

Do Voters Affect or Elect Policies?

A New Perspective using Evidence from the U.S. Senate

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A fundamental question in politics asks whether competition for votes causes politicians to adopt more moderate positions than if they were to run unopposed (e.g. Downs 1957). Adopting the terminology of Lee, Moretti, and Butler (2004) – henceforth LMB – this question asks whether voters choose between candidates with fixed policy positions, merely “electing” policies, or does electoral competition induce candidates to adopt positions closer to the median voter, implying voters are also “affecting” policies. Another question in politics asks how large is the *party-incumbency advantage*, asking what advantage does an incumbent, or her successor in the same party, gain in her chances of re-election relative to an opponent from the opposing party?

LMB develop an innovative method of addressing the first question by using an answer to the second question, looking at whether politicians benefiting from an incumbency advantage take more extreme positions than politicians without such an advantage, as the former arguably has greater electoral strength than the latter. With data on the U.S. House of Representatives from 1946 to 1995, LMB find a strong party-incumbency advantage, but do not find that politicians benefiting from this advantage take more extreme positions than those who do not, and

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so conclude that voters merely elect and do not affect policies. These results appear believable, as LMB's estimates are based off of close elections, whose unpredictable nature gives their estimates – known as regression discontinuity design (RDD) estimates – quasi-experimental properties.¹

As shown here, similar results hold in the U.S. Senate. First this demonstrates that the party-incumbency advantage is also strong in the Senate. Second, this seems to give additional support to the hypothesis that voters do not affect policies, especially Senate elections are more competitive and a larger fraction of Senate elections are close, i.e. won by 2 percent or less of the vote, making RDD estimates more representative. Yet, the hypothesis that voters do not affect policies appears inconsistent with other evidence, including the fact that Senators vote more moderately in the years just prior to their next election (Thomas 1985).

One explanation for this apparent inconsistency is that LMB's estimation strategy may induce a downward bias in its estimates of how much voters affect policies. This occurs because senior members of Congress vote more moderately than junior members for reasons unrelated to electoral strength: senior members do not need to demonstrate party loyalty in order to gain desirable committee assignments and have greater information about their constituents (Strattman 2000). As a result, re-elected incumbents vote more moderately than newly-elected members by virtue of their greater seniority, working against the prediction that incumbents will vote more extremely because of their greater electoral strength.

This can be explained formally by expanding the model found in LMB to include additional terms for whether a party has held a seat for two straight terms. Adapting their notation, where each observation corresponds to a congressional seat, t indicates a term, RC is the roll-call voting record (with larger values corresponding to more liberal records), D is an

¹ Validity of RDD estimators in the Senate is demonstrated by Butler and Butler (2006).

indicator for whether the Democrat won the seat, P^* is the (unobserved) measure of electoral strength of party D , and ε reflects heterogeneity in preferences across seats,

$$\begin{aligned}
(1) \quad RC_t &= const + \pi_0 P_t^* + \pi_1 D_t + \pi_2 D_t D_{t-1} + \pi_3 (1 - D_t)(1 - D_{t-1}) + \varepsilon_t \\
(2) \quad E[D_{t+1} | D_t, D_{t-1}] &= \delta_0 + \delta_1 D_t + \delta_2 D_t D_{t-1} + \delta_3 (1 - D_t)(1 - D_{t-1}) \\
(3) \quad E[P_{t+1}^* | D_t, D_{t-1}] &= \varphi_0 + \varphi_1 D_t + \varphi_2 D_t D_{t-1} + \varphi_3 (1 - D_t)(1 - D_{t-1})
\end{aligned}$$

LMB's original model corresponds to when none of the lagged interactions matter, i.e. In (1), relating roll-calling behavior to electoral strength and current-party status, the new parameters π_2 and π_3 measure how members' preferences change with seniority, with $\pi_2 < 0$ and $\pi_3 > 0$ indicating more moderate behavior. We still expect second-term Democrats to vote more liberally than Republicans so $\pi_1 + \pi_2 > 0$ and $\pi_1 - \pi_3 > 0$. The incumbency advantage, modeled in (2), depends on the current party through $\delta_1 > 0$, but should also increase with the length of tenure so that $\delta_2 > 0$ and $\delta_3 < 0$. Lastly, the latent electoral strength of party D is allowed to depend on the lagged interactions in (3). Making the assumption that D_t is exogenous – made possible courtesy of the RDD – and incorporating these new effects we get the following reduced-form equation for roll-call voting at time $t + 1$:

$$\begin{aligned}
(4') \quad E[RC_{t+1} | D_t, D_{t-1}] &= const + [\pi_0 \varphi_1 + \pi_1 \delta_1 + \pi_2 (\delta_0 + \delta_1) - \pi_3 (1 - \delta_0)] D_t \\
&\quad + [\pi_0 \varphi_2 + \delta_2 (\pi_1 + \pi_2)] D_t D_{t-1} \\
&\quad + [\pi_0 \varphi_3 + \delta_3 (\pi_1 - \pi_3)] (1 - D_t)(1 - D_{t-1}) \\
&\equiv const + \gamma_1 D_t + \gamma_2 D_t D_{t-1} + \gamma_3 (1 - D_t)(1 - D_{t-1})
\end{aligned}$$

In LMB's original model, where $\delta_2 = \delta_3 = \pi_2 = \pi_3 = \gamma_2 = \gamma_3 = 0$, the measure of how much politicians affect policies, or “affect component” is given by $\gamma - \pi_1 \delta_1 = \pi_0 \varphi_1$. In the close-elections sample, this is proportional to how much more extremely re-elected incumbent Democrats vote relative to average elected Democrats, $\gamma/\delta_1 - \pi_1$. If incumbency does indeed confer electoral strength, i.e. $\varphi_1 > 0$, then an affect component of zero implies that voters do not affect policies, i.e. $\pi_0 = 0$.

In the more general dynamic model, the affect component is given by

$$(5) \quad \pi_0 \tilde{\varphi} = \gamma_1 - [\pi_1 \delta_1 + \pi_2 (\delta_0 + \delta_1) - \pi_3 (1 - \delta_0)] + P[\gamma_2 - \delta_2 (\pi_1 + \pi_2)] - (1 - P)[\gamma_3 - \delta_3 (\pi_1 - \pi_2)]$$

where P is the overall (steady-state) probability of a Democrat winning a seat, and $\tilde{\varphi} \equiv \varphi_1 + P\varphi_2 - (1 - P)\varphi_3$ is the expected sum of all changes in electoral strength from a Democratic victory. If the static model is estimated when its restrictions do not hold, then the parameters in the static model will converge to the following terms expressed in the dynamic model parameters:

$$(6) \quad \tilde{\gamma}_1 \equiv E[RC_{t+1} | D_t = 1] - E[RC_{t+1} | D_t = 0] = \pi_0 \varphi_1 + \pi_1 \delta_1 + \pi_2 (\delta_0 + \delta_1) - \pi_3 (1 - \delta_0) \\ + P[\pi_0 \varphi_2 + \delta_2 (\pi_1 + \pi_2)] - (1 - P)[\pi_0 \varphi_3 + \delta_3 (\pi_1 - \pi_3)]$$

$$(7) \quad \tilde{\pi}_1 \equiv E[RC_t | D_t = 1] - E[RC_t | D_t = 0] = \pi_1 + \pi_2 P - \pi_3 (1 - P)$$

$$(8) \quad \tilde{\delta}_1 \equiv E[D_{t+1} | D_t = 1] - E[D_{t+1} | D_t = 0] = \delta_1 + \delta_2 P - \delta_3 (1 - P)$$

Thus, the estimated original affect component is

$$(9) \quad \tilde{\gamma} - \tilde{\pi}_1 \tilde{\delta}_1 = \pi_0 \tilde{\varphi} + \pi_2 [\delta_0 + (1 - P)\delta_1] - \pi_3 [1 - \delta_0 - (1 - P)\delta_1] + (\pi_2 + \pi_3)(\delta_2 + \delta_3)P(1 - P)$$

Assuming the sign restrictions above, the second and third terms on the right-hand side are unambiguously negative; the fourth term should be negligibly small if Democrats and Republicans exhibit symmetric behavior, i.e. if either $\pi_2 \approx -\pi_3$ or $\delta_2 \approx -\delta_3$. Thus, unless $\pi_2 = \pi_3 = 0$, the bias from misspecification imparted to the affect component should be negative, favoring the hypothesis that voters do not affect policies.

Fortunately, with RDD the parameters of the expanded model can be estimated consistently and used to calculate the correct affect component. Since in close elections current party status, D_t , is quasi-random, and previous party status, D_{t-1} , is pre-determined, the coefficients on their interactions in equations (1), (2), and (4) can be estimated consistently. The resulting estimates, besides having corrective uses, are also the first RDD estimates of how members change their voting behavior over their careers, and how incumbency advantage

depends on party incumbency in previous terms. More precise estimates are available by imposing the symmetry restrictions $\delta_2 = -\delta_3$, $\pi_2 = -\pi_3$, $\gamma_2 = -\gamma_3$, which is useful given the small number of close elections.

Original LMB-style estimates for the House and Senate are given in columns (1) and (4) of the Table using the voting score from Americans for Democratic Action (or ADA), which measures what percentage of a member's votes that agree with the liberal positions ADA endorses. Here we see that LMB's main conclusions for the House also hold for the Senate: having a Democratic representative has a large effect on voting score (Panel A), and the chances of having a Democrat in the next term (Panel B), but voters do not appear to affect policies (Panel D). Both affect components are negative, although their significance is weak.

Results for the dynamic unrestricted model are in columns (2) and (5), and the symmetric model in columns (3) and (6). Since the symmetric model's estimates are more precise and none its restrictions are rejected statistically at 5 percent, I focus on its results for brevity. The estimates in Panel A reveal that second-term Democrats do vote more conservatively than first-term Democrats, with a symmetric effect for Republicans. Furthermore, from Panel B it appears that the incumbents with two terms have a chance of victory 11 percentage points higher than incumbents with only one term.

The corrected estimates in Panel D of the affect component are all positive, confirming that there is a negative bias in the original estimates, especially in the case of the House, where the difference is significant. Because more parameters are calculated in the dynamic models, the standard errors for their estimates are larger than for the original model. Nevertheless, unlike with the original LMB estimates of the affect component, although one cannot reject zero, one can more easily accept the hypothesis that voters affect policies than the hypothesis that they do not, suggesting that the true affect component is likely small but positive. Even if the true affect

component is small, this may imply that the change in electoral strength from incumbency (given by ϕ) is weak, rather than the effect of electoral strength (given by π_0) being weak.

To demonstrate that these results hold for more than just ADA scores, corrected estimates of the affect component for other voting scores from the restricted model are presented in Figure 1 for the House and Figure 2 for the Senate. These demonstrate that corrected estimates of the affect component are typically larger than the original estimates. Although the standard errors (not shown) for the corrected estimates are fairly large, the estimates in both chambers lean towards significance on the positive side. For instance, in the House 9 out of 13 estimates are positive, of which 7 reject the hypothesis of a zero affect component at a size of 21 percent or less; in the Senate 9 out of 11 estimates are positive, of which 4 reject that hypothesis at 13 percent or less; none of the negative estimates are significant even at 50 percent.

Summing up, RDD estimates reveal the incumbency advantage in the House and Senate are similar, but revised estimates, allowing for dynamic changes in Congressional voting behavior, are much more supportive than previous estimates of the hypothesis that voters do affect policies.

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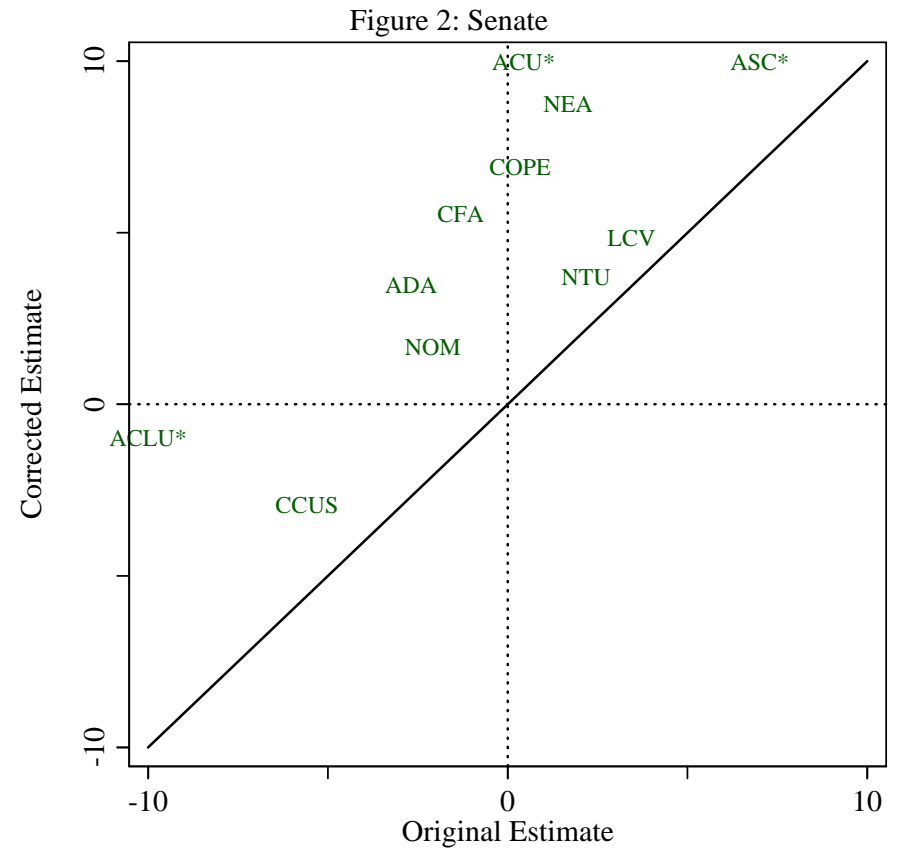
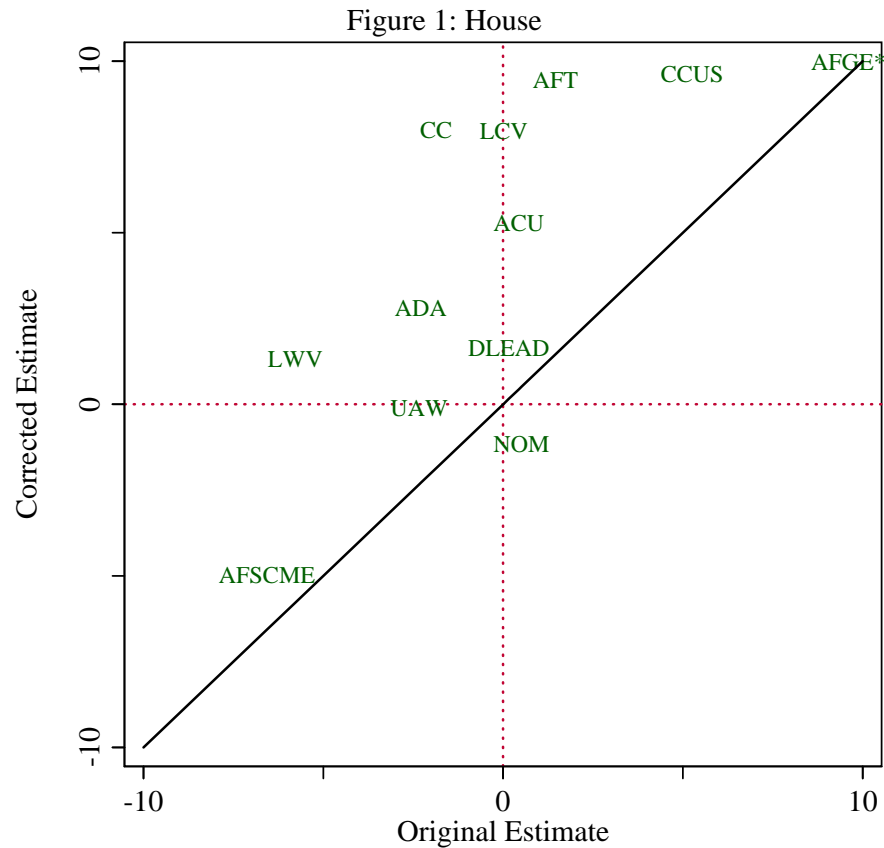
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TABLE 1: ESTIMATES OF THE AFFECT COMPONENT USING A DYNAMIC MODEL OF VOTING BEHAVIOR AND INCUMBENCY, CLOSE ELECTION SAMPLES

Voting Score Chamber Years Chamber	ADA					
	House 1947-1992			Senate 1947-1998		
	Original (1)	Unrestricted (2)	Symmetric (3)	Original (4)	Unrestricted (5)	Symmetric (6)
Panel A: Effect on Current Voting Score at time t						
Democrat Win at time t (π_1)	49.4 (1.8)	54.7 (3.0)	55.1 (2.7)	47.5 (3.6)	53.5 (5.1)	53.7 (5.0)
Democrat Win at time $t \times$ Democrat Win at time $t - 1$ (π_2)		-8.0 (2.5)	} -5.0 (1.8)		-3.7 (5.4)	} -6.2 (3.6)
Republican Win \times Republican Win at time $t - 1$ (π_3)		1.8 (2.6)			8.1 (4.7)	
Panel B: Effect on Probability of Subsequent Democrat Win at time $t + 1$						
Democrat Win at time t (δ_1)	0.47 (0.04)	0.35 (0.06)	0.35 (0.04)	0.42 (0.08)	0.31 (0.12)	0.31 (0.12)
Democrat Win at time $t \times$ Democrat Win at time $t - 1$ (δ_2)		0.09 (0.09)	} 0.11 (0.04)		0.02 (0.13)	} 0.11 (0.08)
Republican Win at time $t \times$ Republican Win at time $t - 1$ (δ_3)		-0.13 (0.06)			-0.18 (0.11)	
Panel C: Effect on Subsequent Voting Score at time $t + 1$						
Democrat Win at time t (γ_1)	21.0 (2.6)	18.0 (4.1)	18.5 (4.0)	17.1 (5.4)	17.4 (7.7)	17.4 (7.7)
Democrat Win at time $t \times$ Democrat Win at time $t - 1$ (γ_2)		-1.6 (3.7)	} 2.2 (2.7)		-1.1 (8.9)	} -0.2 (5.4)
Republican Win at time $t \times$ Republican Win at time $t - 1$ (γ_3)		-6.3 (3.9)			-0.4 (7.7)	
Panel D: Estimates of the Affect Component						
	-2.3 (1.3)	2.4 (2.3)	2.8 (2.3)	-2.7 (2.8)	2.6 (4.7)	3.5 (4.5)
Number of Elections	483	483	483	121	121	121

Standard errors reported in parentheses. Close election sample includes elections with vote shares between 48 and 52 percent. Symmetric model restricts the coefficient of the Republican win interaction to equal minus the coefficient on the Democrat win interaction. None of the restrictions are rejected at a test size of 5 percent. House data from Lee, Moretti, and Butler (2004), Senate data from *Congressional Quarterly*.

Corrected versus Original Estimates of Affect Component, Alternative Interest Group Ratings



House data provided by Lee, Moretti, and Butler (2004). Senate data from Congressional Quarterly. Corrected affect component estimates are from the symmetric model explained in the text. Each acronym corresponds to a different voting score measure, normalized so that a higher rating corresponds to more liberal voting record. Names of agencies providing the score together with numerical estimates and standard errors are available on request.

*Some estimates do not fit on graph. House: AFGE original 15.1, corrected 15.5; Senate: ACU original 0.4, corrected 10.8; ASC original 7.0, corrected 14.2.

APPENDIX TABLE: CORRECTED VERSUS ORIGINAL ESTIMATES OF AFFECT COMPONENT, ALTERNATIVE INTEREST GROUP RATINGS
(Not for publication)

Interest Group	Years	Acronym	Corrected Estimate			Original Estimate			Difference
			Estimate	Std Err	<i>p</i> -value	Estimate	Std Err	<i>p</i> -value	
<i>Panel 1:</i> Conservative Coalition	1958-1980	CC	8.0 (3.7)		0.03	-1.9 (2.0)		0.36	9.9
<i>House</i> Chamber of Commerce for the United States	1974-1980	CCUS	9.7 (6.0)		0.11	5.3 (3.6)		0.15	4.4
American Federal Government Employees	1972-1976	AFGE	15.5 (10.1)		0.12	15.1 (5.1)		0.00	0.4
American Federation of Teachers	1974-1980	AFT	9.5 (6.9)		0.17	1.5 (3.8)		0.70	8.0
League of Conservation Voters	1970-1980	LCV	8.0 (6.2)		0.20	0.0 (3.6)		1.00	8.0
Percent voted like Demcoratic leadership (x 100)	1946-1992	DLEAD	1.7 (1.3)		0.21	0.2 (0.9)		0.86	1.5
Americans for Democratic Action	1946-1992	ADA	2.8 (2.3)		0.21	-2.3 (1.3)		0.08	5.1
American Conservative Union	1970-1978	ACU	5.3 (7.8)		0.49	0.4 (3.8)		0.91	4.9
League of Women Voteres	1970-1980	LWV	1.4 (7.0)		0.85	-5.8 (3.4)		0.09	7.1
United Auto Workers	1968-1980	UAW	-0.1 (6.3)		0.99	-2.3 (3.2)		0.47	2.3
DW-Nomiate Score (x - 50)	1975-1988	NOM	-1.1 (2.2)		0.61	0.5 (1.2)		0.68	-1.6
American Federation State, County, Municipal Employees	1972-1978	AFSCME	-4.9 (8.9)		0.58	-6.6 (4.7)		0.16	1.6
<i>Panel 2:</i> American Conservative Union	1971-2002	ACU	10.8 (5.9)		0.07	0.4 (3.7)		0.91	10.3
<i>Senate</i> American Security Council	1969-1994	ASC	14.2 (8.8)		0.11	7.0 (6.2)		0.26	7.2
National Educators Association	1969-2002	NEA	8.8 (5.8)		0.13	1.7 (3.8)		0.66	7.1
Committee on Political Education of the AFL-CIO	1955-2002	COPE	6.9 (4.7)		0.14	0.3 (3.2)		0.91	6.6
Consumer Federation of America	1971-2002	CFA	5.6 (5.8)		0.34	-1.3 (3.9)		0.74	6.9
National Taxpayers Union	1969-2002	NTU	3.8 (4.1)		0.36	2.2 (3.0)		0.46	1.6
Americans for Democratic Action	1947-2002	ADA	3.5 (4.5)		0.44	-2.7 (2.8)		0.34	6.2
League of Conservative Voters	1971-2002	LCV	4.9 (7.1)		0.50	3.4 (4.5)		0.44	1.4
DW-Nomiate Score (x - 50)	1975-2002	NOM	1.7 (3.6)		0.63	-2.1 (2.2)		0.33	3.8
American Civil Liberties Union	1979-2002	ACLU	-0.9 (7.0)		0.89	-11.3 (3.8)		0.00	10.3
Chamber of Commerce for the United States	1965-2002	CCUS	-2.9 (4.6)		0.53	-5.6 (2.6)		0.03	2.7

See Table 1 and Figures for more detail. *p*- values are for a two-sided test of the null hypothesis that the affect component is zero.