Online Appendix: Electoral Vulnerability, Party Affiliation and Dyadic Constituency Responsiveness in U.S. Legislatures

Descriptive Statistics

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Defections	0.21	0.41	0	1
Margin	.64	.25	.17	1
Run Next Elect	.83	.38	0	1
Time to Next Elect	744.65	426.56	173	1708
Yrs. Service	8.80	7.46	-1	48
Democrat	0 .50	0.50	0	1
Dist Vote Margin	0.37	0.24	0	0.89
Legis Vote Margin	.69	.34	0	1
Lower Chamber	.70	.46	0	1

Types of Referenda and Referenda in Sample

Referenda are an option in 24 U.S. states. There are a number of different types of referenda. Some states mandate that constitutional amendments are put before voters, which are called legislatively referred constitutional amendments (LRCA). Some states (e.g. Maryland) also allow or require certain types of regular legislation to be put before voters in the legislatively referred state statute (LSS). A number of states also have the veto referendum (VR) which allows voters to place an enacted law on the ballot for an up or down vote before it becomes law. Finally, some states have an advisory question (AQ) process, where the legislature can put a non-binding question on the ballot to gauge voter opinion. Veto referenda are almost entirely hot-button issues, but these are quite rare (Rogers 2017). The most common type of referenda is the LRCA, and though many of these do involve somewhat arcane constitutional matters, they also sometimes involve controversial issues like gay marriage and collective bargaining rights for public employees.

Of the 27 referenda in our sample most are LRCAs, and we have a number of VRs and one LSS. The referenda cover a wide variety of policy issues, such as the rights to hunt, fish and trap, a mandatory retirement age for justices and judges, gay marriage, and collective bargaining rights for teachers (see Table 2 in the appendix).

Table 2: Referenda in our sample

State	Bill	Type of Ref*	Description	Vote Senate	Vote House	Vote Referendum	Yes Votes Senate	Yes Votes House	Yes Votes Referendum
CA	ACA 1	LRCA	State Budget. Budget Stabilization Account	15may2014	15may2014	04nov2014	.8974	.9873	.6912
CA	AB 277	Veto	Referendum to Overturn Indian Gaming Compacts	27jun2013	02may2013	04nov2014	.7632	.5263	.3904
HI	SB 650	LRCA	Appointment of Retired Judges to Serve as Emeritus Judges	01may2012	10apr2012	06nov2012	.96	1	.496
HI	HB 2594	LRCA	Assistance to Dam and Reservoir Owners	10apr2012	06mar2012	06nov2012	.96	.98	.487
HI	SB 2876	LRCA	Assist Dam and Reservoir Owners	04mar2014	08apr2014	04nov2014	.96	.9	.6332
HI	HB 420	LRCA	Disclosure of the Names of Judicial Nominees	21mar2014	27feb2014	04nov2014	.88	.9608	.8198
HI	SB 886	LRCA	Mandatory Retirement Age for Justices and Judges	04apr2013	14feb2013	04nov2014	.88	.9804	.2203
HI	HB 748	LRCA	Special Purpose Revenue Bonds to Assist Agricultural Enterprises	29apr2014	29apr2014	04nov2014	1	1	.502
HI	SB 1084	LRCA	State Funding for Private Early Childhood Education Programs	30apr2014	30apr2014	04nov2014	.92	.7255	.4336
ID	S 1108	Veto	Limiting Agreements betw. Teachers and School Boards	24feb2011	08mar2011	06nov2012	.5714	.6857	.427
ID	SJR 102	LRCA	Control Over State Prisons	23jan2012	01feb2012	06nov2012	.8857	.9286	.744
ID	S 1110	Veto	Legislation Providing Teacher Performance Pay	24feb2011	09mar2011	06nov2012	.5714	.6286	.42
ID	HJR 2	LRCA	Rights to Hunt, Fish and Trap	22mar2012	27mar2012	06nov2012	.8857	.9	.703
IL	HJRCA 52	LRCA	Anti-Voter Discrimination Amendment	10apr2014	08apr2014	04nov2014	.9237	.8814	.6408
IL	HJRCA 1	LRCS	Crime Victims Rights	10apr2014	02apr2014	04nov2014	.9322	.9407	.7236
MD	HB 438	Veto	Civil Marriage Protection Act	17feb2012	23feb2012	06nov2012	.5652	.5035	.524
MD	SB 48	LRCS	Baltimore County Orphans Court Judges - Qualifications	17feb2012	28mar2012	06nov2012	.9778	.7464	.881
MD	SB 1	LRSS	Gaming Expansion Referendum	10aug2011	13aug2011	06nov2012	.6739	.5071	.519
MD	SB 281	LRCA	Prince George's County - Orphans' Court Judges - Qualifications	08mar2011	06apr2011	06nov2012	.9778	.7482	.878
MD	SB 167	LRCA	Public Institutions of Higher Education Tuition Rates Exemption	14mar2011	04apr2011	06nov2012	.5652	.5286	.589
MD	HB 1415	LRCA	Chief Executive Officer/County Executive - Special Election	02apr2014	04apr2014	04nov2014	1	.9149	.8054
MD	SB 829	LRCA	Transportation Trust Fund - Use of Funds	07apr2013	05apr2013	04nov2014	.8478	.8643	.8165
WA	SJR 8206	LRCA	Budget Stabilization Account Maintained in the State Treasury	21may2011	21may2011	08nov2011	.9592	.7755	.666
WA	SJR 8205	LRCA	Time of residence in Washington to Vote for President/VP	22feb2011	07apr2011	08nov2011	.9388	.9485	.7313
WA	SJR 8221	LRCA	Recommendations of the Commission on State Debt	11apr2012	11apr2012	06nov2012	.7755	.9286	.6291
WA	SJR 8223	LRCA	Authority to State Research Universities to Invest Funds	06mar2012	02mar2012	06nov2012	.919	.949	.4399
WA	SB 6239/HB 2516	Veto	Concerning Civil Marriage and Domestic Partnerships	26jan2012	26jan2012	06nov2012	.5714	.5612	.537

*LRCA=Legislatively Referred Constitutional Amendment, LRSS=Legislatively Referred State Statute, Veto = Veto Referendum

Matching Precincts to Districts

We employed three different strategies to match the precinct names from the referenda voting results with those precinct names from USBoundary. First, we relied on direct matching by matching data with identical precinct names. However, in many cases the precinct names in the USBoundary data and those in the results reported by the states differ. The difference ranges from single characters to completely different names. We therefore relied on fuzzy matching (also often referred to as approximate string matching) which was used to predict the probability of matching between two precinct names. Finally, we checked the validity of the matching results manually. Given that we had information about the county that precincts belong to for the referenda voting and the USBoundary data sets, matching had to be done only within counties so that we make sure that individual precincts clustered into counties are truly matched to the correct individual precinct. For Idaho we additionally obtained election data on the precinct level for state legislators that also included information for which districts they ran in. So we could use this information to identify the district the precincts belong to. We compared that information to the results of direct matching and fuzzy matching and found 100% correspondence.

As a further alternative, we also tried geomatching in order to match the geographic location of a precinct to geographic data of legislative districts. However, the matching proved very unreliable since legislative districts are not drawn on the basis of geographical boundaries and can be quite irregular. Additionally, precincts in the U.S. are sometimes within multiple legislative districts (see, e.g. `https://www.michigan.gov/documents/sos/XIV_Establishing_Voting_Precincts_and_Polling_Places_266021_7.pdf`, meaning that an exact match with one district is not possible.

Defections Per Referenda

The overall defection rate can be seen in Table 3).

Table 3: Degree of defection

	All referenda
Vote matches majority of constituents	79.2%
Defects from majority of constituents	20.8%
Observations	3,305
Number of legislators	818
Number of referenda	27

As noted in the main paper, there is a great deal of variation in the percentage of defections across different issues. This variation can be seen in figure 1. The three issues with the highestnumber of defections were a referendum to overturn Indian gaming compacts (CA), a referendum to use special purpose bonds to assist agricultural enterprises (HI), and a referendum granting authority to state universities to invest certain funds (WA). Each matter received an unanimous or near-unanimous vote by the legislature with public support ranging from 39.0 to 50.4 percent. It is notable that these issues with the highest defection rates are fairly complex issues that are probably not easy for voters, compared to, say, civil unions/gay marriage (see (Carmines & Stimson 1980) on the distinction between hard and easy issues).

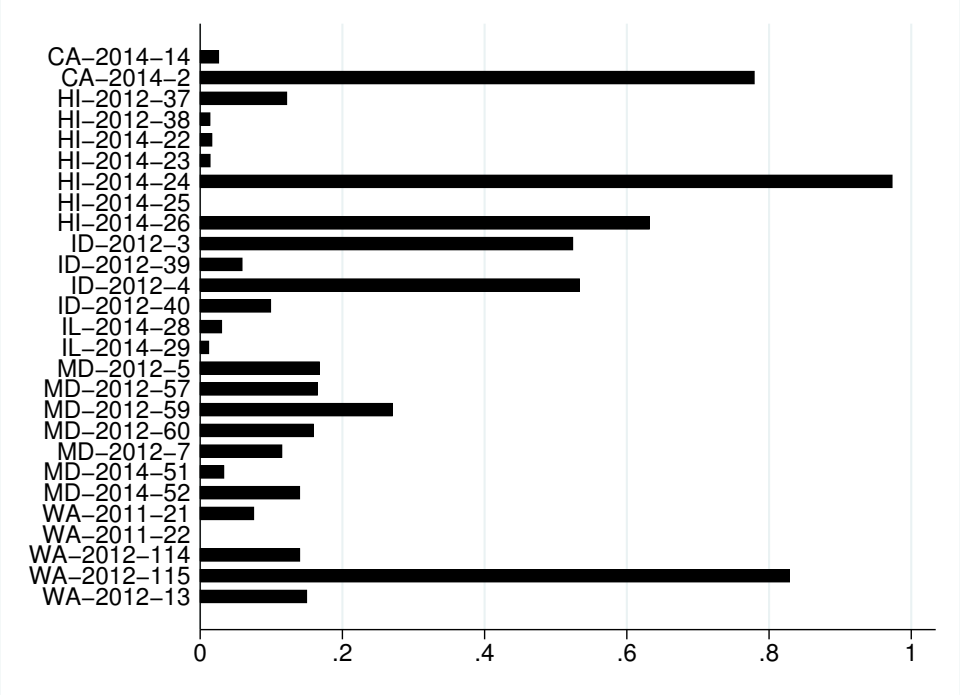

Figure 1: Proportion of Legislators Defecting Per Referendum

Logistic Regression with Fixed Effects and Clustered Standard Errors

Below we present estimates from logistic regression models with fixed effects for the states and for the referenda. We present the coefficients with standard errors clustered on the legislative district to adjust for the fact that districts have repeated observations. We can see that the results are very similar to those presented in the main paper, with the exception being that Democratic party affiliation is statistically significant rather than being nearly significant. The interaction between Democratic affiliation and marginality, which we plot below, is also similar. We do not see any changes in significance for the electoral threat variables.

Table 4: Logistic Regression with Fixed Effects and Clustered Standard Errors

	(1)	(2)
Margin	-0.0956	-1.366**
	(-0.28)	(-2.75)
Run Next Elect	-0.461**	-0.478**
	(-3.18)	(-3.26)
Time to Next Elect	-0.0004	-0.0004
	(-1.37)	(-1.57)
Dem	-0.363*	-1.595***
	(-2.17)	(-5.34)
Dem*Margin		2.188***
		(4.62)
Dist Consensus	-7.616***	-7.135***
	(-8.12)	(-7.61)
Yrs. Service	-0.00902	-0.00560
	(-0.84)	(-0.51)
Legis Vote Margin	-3.014***	-3.021***
	(-3.78)	(-3.87)
Lower Chamber	-0.167	-0.0905
	(-1.00)	(-0.52)
Constant	0.829	1.498***
	(1.84)	(3.33)
N	2952	2952
Chi^2	463.37***	544.32***

z statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2 presents the marginal effect of Democratic Party affiliation across different levels of marginality. We can see that the plot of this interaction is nearly identical to what appears with the alternative estimation strategy presented in the main paper.

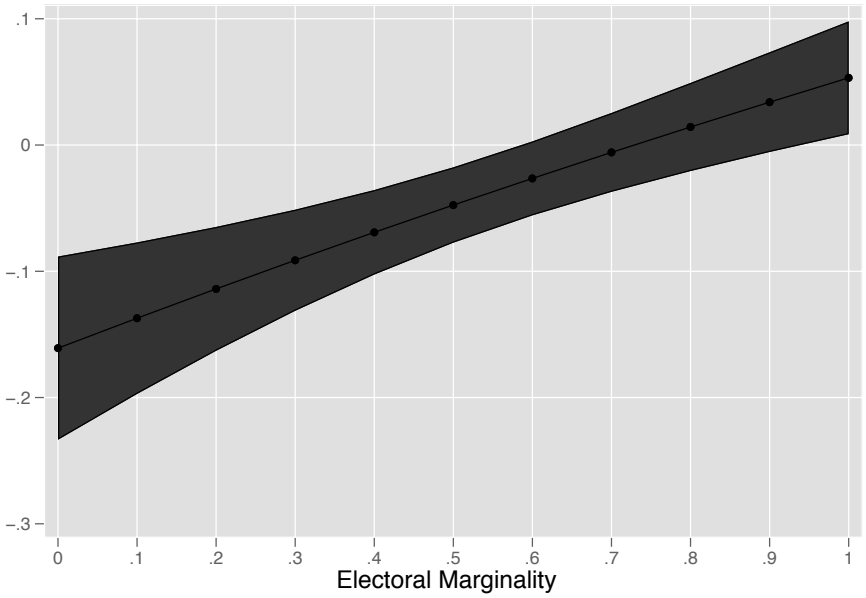

Figure 2: The Marginal Effect of Democratic Party Membership on the Probability of Defection, by Marginality

Models with Controls for Off-Presidential Election and Veto Referenda, and Subgroup Analysis with Veto/Non-veto Referenda

Below we see the results of three different models. In the first model we present the same model as model 1 in the article, but we include a dummy indicating whether the public vote was in an election other than a presidential election, and a dummy indicating whether the referendum was a veto referendum, which are usually more salient and closely watched by the public (and we can see in the table above that these are on issues related to teacher pay and same sex marriage in our data set, which are indeed controversial. We can see that including these controls does not affect our conclusions.

We then separate the sample into non-veto referenda and veto referenda. We can see that the results are similar to the main model in the paper. We do see that Democratic affiliation is again clearly significant in the non-referenda sample. Again, none of the indicators of electoral threat are significant in any of the models.

Table 5: Models with Controls and Subgroup Analysis

	(1) Model w/Controls	(2) Non-veto	(3) Veto
Dist Consensus	-7.022***	0.002***	0.000***
	(0.001)	(-7.29)	(-4.64)
Margin	0.853	0.990	0.235
	(-0.48)	(-0.03)	(-1.73)
Dem	0.777	0.654*	1.57
	(-1.63)	(-2.37)	(1.29)
Run Next Elect	0.621**	0.650*	0.440*
	(-2.73)	(-2.17)	(-1.99)
Legis Vote Margin	0.058***	0.043***	5964***
	(-3.78)	(-4.10)	(6.98)
Yrs. Service	0.989	0.992	0.978
	(-1.09)	(-0.76)	(-0.91)
Time to Next Elect	1.000	1.000	1.000
	(-1.18)	(-1.19)	(-0.23)
Lower Chamber	0.852	0.890	1.62
	(-0.93)	(-0.57)	(1.24)
Off-Presidential Election	1.70		
	(0.49)		
Veto Referendum	0.288		
	(-0.77)		
Constant	27.12**	31.72***	0.844***
	(3.10)	(3.45)	(-0.16)
Random effects			
Referenda level variance	6.34	6.27	0.767
	(2.07)	(2.21)	(0.554)
District level variance	0.265	0.400	0.000
	(0.118)	(0.167)	(0.000)
Model fit			
N	3097	2682	415
Chi^2	107.98***	80.76***	58.92***

z statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

References

Carmines, Edward G & James A Stimson. 1980. "The Two Faces of Issue Voting." *American Political Science Review* 74(1):78–91.

Rogers, Steven. 2017. "Electoral Accountability for State Legislative Roll Calls and Ideological Representation." *American Political Science Review* pp. 1–17.