

Supplemental Materials for:

Electoral Competition and Legislator Effectiveness

Supplemental Table A1: Summary Statistics of Variables Used in Models

Summary Statistics of Variables Used in Regression Models

Variable:	Mean	SD	Min	Max
Legislative Effectiveness Score	1.10	1.65	0	18.69
Primary Election Vote Share	0.96	0.09	0.505	1
General Election Vote Share	0.70	0.14	0.43	1
Seniority	5.94	3.78	1	27
State Legislative Experience	0.51	0.50	0	1
State Legislature Professionalism	0.15	0.18	0	0.659
Majority Party	0.55	0.49	0	1
Majority Leader	0.02	0.14	1	1
Minority Leader	0.02	0.15	0	1
Speaker	0.002	0.04	0	1
Committee Chair	0.06	0.23	0	1
Subcommittee Chair	0.28	0.45	0	1
Power Committee	0.30	0.46	0	1
Distance from median ideology	0.37	0.23	0	1.6
Female	0.09	0.29	0	1
African American	0.06	0.24	0	1
Latino	0.04	0.19	0	1
State Delegation Size	18.91	14.11	1	53

Supplemental Table A2: Including primary vote share squared, multi-challenger elections excluded

VARIABLES	(1) les	(2) les	(3) lnles	(4) lnles
Primary election vote share	1.09 (2.62)	0.52 (2.39)	0.11 (0.86)	-0.018 (0.79)
Primary election vote share squared	-0.31 (1.56)	-0.034 (1.43)	0.034 (0.51)	0.096 (0.47)
General election vote share	3.51** (1.40)	3.95*** (1.15)	1.51*** (0.47)	1.72*** (0.38)
General election vote share squared	-2.36** (0.92)	-2.47*** (0.76)	-1.02*** (0.30)	-1.10*** (0.25)
Lagged LES		0.45*** (0.035)		
Lagged LnLES				0.40*** (0.018)
Seniority	0.076*** (0.011)	0.021*** (0.0076)	0.023*** (0.0027)	0.0067*** (0.0020)
State legislative experience	-0.052 (0.099)	-0.058 (0.063)	-0.027 (0.032)	-0.027 (0.022)
State legislature professionalism	0.46 (0.33)	0.36* (0.20)	0.13 (0.094)	0.12* (0.064)
Majority party	0.64*** (0.074)	0.39*** (0.049)	0.25*** (0.022)	0.17*** (0.016)
Majority leader	0.23 (0.18)	0.31** (0.15)	0.11* (0.060)	0.13*** (0.047)
Minority leader	-0.12** (0.060)	-0.067 (0.060)	-0.067** (0.028)	-0.036* (0.021)
Speaker	-0.51 (0.31)	-0.42 (0.26)	-0.13 (0.13)	-0.11 (0.11)
Committee chair	2.83*** (0.28)	2.11*** (0.21)	0.74*** (0.054)	0.57*** (0.042)
Subcommittee Chair	0.70*** (0.10)	0.47*** (0.072)	0.32*** (0.026)	0.22*** (0.021)
Power committee	-0.31*** (0.065)	-0.18*** (0.038)	-0.098*** (0.019)	-0.066*** (0.013)
Distance from median ideology	0.12 (0.15)	-0.12 (0.096)	0.042 (0.047)	-0.039 (0.033)
Female	0.094 (0.059)	0.080** (0.040)	0.051** (0.023)	0.044*** (0.016)
African American	-0.33*** (0.11)	-0.14 (0.091)	-0.12*** (0.034)	-0.061** (0.026)
Latino	0.14 (0.17)	0.087 (0.094)	0.027 (0.054)	0.021 (0.032)
State delegation size	-0.0021 (0.0027)	-0.00075 (0.0017)	-0.00025 (0.00076)	-0.00010 (0.00051)
Constant	-2.02* (1.20)	-1.84* (1.05)	-0.50 (0.39)	-0.55 (0.35)
Observations	5,059	5,047	5,059	5,047
R-squared	0.418	0.544	0.455	0.556

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Here we find that there are only weak and inconsistent results for models attempting to estimate the influence of primary vote share as a quadratic term.

Supplemental Table A3: Including primary vote share squared, multi-challenger elections included

VARIABLES	(1) les	(2) les	(3) Inles	(4) Inles
Primary election vote share	-4.34 (2.68)	-4.07* (2.23)	-0.87 (0.62)	-1.09* (0.59)
Primary election vote share squared	2.83* (1.58)	2.64** (1.33)	0.61 (0.37)	0.73** (0.35)
General election vote share	2.97** (1.39)	3.70*** (1.12)	1.36*** (0.47)	1.63*** (0.38)
General election vote share squared	-2.01** (0.91)	-2.30*** (0.74)	-0.92*** (0.30)	-1.04*** (0.25)
Lagged LES		0.46*** (0.034)		
Lagged LnLES				0.39*** (0.018)
Seniority	0.074*** (0.011)	0.019** (0.0075)	0.022*** (0.0027)	0.0063*** (0.0020)
State legislative experience	-0.067 (0.097)	-0.066 (0.061)	-0.031 (0.031)	-0.029 (0.021)
State legislature professionalism	0.47 (0.32)	0.35* (0.20)	0.14 (0.093)	0.11* (0.063)
Majority party	0.61*** (0.073)	0.37*** (0.049)	0.24*** (0.022)	0.16*** (0.017)
Majority leader	0.24 (0.17)	0.31** (0.15)	0.12** (0.057)	0.13*** (0.045)
Minority leader	-0.14** (0.065)	-0.086 (0.061)	-0.074** (0.029)	-0.045** (0.023)
Speaker	-0.48 (0.31)	-0.38 (0.26)	-0.13 (0.13)	-0.10 (0.11)
Committee chair	2.91*** (0.28)	2.14*** (0.21)	0.75*** (0.053)	0.58*** (0.041)
Subcommittee Chair	0.74*** (0.10)	0.51*** (0.070)	0.33*** (0.026)	0.24*** (0.020)
Power committee	-0.30*** (0.065)	-0.16*** (0.037)	-0.094*** (0.019)	-0.062*** (0.013)
Distance from median ideology	0.12 (0.15)	-0.10 (0.095)	0.039 (0.047)	-0.036 (0.033)
Female	0.11* (0.060)	0.10*** (0.040)	0.058** (0.023)	0.054*** (0.017)
African American	-0.38*** (0.11)	-0.19** (0.086)	-0.14*** (0.032)	-0.079*** (0.025)
Latino	0.10 (0.16)	0.037 (0.085)	0.016 (0.051)	0.0063 (0.030)
State delegation size	-0.0021 (0.0027)	-0.00094 (0.0017)	-0.00023 (0.00076)	-0.00012 (0.00051)
Constant	0.49 (1.24)	0.19 (0.97)	-0.028 (0.30)	-0.071 (0.26)
Observations	5,381	5,365	5,381	5,365
R-squared	0.426	0.557	0.463	0.561

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

When we include multi-challenger races, the quadratic primary vote share term becomes more consistent and statistically significant. However, for reasons explained our Data and Measurements section, retaining observations with multiple challengers creates several theoretical problems. Indeed, the quadratic estimation here seems to be driven largely by outliers in vote share created by multi-challenger races.

Supplemental Table A4: Including legislator fixed effects

VARIABLES	(1) les	(2) les	(3) lnles	(4) lnles
Primary election vote share	0.49** (0.22)	0.47** (0.22)	0.14** (0.07)	0.13** (0.06)
General election vote share	2.07 (1.87)	3.06* (1.79)	0.85 (0.55)	1.14** (0.54)
General election vote share squared	-1.47** (1.19)	-2.01* (1.15)	-0.59* (0.35)	-0.76** (0.35)
Lagged LES		0.19*** (0.05)		
Lagged lnLES				0.13*** (0.02)
Seniority	0.075*** (0.019)	0.05** (0.02)	0.02*** (0.004)	0.02*** (0.004)
State legislature professionalism	0.09 (0.76)	0.34* (0.13)	0.13** (0.05)	0.10 (0.15)
Majority party	0.85*** (0.23)	0.67*** (0.17)	0.29*** (0.05)	0.25*** (0.05)
Majority leader	0.19 (0.23)	0.27 (0.22)	0.09 (0.06)	0.10* (0.06)
Minority leader	-0.26** (0.18)	-0.23 (0.16)	-0.09* (0.04)	-0.08** (0.04)
Speaker	-0.15 (0.34)	-0.21 (0.27)	0.06 (0.10)	-0.04 (0.09)
Committee chair	2.72*** (0.32)	2.56*** (0.30)	0.70*** (0.06)	0.67*** (0.06)
Subcommittee Chair	0.66*** (0.12)	0.61*** (0.11)	0.30*** (0.03)	0.28*** (0.03)
Power committee	-0.24*** (0.09)	-0.22*** (0.08)	-0.05* (0.03)	-0.06** (0.03)
Distance from median ideology	0.06 (0.51)	-0.22 (0.43)	-0.08 (0.12)	-0.12 (0.11)
State delegation size	-0.02 (0.04)	-0.02 (0.03)	-0.01 (0.01)	-0.01 (0.01)
Constant	-1.08 (1.21)	-1.37 (1.04)	-0.22 (0.29)	-0.33 (0.27)
Observations	5,059	5,047	5,059	5,047
R-squared	0.664	0.678	0.706	0.712

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Including legislator-specific fixed effects allows us to account for individual, time-invariant factors that are correlated with a legislator's election results and the productivity of that legislator. Thus, including these variables allows us to account for many possible omitted variables that could bias the regression estimates. However, after including individual legislator fixed effects, the results are consistent with the results in Table 1 of the main paper.

Supplemental Table A5: Logging Primary and General Election Vote Shares

VARIABLES	(1) les	(2) les	(3) lnles	(4) lnles
Ln(Primary election vote share)	0.47*** (0.17)	0.39*** (0.13)	0.14** (0.05)	0.12*** (0.05)
Ln(General election vote share)	-0.74** (0.34)	-0.57** (0.28)	-0.33*** (0.11)	-0.30*** (0.09)
Ln(General election vote share) squared	-1.09** (0.47)	-1.14*** (0.39)	-0.48*** (0.15)	-0.53*** (0.13)
Lagged LES		0.45*** (0.035)		
Lagged LnLES				0.40*** (0.02)
Seniority	0.08*** (0.01)	0.02*** (0.01)	0.02*** (0.003)	0.01*** (0.002)
State legislative experience	-0.05 (0.10)	-0.06 (0.06)	-0.03 (0.03)	-0.03 (0.02)
State legislature professionalism	0.46 (0.33)	0.36* (0.20)	0.13 (0.09)	0.12* (0.06)
Majority party	0.64*** (0.074)	0.39*** (0.05)	0.25*** (0.02)	0.17*** (0.02)
Majority leader	0.23 (0.18)	0.31** (0.15)	0.11* (0.06)	0.13*** (0.05)
Minority leader	-0.12** (0.06)	-0.07 (0.06)	-0.07** (0.03)	-0.04* (0.02)
Speaker	-0.50 (0.31)	-0.42 (0.26)	-0.13 (0.13)	-0.11 (0.11)
Committee chair	2.83*** (0.28)	2.11*** (0.21)	0.74*** (0.05)	0.57*** (0.04)
Subcommittee Chair	0.70*** (0.10)	0.47*** (0.07)	0.32*** (0.03)	0.22*** (0.02)
Power committee	-0.31*** (0.06)	-0.18*** (0.04)	-0.10*** (0.02)	-0.07*** (0.01)
Distance from median ideology	0.12 (0.15)	-0.12 (0.10)	0.042 (0.05)	-0.04 (0.03)
Female	0.10 (0.06)	0.08** (0.04)	0.05** (0.02)	0.04*** (0.02)
African American	-0.32*** (0.11)	-0.13 (0.09)	-0.12*** (0.03)	-0.06** (0.03)
Latino	0.13 (0.17)	0.09 (0.09)	0.03 (0.05)	0.02 (0.03)
State delegation size	-0.002 (0.003)	-0.0007 (0.002)	-0.0002 (0.001)	-0.0001 (0.001)
Constant	-0.07 (0.13)	-0.15* (0.09)	0.15*** (0.04)	0.15*** (0.03)
Observations	5,059	5,047	5,059	5,047
R-squared	0.418	0.544	0.455	0.556

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In these models we take the log of the primary and general election vote shares to account for the highly skewed distribution of these variables. The results are consistent and agree with the main results in the paper.

Supplemental Table A6: Model (Table 1, Model 2) subset by party

VARIABLES	(1)	(2)
	Republicans	Democrats
Primary election vote share	0.36 (0.28)	0.54** (0.21)
General election vote share	2.57 (1.82)	3.82** (1.52)
General election vote share squared	-1.59 (1.24)	-2.40** (0.98)
Lagged LES	0.40*** (0.046)	0.49*** (0.048)
Seniority	0.024*** (0.0091)	0.021** (0.011)
State legislative experience	0.011 (0.092)	-0.063 (0.081)
State legislature professionalism	0.20 (0.30)	0.34 (0.25)
Majority party	0.37*** (0.061)	0.55*** (0.093)
Majority leader	0.38* (0.23)	0.24 (0.21)
Minority leader	-0.043 (0.065)	-0.11 (0.11)
Speaker	-0.70*** (0.24)	0.079 (0.65)
Committee chair	2.63*** (0.39)	1.73*** (0.24)
Subcommittee Chair	0.48*** (0.097)	0.50*** (0.088)
Power committee	-0.16*** (0.058)	-0.21*** (0.050)
Distance from median ideology	-0.47*** (0.13)	0.36** (0.18)
Female	0.0040 (0.066)	0.093* (0.053)
African American	-0.25** (0.13)	-0.15 (0.093)
Latino	0.036 (0.15)	0.12 (0.12)
State delegation size	-0.00053 (0.0028)	-0.0020 (0.0021)
Constant	-1.01 (0.70)	-2.12*** (0.58)
Observations	2,300	2,747
R-squared	0.547	0.552

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Interestingly, we find that the estimated effects of both primary and general election vote share on legislative effectiveness are more pronounced for Democrats than for Republicans. Notably, however, both sets of coefficients are in the same direction, and most of the p-values for the coefficients in the Republican-only model approach statistical significance. The disparity we observe could be an avenue for future exploration.

Supplemental Table A7: LES by general and primary vote share (interaction term)

VARIABLES	(1) les	(2) les	(3) lnles	(4) lnles
Primary election vote share	-0.58 <sup>^</sup> (0.90)	0.53 <sup>^</sup> (0.81)	-0.17 <sup>^</sup> (0.34)	-0.08 <sup>^</sup> (0.30)
General election vote share	-1.73 (1.26)	-1.25 (1.13)	-0.53 (0.47)	-0.29 (0.42)
General x Primary vote share	1.70 <sup>^</sup> (1.29)	1.48 <sup>^</sup> (1.16)	0.50 <sup>^</sup> (0.48)	0.34 <sup>^</sup> (0.43)
Lagged LES		0.45*** (0.04)		
Lagged LnLES				0.40*** (0.02)
Seniority	0.08*** (0.01)	0.02*** (0.01)	0.02*** (0.003)	0.01*** (0.002)
State legislative experience	-0.06 (0.10)	-0.06 (0.06)	-0.03 (0.03)	-0.03 (0.02)
State legislature professionalism	0.48 (0.33)	0.38* (0.21)	0.14 (0.09)	0.13* (0.06)
Majority party	0.64*** (0.07)	0.39*** (0.05)	0.25*** (0.02)	0.17*** (0.02)
Majority leader	0.23 (0.18)	0.31** (0.15)	0.11* (0.06)	0.13*** (0.05)
Minority leader	-0.12** (0.06)	-0.06 (0.06)	-0.07** (0.03)	-0.03 (0.02)
Speaker	-0.48 (0.32)	-0.39 (0.26)	-0.12 (0.13)	-0.10 (0.11)
Committee chair	2.83*** (0.28)	2.11*** (0.21)	0.74*** (0.05)	0.57*** (0.04)
Subcommittee Chair	0.70*** (0.10)	0.47*** (0.07)	0.32*** (0.03)	0.22*** (0.02)
Power committee	-0.31*** (0.06)	-0.18*** (0.04)	-0.10*** (0.02)	-0.07*** (0.01)
Distance from median ideology	0.13 (0.15)	-0.11 (0.10)	0.046 (0.05)	-0.03 (0.02)
Female	0.10 (0.06)	0.09** (0.04)	0.05** (0.02)	0.05*** (0.02)
African American	-0.32*** (0.11)	-0.13 (0.09)	-0.12*** (0.03)	-0.06** (0.03)
Latino	0.13 (0.17)	0.08 (0.09)	0.03 (0.05)	0.02 (0.03)
State delegation size	-0.002 (0.003)	-0.0006 (0.002)	-0.0002 (0.001)	-0.00004 (0.001)
Constant	-0.61 (0.87)	-0.52 (0.79)	0.37 (0.33)	0.22 (0.30)
Observations	5,059	5,047	5,059	5,047
R-squared	0.417	0.544	0.454	0.555

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, ^ jointly significant at p<0.05

Supplemental Table A8: LES by general and primary vote share - multi-challenger elections included

Dependent Variable:	LES	LES	ln(LES)	ln(LES)
Primary Election Vote Share	0.31 (0.20)	0.27* (0.15)	0.14** (0.055)	0.11** (0.046)
General Election Vote Share	2.83** (1.39)	3.57*** (1.12)	1.33*** (0.47)	1.59*** (0.38)
General Election Vote Share Squared	-1.92** (0.91)	-2.22*** (0.74)	-0.90*** (0.30)	-1.02*** (0.25)
Lagged LES		0.46*** (0.034)		
Lagged LnLES				0.39*** (0.018)
Seniority	0.074*** (0.011)	0.019** (0.0076)	0.022*** (0.0027)	0.0064*** (0.0020)
State Legislative Experience	-0.068 (0.097)	-0.067 (0.061)	-0.031 (0.031)	-0.029 (0.021)
State Legislature Professionalism	0.47 (0.32)	0.35* (0.20)	0.13 (0.093)	0.11* (0.063)
Majority Party	0.60*** (0.073)	0.37*** (0.049)	0.24*** (0.022)	0.16*** (0.017)
Majority Leader	0.23 (0.17)	0.30** (0.15)	0.12** (0.057)	0.13*** (0.045)
Minority Leader	-0.14** (0.065)	-0.087 (0.061)	-0.075** (0.029)	-0.046** (0.023)
Speaker	-0.47 (0.31)	-0.37 (0.25)	-0.12 (0.13)	-0.099 (0.11)
Committee Chair	2.91*** (0.28)	2.14*** (0.21)	0.75*** (0.053)	0.58*** (0.041)
Subcommittee Chair	0.73*** (0.10)	0.50*** (0.070)	0.33*** (0.026)	0.23*** (0.020)
Power Committee	-0.30*** (0.065)	-0.16*** (0.037)	-0.095*** (0.019)	-0.062*** (0.013)
Distance from median ideology	0.12 (0.15)	-0.11 (0.096)	0.038 (0.047)	-0.037 (0.033)
Female	0.11* (0.060)	0.10** (0.040)	0.057** (0.024)	0.053*** (0.017)
African American	-0.38*** (0.11)	-0.19** (0.086)	-0.14*** (0.032)	-0.079*** (0.025)
Latino	0.11 (0.16)	0.043 (0.085)	0.017 (0.051)	0.0078 (0.030)
State Delegation Size	-0.0021 (0.0027)	-0.00091 (0.0017)	-0.00022 (0.00076)	-0.00011 (0.00051)
<i>N</i>	5,381	5,365	5,381	5,365

Robust standard errors clustered by member of congress shown in parentheses. Significance codes:  
 \* $p < .1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , two-tailed tests.

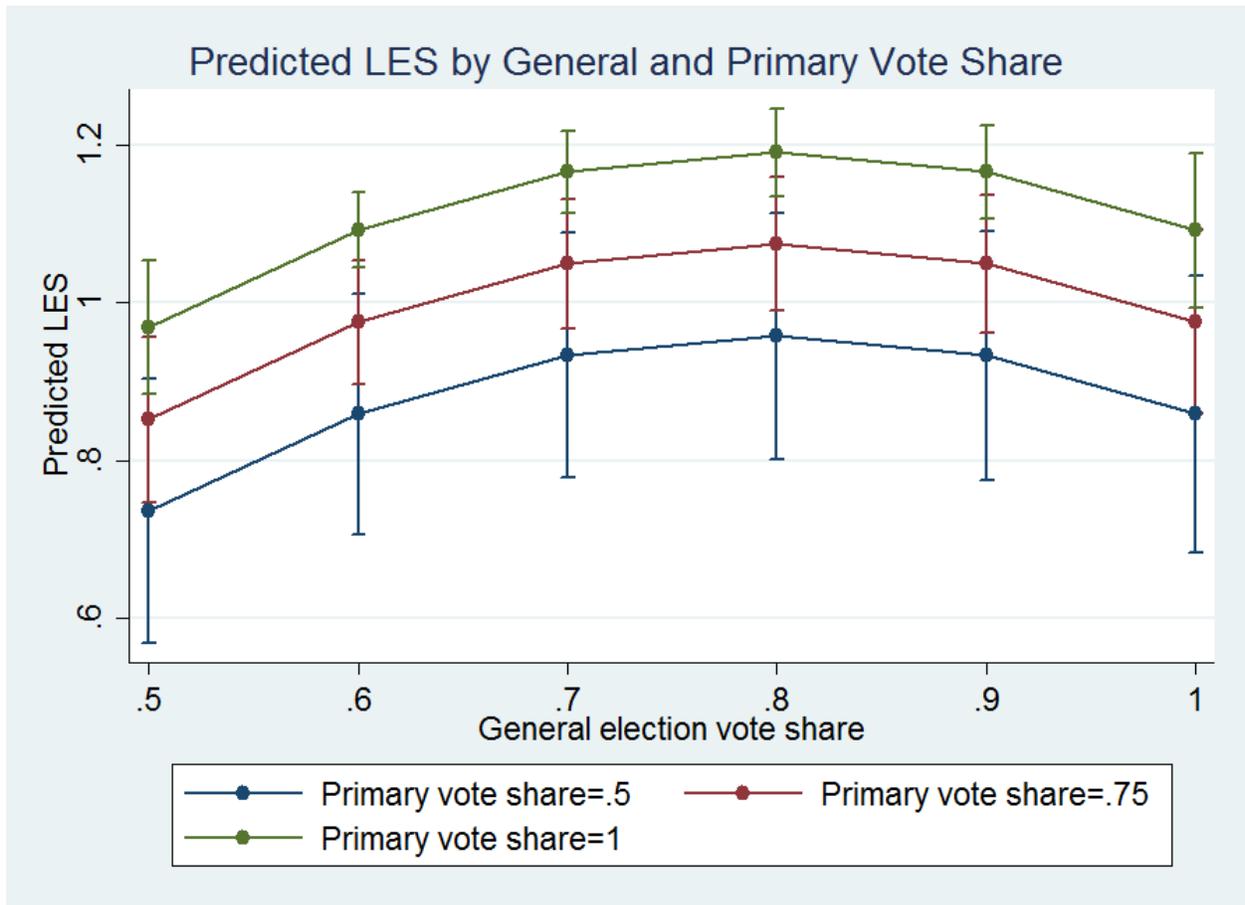
Supplemental Table A9: Testing for Temporal Effects of Primary and General Election Vote Shares

Primary and General Election Vote Shares and Legislative Productivity - Temporal Effects					
Dependent Variable:	LES	LES	LES	LES	LES
Primary Election Vote Share	12.5 (44.4)	0.56*** (0.20)	12.27 (44.32)	0.57 (0.65)	0.58*** (0.21)
General Election Vote Share	3.54** (1.40)	7.83 (34.8)	7.60 (34.80)	3.77*** (1.41)	3.92** (1.56)
General Election Vote Share Squared	-2.37** (0.92)	-2.38** (0.92)	-2.38** (0.92)	-2.48*** (0.92)	-2.57*** (-2.67)
Primary Election Vote Share × Year	-0.0060 (0.022)		-0.006 (0.02)		
General Election Vote Share × Year			(-0.002) (0.017)    -0.002 (0.02)		
Primary Election Vote Share × Year F.E.	Jointly Insignificant				
General Election Vote Share × Year F.E.	Jointly Insignificant				
<i>N</i>	5,059	5,059	5,059	5,059	5,059

Robust standard errors clustered by member of congress shown in parentheses. Other control variables are the same as previous models and are largely consistent with previous results, but omitted for space. Significance codes: \* $p < .1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , two-tailed tests.

In this table we test to see if the relationship between vote shares and productivity changes across years. In the first three models we interact the vote shares variables with a linear year variable. The results suggest no temporal effects. In the fourth and fifth models we interact the vote shares with each year separately. We do not report all of these coefficients but indicate in the table that each coefficient was insignificant by itself and the temporal interaction effects were also jointly insignificant. These results suggest that no such temporal effects exist in the data.

Supplemental Figure A1: LES by general and primary vote share



This figure simply helps to show the relatively similar magnitude of the effects of primary and general election vote share by displaying the two terms and plotting the predicted legislative effectiveness.