Sticking with Your Vote: Cognitive Dissonance and Political Attitudes[†]

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Cognitive dissonance theory predicts that the act of voting for a candidate leads to a more favorable opinion of the candidate in the future. We find support for the empirical relevance of cognitive dissonance to political attitudes. We examine the presidential opinion ratings of voting-age eligibles and ineligibles two years after the president's election. We find that eligibles show two to three times greater polarization of opinions than comparable ineligibles. We find smaller effects when we compare polarization in opinions of senators elected during high turnout presidential campaign years with senators elected during nonpresidential campaign years. (JEL D72)

W hile models of voting behavior vary considerably, one common assumption of models of both turnout and vote choice is that voting behavior is an expression of preferences or beliefs. Whether voters are motivated by a desire to shift the outcome of the election to their desired outcome, as in instrumental models, or by the desire to express strong feelings on the part of themselves or their group, as in intensity and popularity models, voting models assume that preferences are a variable in the voting decision equation. (See for example John H. Aldrich 1993, John G. Matsuaka and Filip Palda 1999, Gene M. Grossman and Elhanan Helpman 2001, and Stephen Coate and Michael Conlin 2004 for summaries of voter turnout models.) Psychologists on the other hand have highlighted that causation may also run in the opposite direction. Actions themselves may drive preferences and beliefs. Numerous experiments have led to the conclusion that behavioral change may precede attitudinal change (Albert Bandura 1989). One explanation for the impact of behaviors on beliefs is cognitive dissonance (Leon Festinger 1957), which refers to one's internal need for consistency. If an individual performs an activity that is antithetical to his

beliefs, the individual may unconsciously change his beliefs to alleviate the discomfort of having inconsistent attitudes and actions.[1]

For example, in a classic experiment (Festinger and James M. Carlsmith 1959), subjects were asked to perform the boring task of placing knobs on pegs for one hour, turning them, and then taking the pegs off again. After the task was completed, each experimental subject was told that the research assistant had not shown up and that the scientists needed the subject's help in recruiting more participants. Subjects were told they would receive either $1 or $20 ($7 or $135 in 2006 dollars) for their assistance. After each subject convinced the new recruit, really a confederate of the experiment, that the task was fun, the subject was asked for a rating of how much she truly enjoyed the experiment. Those who were paid $1 rated the task much more favorably than those who were paid $20. The theory of cognitive dissonance explains the result by assuming that most people believe themselves to be truthful unless they have strong incentive to behave otherwise. Those who were told they would receive $20 had a strong incentive to lie. Those who were told they would receive $1 had no such incentive to lie. Therefore those in the $1 group felt the discomfort (dissonance) of having inconsistent actions (lying to the new recruit) and beliefs (I am a truthful person and the task was really boring). Unable to change the past action of telling the new recruit that the task was enjoyable, those in the $1 group had no other option but to change their belief that the task was boring to believe that the task was, in fact, enjoyable.[2]

In the intervening years, empiricists have discovered that dissonance can be aroused even when behaviors are in line with attitudes. Eliot Aronson, Carrie Fried, and Jeff Stone (1991) had college students create videos to encourage high school students to practice safe sex. Some of these students were then asked to think about their own failure to use condoms in the past. For this group of students, the discrepancy between their past behavior and the message they were currently preaching appears to have aroused dissonance. Members of this group stated greater intentions to use condoms in the future.[3] Dissonance is not limited to cases in which subjects are trying to persuade others. Since the 1959 study, empiricists have explored the relevance of cognitive dissonance to a large variety of contexts including socialization of children, curing snake phobias, interpersonal attraction, proselytizing, gambling, and water conservation (Aronson 1999).

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[1] This impact of behavior on attitudes is most commonly known as cognitive dissonance, which is also how we will refer to it. Psychological research on the other hand has shown that several other mechanisms besides the one emphasized by a narrowly defined cognitive dissonance theory could produce a similar effect. For example, self perception theory (Daryl J. Bem 1967) provides a second explanation for the impact of behaviors on beliefs. Individuals infer their opinions from their own actions. The publication of the 1967 article sparked great debate: "But as evidence began to accumulate that dissonance was indeed an unpleasant state of arousal, self-perception theory began to wane as an explanation for dissonance phenomena." (Michael A. Hogg and Joel Cooper 2003). We continue to use the phrase cognitive dissonance because of its use in common parlance and not to signify a position on which specific psychological mechanisms may be at work.

[2] Because the idea of being a truthful person was a longer held and probably more fundamental part of a person's self-perception, it was likely easier for subjects to change opinions of the experiment than of their own veracity.

[3] The treatment group not only had greater intentions, they also had greater behavioral changes in condom use. (Stone et al.1994).

Applying cognitive dissonance to the context of voting, two years after an election, a citizen who voted for a candidate may hold a favorable opinion of that politician in part to avoid the internal discomfort of having voted for a person for whom the individual has a poor opinion.[4] Suggestive evidence that dissonance applies in the voting context comes most recently from Ryan K. Beasley and Mark R. Joslyn (2001).[5] Using the National Election Study, the authors demonstrate that those who report voting in the presidential election show greater polarization in their ratings of the two candidates immediately after the election than immediately before (as compared to those who do not report having voted). Clearly, the endogeneity of the voting decision (and the reporting of the voting decision) leaves us unable to treat these results as evidence of a causal link between voting and increased polarization. Suppose that in December 2004 we compare two Republicans, both of whom favored George W. Bush in the 2004 election, but only one of whom actually turned out to vote. Let's call them Person V (voter) and Person N (nonvoter). It would not be surprising to observe, even under the traditional purview, that Person V had a more positive opinion of Bush than Person N. If probability of turnout is increasing in intensity of preference and preferences linger, such a correlation would arise nearly mechanically. Thus, in our test of the relevance of cognitive dissonance to voting behavior, our identification strategy must rely on variables that impact turnout but that are independent of voter preferences.

The age restriction on voting is one such variable. Consider two individuals in 1996 who both support Bill Clinton and who are 18 and 17 years old, respectively. Let's call them Person O (older) and Person Y (younger). The 18-year-old is able to express his support of Clinton at the polls, whereas the 17-year-old is not. Suppose now we examine their views of Clinton in 1998 when his approval ratings had fallen. Traditional models predict no systematic differences in the trends in views of these two persons. On the other hand, cognitive dissonance theory would lead us to believe that Person Y (now 19) would show a greater fall in his Clinton approval rating than Person O (now 20). Person O having made a concrete act of commitment to Clinton, through voting, would find it harder to walk away from that position. In contrast, if the two had been Dole supporters in 1996, the psychological model would predict a different pattern of change, from before to after the election. Cognitive dissonance theory would now predict that Person O would show the larger decline in Clinton approval, jumping on information that supported his previous action, whereas Person Y would show a smaller decline viewing new information in a more moderated way. This logic implies a fairly simple prediction; voting eligibles should show greater post-election polarization than voting ineligibles.

We test this prediction using data from US elections between 1976 and 1996. Our dependent variables are individuals' ratings of presidential performance, gathered

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[4] These processes may be reinforced by social networks. Individuals may find it hard to renounce a position that they have not only voted in accordance with, but also announced publicly. In fact, in a survey of New York City voters in the week prior to the 2005 mayoral election, we found that simply asking voters whether they planned to vote (to which they nearly unanimously replied yes) increased turnout by 4 percentage points in a group whose mean turnout was extremely high (88 percent). Respondents were randomly selected to the commit/not commit to vote groups.

[5] Arnold Thomasen (1938), George Stricker (1964), and Benjamin Ginsberg and Robert Weissberg (1978) also examine changes in the views of candidates from before to after an election.

two years after each presidential election in the National Election Study. Our sample consists of young people who were eligible to vote in the previous election (20- and 21-year-olds) as well as those who were ineligible (18- and 19-year-olds). We compare the polarization (by party) in attitudes toward the president of these two groups. For a variety of attitudinal measures, we find a great deal of increased polarization. Eligible youth are nearly two times as polarized as ineligible ones. When we scale our results by turnout, we find that voters are three times as polarized as nonvoters. We examine a second source of exogenous variation in voter turnout. Senatorial elections vary greatly in turnout depending on whether they are held in presidential or interim election years. For voters of all ages, we compare attitudes toward senators based on the year in which the senator was most recently (re)elected. We again find differential polarization by party. Attitudes toward senators elected in presidential years are roughly 25 percent more polarized than they are toward senators elected in nonpresidential years.[6] Scaling by the turnout differential between the two groups, we find that the act of voting more than doubles polarization.

Before concluding that these results demonstrate the applicability of cognitive dissonance theory to voter turnout, we first consider the relevance of three potentially confounding factors. First, our results may be driven by age-induced polarization. Perhaps, older Americans have more divergent views.[7] The senatorial results demonstrate that aging cannot explain all of our results. We further test the aging hypothesis directly in two ways. First, we compare 20- and 21-year-olds to 22- and 23-year-olds, thus comparing different age groups all of which were eligible to vote in the previous presidential election. In contrast to the age induced polarization hypothesis, we find greater polarization among the younger group. However the difference is not statistically significant. In a second placebo test, we focus on presidential election years, comparing opinions of 18- and 19-year-olds to those of 20- and 21-year-olds. Neither of these groups was eligible to vote for the sitting president. Again, we find no significant difference in polarization between groups. These results suggest that our findings are not due merely to aging.

Second, we consider the possibility that our results are biased by the fact that party is measured at the same time as the attitudinal surveys are conducted. Perhaps a respondent's positive (negative) feelings about the president lead her to report herself as a member (not a member) of the president's party. We address the potential endogeneity of party report in two ways. First, we substitute predicted vote choice (based on demographic characteristics) for the party variable. Results are qualitatively unchanged. Our second test circumvents the need for a party variable. We show that eligibles are unconditionally more likely to hold views in the tails of the presidential feeling distribution.

Finally, we consider that increased polarization may be driven by information rather than dissonance. Perhaps those who vote collect more political information during or after the electoral campaign. If they interpret this information in a manner

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[6] Turnout percentages are calculated using the National Election Survey's voter verification survey conducted in 1976, 1978, 1980, 1984, 1986, 1988, and 1990.

[7] This would be consistent with (Philip E. Converse 1969) evidence that partisanship is increasing in length of membership in party.

that is favorable to their candidate, as confirmatory bias would suggest (Charles G. Lord, Lee Ross, and Mark R. Lepper 1979) they will show increased polarization. To test this hypothesis, we examine knowledge, exposure, and interest in politics for eligible and ineligible youth. We find no significant differences in levels of knowledge, exposure, or interest, suggesting that interest and information are not the mechanism driving the link between voting and increased polarization.

As a whole, these results suggest the practical importance of cognitive dissonance theory for the political arena.[8] This finding has implications for the political capital of politicians. By definition, in a two party race, more than half of voters vote for the winner. Therefore elected officials receive a boost in their approval ratings due to dissonance.

In the remainder of the paper, we present our results more formally. In Section I, we discuss the data and methodology. Results that exploit the voting-age regulations are presented in Section II. Results that exploit the variation in turnout between presidential and nonpresidential years are given in Section III. Section IV concludes by discussing implications of our results for voting behavior.

I. Empirical Methodology and Data

The core hypothesis we test is that voting for a particular candidate today increases one's opinion of that candidate in the future. The key difficulty in testing this theory is that causality also surely runs in the other direction. Individuals who have stronger feelings about a particular candidate are more likely to vote. Moreover, conditional on voting, individuals who have more positive feelings about Candidate A are more likely to vote for Candidate A. This reverse causality means that it would be unsurprising to find a positive correlation between voting for a candidate and feelings for that candidate in the future.

To address this concern, we need an exogenous factor that drives voters to vote and is unrelated to their preferences at the time. We identify two such factors. The first is age. Only individuals who have reached the age of 18 on Election Day may cast a ballot. The second is the timing of the election. Turnout is higher in presidential elections than in interim elections. Thus, there are exogenous shifts in turnout for congressional elections.

A. *Age Restrictions*

During the time frame of our study (1976–1996), the minimum voting age in the United States was 18 years old. Only individuals who reached their eighteenth birthday by the date of the election were eligible to vote. Those who were 17 years old or younger on that day were ineligible. This discontinuity allows us to compare the opinions of ineligible and eligible voters two years after the election. Dissonance

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[8] George A. Akerlof and William T. Dickens (1982) discuss the potential applications of dissonance theory to social security, innovation, and advertising. Matthew Rabin (1994) considers the implications of cognitive dissonance for efforts to promote social change.

theory predicts that eligible voters will show more polarization in their opinion of the candidate than ineligible voters.

An empirical problem in implementing this strategy is that we must impute which candidate an ineligible voter would have voted for, had they voted. We examine polarization by party affiliation for eligible and ineligible voters. Such a procedure is sensible since party identification strongly predicts vote choice (Bruce Keith et al. 1992 and Warren E. Miller and J. Merrill Shanks 1996).

Empirically, we estimate an equation of the form

(1)   *Opinion of President$_{it}$* 5 a 1 *bEligible$_{i1t211}$* 1 *cParty$_i$*

$$1 \ d \, ⎰Eligible_{i1t211} * Party_i⎱ \ 1 \ e_{it}.$$

Here, the variable "Opinion of President" is a rating of the respondent's feelings toward some aspect of the president's leadership. The variable "Eligible" indicates that the respondent was eligible to vote (18 years old or older on election day), and the variable "Party" is a dummy for whether the political party of the respondent and the president coincide. Thus, we would expect the coefficient c to be positive since politicians are typically viewed more favorably by members of their own party. The interaction term "*Eligible * Party*" is our independent variable of interest. Cognitive dissonance theory says that those who were old enough to vote and did in fact vote for the elected official in period $t \ 2 \ 1$ should have a higher opinion of the official in period t. A positive and significant coefficient d would support this theory.

Our data are drawn from the National Election Study (NES), a survey of the political behaviors and opinions of a repeated cross-section of voting-age Americans. Respondents' views are collected in face-to-face interviews conducted in the fall of even numbered years.

As presidential elections occur every four years, the NES provides data from both presidential and interim election years. We focus on nonpresidential election years, comparing those who were eligible to vote in the prior election to those who were ineligible.[9] Our sample period is from 1978 to 2000.[10] Therefore, we have six nonpresidential election years of data.

The great advantage of the NES is its multitude of questions on individuals' opinions of elected officials. Our main dependent variable is a thermometer question which asks respondents to rate their feelings regarding the president on a scale from

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[9] The cross-sectional nature of the data means that we measure party affiliation in the current period and do not know a person's party affiliation two years prior. This could produce endogeneity problems if party affiliation is changing in the two-year period, an issue we address in our discussion of potential confounds. One would have thought that since we are looking at changes in opinions, the short panels in the NES would be useful. Unfortunately, because those who are ineligible to vote are too young to be interviewed in the first wave of the NES panels, these data do not enable us to improve our identification strategy.

[10] The 1974 election data is excluded because while individuals voted for Richard Nixon in 1972, he had left office by November 1974, the date of the survey. The 1968 election is excluded because of the undersampling of 18- to 21-year-olds in 1970. The undersampling of young people, prior to 1972, in states in which they did not have the franchise prevents us from exploiting the variation in voting-age restrictions across states as an additional source of variation. Elections prior to 1968 are excluded because the NES did not collect the opinion thermometer we use as our key dependent variable.

0 to 100. Other questions are more specific and more crudely measured. The NES asks respondents to rate, on a scale from one to four, the extent to which they agree that the president is inspiring, is knowledgeable, is moral, is a good leader, is caring, earns your approval in general, and earns your approval in his handling of the economy. The NES asks respondents whether they agree with the statement that the president makes them afraid, angry, hopeful, and proud, and whether they approve of the president.

Since our identification strategy exploits the voting eligibility age threshold, we focus on young people. For greater comparability between eligible and ineligible voters, we limit our sample to individuals whose age places them within two years of voting eligibility. Hence, we limit our sample to individuals aged 18–21 at time t, the nonpresidential year. This sample consists of two groups: Those who are 18 to 19 years old, were 16 to 17 years old at the time of the election, and were ineligible to vote; and those who are 20 to 21 years old, were 18 to 19 years old at the time of the election, and were eligible to vote.[11]

This reduces our sample to 554 people, 248 of whom were ineligible to vote and 306 of whom were eligible to vote. Table 1 presents the means for the full sample (column 1) and by age group (columns 2 and 3). Not surprisingly, the older group is significantly more likely to have graduated from high school, to be employed, and to be married, as indicated in the first page of the table. The younger group has significantly higher income, homeownership, and union membership rates, which is also not surprising as these demographics are measured at the household level and younger respondents are more likely to be living with their parents. There is a marginally significant increased tendency for younger voters to identify as Independent[12] voters. And there are no significant differences between the groups on the remaining demographic characteristics: education, urban location, Republican and Democratic identification, and race. The second part of Table 1 presents the means of the various measures rating the performance of the president. The first, the thermometer variable, is a rating of respondents' overall feelings for the president on a scale from 0 to 100. The remaining outcome variables focus on more specific aspects of the president's performance and attributes. Variables are rescaled as necessary so that a higher rating is more favorable to the president in power for all outcome measures. Average ratings differ significantly between groups in only two of 13 measures.

In implementing our regression, we will control for the observables listed in Table 1, as well as state and year effects. We recognize that the impact of observables on one's opinion of the president will vary by the political party of the president. For example, males are more likely than females to support a Republican president during this time period, but less likely to support a Democratic president (Lena Edlund and Rohini Pande 2002). For this reason we also include a full set of observables interacted with a dummy for the political party of the president. Thus, we estimate

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[11] The small sample of young voters in the NES dictates the window. Larger samples would have allowed us to simply compare 19- and 20-year-olds.

[12] The party variable is based on respondent self-identification.

TABLE 1—SUMMARY STATISTICS

	Full sample	Ages 18–19	Ages 20–21	Difference in means of two age groups, *p*-value
High school	0.745	0.673	0.820	0.000
	(0.431)	(0.470)	(0.385)	
log(Income)[a]	9.446	9.535	9.374	0.053
	(0.976)	(1.003)	(0.949)	
Employed	0.567	0.516	0.608	0.030
	(0.496)	(0.501)	(0.489)	
Married	0.218	0.153	0.271	0.001
	(0.414)	(0.361)	(0.445)	
Urban	0.274	0.278	0.271	0.855
	(0.447)	(0.449)	(0.445)	
Union[a]	0.139	0.173	0.111	0.035
	(0.346)	(0.379)	(0.315)	
Homeowner[a]	0.417	0.492	0.356	0.001
	(0.494)	(0.501)	(0.480)	
Age	19.653	18.585	20.520	0.000
	(1.084)	(0.494)	(0.500)	
Republican	0.325	0.323	0.327	0.916
	(0.469)	(0.468)	(0.470)	
Democrat	0.448	0.415	0.474	0.169
	(0.498)	(0.494)	(0.500)	
Independent	0.227	0.262	0.199	0.080
	(0.420)	(0.441)	(0.400)	
Male	0.482	0.500	0.467	0.445
	(0.500)	(0.501)	(0.500)	
RACE:				
Black	0.143	0.141	0.144	0.929
	(0.350)	(0.349)	(0.351)	
Hispanic	0.099	0.121	0.082	0.125
	(0.299)	(0.327)	(0.274)	
Asian	0.014	0.020	0.010	0.310
	(0.119)	(0.141)	(0.099)	
Native	0.032	0.032	0.033	0.978
	(0.177)	(0.177)	(0.178)	
President thermometer	59.007	59.423	58.670	0.723
(100-point scale)	(24.821)	(24.360)	(25.224)	
Is the president inspiring?	2.615	2.740	2.522	0.150
(4-point scale)	(0.808)	(0.803)	(0.804)	
Is the president knowledgeable?	2.985	2.974	2.993	0.834
(4-point scale)	(0.728)	(0.701)	(0.751)	
Is the president moral?	2.342	2.327	2.354	0.809
(4-point scale)	(0.867)	(0.839)	(0.890)	
Is the president a good leader?	2.776	2.845	2.721	0.266
(4-point scale)	(0.895)	(0.861)	(0.920)	
Does the president care?	2.527	2.549	2.509	0.745
(4-point scale)	(0.880)	(0.898)	(0.870)	
Does president make you angry?	0.543	0.573	0.520	0.393
(2-point scale)	(0.499)	(0.497)	(0.501)	
… make you afraid?	0.783	0.803	0.767	0.472
(2-point scale)	(0.413)	(0.399)	(0.424)	
… make you hopeful?	0.472	0.462	0.480	0.765
(2-point scale)	(0.500)	(0.501)	(0.501)	
… make you proud?	0.402	0.431	0.380	0.402
(2-point scale)	(0.491)	(0.497)	(0.487)	
Do you approve of the president?	0.658	0.689	0.634	0.182
(2-point scale)	(0.475)	(0.464)	(0.483)	
Do you approve of the president?	2.718	2.905	2.559	0.002
(4-point scale)	(1.105)	(1.069)	(1.113)	
… approve of president's handling	2.137	2.399	1.904	0.007
of the economy? (4-point scale)	(1.621)	(1.594)	(1.614)	
Sample size	554	248	306	

Notes: There is some variation in the exact sample size by variable due to the fact that not all questions were asked in each survey year. Standard deviation in parenthesis.

[a] Measured at the household level.

(2) $Opinion\ of\ Official_{it} = a_t + bEligible_{i,t-2} + cParty_i$

$$+ d(Eligible_{i,t-2}*Party_i) + eX_{it} + g_s + e_{ist},$$

where a_t and g_s are year- and state-fixed effects.

B. *Presidential Year Turnout*

Our second test exploits the fact that there is higher turnout in presidential election years than in interim election years. Therefore, Americans are more likely to vote for Congress when there is a concurrent presidential race. For example, in 2000, senators elected in 1998 (an interim election year) saw lower voter turnout in their most recent election than those elected in 1996 (a presidential election year). Consequently, cognitive dissonance predicts more polarization in constituent views of a senator elected in a presidential election year over one elected in a nonpresidential year.[13] As before, we focus on party polarization. Therefore, we estimate an equation of the form

(3) $Opinion\ of\ Senator_{ijt} = a_t + bElected\ in\ Presidential\ Year_{jt} + cParty_{ij}$

$$+ d(Elected_{jt}*Party_{ij}) + eX_{it} + g_s + e_{ijst},$$

where i indexes individuals, j indexes senators, and t indexes time. The variable "*Elected in Presidential Year*" indicates that the particular senator was last elected concurrently with a presidential election and "*Party*" indicates that person i is of the same party as Senator j. As before, a_t and g_s are year- and state-fixed effects. We allow the error term e_{ijst} to be clustered by state. Once again, we allow the impact of observables to differ by political party by including, as controls, the variables listed in Table 2 as well as their interactions with a dummy for political party of the focal senator.

Using this sampling frame, we increase our sample size greatly because we can now include all NES respondents. In fact, given that an individual may be represented by up to two senators who are not seeking reelection in the focal year, many individuals appear in our dataset twice.[14] One limitation is that we must focus only on years in which the NES collected the thermometer variable for incumbent senators not up for reelection. This reduces our sample to the years 1978–1994, excluding 1984. However, because we are no longer restricted to interim election years, we are left with eight years of data.

Table 2 presents summary statistics for this sample. The means (and standard deviations) are presented in three columns. The first column provides the statistics

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[13] We cannot perform the same comparison for representatives who face election every two years because of the lack of variation in election timing. At any time, all sitting representatives were elected during a presidential election year or all sitting representatives were elected during a nonpresidential year.

[14] Clustering the error term by state allows for a lack of independence among observations from the same individual.

TABLE 2—SUMMARY STATISTICS FOR SENATE SAMPLE

	Full Sample	Senator elected in a nonpresidential election year	Senator elected in a presidential election year	Difference in means of two groups, *p*-value
High school	0.821	0.820	0.822	0.762
	(0.383)	(0.384)	(0.383)	
log(Income)[a]	9.941	9.948	9.935	0.375
	(0.849)	(0.852)	(0.845)	
Employed	0.643	0.644	0.643	0.893
	(0.479)	(0.479)	(0.479)	
Married	0.601	0.603	0.600	0.787
	(0.490)	(0.489)	(0.490)	
Urban	0.246	0.247	0.245	0.743
	(0.431)	(0.431)	(0.430)	
Union[a]	0.218	0.220	0.217	0.730
	(0.413)	(0.414)	(0.412)	
Homeowner[a]	0.695	0.697	0.694	0.697
	(0.460)	(0.460)	(0.461)	
Age	44.598	44.711	44.490	0.434
	(16.902)	(16.944)	(16.862)	
Republican	0.377	0.376	0.377	0.889
	(0.485)	(0.484)	(0.485)	
Democrat	0.515	0.519	0.510	0.281
	(0.500)	(0.500)	(0.500)	
Independent	0.109	0.105	0.112	0.130
	(0.311)	(0.306)	(0.316)	
Male	0.472	0.475	0.468	0.401
	(0.499)	(0.499)	(0.499)	
Race:				
Black	0.100	0.108	0.093	0.002
	(0.300)	(0.310)	(0.290)	
Hispanic	0.040	0.038	0.042	0.163
	(0.196)	(0.191)	(0.202)	
Asian	0.010	0.010	0.010	0.937
	(0.102)	(0.102)	(0.101)	
Native	0.023	0.024	0.022	0.299
	(0.149)	(0.154)	(0.145)	
Senator	58.635	58.582	58.685	0.777
Thermometer	(21.845)	(21.445)	(22.225)	
Sample size	14,192	6,954	7,238	

Notes: Sample does not include 1,984 respondents because they were not asked for their opinions of their senators. Standard deviation in parenthesis.

[a] Measured at the household level.

for the full sample of 14,192 individuals. The second and third columns provide statistics for 6,954 individuals whose senators were elected in a nonpresidential year and 7,238 individuals whose senators were elected in a presidential year, respectively. The two groups differ significantly in only one of 16 demographic characteristics (percent black). The Senate thermometer, a rating of the respondent's feelings toward the senator on a scale of 0 to 100, also shows no difference in average rating between groups.

II. Results of Age Eligibility Test

In Table 3, we display estimation of equation (2), which compares party polarization for 18- and 19-year-olds versus 20- and 21-year-olds in our data. The table reflects a single regression with controls for log income and dummies for being employed, having graduated from high school, being married, living in an urban area, being in a union, and being a homeowner. Also included in Table 3 are dummies for race, gender, state, and year. The first column of the table lists the coefficients on the main effects. Since our identification comes from the interaction of "*Eligibility*" and "*Party*," we also include, as controls, the interaction of all demographics and region with the party dummy. The coefficients on the interacted variables are included in the second column.[15]

The first three rows display the primary variables of interest. Recall that "*Eligible*" is defined as being 20 or 21 years old in the sample, which would make the person 18 or 19 years old in the election year two years prior. The party variable is defined as "*Same Party as President.*" So, in 1998, Democrats would be coded as one while Republicans and Independents would be coded as zero. For the 1990 data, Republicans would be coded as one whereas Democrats and Independents would be coded as zero. The coefficient on party in this Table is 10.117, which indicates that for ineligibles there is approximately a 10 point difference in the thermometer between those of the president's party and everyone else. As we see in Table 1, the mean of the thermometer variable is roughly 59 with a standard deviation of 25. Thus

TABLE 3—VOTING ELIGIBILITY AND ATTITUDES

	Own coefficient	Party interaction coefficient
Eligible*party		9.258
		(3.993)
Eligible to vote		25.370
		(2.774)
Same party as president		10.117
		(3.075)
Controls	**Own coefficient**	**Party interaction coefficient**
High school	1.842	1.102
	(4.326)	(15.536)
Log(Income)	2.248	0.551
	(2.062)	(2.856)
Employed	4.409	23.607
	(3.447)	(4.770)
Married	20.592	1.430
	(3.843)	(5.551)
Urban	26.674	0.023
	(3.423)	(5.291)
Union	21.928	4.548
	(4.899)	(6.942)
Homeowner	1.372	28.221
	(3.767)	(5.210)
Male	22.619	4.968
	(2.806)	(4.105)
Race:		
Black	17.122	236.789
	(4.477)	(6.736)
Hispanic	7.561	212.136
	(5.523)	(7.578)
Asian	0.913	27.208
	(6.852)	(11.921)
Native	2.687	2.361
	(10.979)	(13.109)
Year fixed effects	Yes	
State fixed effects	Yes	
Sample size	554	
Adjusted R^2	0.339	

Notes: The dependent variable is the respondent's feelings (scale 1–100 with 100 being more positive) toward the president. "*Eligible to Vote*" is a dummy variable for whether the respondent was able (by age) to vote in the previous election two years ago and "*Same Party as President*" is a dummy matching self-reported political party affiliation to the president's party. Robust standard errors.

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[15] While we display only one specification in Table 3, our results are robust to include a full set of respondent *party*president's party* controls, including *state*year* fixed effects, eliminating our demographic controls and their interactions, and clustering our standard errors by *state* and by *state*year*eligibility*.

party affiliation "explains" 40 percent of a standard deviation of feelings toward the president.

The significant interaction term "*Eligible*Party*" shows that this polarization increases for those who were eligible to vote. Amongst this population, the members of the president's party are 9.258 points farther apart from everyone else. This suggests that the eligibles are roughly twice as polarized as the ineligibles. This is consistent with the original hypothesis. The eligibles show greater party affiliation than those ineligible to vote. These magnitudes are especially large when one accounts for the fact that the eligible voters (18- and 19-year-olds) only vote at a 46 percent rate, implying that the impact of voting on polarization is twice as big as estimated. This suggests the impact of voting alone would lead voters to be about three times as polarized as nonvoters.

Both the main effects and interactions of control variables generally enter insignificantly, with three exceptions. The black and urban coefficients suggest that blacks have significantly more positive views of the incumbent president, whereas urban residents have significantly more negative views. The *black*party* interaction enters negatively and significantly, suggesting that blacks rate presidents of their own party less favorably than do whites (omitted group). Blacks rate presidents of an opposing party more favorably than white respondents on average.

This basic table relates eligibility to a broad measure of one's feelings toward the president. In Table 4, we examine the impact of voting eligibility on more specific attitudinal measures. The broadest of these 12 measures are the two approval scales. More specific questions ask the respondent about his approval of the president's handling of the economy and to agree or disagree that the president is inspiring, knowledgeable, moral, a good leader, and caring. Respondents are also asked whether the president makes them angry, afraid, hopeful, or proud. We continue to run regressions of the form of equation (2). We include the same controls and interactions of controls with the party dummy as in Table 3. For simplicity, we do not show the coefficients on the controls. Each column of each panel in Table 4 reflects a separate regression with a different dependent variable. Because not all of the 12 questions were asked in all the years, the sample size differs across regressions. Moreover, we have redefined negative variables so that they are positive. For example, Question 7 asks "Does the president make you angry?" We have defined one on this question to be no and zero to be yes. In this way, across all questions, positive or negative, the cognitive dissonance hypothesis predicts a positive coefficient on "*Eligible*Party*."

The prediction is borne out. All the coefficients on the interaction terms are positive. Eligibles are significantly[16] more polarized than ineligibles on six items: approval (both scales), belief that the president is knowledgeable, inspiring, a good leader, and makes the respondent angry. Across questions, the magnitude of the coefficient on "*Eligible*Party*" is quite large. If we take the point estimates literally, we see, as before, that the polarization for the eligibles is at least twice as large as the polarization for the ineligibles.[17]

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[16] At the 10 percent level.

[17] We also explored the applicability of cognitive dissonance to respondents' attitudes toward other elected officials. The NES asks respondents to rate each of their sitting senators on a thermometer scale. Comparing

TABLE 4—VOTING ELIGIBILITY AND ATTITUDES: OTHER ADDITIONAL MEASURES

Approval Ql–Q6	Is the president?					
	Inspiring?	Knowledgeable?	Moral?	A good leader?	Caring?	(2-point scale)
Eligible*party	0.699	0.491	0.333	0.405	0.259	0.156
	(0.406)	(0.209)	(0.209)	(0.225)	(0.255)	(0.084)
Eligible to vote	20.313	20.189	20.025	20.218	20.087	20.150
	(0.243)	(0.128)	(0.130)	(0.145)	(0.167)	(0.055)
Same party as president	0.020	0.029	0.141	0.138	0.330	0.110
	(0.359)	(0.161)	(0.158)	(0.177)	(0.187)	(0.065)
Observations	117	265	260	263	203	530
Adjusted R^2	0.405	0.259	0.470	0.435	0.524	0.285

Q7–Q12	Does the president make you…				Approve handling of economy	Approval (4-point scale)
	Angry?	Afraid?	Hopeful?	Proud?		
Eligible*party	0.206	0.019	0.131	0.136	0.554	0.448
	(0.124)	(0.111)	(0.136)	(0.126)	(0.396)	(0.232)
Eligible to vote	20.057	20.047	20.031	20.045	20.811	20.492
	(0.086)	(0.077)	(0.086)	(0.080)	(0.240)	(0.146)
Same party as president	20.002	0.052	0.191	0.127	0.194	0.191
	(0.099)	(0.080)	(0.111)	(0.092)	(0.288)	(0.168)
Observations	267	267	267	266	315	390
Adjusted R^2	0.359	0.248	0.291	0.378	0.345	0.369

Notes: Dummy dependent variables have been redefined so that dummy 5 1 is in support of the president. This adjustment applies to angry and afraid questions. Sample size varies because not all questions are asked in all years and not all questions are answered by all respondents. Specification includes year- and state-fixed effects as well as all demographic controls used in the basic specification. "*Eligible to Vote*" is a dummy variable for whether the respondent was able (by age) to vote in the previous election two years ago, and "*Same Party as President*" is a dummy matching self-reported political party affiliation to the president's party. Robust standard errors.

A. *Confounds*

While we have found evidence of increased polarization amongst eligible voters in presidential elections, there are three potential threats to our conclusion that the evidence supports the relevance of cognitive dissonance in the political arena. The first difficulty is that *age*party* effects may be driven by age differences and not voting induced differences in respondents' opinions. In other words, perhaps older people simply have more polarized views than younger people. To test for this possibility, we perform two falsification exercises, the results of which are reported in Table 5. The first column of Table 5 repeats the basic result from Table 3. Each of the other three columns represents a "placebo" test between two groups differing in age but not different in voting eligibility. If aging is the primary cause of increased polarization, the "placebo" tests should yield similar results to the basic specification

18- and 19-year-olds' opinions of senators elected two years ago to that of 20- and 21-year-olds, we find no evidence of dissonance. The *eligibility*party* coefficient is small, negative, and noisily estimated. Comparing 20- and 21-year-olds to 22- and 23-year-olds with regard to senators elected four years ago, we find evidence of increased polarization amongst eligibles. Though the magnitude is large, again the effect is noisily estimated and insignificant. For no other elected office does the NES ask respondents to rate officials unless those officials are seeking reelection.

TABLE 5—VOTING ELIGIBILITY AND ATTITUDES: PLACEBO TESTS

Time period relative to presidential election	BASE regression two years post presidential election	PLACEBO Regressions		
		Two years post presidential election	Presidential election year	Presidential election year
Sample years:	1978–1998	1978–1998	1980–2000	1980–2000 ex. 1988, 2000
Ages compared	18, 19 vs. 20, 21	20, 21 vs. 22, 23	18, 19 vs. 20, 21	18, 19 vs. 20, 21
Eligible * party[a]	9.258 (3.993)	23.587 (3.281)	0.398 (4.468)	24.626 (5.820)
Eligible to vote	25.370 (2.774)	1.141 (2.427)	2.094 (3.208)	2.681 (4.031)
Same party as president	10.117 (3.075)	18.280 (2.530)	22.119 (3.623)	23.816 (4.672)
Observations	554	695	469	341
Adjusted R^2	0.345	0.350	0.391	0.411
Concept tested:	Base test	Both groups eligible to vote	No election two prior year	No election two prior year

Notes: The dependent variable is the respondent's (scale 1–100 with 100 being more positive) feelings toward the president. All regressions include year- and state-fixed effects as well as all demographic controls used in the basic specification. "*Same Party as President*" is a dummy matching self-reported political party affiliation to the president's party. "*Eligible to Vote*" is a dummy variable for the survey participant being in the older age group in the ages compared line. Robust standard errors.

[a] The "*Eligible * Party*" coefficients in column 4 is significantly different from that of column 1. When columns 1 and 2 are combined into a single specification with dummies and interactions for the three age groups, the difference of the two interactions is significant at the 10 percent level.

in column 1. If dissonance is the primary driver, interaction terms in columns 2 through 4 should show nonsignificant coefficients.

In the first exercise (column 2), we compare 20- and 21-year-olds to 22- and 23-year-olds, two years after the presidential election. As before, both groups differ by two years of age, but both were eligible to vote in the prior election. These two groups do not show significant differences in polarization.[18] If anything, the older group is less polarized, though the difference is not significant. Of course, one could still argue that the polarization effects of aging are concave. It is possible that much of the increase in polarization happens between 19 and 20 years of age. This story is consistent with our large differences in polarization in column 1 (which compares 18- and 19-year-olds to 20- and 21-year-olds) and little or no difference in polarization in column 2 (which compares 20- and 21-year-olds to 22- and 23-year-olds). In column 3, we perform a placebo test that is robust to the concave age effects criticism. Here, we compare 18- and 19-year-olds to 20- and 21-year-olds, exactly the same age groups as in our basic specification. We now compare their opinions of the incumbent president in presidential election years. This implies that four years ago, both groups of young people were ineligible to vote. This specification should uncover the relationship between polarization and aging (free of any voting effect) for our sample. As shown in column 3, we find no statistically significant increase in polarization of the older group versus the younger group. In column 4, we consider

[18] Note, that the "*Same Party*" coefficient in column 2 is approximately equal to the sum of "*Same Party*" and "*Eligible * Party*" in column 1. In other words, those who have already voted (in column 2) are just as polarized as those who have already voted (just the 20- and 21-year-olds) in column 1.

the possibility that the fact that some sitting presidents are eligible to run again, while others are not is somehow biasing our results. We repeat the exercise of column 3 but without the election years 1988 and 2000 when the incumbent president (due to term limits) could not run again. The coefficient of interest is again insignificant and this time negative. In short, these placebo tests suggest that our results are unlikely to be driven by the effect of aging on polarization.

A second potential confound to our dissonance interpretation is the endogeneity of the party affiliation variable. The party variable is based on respondent self-identification. Respondents are not asked their party identification at the time of the presidential election. Rather, respondents interviewed during the interim election period are asked for their contemporaneous party identification, which has potentially changed in the intervening two years. For example, positive feelings toward Ronald Reagan in 1982 could increase the likelihood that a person identifies as a Republican in that same year.[19] We perform two types of robustness checks to verify that our results are not driven by changing political identities. First, we rerun equation (2) substituting a predicted party variable for self-identified party. Second, we circumvent the need for a party variable by simply asking whether eligible voters are more likely to hold more extreme opinions of the president, i.e. views in the tails of the distribution.

In the first approach, we predict party of vote choice using contemporary demographic characteristics. We then include interactions of this predicted party with a dummy for eligibility, as we did before. To create the prediction, we use the data of all respondents (regardless of age) in each presidential election year. We regress a dummy for whether the respondent voted for the winner on log income and dummies for education, employment status, marital status, urban, state, gender, race, union member, and homeowner. For each election, we create two prediction equations, one that does and one that does not include the respondent's party as a regressor because of the variable's potential endogeneity. We then combine the coefficients from these regressions with the data for the subsequent nonpresidential year to predict the likelihood that a respondent voted for the president. The prediction equations are shown in Appendix Table 1. In the first part of the table, we see the basic prediction equations. In the remainder of the table, we see how the prediction equations change when party is included as a regressor.

We then run the basic regression in equation (2) substituting the predicted vote variable for the potentially endogenous party variable.[20] Given that demographics are used to predict party, it is no longer possible to include these demographics as control variables. The exclusion of these controls does not create bias in estimating the coefficient on our focal independent variable as our identification of "*Eligible*" comes from the sharp discontinuity in age in voting eligibility. Thus, the covariates in Table 3 serve only to reduce the standard errors of our coefficients. This is demonstrated in the first column of Table 6, which provides results using the basic

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[19] It is worth noting that for this confound to drive our results, this change in party affiliation must be specific to the older cohort.

[20] To account for the fact that the vote choice variable is estimated, the standard errors for Table 6, columns 2 and 3 are calculated based on 2000 bootstrap replications, where for each replication, the vote choice variable is re-estimated.

specification excluding the covariates. The results are little changed. The coefficients on both the party main effect and interaction terms remain statistically significant, showing an increase in polarization among eligibles of 62 percent. The second column relies on a vote variable predicted only using demographics. Results are similar to the basic specification. The main effect shows that those who would have voted for the president, according to demographics, but were ineligible, favor the president by 18 points. The same demographic groups who would have voted for the president but were eligible are 20 points more polarized. This suggests that eligible voters are more than twice as polarized as ineligible voters.

This specification has another advantage. We know that not all voters vote along party lines in an election. The specification in Table 6 allows us to rescale the impact of "*Party*" to account for this fact. Column 3, therefore, repeats this exercise including the party variable as a predictor of voting behavior. Again, we see a large, positive, and significant interaction coefficient. Compared to the direct effect of voting for the president, it appears that eligible voters are 65 percent more polarized.[21]

In the final column of Table 6, we address the potential endogeneity of party, by turning to a test that does not require a party variable. If eligibles are more polarized than noneligibles, the views of eligibles should fall more frequently in the tails of the opinion distribution. Suggestive evidence of the relative polarization of eligibles comes from Table 1, where we see that for 10 of 13 opinion measures the standard deviation is larger amongst eligibles than ineligibles. In Table 6, we test for this increased polarization by running a logit of whether the respondent is within a standard deviation of mean opinion of the president for that year on "*Eligible*." The results indicate that voting eligibles are less likely to have views in the center of the distribution. Although the results are not statistically significant, they are consistent with increased polarization of eligibles.

The third potential confound to our dissonance interpretation is that it is not clear whether our results are due to cognitive dissonance or information effects. Perhaps those who vote collect more political information in future years. Confirmatory bias (Lord et al. 1979) suggests that they would then interpret that information to favor the candidate for whom they have voted, resulting in greater polarization among voters.[22] This confound need not require active searching for information by 18- and 19-year-olds. Instead, parties could target them specifically. Suppose campaigns target these "just able to vote" voters effectively. This would result in much greater exposure to information. If this increased exposure generates increased polarization, this produces an important confound.[23] To deal with these possibilities, we examine how political knowledge differs by prior voting eligibility status. Specifically, we compare how informed and politically active 18- and 19-year-olds are relative to 20- and 21-year-olds during presidential and interim election years. Our dependent variables of interest are of three categories: political knowledge, exposure to political information, and interest in politics.

[21] The placebo tests of Table 5 are also robust to the change to predicted vote variable.
[22] Alan Gerber and Donald P. Green (1998, 1999) find evidence against confirmatory bias in interpreting information on politician quality.
[23] Thomas R. Palfrey and Keith T. Poole (1987) show a correlation between a voter's information and extremism. However, they provide no evidence as to whether the relationship is causal.

<center>Table 6—Voting Eligibility and Attitudes: Circumventing the Endogeneity of Party</center>

	Basic	Replacing party with predicted vote		Dependent variable: respondent feeling close to mean
	(1)	(2)	(3)	(4)
Eligible * party	8.392 (3.946)			
Eligible to vote	25.118 (2.841)	212.407 (5.329)	28.752 (3.725)	20.165 (0.175)
Same party as president	13.445 (3.063)			
Eligible * predicted vote 1		20.165 (9.180)		
Would have voted for president 1		18.391 (7.447)		
Eligible * predicted vote 2			14.672 (5.874)	
Would have voted for president 2			22.460 (4.686)	
Predicting equations include political party as regressor		No	Yes	
Observations	554	554	554	554
Adjusted R^2	0.236	0.185	0.268	

Notes: The dependent variable is the respondent's feelings (scale 1–100 with 100 being more positive) toward the president. "*Eligible to Vote*" is a dummy variable for whether the respondent was able (by age) to vote in the previous election two years ago, and "*Same Party as President*" is a dummy matching self-reported political party affiliation to the president's party. Column 1 shows the basic specification (Table 3) without demographic controls. Column 2 replaces column 1 "*same party*" and its interaction with the president's party with a predicted vote variable and its interaction with the president's party. Column 3 is similar to column 1, but presents results in which party (in addition to the demographic characteristics used in column 2) has been used as a predictor of vote choice. Robust standard errors in column 1. Bootstrapped standard errors in columns 2 and 3. Columns 1–3 include state and year effects. Column 4 specification is a logit of whether the respondent rates the president within a standard deviation of the mean rating for the year on a dummy for voting eligibility in the prior presidential election (i.e., age 20–21). Robust standard errors.

In the first row of each panel of Table 7, we compare *knowledge/exposure/interest* by age solely in nonpresidential election years. Hence, we run regressions of the form

$$(4) \qquad Knowledge_{it} \, 5 \, a_t \, 1 \, bEligible_{i1t211} \, 1 \, e_{ist},$$

where "*Eligible*" is a dummy for 20 and 21 years of age. In the second section of each panel, labeled "Presidential Election Years," we reestimate the same regression but only in presidential years. If the above confound were important, we would expect that knowledge differences between 20- and 21- and 18- and 19-year-olds would be large in nonpresidential years. Moreover, if this effect arose out of campaign targeting or selective attention during campaigns, we would expect this difference to be much smaller when we compare 20- and 21-year-olds to 18- and 19-year-olds in presidential election years, since both groups were unable to vote in the prior presidential election. For none of these questions, do we find a significant difference between the actual comparison and the placebo comparison. For 5 of the 11 questions, the point

TABLE 7—POLITICAL ACTIVITY

	Political Knowledge Base				
	Level of political information[a]	Recall name of representative	Recall name of Senator	Knows House majority party	Knows Senate majority party
Panel A					
Nonpresidential election years					
Eligible to vote	0.228	0.144	0.249	0.047	20.068
(18/19 vs. 20/21)	(0.082)	(0.095)	(0.230)	(0.039)	(0.084)
Observations	557	558	270	558	160
Adjusted R^2	0.218	0.181	0.333	0.268	0.323
Presidential election years					
Eligible to vote	0.066	0.196	0.330	20.016	20.018
(18/19 vs. 20/21)	(0.128)	(0.122)	(0.316)	(0.045)	(0.134)
Observations	301	406	148	512	131
Adjusted R^2	0.296	0.192	0.192	0.243	0.376
Difference of nonpresidential and presidential					
	0.162	20.052	20.081	0.063	20.051
	(0.152)	(0.154)	(0.391)	(0.059)	(0.158)

	Exposure to Political Information		Interest in Politics			
	Index of campaign media exposure	Read newspaper daily	Discuss politics	Campaign participation	Interest in the election	Interest in public affairs
Panel B						
Nonpresidential election years						
Eligible to vote	0.128	0.072	0.093	0.105	0.063	0.063
(18/19 vs. 20/21)	(0.196)	(0.087)	(0.058)	(0.056)	(0.056)	(0.085)
Observations	214	153	346	559	560	556
Adjusted R^2	0.282	0.398	0.195	0.145	0.112	0.130
Presidential election years						
Eligible to vote	0.105	0.143	20.021	20.015	0.153	0.076
(18/19 vs. 20/21)	(0.122)	(0.085)	(0.060)	(0.087)	(0.056)	(0.095)
Observations	421	186	272	512	598	511
Adjusted R^2	0.197	0.341	0.223	0.144	0.120	0.130
Difference of nonpresidential and presidential						
	0.023	20.071	0.115	0.120	20.091	20.012
	(0.231)	(0.122)	(0.083)	(0.104)	(0.080)	(0.127)

Notes: All regressions include state- and year-fixed effects as well as demographic controls. "*Eligible to Vote*" is an indicator for the older age group. Robust standard errors.

[a] Reflects the opinion of the survey taker.

estimates, though insignificant, show a greater difference in knowledge in the nonpresidential election years, which is consistent with the knowledge story. However, for the remainder, the difference goes in the other direction, again insignificant. The older cohort shows more knowledge, exposure, and participation in the election years as compared to nonelection years. There is no consistent pattern of greater knowledge, exposure, or interest of 20- and 21-year-olds as compared to 18- and 19-year-olds in nonpresidential versus presidential elections.

These results, especially when combined with the aging results of Table 5, make it hard to interpret our polarization findings as due to differential information or campaign targeting. But, admittedly, the NES measures are somewhat noisy and are collected some two years after the election of interest. It is possible that information increases polarization, but that the increased levels of information are not as enduring as the polarization. However, experimental evidence suggests that political

information, delivered in precisely the timing and in one of the manners in which information is delivered during a campaign, does not lead to increased polarization among voters. In a phone survey, we randomly assigned 1,000 New York City voters to watch the final mayoral debate between incumbent Mayor Michael Bloomberg (a Republican) and the Democratic challenger Fernando Ferrer. Those in the treatment group were asked to watch the debate. Those in the control were asked to watch the Jim Lehrer news hour, airing at the same time. Those in the treatment group were 21 percentage points more likely to claim to have watched the debate (and were a significant 14 percentage points more likely to correctly identify the race and gender of the moderator). However, when interviewed days or (in some cases) minutes after receiving new political information, those in the treatment group were no more polarized in their views of Bloomberg (and Ferrer) than those in the control group. Using thermometer questions patterned after those in the NES, we find "*Watch*Republican Party*" coefficients of 1.2 and 22.9 for Bloomberg and Ferrer, respectively. However, once again this evidence against information effects is merely suggestive, as our standard errors only allow us to reject increases in polarization of 11 (12.5) points or more on the Bloomberg (Ferrer) thermometer.

In this section, we have provided evidence that the act of voting for president increases the polarization of the electorate. Based on turnout for senatorial elections, the next test provides a complement to the results of this section.

III. Presidential Election Year Turnout Results

A second variable that has an impact on voting that is exogenous to intensity of beliefs is whether or not there is a concurrent presidential election. Senatorial elections occur both in presidential and interim election years. Americans are more likely to vote for Congress when there is a concurrent presidential race.

In Table 8, we estimate equation (3), comparing party polarization of constituent views of senators elected in presidential years with constituent views of senators elected in nonpresidential years. Column 1 of panel A reports the results from our basic senatorial regression, which includes the full sample of individuals who are asked their views of an incumbent senator not currently seeking reelection. The specification includes demographic controls, demographic controls interacted with the party dummy, and state- and year-fixed effects.[24]

The coefficient on "*Same Party*" suggests that members of a senator's party rate him 8.9 points higher than respondents who belong to another party. The coefficient on "*Elected*Party*" suggests that the polarization increases by 23 percent (2.038/8.915) for senators elected in a presidential year. This increase is smaller than in the prior test. That could be due to the fact that the voter turnout differential in this case is smaller than the large difference in voting between eligible and ineligible voters.[25] Scaling by the 15 percentage point turnout difference between the two

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[24] While once again we display only one specification, our results are robust to controlling for *state*year* and *year*senator* fixed effects as well as clustering by *senate race*voter party*.

[25] As we noted earlier, young eligible voters vote at a 46 percent rate in presidential elections. So, the eligible to ineligible comparison is a comparison of 46 percent to 0 percent. The turnout differentials for presidential

TABLE 8—VOTING AND SENATORIAL ATTITUDES

	Full sample	Senators elected two years ago	Senators elected four years ago	Dependent variable: respondent feeling close to mean
Panel A				
Elected*party	2.038	1.750	1.971	
	(0.769)	(1.207)	(1.036)	
Elected in presidential year	21.334	27.455	0.480	20.095
	(0.718)	(2.159)	(1.657)	(0.038)
Same party as senator	8.915	9.111	9.035	
	(0.874)	(0.957)	(1.141)	
Observations	14,192	7,283	6,909	14,192
Adjusted R^2	0.121	0.141	0.120	
		Low difference		High difference
Panel B: Sample Divided by Effect of Instrument				
Elected*party		1.373		2.901
		(1.247)		(0.960)
Elected in presidential year		21.457		21.082
		(1.005)		(0.924)
Same party as senator		11.730		5.948
		(1.148)		(0.909)
Observations		7,096		7,096
Adjusted R^2		0.152		0.101

Notes: The dependent variable (except where indicated) is the respondent's feelings (scale 1–100 with 100 more positive) toward the senator. All regressions (except panel A column 4) include year, state- and age-fixed effects, as well as demographic controls. Panel A, column 4 specification is a logit whether the respondent rates the senator within a standard deviation of the mean rating for that senator in that year on a dummy for whether the senator was last elected in a presidential year. Robust standard errors clustered by state in all specifications.

groups, we find that the act of voting more than doubles polarization. The smaller increase in polarization may also be due to some feature of opinions about senators versus opinions about presidents. In either case, these results still represent a large, significant impact of voting on polarization of political views.

In columns 2 and 3 of panel A, we estimate this regression separately for senators elected two and four years prior. Since a senator's term lasts for six years, both groups of senators will still be in office, but not standing for reelection. This split allows us to examine the duration of voting effects on polarization. Results suggest that the duration is at least four years. In both specifications a senator's own party members rate him 9 percentage points higher than respondents of other parties. Further, those senators elected during a presidential election, when turnout is higher, see an increased polarization in constituency views of 19 to 22 percent. The increase in polarization is only significant for the four year case, however.

In the final column of panel A, we address the potential endogeneity of party by employing an unconditional specification akin to that of Table 6, column 4. Here, we run a logit of whether the respondent's feelings about the senator are within a standard deviation of the mean feeling toward that senator on whether the senator was elected in a presidential year. We find that voting eligibles are significantly less

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versus nonpresidential elections is only 15 percent (67–52 percent). Thus, we would expect an effect that is only one-third as large, and we are getting an effect that is one-fourth as large.

likely to hold opinions in the center of the distribution. Thus, the results of column 4 are consistent with those in the previous columns, which provide evidence that voting increases polarization.

A. *Confounds*

One potential confound to the interpretation of this test, as evidence of cognitive dissonance, is that senatorial elections may differ in presidential and nonpresidential years. Perhaps there is more media spotlight on elections during presidential years, which increases polarization for reasons unrelated to voter turnout.[26] Or perhaps the type of candidate who runs differs in the two time periods. If, for example, stronger candidates stand during presidential elections when there is more turnout and stronger candidates are more polarizing, then candidate characteristics, rather than dissonance, may be driving our results.[27]

To test the media spotlight hypothesis, we examine a twist on the basic senatorial specification. If the effect estimated in column 1 of panel A in Table 8 is due to differential voter turnout, then it ought to be concentrated in the population that tends to turn out in presidential election years but not in nonpresidential election years. To investigate whether this is in fact the case, we create a predicted difference in probability of turnout in presidential over nonpresidential years for each respondent. The prediction is created in the following manner. First, we create two regressions of turnout on demographics: one for presidential and the other for nonpresidential years. Second, we use the coefficients from these regressions to predict for each individual the probability of voting in both presidential and nonpresidential election years for each respondent. Finally, we subtract the second estimate from the first to obtain the predicted difference in turnout in presidential and interim election years.

In panel B of Table 8 we re-estimate the specification in panel A column 1 for two different groups. Column 1 is the half of the sample that has a below median difference in turnout, whereas column 2 has an above median difference in turnout. Again, if panel A, column 1 results are driven by turnout (and not by increased media or some other aspect of presidential elections) than we should see that the polarization effect is concentrated in the second group, the group whose turnout behavior is impacted more by the concurrence of the presidential and senatorial elections. Results in panel B indicate that both the below and above median difference groups show increased polarization of views of senators elected during presidential years compared with views of those elected during interim elections. However, the increase in polarization is only significant for the high difference group. Further, the magnitude of effect is much larger for the high difference group (12 percent versus 49 percent increased polarization). The difference in increased polarization between the groups is not significant, however. Thus, these results merely suggest

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[26] These media effects would have to persist for four years to explain away our results.

[27] Candidates can only time their first appearance. Reelection occurs every six years, alternating reelection bids between presidential and nonpresidential election years. The vast majority of senators standing in any year are incumbents. These incumbents may be strategic about retirement.

TABLE 9—CHARACTERISTICS OF SENATE ELECTIONS: BY PRESIDENTIAL AND NONPRESIDENTIAL YEAR ELECTIONS

Characteristic	Nonpresidential year elections	Presidential year elections	Difference in means of two groups, *p*-value	*N*
Incumbent running	0.810 (0.393)	0.765 (0.425)	0.273	400/400 Elections 1978–2000
Noncontested	0.025 (0.157)	0.005 (0.071)	0.100	400/400 Elections 1978–2000
Black candidate	0.030 (0.171)	0.035 (0.184)	0.779	400/400 Elections 1978–2000
Female candidate	0.170 (0.377)	0.190 (0.393)	0.604	400/400 Elections 1978–2000
At least one candidate has …				
Advanced degree	0.419 (0.496)	0.432 (0.497)	0.853	218/233 Elections 1988–2000
Military experience	0.458 (0.501)	0.455 (0.500)	0.955	228/233 Elections 1988–2000
Statewide office experience	0.884 (0.322)	0.742 (0.439)	0.008	223/233 Elections 1988–2000
House experience	0.242 (0.431)	0.227 (0.421)	0.787	223/233 Elections 1988–2000
Local elected official experience	0.358 (0.482)	0.344 (0.477)	0.828	223/233 Elections 1988–2000
ADA score of winner in first two years in office	35.172 (32.154)	34.730 (33.646)	0.940	127 individuals who first entered the Senate between 1980 and 2000

Note: Standard deviation in parenthesis.

that turnout, rather than some characteristic of presidential elections relative to non-presidential elections, increases polarization of political views.

Second, we examine whether differences in senatorial candidates may be driving our findings. In Table 9, we compare the characteristics of candidates who run in presidential years with candidates who run in nonpresidential years. Candidates are remarkably similar across the two types of elections. Only one of ten differences in characteristics (namely whether at least one candidate has statewide experience) is even marginally significant. Incumbent, black, and female candidates are just as likely to be running in presidential as in nonpresidential years. The same is true of candidates with advanced degrees and those with military, House, and local government experience. There is no significant difference in frequency of contested elections or in the liberal/conservative leaning of their voting record (as measured by the Americans for Democratic Action score[28]) of winners in their first two years in office. These results demonstrate that candidate characteristics are not driving our Table 8 findings.

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[28] For comparability across time, we use the adjusted ADA scores calculated by Tim Groseclose, Steven Levitt, and James M. Snyder, Jr. (1999).

TABLE 10—VOTING ELIGIBILITY AND ATTITUDES: FOUR YEARS OUT
(THE SUBSEQUENT PRESIDENTIAL ELECTION YEAR)

Dependent Variable	Opinion of President	Opinion of President	Vote for Incumbent
Sample:	20- to 23-year- olds	20- to 23-year-olds in a year when an incumbent is running	20- to 23-year-olds who reported voting for president
Sample Years:	1980–2000	1980–2000 ex. 1986 and 1998	1980–2000 ex. 1986 and 1998
Eligible*party[a]	0.144	4.376	0.022
	(3.728)	(4.337)	(0.130)
"Eligible to vote"	24.322	27.464	20.119
	(2.594)	(3.114)	(0.087)
Same party as president	22.986	19.208	0.433
	(2.785)	(3.112)	(0.105)
Observations	630	480	206
Adjusted R^2	0.391	0.409	0.620

Notes: All regressions include state- and year-fixed effects as well as demographic controls. "*Eligible to Vote*" is an indicator for whether the respondent was age eligible to vote in the presidential election four years prior. Robust standard errors. The dependent variable in the first two columns is the respondent's feelings (scale 1-100 with 100 being more positive) toward the president. The dependent variable in the third column is an indicator for whether the respondent voted for the incumbent (or incumbent's party in the case of a president restricted by term limits from running again).

IV. Implications for Voting Behavior

Though each has its limitations, the results of the two estimation strategies together provide evidence that the act of voting strengthens future opinions of the chosen candidate. Those who are induced to turn out either by age eligibility or by a concurrent presidential election, show increased polarization in their views toward the candidates two or even four (in the case of senators) years post-election. Thus, we provide direct field evidence of the importance of cognitive dissonance. This finding has implications for the political capital of politicians. By definition, in a two party race more than half of voters vote for the winner. Therefore, elected officials receive a boost in their approval ratings due to dissonance.

But the question remains whether incumbents receive a similar boost come the following election when not only has more time passed, but additional information on the incumbent is readily available. In Table 10, we explore the effects of voting on age eligibles four years after the election, during the subsequent presidential election. The first column indicates that four years after the election, eligibles are no more polarized than ineligibles. Column 2 limits consideration to those presidents who are eligible to run again. Eligibles are 23 percent more polarized about these incumbent presidential candidates, but the effect is still not significant. In column 3, we ask whether this increased polarization translates into increased votes.[29] The answer is that eligibles of the same party as the president are an additional two percentage points more likely to vote for him than ineligibles of the same party.

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[29] We also examined the impact of prior voting eligibility on present day turnout. But we do not report these results as they are not stable across specifications.

These findings suggest that polarization is smaller but still existent at the time of reelection, and that this polarization translates into voting behavior. Our results are too imprecise to allow us to draw any conclusions, however. Therefore, examining the role of dissonance on voting behavior is an important topic for future work.[30] A finding that dissonance plays a role in voting behavior would have implications for understanding the dynamics of voter turnout. In particular, such a finding would provide both a new rationale for the incumbency advantage and an efficiency argument for term limits. Finally, dissonance effects on voting would suggest that election efficiency is not necessarily increasing in turnout as high turnout today implies that a large body of the electorate will be biased in their evaluations of the incumbent in future contests.

APPENDIX

TABLE 1—PREDICTING PRESIDENTIAL VOTE WITH DEMOGRAPHIC CONTROLS

Winning party	DEM	REP	REP	REP	DEM	DEM
Base Year	1976	1980	1984	1988	1992	1996
Predicting vote in Year …	1978	1982	1986	1990	1994	1998
Panel A: Predictors Do Not Include Party						
High school	20.085	0.153	0.085	0.045	20.009	20.187
	(0.043)	(0.050)	(0.034)	(0.056)	(0.042)	(0.044)
Employed	0.023	20.049	0.035	0.017	0.010	0.083
	(0.030)	(0.039)	(0.036)	(0.038)	(0.026)	(0.043)
Married	20.019	0.028	0.044	0.010	20.056	20.081
	(0.036)	(0.037)	(0.027)	(0.033)	(0.034)	(0.032)
Male	0.008	0.105	0.055	0.036	20.055	20.103
	(0.031)	(0.037)	(0.024)	(0.029)	(0.021)	(0.031)
Homeowner	20.013	0.055	0.016	20.017	20.063	20.007
	(0.032)	(0.041)	(0.045)	(0.041)	(0.044)	(0.044)
Union	0.189	20.124	20.238	20.142	0.097	0.189
	(0.043)	(0.036)	(0.036)	(0.032)	(0.031)	(0.028)
log(Income)	20.089	0.011	0.089	0.027	20.052	20.052
	(0.020)	(0.027)	(0.016)	(0.022)	(0.023)	(0.021)
Urban	0.020	20.105	20.129	20.094	0.139	0.033
	(0.037)	(0.054)	(0.045)	(0.039)	(0.044)	(0.028)
Same party as president	—	—	—	—	—	—
Observations	1,236	875	1,237	1,080	1,405	1,027
Adjusted R^2	0.170	0.201	0.232	0.214	0.187	0.215

[30] Suggestive evidence that dissonance plays a role in the incumbency advantage comes from the fact that during the period 1984 to 2000, incumbent senators running in nonpresidential years (after having last been elected in a high turnout presidential year) won by larger margins than those running in presidential years. The groups received 66 and 63 percent of the vote respectively, a difference that is statistically significant.

TABLE 1—PREDICTING PRESIDENTIAL VOTE WITH DEMOGRAPHIC CONTROLS (*Continued*)

Winning party	DEM	REP	REP	REP	DEM	DEM
Base Year	1976	1980	1984	1988	1992	1996
Predicting vote in Year …	1978	1982	1986	1990	1994	1998
Panel B: Predictors Do Include Party						
High school	20.051	0.081	0.053	0.009	0.033	20.091
	(0.035)	(0.048)	(0.025)	(0.046)	(0.033)	(0.036)
Employed	0.006	20.048	0.027	0.014	20.022	0.009
	(0.024)	(0.032)	(0.033)	(0.026)	(0.026)	(0.031)
Married	0.016	0.009	0.020	20.011	20.035	20.062
	(0.035)	(0.033)	(0.021)	(0.023)	(0.027)	(0.027)
Male	0.019	0.089	0.032	0.011	20.009	20.053
	(0.022)	(0.037)	(0.020)	(0.025)	(0.017)	(0.026)
Homeowner	0.015	0.066	0.042	20.039	20.032	20.003
	(0.030)	(0.036)	(0.031)	(0.028)	(0.029)	(0.030)
Union	0.058	20.029	20.108	20.037	0.012	0.076
	(0.040)	(0.033)	(0.030)	(0.027)	(0.021)	(0.032)
log(Income)	20.063	20.018	0.035	0.015	20.024	20.003
	(0.021)	(0.022)	(0.013)	(0.014)	(0.020)	(0.019)
Urban	20.006	20.055	20.048	20.040	0.049	20.024
	(0.036)	(0.045)	(0.031)	(0.029)	(0.022)	(0.024)
Same party as president	0.534	0.498	0.575	0.633	0.568	0.642
	(0.035)	(0.032)	(0.024)	(0.035)	(0.030)	(0.024)
Observations	1,233	875	1,234	1,078	1,403	1,027
Adjusted R^2	0.398	0.387	0.505	0.537	0.450	0.560

Notes: All regressions include year- and state-fixed effects as well as race dummies.

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