Online-Appendix for: Estimating slim-majority effects in US state legislatures with a regression discontinuity design under local randomization assumptions

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TABLE A1 *Minimum p-value of predetermined covariates - Finite sample inference*

Democratic majority	n. obs	Min. p-value	Covariate
State House number of seats			
-2,2	14/12	0.32	State taxes (%GDP)
percentage of seats			
-1,1	12/11	0.35	Dem Majority Senate $t-1$
State Senate number of seats			
-1,1	27/23	0.09	Dem Governor
percentage of seats			
-1,1	6/13	0.03	Dem Majority Senate $t-1$

Note: The first column indicates the size of the window around the cutoff $Democratic\ majority = 0$. The second column reports the number of observations on each side of the cut-off within a widow. The third column reports the lowest p-value of a balance test for a series of covariates using finite sample inference. Column four reports the covariate with the lowest p-value.

TABLE A2 *Minimum p-value of predetermined covariates for different intervals using the Kolmogorov-Smirnov test for equality of distribution functions*

Democratic majority	n. obs	Min. p-value	Covariate
State House			
number of seats			
-2,2	14/12	0.26	State taxes (%GDP)
-3,3	25/18	0.16	State taxes (%GDP)
-4,4	34/26	0.13	State taxes (%GDP)
-5,5	43/37	0.43	State taxes (%GDP)
percentage of seats			
-1,1	12/11	0.37	Income per capita
-2,2	25/27	0.05	State taxes (%GDP)
-3,3	37/42	0.09	Local property taxes
-4,4	63/55	0.02	Local property taxes
-5,5	72/65	0.01	Local property taxes
State Senate			
number of seats			
-1,1	27/23	0.21	Dem Governor
-2,2	53/36	0.01	Dem Majority Senate $t-1$
-3,3	69/57	0.13	State taxes (%GDP)
-4,4	90/75	0.07	Dem Majority House $t-1$
-5,5	108/101	0.01	Local property taxes
percentage of seats			
-1,1	6/14	0.05	Dem Majority Senate $t-1$
-2,2	21/27	0.04	Income per capita
-3,3	46/39	0.01	Dem Majority Senate $t-1$
-4,4	60/44	0.00	Dem Majority Senate $t-1$
-5,5	80/65	0.00	Dem Majority Senate $t-1$

Note: The first column indicates the size of the window around the cutoff *Democratic majority*= 0. The second column reports the number of observations on each side of the cut-off within a widow. The third column reports the lowest p-value of a Kolmogorov-Smirnov test for equality of distribution functions. Column four reports the covariate with the lowest p-value.

TABLE A3 *Randomization-based estimation of slim-majority effects in state Houses - Larger Windows*

Running variable	Outcome variable			
Democratic majority	*Democratic House in t + 1*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-3,3 (number of seats)	0.15	0.36	17	25
-4,4 (number of seats)	0.14	0.31	25	33
-2,2 (% of seats)	-0.08	0.56	26	24
-3,3 (% of seats)	0.03	0.77	41	36
Democratic majority	*Democratic Senate in t + 1*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-3,3 (number of seats)	0.07	0.66	17	25
-4,4 (number of seats)	0.06	0.68	25	33
-2,2 (% of seats)	-0.03	0.84	26	24
-3,3 (% of seats)	0.06	0.61	41	36
Democratic majority	*Democratic Governor in t + 1*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-3,3 (number of seats)	0.11	0.49	17	25
-4,4 (number of seats)	0.02	0.91	25	33
-2,2 (% of seats)	0.05	0.71	26	24
-3,3 (% of seats)	0.04	0.75	40	36

Note: Local randomization windows chosen according to Cattaneo, Frandsen, and Titiunik 2015 and p-values calculated using large-sample inference.

TABLE A4 *Randomization and continuity based estimation of slim-majority effects in state Houses - Downstream slim-majority advantage*

Forcing variable Outcome variable

Democratic majority	*Democratic House in t + 2*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	-0.11	0.58	12	13
-1,1 (% of seats)	-0.03	0.90	10	11
CCT-robust (% of seats)	-0.17	0.28	89	89

Democratic majority	*Democratic House in t + 3*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	-0.13	0.53	12	13
-1,1 (% of seats)	0.05	0.81	10	11
CCT-robust (% of seats)	-0.19	0.25	90	87

Democratic majority	*Democratic House in t + 4*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	-0.13	0.49	12	13
-1,1 (% of seats)	-0.04	0.84	10	11
CCT-robust (% of seats)	-0.14	0.40	113	140

Democratic majority	*Democratic House in t + 5*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	-0.20	0.36	12	10
-1,1 (% of seats)	-0.08	0.74	8	11
CCT-robust (% of seats)	-0.06	0.53	132	145

Note: Local linear estimates and bandwidth tests are implemented as suggested by Imbens and Kalyanaraman 2012 and p-values as suggested in Calonico, Cattaneo, and Titiunik 2014. Local randomization windows chosen according to Cattaneo, Frandsen, and Titiunik 2015 and p-values calculated using large-sample inference.

Economic outcomes

We focus on two economic outcomes that have been previously studied in the RDD literature: the effect of partisan control on unemployment and on the tax level (Table A5). Both outcomes are measured two years after the election. In rows 1 to 4 we can see no statistically significant effect on unemployment. We also find no statistically significant effect on the state tax level measured as a percentage of GDP (rows 5 to 8). Our null results for unemployment are in-keeping with Beland 2015 who uses RDD to estimate the effect of the governor's partisanship on employment. Our null result on for the tax level are in-keeping with Leigh 2008 and Fredriksson, Wang, and Warren 2013 who estimate the effect of the governor's partisanthip on the tax level and with Ferreira and Gyourko 2009 and Gerber and Hopkins 2011 who do the same for mayors.

TABLE A5 *Randomization and continuity-based estimation of slim-majority effects in state Houses*

Forcing variable — Outcome variable

Democratic majority	*Unemployment* $t+1$			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	0.15	0.78	12	14
-1,1 (% of seats)	-0.08	0.92	11	12
CCT-robust (% of seats)	-0.40	0.32	123	121

Democratic majority	*State taxes (%GDP)* $t+1$			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Dem.	Rep.
-2,2 (number of seats)	-0.60	0.11	12	14
-1,1 (% of seats)	-0.02	0.97	11	12
CCT-robust (% of seats)	-0.20	0.44	154	142

Note: Local linear estimates and bandwidth tests are implemented as suggested by Imbens and Kalyanaraman 2012 and p-values as suggested in Calonico, Cattaneo, and Titiunik 2014. Local randomization windows chosen according to Cattaneo, Frandsen, and Titiunik 2015 and p-values calculated using large-sample inference.

Unified vs divided governments and the tax level

The series of statistically non significant effects we find in the main text and above raise an important issue. Is the RDD applied to slim-majorities able to pick-up an effect when there is one? One issue could be power, as the estimates are based on small windows with approximately 30 observations. Another issue could be the time scale of the design. Economic outcomes are measured two years later. It may be that the economic effects of partisan control take longer than two years to be observable in the data.

In this section we show neither is enough to prevent at least one economic effect being identified. To show this we revisit the RDD in De Magalhães and Ferrero 2015. Their forcing variable is the percentage of seats in the legislature belonging to the governor's party (the minimum between the state Senate and House) and the outcome is the state tax level. Since we show here that state Senates do not lend themselves to RDD, we redefine their forcing variable to be the number (or percentage) of seats in the state House that belong to the party of the sitting governor. This forcing variable is called *Governor Strength*. Above zero the governor has a majority in the state House and the government is unified. Below zero the opposition has the majority and the government is divided. Predetermined covariates are balanced on both sides of the zero cutoff.[1] In particular, this means that unified governments are as likely to be Democratic as Republican, and the state Senate is as likely to be controlled by the government party as by the opposition.

In Table A6 we present results using the same three methods as in the previous tables:

[1]We find *Governor strength* to be as valid for RDD as *Democratic Majority*. In the -2,2 window the covariate with the lowest p-value is *Dem Governor* - p-value of 0.23. In the -1%,1% window the covariate with the lowest p-value is *Dem majority House* - p-value of 0.24.

a -2,2 window, a -1%,1% window, and the canonical 'continuity-based' RDD that assumes continuity the percentage of seats. In rows 1 to 3 we can see that the point estimates indicate that a switch from a divided to a unified government has a positive effect on the tax level. The result is statistically significant at the 10% level for the -2,2 window. For the CCT-robust estimate with the percentage of seats as the forcing variable the result is statistically significant at the 1% level. The estimate in the -1%,1% window is not statistically different from zero. Overall, the results in Table A6 indicate that the method suggested by Cattaneo, Frandsen, and Titiunik 2015 is indeed able to capture a slim-majority effect that is also captured by assuming continuity of the running variable.

The exercise performed in this section suggests that RDD applied to slim-majorities is not intrinsically low in power or flawed in design given the small time window between treatment and outcome. The small window of 2 seats is able to capture statistically significant effects in practice.

TABLE A6 *Randomization and continuity-based estimation of the effect of a unified governor and state House on the state tax level*

Forcing variable	Outcome variable			
Governor Strength	*State taxes (%GDP) t + 1*			
	jump at cut-off	Test Diff=0	sample size	
Window	point estimate	p-value	Unif.	Div.
-2,2 (number of seats)	0.59	0.07*	11	22
-1,1 (% of seats)	0.10	0.77	13	17
CCT-robust (% of seats)	0.65	0.02**	121	108

Note Local linear estimates and bandwidth tests are implemented as suggested by Imbens and Kalyanaraman 2012 and p-values as suggested in Calonico, Cattaneo, and Titiunik 2014. Local randomization windows chosen according to Cattaneo, Frandsen, and Titiunik 2015 and p-values calculated using large-sample inference.

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