equation 1 for each interval created to identify the ITT effect of the report card treatment on turnout by subjects' baseline probability of voting in 2014.

Results

The Effect of Sending a Voting Report Card on Turnout

Table 4 presents the estimated ITT effect of sending the report card on turnout levels during the 2014 general election (Column 1) and heterogeneous ITT effects of sending the report card on 2014 turnout by vote history rating stratum (Column 2).

TABLE 4 HERE

We find that sending a report card increases turnout levels in the 2014 general election by 0.7 percentage points compared to a 31.2% turnout rate in the control group, or a 2.2% increase in the turnout rate (Column 1). Because the design is adequately powered, this effect is very precisely estimated (s.e.=0.001; 95% CI [0.0055, 0.0077]; p<0.01, two-tailed; n=1,969,899).

We then examine whether the effect of sending a report card varies by vote history stratum, defined as the subject's rating shown on the report card (i.e., below average, average, or above average) if she were assigned to treatment. These results are summarized in Column 2 of Table 4.[16] Among subjects with an average vote history rating (n=489,746), the estimated ITT effect of sending a report card mailer is 0.8 percentage points (s.e.=0.001; 95% CI [0.006, 0.01]; p<0.01, two-tailed). We estimate that the effect of sending a report card on the 2014 turnout rate is 0.3 percentage points lower (s.e.=0.002; 95% CI [-0.006, -0.0003]; p=0.03, two-tailed) for the above average rating subgroup (n=464,165) than for the average rating subgroup. This difference in precisely estimated and statistically significant at the 5% level. In contrast, we are unable to detect differences in the estimated ITT effect of sending a report card on 2014 turnout levels between the average rating and below average rating subgroups. We estimate that the effect of sending a report card on the 2014 turnout rate is 0.1 percentage points lower (s.e.=0.0013; 95% CI [-0.003, 0.0019]; p=0.614, two-tailed) for the below average rating subgroup (n=1,1015,988) than for the average rating subgroup.

Heterogeneous Effects by State

Next, we leverage the large sample size of the experiment to explore heterogeneous effects of sending a report card mailer on turnout in 2014 by state. Table 5 summarizes the ITT effects of sending a report card mailer on turnout estimated separately for each state (Panel A) and heterogeneous ITT effects of sending a report card mailer on turnout by vote history stratum estimated separately for each state (Panel B).

TABLE 5 HERE

Panel A of Table 5 suggests that there is variation in the magnitude of the ITT effect of sending a report card mailer on turnout in 2014 across states. Focusing on the state-by-state estimates, we find that 15 of the 17 state-specific ITT estimates are small and positive and that 13 of the 15 positive state-specific ITT estimates are statistically significant at the 5% level. For the two states where we estimate a negative mean ITT effect of sending a report card mailer on turnout (Alaska and New Hampshire), the estimated effect is statistically significant at a 5% level in Alaska only (p<0.01) and not distinguishable from zero in New Hampshire (p=0.22). We do not have priors about any systematic reason why a negative ITT effect of the report card mailer is observed in these states beyond sampling variability. Furthermore, we do not find an obvious correlation between the observed measures of state-specific electoral context summarized in Table 3 and whether the state-specific ITT estimate is negative.

We also compare the state-specific ITT estimates to the pooled ITT estimate of 0.7 percentage points. Figure 2 plots the mean ITT effects by state, estimated using a pooled model with treatment-by-state interactions and all control variables from Equation 1, with 95% confidence intervals. For comparison, we also display the pooled ITT estimate (0.7 points) as a horizontal line.

FIGURE 2 HERE

As the figure shows, the substantive magnitudes of the state-specific ITT estimates are all close to the pooled ITT estimate. The pooled ITT estimate is within the 95% confidence interval for the state-specific estimate for 9 of the 17 states in the experiment (AR, AZ, CO, GA, IA, LA, MI, NC, and WI.), falls on or just beyond one of the bounds that form the 95% confidence interval for 4 states (KS, KY, ME, and SD), and is well beyond the bounds of the 95% confidence interval for the remaining 4 states (AK, FL, NH, and TX). We similarly do not find an obvious correlation between whether the state estimate is statistically distinguishable from the pooled estimate and the observed measures of state-specific electoral context summarized in Table 3.

Taken together, the results suggest that the positive effect of sending a report card mailer on turnout is largely consistent across states. While we observe some treatment effect heterogeneity from the pooled estimate across states, we do not find strong support for the claim that state-specific effects of sending a report card mailer is distinguishable from the pooled ITT effect. These conclusions also apply when we examine state-specific estimates of the heterogeneous effects of sending the report card mailer on turnout by vote history stratum (Column 2 of Table 5).

Heterogeneous Effects by Predicted Baseline Propensity to Vote

Finally we leverage the large sample size of the experiment to explore heterogeneous effects of sending a report card mailer on turnout in the 2014 election by subjects' baseline probability of voting in the election.[17] Figure 3 presents the distribution of the predicted probability of voting in the 2014 election at baseline for all subjects in the analysis sample. The distribution is right-skewed where a large percentage of the subjects have a predicted probability of voting in 2014 that is below 20% and almost no subjects have a predicted probability of voting in 2014 that is greater than 90%. This distribution is expected in light of the enrollment procedures used by the VPC to target historically underrepresented groups with low baseline political participation rates as subjects for the experiment.

FIGURE 3 HERE

FIGURE 4 HERE

We bin the predicted baseline probability of voting in 2014 where cutpoints are defined by the 20 quantiles of the continuous variable and estimate Equation 1 separately for each bin of the coarsened predicted vote variable. Figure 4 plots the estimated ITT effect of sending the report card mailer on turnout in 2014 at the midpoint of each bin with 95% confidence intervals. The figure also includes a horizontal line showing the pooled ITT estimate at 0.7 percentage points (from Table 4). While we observe variation in the estimated ITT effect across bins, most estimates are positive and all of the estimates are statistically indistinguishable from the pooled ITT estimate of 0.7 percentage points.

Discussion

In this article, we examine whether the effects on turnout of the Self treatment mailing (which applies social pressure to vote by revealing the subject's vote history) that are reported in the literature are generalizable beyond the low salience electoral contexts examined in past published experimental work. The need to replicate and extend field experiments assessing the effects of the Self mailing on turnout in high salience elections is important (1) to provide a hard test of whether the effect exists even in contexts where the baseline turnout rate is expected to be higher than in low salience contexts (and thus effects are expected to be smaller in magnitude and more difficult to detect), (2) to explore whether the observed effect is robust across a range of electoral contexts, and (3) to avoid the possibility of publication bias arising from the non-publication of null results.

Analyzing data from a large-scale field experiment that was conducted across 17 states in a high-salience midterm election in 2014 and that involved over 1.96 million subjects, we find that sending direct mail containing a report card informing subjects of their past vote history and how their past vote history compares to the state median increases turnout levels in the 2014 election by 0.7 percentage points relative to a control group mean turnout rate of 31.2%, a 2.2% increase. We find evidence that the effect of the Self treatment varies by subjects' vote history as compared to their state's median turnout rate: the effect of sending the report card mailing on turnout is 0.3

percentage points less for subjects who vote in more elections than their state's median (the above average rating group) than for subjects who vote in the same number of elections as compared to their state's median (the average rating group). Despite this difference, we find that across vote history rating subgroups, the effect of sending the report card on turnout in the 2014 is positive, ranging from a 0.4 percentage point effect for subjects with an above average rating and a 0.7 to 0.8 percentage point effect for subjects with an average or below average rating, and these subgroup effects are all statistically significant at the 1% level. The magnitudes of these positive effects are smaller than those reported in prior published experiment (which range between 1.6 and 4.8 percentage points, see Table 1), a finding that is consistent with the expectation that treatment effect magnitudes are larger in low salience electoral contexts (in which prior published experiments were conducted) than in high salience electoral contexts. These effects are very precisely estimated due to the large sample size and adequate statistical power of the field experiment.

The large scale of the experiment also provides leverage to conduct exploratory analyses of heterogeneous effects by electoral context, which we operationalize as between-state variation, and by subjects' baseline propensity to vote in 2014. Across states, we find that the effect of sending a report card on turnout in 2014 is consistently positive and qualitatively similar to the pooled effect. Despite observing a statistically significant negative effect in 1 of the 17 states and state-specific effects that are clearly distinguishable from the pooled effect in 4 of 17 states, we argue that these observed findings do not provide strong evidence of heterogeneous effects. Given our lack of strong theoretical priors about the systematic reasons explaining these observed results and given our aversion to the ex post development of explanations for heterogeneous effects due to concerns about multiple comparisons, we believe that a separate field experiment should be designed in the future to test pre-specified theoretical hypotheses about the existence of heterogeneous Self treatment effects on turnout by specific features of a voter's electoral context. Similarly, our exploratory analysis of heterogeneous effects of the Self treatment mailer by subjects' baseline propensity of voting in the 2014 election does not systematically differ from the pooled estimate.

To summarize, our findings confirm results from past experiments testing the effect of the Self treatment on turnout and make clear that activating social norms about voting is a consistently effective means for increasing turnout, even in high salience electoral contexts.

Notes

[1]To our knowledge, there is a single study in the literature that tests whether the effects of social pressure on turnout generalizes beyond low salience contexts to a high salience electoral context. In a working paper, Rogers et al. (2014) report results from a large-scale field experimental replication that was conducted during the 2011 recall election in Wisconsin and tests the effects on turnout of the “Neighbors” mailer, which generates social pressure to vote by disclosing the past turnout history of recipients and their neighbors.

[2]States include Arkansas, Alaska, Arizona, Colorado, Florida, Georgia, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, North Carolina, New Hampshire, South Dakota, Texas, and Wisconsin.

[3]In the 2014 midterm election, baseline turnout rate was relatively high with approximately 36.7% of the voting eligible population voting nationwide (McDonald 2016).

[4]Outside of political science, scholars have assessed the effect of Self-type treatments on other behavioral outcomes such as participation in a recycling program (Schultz 1998). Receiving feedback on one’s own recycling behavior increased participation in a recycling program relative to a control group and these effects persisted over time.

[5]Heavy-handed treatments that threaten to reveal subjects’ voting history to neighbors or publish it in the local newspapers increase turnout but also create backlash against the experimenters (Gerber, Green and Larimer 2008; Panagopoulos 2010). Similarly, “Hawthorne” treatments, where individuals are notified that they are being monitored by academics, are also viewed more negatively than the Self treatment (see Mann 2010, Table 1).

[6]For more information about this organization’s mission, see their website at the following URL http://www.voterparticipation.org/aboutus/

[7]Because the ratings are derived from pre-treatment quantities (subject-level and subject-state-level turnout rates), comparisons of report card effects made across rating groups are observational.

[8]For a complete graphical summary of the experiment, we refer the reader to a CONSORT flow diagram detailed in the Supplemental Appendix.

[9]Through private correspondence, the VPC confirmed that there were problems with the randomization among younger subjects in North Carolina and that they should be excluded from the analysis sample. In the Supplemental Appendix, we present additional analyses showing that our main results are not affected by this series of sample exclusions.

[10]These covariates include age, age squared divided by 100, missing age, past turnout (in 2006, 2008, 209, 2010, 2011, 2012, and 2013), race dummies, marital status, sex, vote history stratum (i.e., rating relative to the state median) dummies, and state dummies.

[11]We refer the reader to the Supplemental Appendix for estimation results from the randomization check and a series of balance tables.

[12]We impute the value of age if missing in the original data using the sample mean and code the missing age dummy variable equal to 1 if mean impuation on age occurred and 0 otherwise.

[13]Our findings are qualitatively similar without inverse probability weights. Unweighted estimates may be found in the Supplemental Appendix.

[14]The logit does not converge when three-way-interactions are included, thus we exclude them from the model specification.

[15]We refer the reader to the Supplemental Appendix for full estimation results from the model predicting 2014 turnout as a function of pre-treatment covariates among the control group.

[16]In the Supplemental Appendix, we present additional analyses where we partition the analysis sample by vote history stratum and estimate Equation 1 separately for each stratum. These analyses report that sending the report card mailer increases turnout levels by 0.4 percentage points above a 61.7% control group mean turnout rate among subjects with an above average rating (s.e.=0.001, n=464,165), by 0.8 percentage points above a 39.6% control group mean turnout rate among subjects with an average rating (s.e.=0.001, n=489,746), and by 0.7 percentage points above a 13.2% control group mean turnout rate among subjects with a below average rating (s.e.=0.001, n=1,015,988). Even after reducing statistical power by estimating Equation 1 on partitioned data by vote history stratum, we find that all three mean ITT estimates are statistically significant at the 1% level.

[17]The procedure used to estimate subjects' baseline probability of voting in the 2014 election is detailed in the previous section describing the empirical strategy.

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Tables

Table 1: Summary of Past Published Social Pressure and Voting Experiments that Test the Self Treatment

Authors	**Sample Size**	**Control Group Turnout**	**Treatment Group Turnout**	**Electoral Context**	**Supporting Information**
Gerber, Green and Larimer (2008)	229,461	29.7%	34.5%*	2006 Primary Election in Michigan	Direct mail showing voting history from past two elections for all registered voters in the household
Gerber, Green and Larimer (2010)	365,973	23.5%	27.6%*	2007 General Municipal Elections among 224 cities in Michigan	Direct mail showing voting history from past two elections framed as a) past abstentions or b) past voting (turnout displayed here) for all registered voters in the household.
Mann (2010)	33,250	6.8%	8.9%*	2007 General Gubernatorial Election in Kentucky	Sample includes unmarried women only. Direct mail showing either a) voting history from past two elections for all registered voters in the household (turnout displayed here) or b) same voting history treatment but with an offer to give them a ride to the polls. No difference between a) and b) exists.
Abrajano and Panagopoulos (2011)	6,931	3.1%	4.7%*	2009 Special Election for New York City Council District 21	Sample only includes registered Latino voters residing in single-voter households who did not vote in the previous municipal election. Direct mail showing voting history in either a) English language (turnout displayed here) or b) Spanish language, which only increased turnout for low-propensity voters.
Murray and Matland (2014) part 1	67,100	40.5%	42.6%*	2010 General Gubernatorial Election in Texas, conducted in Lubbock County	One voter per household received direct mail showing voting history from past five elections. Mailer also included a "civic duty" message before displaying voting history. Two Self variations included a message that said a) high or b) low turnout was expect in the county.
Murray and Matland (2014) part 2	45,737	49.0%	50.2%	2010 General Gubernatorial Election in Wisconsin, conducted in Kenosha County	Supplemental information is the same as above.
Panagopoulos, Larimer and Condon (2014)	14,482	10.6%	12.0%	2011 General Municipal Election in Hawthorne, California	Nonpartisan local election for mayor and city council. Direct mail showing voting history from past two elections for one registered voters in the household. Two other Self treatments with community-level participation yielded larger and significant effect sizes than Self treatment only

Notes: The Self treatment is a targeted mailing that informs the subject of their past vote history and provides an encouragement to vote. The sample sizes listed in the table are the sum of the control and Self treatment groups from each study; subjects assigned to other treatment conditions are excluded. An asterisk indicates that the estimated mean difference between the treatment and control turnout rates is statistically significant at a 5% level.

Table 2: Number of Subjects and Probability of Assignment to Treatment in Analysis Sample, by State

	Control		Treatment		Total	
State	N	%	N	%	N	%
AK	692	5.1	12822	94.9	13514	100
AR	6990	5.0	133417	95.0	140407	100
AZ	9886	5.0	186596	95.0	196482	100
CO	8768	5.0	166465	95.0	175233	100
FL	9673	5.0	182213	95.0	191886	100
GA	5105	14.4	30379	85.6	35484	100
IA	7003	5.0	132985	95.0	139988	100
KS	5270	5.0	100524	95.0	105794	100
KY	14357	5.0	271532	95.0	285889	100
LA	2449	5.0	46125	95.0	48574	100
ME	3274	5.0	62484	95.0	65758	100
MI	7122	14.2	42980	85.8	50102	100
NC	32703	14.4	193911	85.6	226614	100
NH	1596	5.0	30435	95.0	32031	100
SD	1477	5.0	28234	95.0	29711	100
TX	287	5.4	4993	94.6	5280	100
WI	11356	5.0	215796	95.0	227152	100
Total	128008	6.5	1841891	93.5	1969899	100

Table 3: State Political Contexts, Competitiveness, and Voting Alternatives during the 2014 Midterm General Elections

	Alternatives to Election Day Voting			On the Ballot		
State	In-Person Early Voting?	No-Excuse Absentee Voting?	All-Mail Voting?	Contested U.S. Senate Election?	Contested Gubernatorial Election?	Statewide Ballot Initiatives
Arkansas	Y	N	N	Y*	Y	Increase minimum wage; legalize alcohol sales
Alaska	Y	Y	N	Y*	Y*	Decriminalize marijuana; increase minimum wage; prohibit mining that harms salmon
Arizona	Y	Y	N	N	Y	Access to new medical treatments for terminally ill patients; increase salary for state legislators
Colorado	N	N	Y	Y*	Y*	Recognize unborn children as persons; K-12 fund by expanding horse race betting; label genetically modified food
Florida	Y	Y	N	N	Y*	Medical marijuana; judicial appointment by governor
Georgia	Y	Y	N	Y*	Y*	Limit income taxes; penalties for reckless driving
Iowa	Y	Y	N	Y*	Y	None
Kansas	Y	Y	N	Y*	Y	Permit charitable raffles and gaming by non-profits
Kentucky	N	N	N	Y	N	None
Louisiana	Y	N	N	Y*	N	14 legislatively referred constitutional amendments
Maine	Y	Y	N	Y	Y*	Bear hunting restrictions; six bonds with various purposes
Michigan	N	N	N	Y	Y*	Two initiatives that change gaming regulation for wolves
North Carolina	Y	Y	N	Y*	N	Amendment allowing defendants to waive jury rights
New Hampshire	N	N	N	Y*	N	None
South Dakota	Y	Y	N	Y	Y	Increase minimum wage; no penalty for choosing health care provider
Texas	Y	N	N	Y	Y	Reallocate money to transportation
Wisconsin	Y	Y	N	N	Y*	Funding state transportation

Notes: An asterisk denotes a competitive race, defined as a “toss-up” election by the Cook Political Report (November 14, 2014). Information about voting alternatives collected from the National Conference on State Legislatures. Information about contests on the ballot collected from state-specific Secretary of State websites.

Table 4: ITT Effects of the Report Card Treatment on Turnout Levels in the 2014 General Election

	Outcome: Voted in 2014 (1=Yes, 0=No)	
	(1)	(2)
Variable	Any Report Card	Report Card by Vote History Stratum
Report Card Treatment	0.007***	0.008***
	(0.001)	(0.001)
Report Card * Below State Median		-0.001
		(0.001)
Report Card * Above State Median		-0.003**
		(0.002)
Vote History: Below State Median	0.373	0.375
	(0.546)	(0.546)
Vote History: Above State Median	-0.927**	-0.925**
	(0.444)	(0.444)
Constant	-0.154	-0.156
	(0.541)	(0.541)
Observations	1,969,899	1,969,899
R-squared	0.326	0.326
Weighted?	Yes	Yes
With Covariates?	Yes	Yes
With Vote History Stratum Fixed Effects?	Yes	Yes
With State Fixed Effects?	Yes	Yes
With State-Covariate Interactions?	Yes	Yes
With Stratum-Covariate Interactions?	Yes	Yes
With State-Stratum-Covariate Interactions?	Yes	Yes
Control Group Mean Turnout	0.312	0.312
Control Group Mean Turnout, Below State Median Stratum		0.132
Control Group Mean Turnout, At State Median Stratum		0.396
Control Group Mean Turnout, Above State Median Stratum		0.617

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Heterogeneous ITT Effects of the Report Card on Turnout in the 2014 General Election, by State and by Vote History Rating

	Outcome: Voted in 2014 (1=Yes, 0=No)																
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Variable	AK	AR	AZ	CO	FL	GA	IA	KS	KY	LA	ME	MI	NC	NH	SD	TX	WI
A. ITT Estimates by State																	
Report Card Treatment	-0.032	0.006	0.004	0.005	0.012	0.009	0.005	0.001	0.009	0.011	0.013	0.002	0.004	-0.006	0.016	0.085	0.008
	(0.008)	(0.002)	(0.001)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.001)	(0.004)	(0.003)	(0.003)	(0.002)	(0.005)	(0.004)	(0.012)	(0.002)
Constant	-0.072	-0.193	0.033	0.151	-0.017	0.022	-0.181	0.318	-0.089	0.157	-0.200	0.005	-0.223	-0.033	-0.289	0.519	-0.081
	(0.632)	(0.024)	(0.017)	(0.021)	(0.032)	(0.041)	(0.023)	(0.083)	(0.026)	(0.048)	(0.024)	(0.034)	(0.018)	(0.138)	(0.038)	(0.126)	(0.228)
Observations	13,514	140,407	196,482	175,233	191,886	35,484	139,988	105,794	285,889	48,574	65,758	50,102	226,614	32,031	29,711	5,280	227,152
R-squared	0.207	0.168	0.153	0.255	0.291	0.260	0.231	0.364	0.345	0.392	0.355	0.333	0.285	0.212	0.261	0.203	0.202
Weighted?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Covariates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Vote History Stratum Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Stratum-Covariate Interactions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group Mean Turnout	0.552	0.295	0.0621	0.298	0.324	0.250	0.214	0.376	0.289	0.422	0.319	0.251	0.328	0.390	0.219	0.341	0.562
B. ITT Estimates by Vote History Stratum and By State																	
Report Card Treatment	-0.062	-0.002	-0.005	0.004	0.019	0.012	0.005	0.004	0.024	0.021	0.018	0.001	0.003	-0.009	0.015	0.121	0.003
	(0.018)	(0.004)	(0.003)	(0.004)	(0.004)	(0.008)	(0.004)	(0.005)	(0.003)	(0.006)	(0.006)	(0.007)	(0.003)	(0.011)	(0.009)	(0.027)	(0.004)
Report Card * Below State Median	0.035	0.016	0.007	0.003	-0.013	-0.002	0.001	-0.002	-0.017	-0.006	-0.001	0.002	0.003	0.006	0.004	-0.043	0.008
	(0.020)	(0.005)	(0.003)	(0.005)	(0.004)	(0.009)	(0.005)	(0.006)	(0.003)	(0.008)	(0.007)	(0.008)	(0.004)	(0.012)	(0.011)	(0.032)	(0.005)
Report Card * Above State Median	0.049	-0.002	0.018	-0.003	-0.004	-0.009	-0.003	-0.006	-0.023	-0.035	-0.025	-0.000	0.002	-0.011	-0.009	-0.053	0.005
	(0.024)	(0.006)	(0.003)	(0.006)	(0.005)	(0.012)	(0.006)	(0.006)	(0.004)	(0.010)	(0.009)	(0.009)	(0.004)	(0.018)	(0.013)	(0.035)	(0.005)
Vote History: Below State Median	0.261	0.139	-0.040	-0.009	0.095	-0.083	0.236	-0.328	0.134	-0.154	0.264	0.057	0.209	-0.106	0.294	-0.648	0.108
	(0.638)	(0.027)	(0.018)	(0.023)	(0.033)	(0.046)	(0.024)	(0.085)	(0.026)	(0.052)	(0.029)	(0.038)	(0.021)	(0.147)	(0.044)	(0.143)	(0.228)
Vote History: Above State Median	-0.734	-0.076	-0.189	-0.254	-0.223	-0.444	-0.042	-0.686	0.139	-0.106	-0.189	-0.285	-0.253	-0.404	0.020	-0.261	0.026
	(0.479)	(0.033)	(0.019)	(0.028)	(0.037)	(0.058)	(0.032)	(0.089)	(0.031)	(0.179)	(0.036)	(0.044)	(0.027)	(0.270)	(0.052)	(0.161)	(0.231)
Constant	-0.020	-0.189	0.036	0.151	-0.021	0.021	-0.181	0.317	-0.095	0.154	-0.203	0.006	-0.221	-0.032	-0.289	0.490	-0.076
	(0.632)	(0.025)	(0.017)	(0.021)	(0.032)	(0.041)	(0.023)	(0.083)	(0.026)	(0.048)	(0.025)	(0.034)	(0.018)	(0.138)	(0.038)	(0.128)	(0.228)
Observations	13,514	140,407	196,482	175,233	191,886	35,484	139,988	105,794	285,889	48,574	65,758	50,102	226,614	32,031	29,711	5,280	227,152
R-squared	0.207	0.168	0.153	0.255	0.291	0.260	0.231	0.364	0.345	0.392	0.355	0.333	0.285	0.212	0.261	0.203	0.202
Weighted?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Covariates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Vote History Stratum Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
With Stratum-Covariate Interactions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Group Mean Turnout	0.552	0.295	0.0621	0.298	0.324	0.250	0.214	0.376	0.289	0.422	0.319	0.251	0.328	0.390	0.219	0.341	0.562
Control Group Mean Turnout, Below State Median Stratum	0.418	0.137	0.0170	0.158	0.110	0.0903	0.0715	0.0933	0.0985	0.162	0.127	0.0567	0.0959	0.275	0.0680	0.194	0.386
Control Group Mean Turnout, At State Median Stratum	0.788	0.371	0.0566	0.365	0.337	0.341	0.315	0.377	0.440	0.590	0.469	0.284	0.396	0.624	0.275	0.357	0.658
Control Group Mean Turnout, Above State Median Stratum	0.731	0.529	0.183	0.606	0.662	0.580	0.536	0.717	0.731	0.847	0.677	0.581	0.653	0.642	0.529	0.632	0.737

Standard errors in parentheses. Estimates for control variables and interaction terms omitted due to space constraints.

Figures

Figure 1: Sample Anonymized Treatment Mailing

Page S. Gardner
The Voter Participation Center
2522 W 41st St. #392
Sioux Falls, SD 57015-6120

Voting Report Card for
SUBJECT'S NAME

Dear Rachel,

This report provides you with a helpful summary of how often you vote and how your voting participation compares with other voters in your state.

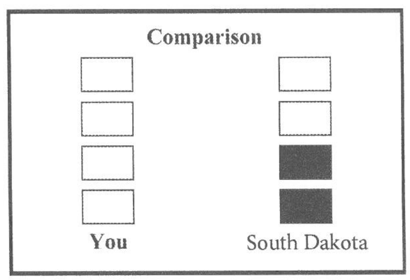
Being a voter is important.

If you vote often, please take pride in doing your part. If not, we hope this information will encourage you to vote and, hopefully, go to the polls this Tuesday, November 4.

If you need information on the candidates, visit www.Vote411.org. Polling places will be open from 7 AM until 7 PM.

Voting record for
SUBJECT'S NAME *

2012 General Election: No Vote
2010 General Election: No Vote
2008 General Election: No Vote
2006 General Election: N/A



Your voting score is:
BELOW AVERAGE

No one can know how you vote, but whether or not you vote is a matter of public record. Thank you for participating in the election process, and we hope to see you at the polls on Tuesday, November 4.

Sincerely,

Page Gardner
President
The Voter Participation Center

P.S. To better understand why people do or do not vote, we may call you after the election to discuss your experience at the polls. Thank you, we appreciate your help.

VPC14_024

*Data obtained from publicly available state voter files.
This mailing has been paid for by the Voter Participation Center (VPC). VPC is a non-government, nonprofit, and nonpartisan 501(c)(3) research organization. www.voterparticipation.org.

655A

Figure 2: Estimated ITT Effects by State and the Pooled ITT Estimate. The figure presents the mean ITT effect of sending a report card mailer on turnout in 2014, estimated using a pooled model with treatment-by-state interactions and all control variables from Equation 1, with 95% confidence intervals. The dashed horizontal line shows the pooled ITT estimate (0.7 percentage points).

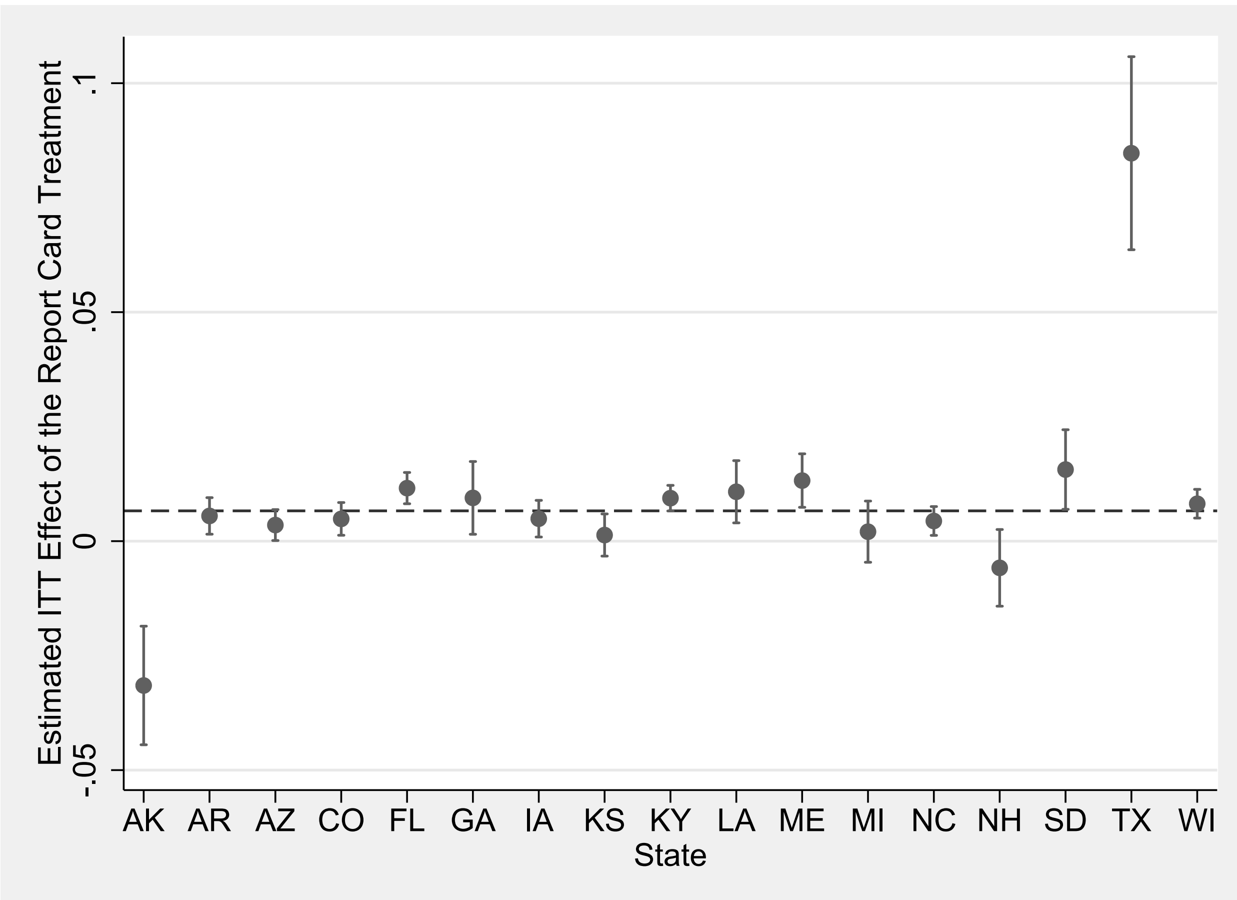


Figure 3: Histogram of the Predicted Baseline Probability of Voting in the 2014 General Election

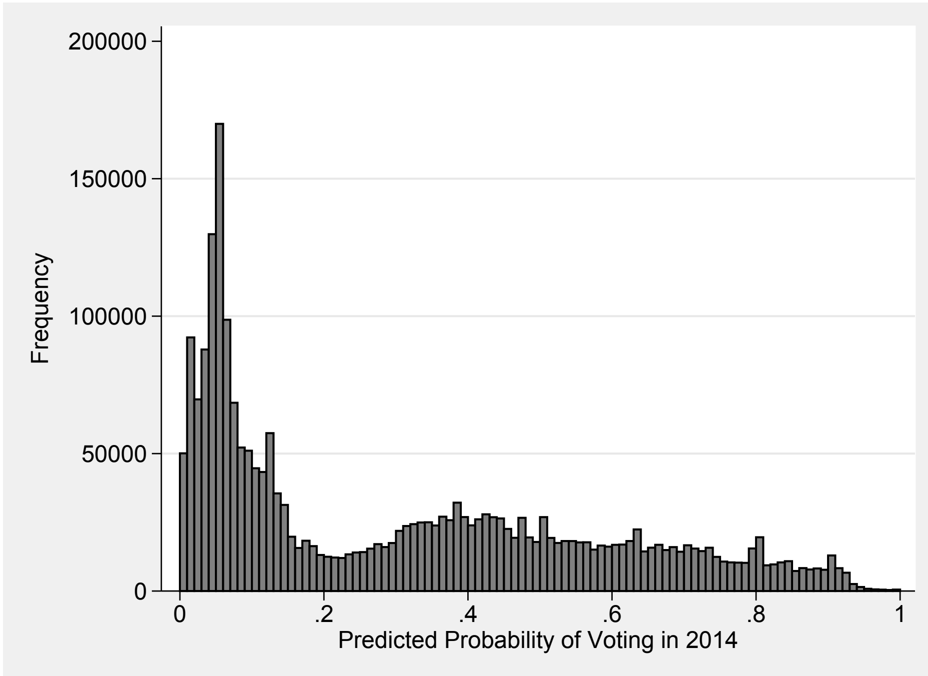
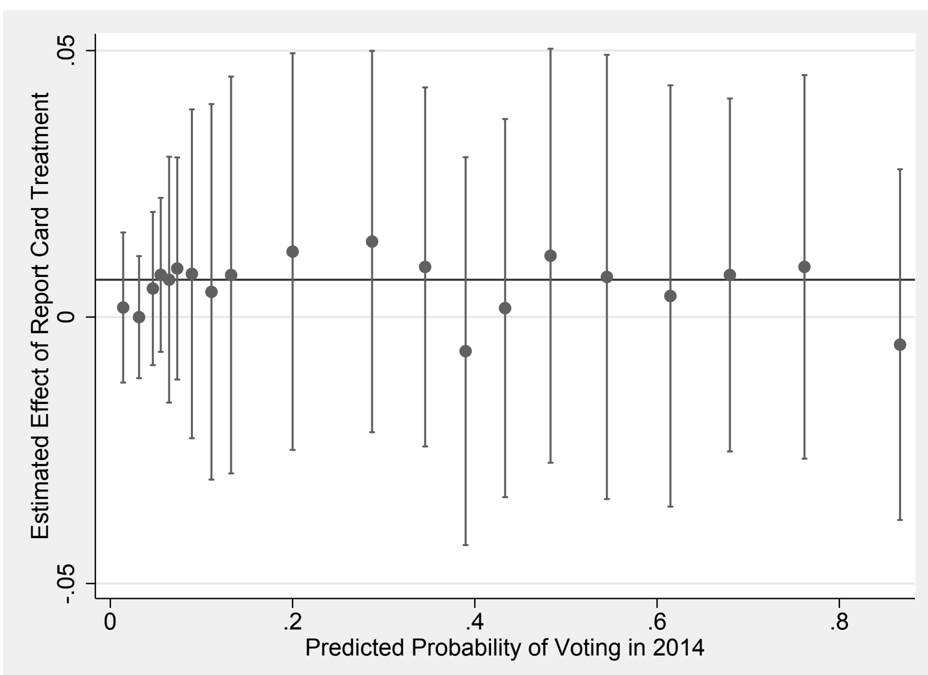


Figure 4: ITT Effect of the Report Card by Predicted Baseline Probability of Voting in 2014, Binned at 20 Quantiles. The solid horizontal line is the pooled ITT estimate (0.7 percentage points).



Supplemental Appendix for:

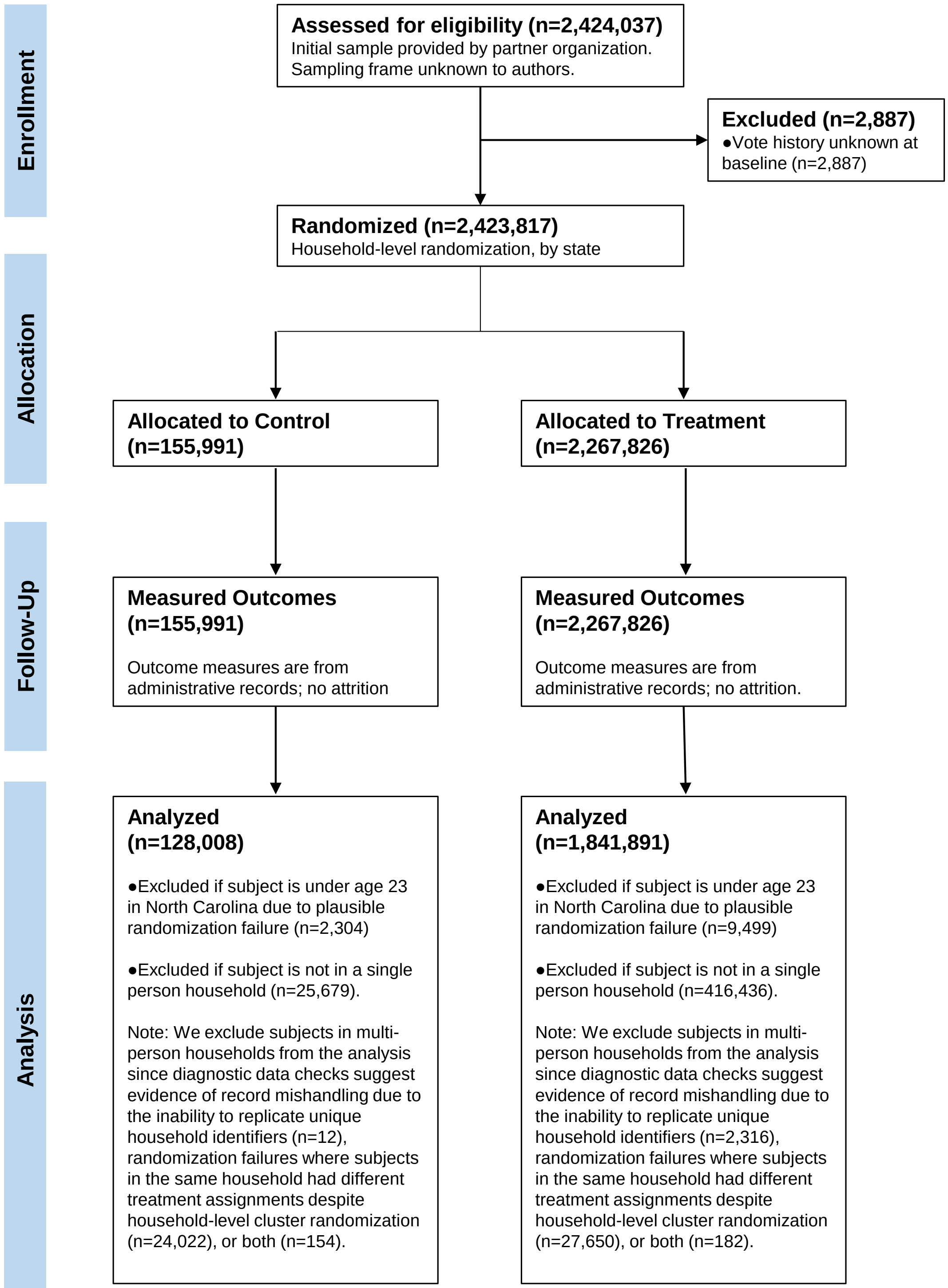
THE GENERALIZABILITY OF SOCIAL PRESSURE EFFECTS ON TURNOUT ACROSS HIGH-SALIENCE ELECTORAL CONTEXTS: FIELD EXPERIMENTAL EVIDENCE FROM 1.96 MILLION CITIZENS IN 17 STATES

FOR ONLINE PUBLICATION ONLY

This appendix contains the following material:

A CONSORT Flow Diagram

Figure A1: CONSORT Diagram



B Randomization Checks and Balance Tables

Table A1: Randomization Checks. This table shows the estimates from a model regressing treatment assignment on observed covariates for the analysis sample (Column 1), defined as subjects in one-person households with valid vote history and household identifiers and who are not under 23 in North Carolina. We fail to reject the null hypothesis that the covariates are jointly prognostic of treatment (F=1.14, p=.26). Columns 2 and 3 show that this result is not sensitive to including the predicted probability of voting in 2014 as a covariate or to excluding North Carolina entirely.

Variable	(1) Analysis Sample	(2) Analysis Sample	(3) Exclude NC
Age (imputed with sample mean if missing)	0.001***	0.001***	0.001**
	(0.000)	(0.000)	(0.000)
Age squared divided by 100	-0.001***	-0.001**	-0.001*
	(0.000)	(0.000)	(0.000)
Missing Ageˆ	-0.002	-0.002	0.000
	(0.005)	(0.005)	(0.005)
Voted in 2006: 1=Yes, 0=No	-0.005*	-0.005*	-0.002
	(0.003)	(0.003)	(0.003)
Voted in 2008: 1=Yes, 0=No	-0.006***	-0.006***	-0.003
	(0.002)	(0.002)	(0.002)
Voted in 2009: 1=Yes, 0=Noˆ	-0.008	-0.008	-0.009
	(0.009)	(0.009)	(0.009)
Voted in 2010: 1=Yes, 0=No	-0.011***	-0.011***	-0.007*
	(0.003)	(0.004)	(0.004)
Voted in 2011: 1=Yes, 0=Noˆ	0.003	0.002	0.003
	(0.006)	(0.006)	(0.006)
Voted in 2012: 1=Yes, 0=No	-0.004	-0.005	-0.001
	(0.003)	(0.005)	(0.005)
Voted in 2013: 1=Yes, 0=Noˆ	-0.006	-0.008	-0.006
	(0.005)	(0.007)	(0.008)
Race: Black	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)
Race: Hispanic	0.002	0.002	0.001
	(0.003)	(0.003)	(0.003)
Race: Other	0.001	0.001	0.002
	(0.004)	(0.004)	(0.004)
Married	0.001	0.001	0.002
	(0.002)	(0.003)	(0.003)
Female	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)
Predicted Value, Vote in 2014		0.004	0.000
		(0.014)	(0.014)
Vote History: Below State Median	-0.007**	-0.007**	-0.002
	(0.003)	(0.003)	(0.003)
Vote History: Above State Median	0.009***	0.009***	0.005
	(0.003)	(0.003)	(0.003)
Constant	0.491***	0.491***	0.487***
	(0.012)	(0.013)	(0.013)
Observations	1,969,899	1,969,899	1,743,285
R-squared	0.000	0.000	0.000
F-statistic	1.140	1.110	0.610
F-test p-value	0.260	0.300	0.960

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. The sample definition in Column (1) is our sample definition for our main analyses. Coefficients on state fixed effects are not displayed due to space constraints (none are statistically significant). The symbol ˆ means that for that variable, the value is coded as 0 for subjects in a state where covariate cell sample size is small and covariate perfectly predicts treatment assignment.

Table A2: Summary Statistics. Cells present weighted means and weighted standard deviations in brackets.

Variable	Full Sample	Control	Treatment
State: AK	0.0069	0.0069	0.0069
	[.0825]	[.0825]	[.0825]
State: AR	0.0713	0.0713	0.0713
	[.2573]	[.2573]	[.2573]
State: AZ	0.0997	0.0997	0.0997
	[.2997]	[.2997]	[.2997]
State: CO	0.089	0.089	0.089
	[.2847]	[.2847]	[.2847]
State: FL	0.0974	0.0974	0.0974
	[.2965]	[.2965]	[.2965]
State: GA	0.018	0.018	0.018
	[.133]	[.133]	[.133]
State: IA	0.0711	0.0711	0.0711
	[.2569]	[.2569]	[.2569]
State: KS	0.0537	0.0537	0.0537
	[.2254]	[.2254]	[.2254]
State: KY	0.1451	0.1451	0.1451
	[.3522]	[.3522]	[.3522]
State: LA	0.0247	0.0247	0.0247
	[.1551]	[.1551]	[.1551]
State: ME	0.0334	0.0334	0.0334
	[.1796]	[.1796]	[.1796]
State: MI	0.0254	0.0254	0.0254
	[.1574]	[.1574]	[.1574]
State: NC	0.115	0.115	0.115
	[.3191]	[.3191]	[.3191]
State: NH	0.0163	0.0163	0.0163
	[.1265]	[.1265]	[.1265]
State: SD	0.0151	0.0151	0.0151
	[.1219]	[.1219]	[.1219]
State: TX	0.0027	0.0027	0.0027
	[.0517]	[.0517]	[.0517]
State: WI	0.1153	0.1153	0.1153
	[.3194]	[.3194]	[.3194]
Age (imputed with sample mean if missing)	43.0947	43.0376	43.1519
	[16.8972]	[16.9122]	[16.8822]
Age squared divided by 100	21.4267	21.3825	21.4709
	[16.8963]	[16.9113]	[16.8811]
Missing age	0.034	0.034	0.034
	[.1813]	[.1812]	[.1814]
Voted in 2006: 1=Yes, 0=No	0.1837	0.1839	0.1835
	[.3872]	[.3874]	[.3871]
Voted in 2008: 1=Yes, 0=No	0.5534	0.5543	0.5525
	[.4971]	[.497]	[.4972]
Voted in 2009: 1=Yes, 0=No	0.0245	0.0248	0.0242
	[.1546]	[.1556]	[.1536]
Voted in 2010: 1=Yes, 0=No	0.2421	0.2434	0.2409
	[.4284]	[.4291]	[.4276]
Voted in 2011: 1=Yes, 0=No	0.0547	0.0547	0.0547
	[.2273]	[.2273]	[.2273]
Voted in 2012: 1=Yes, 0=No	0.4941	0.494	0.4942
	[.5]	[.5]	[.5]
Voted in 2013: 1=Yes, 0=No	0.021	0.0212	0.0208
	[.1434]	[.1442]	[.1425]
Race: White	0.5984	0.5991	0.5977
	[.4902]	[.4901]	[.4904]
Race: Black	0.2288	0.2289	0.2287
	[.4201]	[.4201]	[.42]
Race: Hispanic	0.1244	0.1238	0.125
	[.33]	[.3294]	[.3307]
Race: Other	0.0484	0.0482	0.0486
	[.2146]	[.2141]	[.2151]
Not Married	0.8728	0.8733	0.8724
	[.3332]	[.3326]	[.3337]
Married	0.1272	0.1267	0.1276
	[.3332]	[.3326]	[.3337]
Not Female	0.2751	0.2751	0.2751
	[.4466]	[.4466]	[.4465]
Female	0.7249	0.7249	0.7249
	[.4466]	[.4466]	[.4465]
Vote history: Equal to state median	0.2489	0.2493	0.2486
	[.4324]	[.4326]	[.4322]
Vote history: Below state median	0.5158	0.5159	0.5156
	[.4998]	[.4997]	[.4998]
Vote history: Above state median	0.2353	0.2348	0.2358
	[.4242]	[.4239]	[.4245]
Observations	1969899	128008	1841891

Table A3: Summary Statistics by State (1 of 2: Alaska to Kansas). Cells contain weighted means and weighted standard deviations in brackets.

	AK			AR			AZ			CO			FL			GA			IA			KS		
Variable	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat
Age (imputed with sample mean if missing)	48.4646	48.7413	48.1878	42.4881	42.3667	42.6096	38.9886	38.9347	39.0425	38.7905	38.7331	38.848	46.4165	46.3363	46.4966	42.0398	42.1091	41.9706	37.0346	36.9212	37.1481	52.491	52.549	52.4331
	[11.7978]	[12.03]	[11.563]	[17.7298]	[17.6229]	[17.8365]	[15.5485]	[15.649]	[15.4479]	[14.7014]	[14.6768]	[14.7265]	[16.6771]	[16.6577]	[16.697]	[16.0698]	[16.1517]	[15.9885]	[15.8632]	[15.7972]	[15.9291]	[15.5945]	[15.5959]	[15.5943]
Age squared divided by 100	24.8799	25.2022	24.5576	21.1958	21.0546	21.3371	17.6186	17.6077	17.6295	17.2084	17.1564	17.2603	24.3261	24.245	24.4072	20.2558	20.34	20.1715	16.232	16.1269	16.3371	29.985	30.0458	29.9241
	[13.1892]	[13.5112]	[12.8609]	[17.7001]	[17.5564]	[17.8428]	[14.9087]	[15.0255]	[14.7917]	[13.8959]	[13.856]	[13.9363]	[17.0388]	[17.0194]	[17.0587]	[15.5168]	[15.6157]	[15.4182]	[15.244]	[15.139]	[15.3485]	[17.6141]	[17.6437]	[17.5859]
Missing age	0.3907	0.3887	0.3928	0	0	0	0	0	0	0	0	0	0.0014	0.0027	0.0002	0	0	0.0001	0	0	0	0	0	0
	[.4879]	[.4878]	[.4884]	[.0043]	[0]	[.0061]	[.0016]	[0]	[.0023]	[0]	[0]	[0]	[.0379]	[.0518]	[.0139]	[.0057]	[0]	[.0081]	[0]	[0]	[0]	[.0032]	[0]	[.0045]
Voted in 2006: 1=Yes, 0=No	0.2916	0.2775	0.3058	0.1731	0.173	0.1732	0.0866	0.0869	0.0862	0.1566	0.1572	0.1561	0.185	0.184	0.1861	0.1078	0.1103	0.1053	0.1076	0.1081	0.1071	0.2991	0.3023	0.2959
	[.4545]	[.4481]	[.4608]	[.3783]	[.3782]	[.3784]	[.2812]	[.2817]	[.2807]	[.3635]	[.364]	[.363]	[.3883]	[.3875]	[.3892]	[.3101]	[.3133]	[.307]	[.3099]	[.3105]	[.3092]	[.4579]	[.4593]	[.4565]
Voted in 2008: 1=Yes, 0=No	0.6366	0.6199	0.6533	0.5531	0.5551	0.5512	0.3135	0.3145	0.3124	0.5159	0.5151	0.5167	0.6148	0.6153	0.6144	0.5453	0.5471	0.5435	0.4852	0.4865	0.4839	0.6452	0.6442	0.6462
	[.481]	[.4858]	[.476]	[.4972]	[.497]	[.4974]	[.4639]	[.4643]	[.4635]	[.4997]	[.4998]	[.4997]	[.4866]	[.4865]	[.4867]	[.498]	[.4978]	[.4981]	[.4998]	[.4999]	[.4997]	[.4784]	[.4788]	[.4781]
Voted in 2009: 1=Yes, 0=No	0	0	0	0	0	0	0.0054	0.0048	0.0061	0	0	0	0	0	0	0	0	0	0.0228	0.025	0.0205	0.0751	0.0765	0.0737
	[0]	[0]	[0]	[0]	[0]	[0]	[.0734]	[.0688]	[.0777]	[.0017]	[0]	[.0025]	[.0017]	[0]	[.0023]	[0]	[0]	[0]	[.1491]	[.1561]	[.1418]	[.2635]	[.2658]	[.2613]
Voted in 2010: 1=Yes, 0=No	0.3888	0.3786	0.399	0.2386	0.2381	0.2392	0.1019	0.1022	0.1016	0.1922	0.1931	0.1913	0.2704	0.2685	0.2722	0.192	0.192	0.192	0.1713	0.1752	0.1674	0.3034	0.3055	0.3013
	[.4875]	[.4854]	[.4897]	[.4263]	[.4259]	[.4266]	[.3025]	[.3029]	[.3022]	[.394]	[.3947]	[.3933]	[.4441]	[.4432]	[.4451]	[.3939]	[.3939]	[.3939]	[.3768]	[.3802]	[.3733]	[.4597]	[.4607]	[.4588]
Voted in 2011: 1=Yes, 0=No	0	0	0	0	0	0	0.0122	0.0123	0.012	0.0174	0.0168	0.0181	0	0	0	0	0	0	0	0	0	0	0	0
	[0]	[0]	[0]	[0]	[0]	[0]	[.1096]	[.1104]	[.1089]	[.1308]	[.1284]	[.1332]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Voted in 2012: 1=Yes, 0=No	0.5409	0.5477	0.5341	0.4934	0.494	0.4928	0.1893	0.1891	0.1896	0.4004	0.4001	0.4008	0.5415	0.5388	0.5443	0.4354	0.4353	0.4355	0.4241	0.428	0.4202	0.5459	0.5395	0.5523
	[.4983]	[.4981]	[.4989]	[.5]	[.5]	[.5]	[.3918]	[.3916]	[.392]	[.49]	[.4899]	[.4901]	[.4983]	[.4985]	[.498]	[.4958]	[.4958]	[.4958]	[.4942]	[.4948]	[.4936]	[.4979]	[.4985]	[.4973]
Voted in 2013: 1=Yes, 0=No	0	0	0	0	0	0	0.0089	0.0091	0.0087	0.1062	0.1056	0.1069	0.0086	0.009	0.0082	0.0147	0.0155	0.0138	0.0287	0.029	0.0283	0	0	0
	[0]	[0]	[0]	[0]	[0]	[0]	[.094]	[.095]	[.0931]	[.3081]	[.3074]	[.3089]	[.0924]	[.0944]	[.0904]	[.1201]	[.1234]	[.1168]	[.1668]	[.1678]	[.1659]	[0]	[0]	[0]
Race: White	0.634	0.646	0.6221	0.5713	0.5704	0.5722	0.464	0.4667	0.4613	0.582	0.5823	0.5817	0.3456	0.3472	0.3441	0.3079	0.3058	0.31	0.8338	0.8366	0.8309	0.6027	0.6036	0.6018
	[.4817]	[.4786]	[.4849]	[.4949]	[.4951]	[.4948]	[.4987]	[.4989]	[.4985]	[.4932]	[.4932]	[.4933]	[.4756]	[.4761]	[.4751]	[.4616]	[.4608]	[.4625]	[.3723]	[.3697]	[.3749]	[.4893]	[.4892]	[.4895]
Race: Black	0.153	0.1488	0.1572	0.3683	0.3687	0.3679	0.0997	0.0988	0.1007	0.111	0.1109	0.1111	0.2754	0.2744	0.2764	0.5859	0.5871	0.5847	0.0782	0.0781	0.0783	0.2129	0.2139	0.2119
	[.36]	[.3562]	[.364]	[.4823]	[.4825]	[.4822]	[.2997]	[.2984]	[.3009]	[.3141]	[.314]	[.3143]	[.4467]	[.4462]	[.4472]	[.4926]	[.4924]	[.4928]	[.2685]	[.2684]	[.2687]	[.4093]	[.4101]	[.4086]
Race: Hispanic	0.1002	0.0954	0.1051	0.0391	0.0401	0.0381	0.3685	0.368	0.3691	0.2501	0.2503	0.2498	0.3227	0.3211	0.3243	0.0545	0.055	0.054	0.0526	0.0513	0.054	0.1242	0.1231	0.1252
	[.3003]	[.2939]	[.3066]	[.1938]	[.1961]	[.1915]	[.4824]	[.4823]	[.4826]	[.4331]	[.4332]	[.4329]	[.4675]	[.4669]	[.4681]	[.227]	[.2281]	[.226]	[.2233]	[.2206]	[.226]	[.3298]	[.3286]	[.331]
Race: Other	0.1128	0.1098	0.1157	0.0213	0.0209	0.0217	0.0677	0.0665	0.0689	0.0569	0.0565	0.0573	0.0562	0.0574	0.0551	0.0517	0.0521	0.0514	0.0354	0.034	0.0368	0.0602	0.0594	0.0611
	[.3163]	[.3129]	[.3199]	[.1444]	[.143]	[.1458]	[.2512]	[.2491]	[.2533]	[.2317]	[.2308]	[.2325]	[.2304]	[.2326]	[.2282]	[.2215]	[.2223]	[.2207]	[.1848]	[.1812]	[.1883]	[.2379]	[.2364]	[.2395]
Not Married	0.8672	0.8699	0.8645	0.9097	0.9096	0.9099	0.8378	0.8407	0.8348	0.8523	0.8515	0.8531	0.7925	0.792	0.793	0.8325	0.827	0.8379	0.9056	0.9099	0.9013	0.8642	0.866	0.8624
	[.3393]	[.3366]	[.3422]	[.2866]	[.2868]	[.2863]	[.3687]	[.366]	[.3713]	[.3548]	[.3556]	[.354]	[.4055]	[.4059]	[.4051]	[.3734]	[.3783]	[.3685]	[.2924]	[.2864]	[.2983]	[.3425]	[.3406]	[.3445]
Married	0.1328	0.1301	0.1355	0.0903	0.0904	0.0901	0.1622	0.1593	0.1652	0.1477	0.1485	0.1469	0.2075	0.208	0.207	0.1675	0.173	0.1621	0.0944	0.0901	0.0987	0.1358	0.134	0.1376
	[.3393]	[.3366]	[.3422]	[.2866]	[.2868]	[.2863]	[.3687]	[.366]	[.3713]	[.3548]	[.3556]	[.354]	[.4055]	[.4059]	[.4051]	[.3734]	[.3783]	[.3685]	[.2924]	[.2864]	[.2983]	[.3425]	[.3406]	[.3445]
Not Female	0.1376	0.1199	0.1552	0.2696	0.2661	0.273	0.4048	0.4069	0.4027	0.3377	0.3415	0.3339	0.3194	0.3149	0.3238	0.358	0.3575	0.3585	0.2786	0.2783	0.2789	0.1691	0.1721	0.1661
	[.3445]	[.3251]	[.3621]	[.4437]	[.4419]	[.4455]	[.4909]	[.4913]	[.4904]	[.4729]	[.4742]	[.4716]	[.4662]	[.4645]	[.4679]	[.4794]	[.4793]	[.4796]	[.4483]	[.4482]	[.4485]	[.3749]	[.3775]	[.3722]
Female	0.8624	0.8801	0.8448	0.7304	0.7339	0.727	0.5952	0.5931	0.5973	0.6623	0.6585	0.6661	0.6806	0.6851	0.6762	0.642	0.6425	0.6415	0.7214	0.7217	0.7211	0.8309	0.8279	0.8339
	[.3445]	[.3251]	[.3621]	[.4437]	[.4419]	[.4455]	[.4909]	[.4913]	[.4904]	[.4729]	[.4742]	[.4716]	[.4662]	[.4645]	[.4679]	[.4794]	[.4793]	[.4796]	[.4483]	[.4482]	[.4485]	[.3749]	[.3775]	[.3722]
Vote history: Equal to state median	0.1938	0.198	0.1897	0.2954	0.2966	0.2943	0.1603	0.1608	0.1598	0.2443	0.2429	0.2457	0.2672	0.2661	0.2683	0.271	0.2686	0.2735	0.2686	0.2725	0.2648	0.2322	0.2292	0.2351
	[.3953]	[.3988]	[.3921]	[.4562]	[.4568]	[.4557]	[.3669]	[.3674]	[.3665]	[.4297]	[.4289]	[.4305]	[.4425]	[.4419]	[.4431]	[.4445]	[.4433]	[.4458]	[.4433]	[.4453]	[.4412]	[.4222]	[.4204]	[.4241]
Vote history: Below state median	0.6	0.6084	0.5917	0.4769	0.4773	0.4766	0.6066	0.6055	0.6077	0.556	0.5568	0.5553	0.4524	0.4553	0.4494	0.5422	0.5424	0.5419	0.5695	0.5632	0.5757	0.4182	0.4211	0.4153
	[.4899]	[.4885]	[.4915]	[.4995]	[.4995]	[.4995]	[.4885]	[.4888]	[.4883]	[.4969]	[.4968]	[.4969]	[.4977]	[.498]	[.4974]	[.4982]	[.4982]	[.4982]	[.4952]	[.496]	[.4942]	[.4933]	[.4938]	[.4928]
Vote history: Above state median	0.2061	0.1936	0.2186	0.2276	0.2262	0.2291	0.2331	0.2337	0.2325	0.1997	0.2003	0.199	0.2805	0.2786	0.2823	0.1868	0.189	0.1846	0.1619	0.1644	0.1594	0.3497	0.3497	0.3496
	[.4045]	[.3954]	[.4133]	[.4193]	[.4184]	[.4202]	[.4228]	[.4232]	[.4224]	[.3997]	[.4002]	[.3993]	[.4492]	[.4483]	[.4501]	[.3898]	[.3916]	[.388]	[.3684]	[.3706]	[.3661]	[.4769]	[.4769]	[.4768]
Observations	13514	692	12822	140407	6990	133417	196482	9886	186596	175233	8768	166465	191886	9673	182213	35484	5105	30379	139988	7003	132985	105794	5270	100524

Table A4: Summary Statistics by State (2 of 2: Kentucky to Wisconsin). Cells contain weighted means and weighted standard deviations in brackets.

	KY			LA			ME			MI		
Variable	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat
Age (imputed with sample mean if missing)	42.8493	42.842	42.8567	43.8291	43.8452	43.8129	42.0071	41.876	42.1383	43.1531	43.2439	43.0623
	[17.7508]	[17.7994]	[17.7027]	[16.3247]	[16.3024]	[16.35]	[17.7809]	[17.8252]	[17.7382]	[16.3604]	[16.3238]	[16.3974]
Age squared divided by 100	21.5116	21.5223	21.5008	21.8748	21.8807	21.8689	20.8076	20.7124	20.9027	21.2984	21.3646	21.2323
	[17.7324]	[17.8092]	[17.6559]	[16.1774]	[16.1622]	[16.1957]	[17.9143]	[18.0046]	[17.8256]	[16.0776]	[16.0683]	[16.0877]
Missing age	0	0	0	0	0	0	0	0	0.0001	0.0001	0.0001	0
	[.0019]	[0]	[.0027]	[.0033]	[0]	[.0047]	[.0063]	[0]	[.0089]	[.0097]	[.0118]	[.0068]
Voted in 2006: 1=Yes, 0=No	0.1852	0.1869	0.1835	0.1438	0.1527	0.1348	0.1067	0.1032	0.1101	0.2608	0.2567	0.265
	[.3885]	[.3898]	[.3871]	[.3509]	[.3598]	[.3415]	[.3087]	[.3043]	[.313]	[.4391]	[.4368]	[.4413]
Voted in 2008: 1=Yes, 0=No	0.4608	0.465	0.4566	0.5616	0.5615	0.5618	0.4773	0.4737	0.4809	0.5481	0.5452	0.551
	[.4985]	[.4988]	[.4981]	[.4962]	[.4963]	[.4962]	[.4995]	[.4994]	[.4996]	[.4977]	[.498]	[.4974]
Voted in 2009: 1=Yes, 0=No	0	0	0	0	0	0	0.2645	0.2648	0.2641	0	0	0
	[.0014]	[0]	[.0019]	[0]	[0]	[0]	[.4411]	[.4413]	[.4409]	[.0034]	[0]	[.0048]
Voted in 2010: 1=Yes, 0=No	0.229	0.2336	0.2243	0.2487	0.2491	0.2483	0.2142	0.2199	0.2085	0.2193	0.2178	0.2208
	[.4202]	[.4231]	[.4171]	[.4323]	[.4326]	[.4321]	[.4103]	[.4143]	[.4062]	[.4138]	[.4128]	[.4148]
Voted in 2011: 1=Yes, 0=No	0.103	0.1026	0.1035	0	0	0	0.1353	0.1399	0.1308	0.0377	0.0378	0.0376
	[.304]	[.3034]	[.3046]	[.0033]	[0]	[.0047]	[.3421]	[.3469]	[.3372]	[.1905]	[.1907]	[.1903]
Voted in 2012: 1=Yes, 0=No	0.3919	0.3963	0.3874	0.5378	0.5353	0.5404	0.4178	0.4175	0.4181	0.4619	0.4566	0.4672
	[.4882]	[.4891]	[.4872]	[.4986]	[.4989]	[.4984]	[.4932]	[.4932]	[.4932]	[.4986]	[.4981]	[.4989]
Voted in 2013: 1=Yes, 0=No	0	0	0	0	0	0	0.0696	0.0754	0.0638	0.0472	0.0458	0.0486
	[0]	[0]	[0]	[.0033]	[0]	[.0047]	[.2545]	[.2641]	[.2444]	[.212]	[.209]	[.2149]
Race: White	0.7076	0.7061	0.7091	0.2967	0.2948	0.2985	0.9328	0.9313	0.9343	0.6127	0.6081	0.6173
	[.4548]	[.4555]	[.4542]	[.4568]	[.4561]	[.4576]	[.2504]	[.253]	[.2478]	[.4871]	[.4882]	[.486]
Race: Black	0.2367	0.2388	0.2347	0.6311	0.6321	0.6302	0.0291	0.0302	0.028	0.2734	0.2759	0.2709
	[.4251]	[.4263]	[.4238]	[.4825]	[.4823]	[.4828]	[.1681]	[.1713]	[.1649]	[.4457]	[.447]	[.4444]
Race: Hispanic	0.021	0.0205	0.0215	0.0362	0.0376	0.0348	0.0135	0.0131	0.0139	0.049	0.0487	0.0493
	[.1433]	[.1416]	[.145]	[.1868]	[.1902]	[.1834]	[.1155]	[.1139]	[.117]	[.2159]	[.2153]	[.2165]
Race: Other	0.0346	0.0346	0.0347	0.036	0.0355	0.0364	0.0246	0.0254	0.0239	0.0649	0.0673	0.0625
	[.1829]	[.1828]	[.183]	[.1863]	[.1851]	[.1874]	[.1549]	[.1572]	[.1527]	[.2463]	[.2505]	[.242]
Not Married	0.8962	0.8973	0.8951	0.8698	0.8681	0.8714	0.9512	0.9487	0.9537	0.8577	0.8583	0.8571
	[.305]	[.3036]	[.3064]	[.3366]	[.3384]	[.3347]	[.2155]	[.2207]	[.2102]	[.3493]	[.3487]	[.35]
Married	0.1038	0.1027	0.1049	0.1302	0.1319	0.1286	0.0488	0.0513	0.0463	0.1423	0.1417	0.1429
	[.305]	[.3036]	[.3064]	[.3366]	[.3384]	[.3347]	[.2155]	[.2207]	[.2102]	[.3493]	[.3487]	[.35]
Not Female	0.234	0.2326	0.2354	0.3222	0.3214	0.3231	0.2108	0.2141	0.2075	0.2712	0.2721	0.2702
	[.4234]	[.4225]	[.4243]	[.4673]	[.4671]	[.4677]	[.4079]	[.4103]	[.4055]	[.4446]	[.4451]	[.4441]
Female	0.766	0.7674	0.7646	0.6778	0.6786	0.6769	0.7892	0.7859	0.7925	0.7288	0.7279	0.7298
	[.4234]	[.4225]	[.4243]	[.4673]	[.4671]	[.4677]	[.4079]	[.4103]	[.4055]	[.4446]	[.4451]	[.4441]
Vote history: Equal to state median	0.2172	0.22	0.2145	0.2994	0.2969	0.302	0.2599	0.2596	0.2602	0.2189	0.2178	0.2201
	[.4124]	[.4142]	[.4105]	[.458]	[.457]	[.4591]	[.4386]	[.4385]	[.4388]	[.4135]	[.4128]	[.4143]
Vote history: Below state median	0.6019	0.5971	0.6068	0.5055	0.5088	0.5023	0.5545	0.5522	0.5567	0.5008	0.5055	0.4962
	[.4895]	[.4905]	[.4885]	[.5]	[.5]	[.5]	[.497]	[.4973]	[.4968]	[.5]	[.5]	[.5]
Vote history: Above state median	0.1808	0.183	0.1787	0.195	0.1944	0.1957	0.1856	0.1881	0.1831	0.2802	0.2767	0.2837
	[.3849]	[.3867]	[.3831]	[.3962]	[.3958]	[.3968]	[.3888]	[.3909]	[.3867]	[.4491]	[.4474]	[.4508]
Observations	285889	14357	271532	48574	2449	46125	65758	3274	62484	50102	7122	42980

	NC			NH			SD			TX			WI		
Variable	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat	All	Control	Treat
Age (imputed with sample mean if missing)	45.0058	44.9176	45.094	50.9452	51.0264	50.8639	39.9493	39.6759	40.2227	43.5761	43.5854	43.5668	44.58	44.4699	44.6902
	[16.7266]	[16.784]	[16.6688]	[13.6938]	[13.6999]	[13.6914]	[17.4397]	[17.2699]	[17.6091]	[17.775]	[17.7265]	[17.8525]	[16.6362]	[16.6604]	[16.6121]
Age squared divided by 100	23.053	22.9928	23.1131	27.8293	27.9126	27.7459	19.0008	18.7223	19.2794	22.1477	22.1282	22.1671	22.6414	22.5511	22.7318
	[17.0044]	[17.0654]	[16.9433]	[16.0023]	[15.9908]	[16.0181]	[17.3438]	[17.1141]	[17.5714]	[18.2428]	[18.4977]	[18.0158]	[17.0528]	[17.0538]	[17.052]
Missing age	0.0003	0.0004	0.0002	0.3554	0.3565	0.3542	0.0051	0.0061	0.0041	0	0	0	0.2195	0.2179	0.221
	[.0172]	[.0207]	[.0128]	[.4786]	[.4791]	[.4783]	[.0711]	[.0778]	[.0637]	[0]	[0]	[0]	[.4139]	[.4129]	[.4149]
Voted in 2006: 1=Yes, 0=No	0.1062	0.1069	0.1055	0.199	0.1942	0.2037	0.2659	0.264	0.2678	0.1866	0.1777	0.1955	0.3688	0.3676	0.37
	[.3081]	[.309]	[.3072]	[.3992]	[.3957]	[.4028]	[.4418]	[.441]	[.4428]	[.3896]	[.3829]	[.3966]	[.4825]	[.4822]	[.4828]
Voted in 2008: 1=Yes, 0=No	0.6565	0.6593	0.6538	0.8451	0.8465	0.8436	0.4711	0.4733	0.4689	0.531	0.5157	0.5464	0.7389	0.7391	0.7388
	[.4749]	[.474]	[.4758]	[.3619]	[.3606]	[.3632]	[.4992]	[.4995]	[.499]	[.4991]	[.5006]	[.4979]	[.4392]	[.4392]	[.4393]
Voted in 2009: 1=Yes, 0=No	0	0	0	0.0003	0.0006	0	0	0	0	0.0002	0	0.0004	0.0823	0.0836	0.081
	[0]	[0]	[0]	[.0177]	[.025]	[0]	[0]	[0]	[0]	[.0142]	[0]	[.02]	[.2748]	[.2768]	[.2728]
Voted in 2010: 1=Yes, 0=No	0.2148	0.2164	0.2133	0.2448	0.2481	0.2415	0.2314	0.2282	0.2346	0.2777	0.2544	0.301	0.45	0.4508	0.4492
	[.4107]	[.4118]	[.4096]	[.43]	[.4321]	[.428]	[.4217]	[.4198]	[.4238]	[.4479]	[.4363]	[.4587]	[.4975]	[.4976]	[.4974]
Voted in 2011: 1=Yes, 0=No	0.0263	0.0261	0.0265	0.0003	0.0006	0	0	0	0	0.0223	0.0244	0.0202	0.2462	0.2459	0.2465
	[.1599]	[.1593]	[.1605]	[.0177]	[.025]	[0]	[0]	[0]	[0]	[.1477]	[.1545]	[.1408]	[.4308]	[.4306]	[.431]
Voted in 2012: 1=Yes, 0=No	0.5971	0.5965	0.5977	0.72	0.7318	0.7082	0.333	0.329	0.337	0.4598	0.4181	0.5015	0.8518	0.8503	0.8533
	[.4905]	[.4906]	[.4904]	[.449]	[.4431]	[.4546]	[.4713]	[.47]	[.4727]	[.4984]	[.4941]	[.5]	[.3553]	[.3568]	[.3539]
Voted in 2013: 1=Yes, 0=No	0.0341	0.0345	0.0337	0.0013	0.0019	0.0007	0.0002	0	0.0004	0.0165	0.0139	0.019	0	0	0
	[.1815]	[.1825]	[.1804]	[.0356]	[.0433]	[.0256]	[.0133]	[0]	[.0188]	[.1273]	[.1174]	[.1366]	[0]	[0]	[0]
Race: White	0.4231	0.4244	0.4218	0.8526	0.8578	0.8473	0.8231	0.8301	0.8161	0.7146	0.7073	0.7218	0.7878	0.7893	0.7864
	[.4941]	[.4943]	[.4938]	[.3546]	[.3494]	[.3597]	[.3816]	[.3757]	[.3874]	[.4517]	[.4558]	[.4482]	[.4088]	[.4078]	[.4099]
Race: Black	0.4747	0.4733	0.4761	0.0364	0.037	0.0358	0.0464	0.0447	0.0482	0.2162	0.216	0.2163	0.1126	0.1124	0.1129
	[.4994]	[.4993]	[.4994]	[.1873]	[.1887]	[.1858]	[.2104]	[.2067]	[.2142]	[.4117]	[.4123]	[.4118]	[.3161]	[.3158]	[.3165]
Race: Hispanic	0.0472	0.0464	0.048	0.0542	0.0489	0.0596	0.025	0.0251	0.0249	0.0031	0.0035	0.0028	0.0586	0.0582	0.059
	[.212]	[.2103]	[.2137]	[.2265]	[.2157]	[.2368]	[.156]	[.1563]	[.1557]	[.056]	[.059]	[.0529]	[.2349]	[.2341]	[.2356]
Race: Other	0.055	0.0559	0.0542	0.0568	0.0564	0.0572	0.1055	0.1002	0.1109	0.0661	0.0732	0.0591	0.0409	0.0402	0.0417
	[.228]	[.2297]	[.2263]	[.2315]	[.2307]	[.2323]	[.3072]	[.3004]	[.314]	[.2485]	[.2609]	[.2358]	[.1981]	[.1963]	[.1999]
Not Married	0.8489	0.8485	0.8493	0.9364	0.9348	0.938	0.9106	0.9113	0.91	0.8722	0.885	0.8594	0.9164	0.9161	0.9167
	[.3582]	[.3586]	[.3578]	[.244]	[.2469]	[.2412]	[.2853]	[.2844]	[.2862]	[.3339]	[.3196]	[.3476]	[.2768]	[.2773]	[.2764]
Married	0.1511	0.1515	0.1507	0.0636	0.0652	0.062	0.0894	0.0887	0.09	0.1278	0.115	0.1406	0.0836	0.0839	0.0833
	[.3582]	[.3586]	[.3578]	[.244]	[.2469]	[.2412]	[.2853]	[.2844]	[.2862]	[.3339]	[.3196]	[.3476]	[.2768]	[.2773]	[.2764]
Not Female	0.3035	0.3051	0.3018	0.0655	0.0639	0.0671	0.2822	0.2783	0.2861	0.2261	0.2091	0.2431	0.1857	0.1875	0.1839
	[.4597]	[.4604]	[.4591]	[.2474]	[.2447]	[.2502]	[.4501]	[.4483]	[.4519]	[.4183]	[.4073]	[.429]	[.3889]	[.3903]	[.3874]
Female	0.6965	0.6949	0.6982	0.9345	0.9361	0.9329	0.7178	0.7217	0.7139	0.7739	0.7909	0.7569	0.8143	0.8125	0.8161
	[.4597]	[.4604]	[.4591]	[.2474]	[.2447]	[.2502]	[.4501]	[.4483]	[.4519]	[.4183]	[.4073]	[.429]	[.3889]	[.3903]	[.3874]
Vote history: Equal to state median	0.3572	0.3571	0.3573	0.1982	0.2049	0.1914	0.2242	0.2268	0.2216	0.2169	0.1951	0.2387	0.2162	0.216	0.2164
	[.4792]	[.4792]	[.4792]	[.3986]	[.4037]	[.3934]	[.4171]	[.4189]	[.4153]	[.4122]	[.397]	[.4264]	[.4117]	[.4115]	[.4118]
Vote history: Below state median	0.4137	0.4178	0.4095	0.682	0.6761	0.688	0.5489	0.5477	0.55	0.5071	0.5401	0.4741	0.4472	0.4494	0.4451
	[.4925]	[.4932]	[.4918]	[.4657]	[.4681]	[.4633]	[.4976]	[.4979]	[.4975]	[.5]	[.4993]	[.4994]	[.4972]	[.4975]	[.497]
Vote history: Above state median	0.2291	0.2251	0.2332	0.1198	0.119	0.1206	0.2269	0.2255	0.2284	0.276	0.2648	0.2872	0.3366	0.3346	0.3385
	[.4203]	[.4176]	[.4228]	[.3247]	[.3239]	[.3256]	[.4188]	[.418]	[.4198]	[.4471]	[.442]	[.4525]	[.4725]	[.4719]	[.4732]
Observations	226614	32703	193911	32031	1596	30435	29711	1477	28234	5280	287	4993	227152	11356	215796

C Additional Tables and Figures

Table A5: Predicting the Probability of Voting in the 2014 General Election among the Control Group. The model shown in Column 2 presents the primary specification used to predict the probability of voting in 2014 across all subjects.

Variable	(1) Logit with No Interactions	(2) Logit with Two-Way Interactions	(3) OLS with Two-Way Interactions
Age (imputed with sample mean if missing)	0.050***	0.068	0.016
	(0.003)	(0.057)	(0.010)
Age squared divided by 100	-0.043***	-0.081	-0.018**
	(0.003)	(0.050)	(0.008)
Missing age	-0.305***	-0.362***	-0.061***
	(0.047)	(0.056)	(0.009)
Voted in 2006: 1=Yes, 0=No	0.436***	-0.096	0.019
	(0.022)	(0.237)	(0.039)
Voted in 2008: 1=Yes, 0=No	0.124***	0.106	0.031
	(0.021)	(0.202)	(0.034)
Voted in 2009: 1=Yes, 0=No	0.300***	0.029	0.160***
	(0.055)	(0.124)	(0.059)
Voted in 2010: 1=Yes, 0=No	0.851***	0.443*	0.131***
	(0.023)	(0.230)	(0.039)
Voted in 2011: 1=Yes, 0=No	0.775***	0.963***	0.217
	(0.035)	(0.084)	(0.178)
Voted in 2012: 1=Yes, 0=No	1.772***	0.780***	0.272***
	(0.024)	(0.223)	(0.038)
Voted in 2013: 1=Yes, 0=No	1.603***	0.196	0.348
	(0.050)	(1.421)	(6,736.407)
Race: Black	0.019	-0.682**	-0.138***
	(0.019)	(0.291)	(0.049)
Race: Hispanic	-0.349***	-0.483	-0.122**
	(0.030)	(0.345)	(0.059)
Race: Other	-0.321***	-0.531	-0.134**
	(0.037)	(0.329)	(0.056)
Married	0.316***	0.302	0.095*
	(0.022)	(0.308)	(0.052)
Female	0.050***	-0.243	-0.044
	(0.018)	(0.308)	(0.053)
State: AR	-1.204***	-3.097*	-0.474*
	(0.096)	(1.638)	(0.276)
State: AZ	-2.520***	-4.308***	-0.383
	(0.103)	(1.668)	(0.276)
State: CO	-1.067***	-1.846	-0.252
	(0.096)	(1.636)	(0.276)
State: FL	-1.214***	-2.895*	-0.422
	(0.095)	(1.638)	(0.276)
State: GA	-1.381***	-3.645**	-0.506*
	(0.099)	(1.655)	(0.277)
State: IA	-1.520***	-3.070*	-0.393
	(0.097)	(1.644)	(0.276)
State: KS	-1.127***	-3.940**	-0.490*
	(0.097)	(1.688)	(0.281)
State: KY	-1.156***	-2.983*	-0.380
	(0.094)	(1.631)	(0.275)
State: LA	-0.589***	-3.240*	-0.454
	(0.103)	(1.697)	(0.284)
State: ME	-1.159***	-3.303**	-0.445
	(0.104)	(1.665)	(0.279)
State: MI	-1.673***	-3.640**	-0.463*
	(0.097)	(1.649)	(0.276)
State: NC	-1.303***	-3.749**	-0.501*
	(0.092)	(1.626)	(0.274)
State: NH	-1.071***	-2.385	-0.371
	(0.105)	(1.934)	(0.326)
State: SD	-1.362***	-3.258*	-0.423
	(0.116)	(1.723)	(0.285)
State: TX	-0.852***	-3.151	-0.484
	(0.179)	(2.028)	(0.335)
State: WI	-0.848***	-2.074	-0.300
	(0.092)	(1.630)	(0.275)
Vote history: Below state median	-0.103***	-0.508	0.114*
	(0.028)	(0.398)	(0.063)
Vote history: Above state median	0.159***	-0.733*	-0.201***
	(0.025)	(0.409)	(0.065)
Constant	-2.415***	-0.356	0.222
	(0.114)	(1.631)	(0.275)
Observations	128,008	128,002	128,008
Pseudo R-squared	0.272	0.281	
Log Likelihood	-57774	-57033	
R-squared			0.319
With State-Covariate Interactions?	No	Yes	Yes
With State-Stratum Interactions?	No	Yes	Yes
With Stratum-Covariate Interactions?	No	Yes	Yes
With State-Stratum-Covariate Interactions?	No	No	No

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses

Table A6: Unweighted ITT Estimates. This table presents estimates from unweighted estimates of the ITT effect of the report card treatment on turnout levels in the 2014 general election.

Variable	(1) Any Report Card	(2) Report Card by Vote History Stratum
Report Card Treatment	0.006***	0.006***
	(0.001)	(0.002)
Report Card * Below State Median		0.000
		(0.003)
Report Card * Above State Median		-0.002
		(0.003)
Vote History: Below State Median	0.545	0.545
	(0.410)	(0.410)
Vote History: Above State Median	0.404	0.404
	(69.466)	(69.466)
Constant	-0.395	-0.396
	(0.403)	(0.403)
Observations	1,969,899	1,969,899
R-squared	0.324	0.324
Weighted?	No	No
With Covariates?	Yes	Yes
With Vote History Stratum Fixed Effects?	Yes	Yes
With State Fixed Effects?	Yes	Yes
With State-Covariate Interactions?	Yes	Yes
With Stratum-Covariate Interactions?	Yes	Yes
With State-Stratum-Covariate Interactions?	Yes	Yes
Control Group Mean Turnout	0.311	0.311
Control Group Mean Turnout, Below State Median Stratum		0.123
Control Group Mean Turnout, At State Median Stratum		0.391
Control Group Mean Turnout, Above State Median Stratum		0.620

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses

Table A7: Sensitivity of ITT Estimates to Alternative Sample Definitions. The sample used in Column (5) is the sample definition for our main analyses.

Variable	(1) No Exclusions	(2) Exclude if Vote History Unknown at Baseline	(3) Exclude if Unknown Vote History and Under 23 in NC	(4) Exclude if Unknown Vote History and HH Size > 1	(5) Exclude if Unknown Vote History and HH Size > 1 and Under 23 in NC	(6) Exclude if Unknown Vote History and HH Size > 1 and in N. Carolina
Report Card Treatment	0.006***	0.006***	0.006***	0.007***	0.007***	0.007***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Constant	-0.200*	-0.232	-0.232	-0.154	-0.154	-0.153
	(0.103)	(0.536)	(0.536)	(0.541)	(0.541)	(0.538)
Observations	2,426,704	2,423,817	2,412,014	1,980,102	1,969,899	1,743,285
R-squared	0.327	0.327	0.327	0.326	0.326	0.331
Weighted?	Yes	Yes	Yes	Yes	Yes	Yes
With Covariates?	Yes	Yes	Yes	Yes	Yes	Yes
With Vote History Stratum Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes
With State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes
With State-Covariate Interactions?	Yes	Yes	Yes	Yes	Yes	Yes
With Stratum-Covariate Interactions?	Yes	Yes	Yes	Yes	Yes	Yes
With State-Stratum-Covariate Interactions?	Yes	Yes	Yes	Yes	Yes	Yes
Control Group Mean Turnout	0.303	0.305	0.306	0.310	0.312	0.310

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. Estimates on covariate and interaction terms omitted due to space constraints.

Table A8: Estimated ITT Effects of the Report Card Treatment on Turnout Levels in the 2014 General Election, by Known Vote History Stratum at Baseline

	By Vote History Rating Relative to State Median		
	(1)	(2)	(3)
Variable	Above Median	Equal to Median	Below Median
Report Card Treatment	0.004***	0.008***	0.007***
	(0.001)	(0.001)	(0.001)
Constant	0.030	-0.190	0.217***
	(0.197)	(0.642)	(0.059)
Observations	464,165	489,746	1,015,988
R-squared	0.180	0.147	0.190
Weighted?	Yes	Yes	Yes
With Covariates?	Yes	Yes	Yes
With State Fixed Effects?	Yes	Yes	Yes
With State-Covariate Interactions?	Yes	Yes	Yes
Control Group Mean Turnout	0.617	0.396	0.132

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses.