Supplemental Appendix

A model of strategic nationalization

Imagine a district in which the parties' and candidates' previous actions have established their respective ideological positions. Assume, contra the typical Downsian model, that the various actors' positions are prohibitively costly to change during the election campaign. In this case, one party will do better if the election turns into a straight party fight, while the other party will do better if the contest turns into a purely local contest between individual candidates. (We ignore the possibility of a tie, in which the Democrats' expected vote share in a straight party fight exactly equals their expected vote share in a pure candidate-centered contest.) Thus, the parties will compete over the frame that voters (or their opinion leaders) use when they cast their votes. The "nationalizing" party will push voters (or their opinion leaders) to view the contest as between the two national parties, while the "localizing" party will push them to view the contest as between two local candidates.

Let the nationalizing party's vote share in the focal district, $V_n(z_n,z_l)$, be

$$V_n(z_n,z_l) = \alpha(z_n,z_l)V_{n|party} + [1-\alpha(z_n,z_l)]V_{n|candidate}. \quad \text{(A.1)}$$

Here, $V_{n|party}$ represents the vote share the nationalizing party expects in a straight party fight (given the fixed ideological positions of the two parties); and $V_{n|candidate}$ represents its expected vote share in a purely local contest (given the fixed ideological positions of the two candidates). The term $\alpha(z_n,z_l)$ denotes the fraction of voters in a given district who behave in a party-centered fashion, given "effort" $z_n \geq 0$ exerted by the nationalizing party,

and "effort" $z_l \geq 0$ exerted by the localizing party. The remaining fraction (1- $\alpha(z_n,z_l)$) of voters behave in a candidate-centered fashion.

The nationalizing party wins the focal seat with probability $P_n(z_n,z_l) = \Pr[V_n(z_n,z_l) + \varepsilon > .5]$, where ε represents an exogenous shock to its expected vote share. Let b represent the value of winning a seat and denote the parties' costs of effort by $c_n(z_n)$ and $c_l(z_l)$, respectively. Each party seeks to maximize its expected office benefits, net of costs:

The nationalizing party: $\max_{z_n} P_n(z_n, z_l)b - c_n(z_n)$

The localizing party: $\max_{z_l} [1 - P_n(z_n, z_l)]b - c_l(z_l)$

A party's payoff b from winning a seat has two components. First, the party attaches a value, b_{seat}, to having its victorious candidate occupy the seat in question. Second, winning a competitive seat improves the victorious party's chance of securing a majority in the House. Let p denote the probability that winning an additional seat will give the party a majority in the House; and let b_{maj} denote the value of majority status. Then we can express the overall value of winning a seat as $b = b_{seat} + pb_{maj}$. Note that b_{maj} is not the value of majority status to the particular candidate seeking office in the focal district. Rather, it represents the aggregate value of gaining majority status to all the party's members. One might think of it as the party's willingness to pay for majority status.

The main result we wish to highlight is an intuitive comparative static result on p, the majority pivot probability. If we denote the total equilibrium expenditure in a given district by $z^* = z_n^* + z_l^*$, the result is that $\partial z^*/\partial p \geq 0$. In other words, when the value of a seat increases, due to an increase in p, the total effort that the parties expend weakly increases. This result follows fairly generally when the cost functions c_n and c_l are both

convex increasing and $c_n(0) = c_l(0) = 0$. The response will be strictly positive except when a district is very safe, in the sense that $\partial P_n/\partial z_j(0,0)b \leq \partial c_n/\partial z_j(0,0)$ for $j = n, l$. Note also that the marginal benefit of effort, $\partial P_n/\partial z_j[b_{seat} + pb_{maj}]$ is an interactive function of the local pivot probability ($\partial P_n/\partial z_j$) and the majority pivot probability (p).

Robustness Checks

A.1 Varying Component Coefficients

Model Components		
	Candidate-Centered	**Party-Centered**
(Intercept)	41.296	39.198
	(0.745)	(0.668)
Candidate Midpoint	2.400	
	(0.239)	
Party Midpoint		4.419
		(3.861)
Incumbent	9.316	9.530
	(0.625)	(0.560)
Open Seat	3.901	3.792
	(0.630)	(0.502)
District Partisanship (μ)	10.454	10.454
	(0.287)	(0.287)
ln(Dem. Spending) - ln(Rep. Spending)	3.555	2.955
	(0.209)	(0.132)
Candidate Quality (Dem.)	1.704	0.465
	(0.534)	(0.393)
Candidate Quality (Rep.)	0.235	-1.977
	(0.511)	(0.384)
Dem. President	-1.485	3.552
	(1.136)	(0.807)
GDP Growth	-0.413	0.327
	(0.151)	(0.143)
Midterm	1.723	1.296
	(0.716)	(0.486)
Pres. Approval	-0.026	-0.082
	(0.013)	(0.014)
Dem. President * GDP Growth	0.178	-1.774
	(0.492)	(0.353)
Dem. President * Midterm	-4.351	-2.463
	(1.233)	(0.792)
Dem. President * Pres. Approval	0.104	0.261
	(0.046)	(0.026)
Concomitant Model (α)		
(Intercept)	-2.411	
	(0.783)	
Election	0.071	
	(0.044)	
Post-1994	2.390	
	(0.620)	
Senate	-0.657	
	(0.369)	
Num obs.	3957	
BIC	25444	

Table 1A: Parameter Estimates and Standard Errors for the Components and Concomitant Equation of the Mixture Model

A.2 Restricting Sample by Region and Chamber

	Northern Only	Southern Only	House Only	Senate Only
(Intercept)	-1.374	2.162	-1.215	0.284
	(0.630)	(1.122)	(0.508)	(0.920)
Election	0.008	-0.142	0.006	-0.048
	(0.052)	(0.123)	(0.045)	(0.104)
Post-1994	2.601	2.274	2.334	1.432
	(0.595)	(1.194)	(0.467)	(1.041)
Senate	-1.040	0.267		
	(0.433)	(0.832)		
Num obs.	3074	883	3529	428
BIC	19683	5795	22572	2912

Table 2A: Parameter Estimates and Standard Errors for Concomitant Equations for Specified Sub-samples.

A.3 Sensitivity to Threshold Values

	N >=5	**N>=10**	**N>=15**	**N>=25**	**N>=35**	**N>=50**
(Intercept)	-0.739	-0.919	-0.487	0.235	0.314	1.284
	(0.357)	(0.421)	(0.407)	(0.396)	(0.424)	(0.548)
Election	-0.003	-0.003	-0.020	-0.049	-0.034	-0.113
	(0.040)	(0.041)	(0.043)	(0.044)	(0.044)	(0.057)
Post-1994	2.358	2.243	2.159	1.950	1.669	2.308
	(0.407)	(0.430)	(0.429)	(0.442)	(0.444)	(0.574)
Senate	-0.414	-0.621	-0.598	-0.542	-0.470	-0.684
	(0.387)	(0.356)	(0.341)	(0.308)	(0.307)	(0.324)
Num obs.	4505	3957	3591	3185	2902	2581
BIC	29168	25385	22983	20340	18497	16411

Table 3A: Parameter Estimates and Standard Errors for Concomitant Equations with Varying Threshold Values for The Minimum Number of Distinct Donors Giving to Each Candidate Required for Inclusion.

A.4 Dynamic CFscores

Model Components		
	Candidate-Centered	**Party-Centered**
(Intercept)	40.739	40.171
	(0.394)	(0.398)
Candidate Midpoint	2.836	
	(0.300)	
Party Midpoint		4.344
		(2.109)
Incumbent	9.543	9.543
	(0.334)	(0.334)
Open Seat	3.766	3.766
	(0.323)	(0.323)
District Partisanship (μ)	10.201	10.201
	(0.299)	(0.299)
ln(Dem. Spending) - ln(Rep. Spending)	3.174	3.174
	(0.084)	(0.084)
Candidate Quality (Dem.)	1.170	1.170
	(0.255)	(0.255)
Candidate Quality (Rep.)	-1.115	-1.115
	(0.257)	(0.257)
Dem. President	1.309	1.309
	(0.478)	(0.478)
GDP Growth	-0.117	-0.117
	(0.066)	(0.066)
Midterm	2.013	2.013
	(0.301)	(0.301)
Pres. Approval	-0.045	-0.045
	(0.007)	(0.007)
Dem. President * GDP Growth	-0.906	-0.906
	(0.197)	(0.197)
Dem. President * Midterm	-3.569	-3.569
	(0.486)	(0.486)
Dem. President * Pres. Approval	0.200	0.200
	(0.017)	(0.017)
Concomitant Model (α)		
(Intercept)	-0.809	
	(0.429)	
Election	-0.005	
	(0.042)	
Post-1994	2.216	
	(0.426)	
Senate	-0.583	
	(0.357)	
Num obs.	3957	
BIC	25396	

Table 4A: Parameter Estimates and Standard Errors for the Components and Concomitant Equation of the Mixture Model. Midpoints calculated from dynamic CFscore estimates.

A.5 Primary-only CFscores

Model Components		
	Candidate-Centered	**Party-Centered**
(Intercept)	40.945	40.175
	(0.406)	(0.412)
Candidate Midpoint	3.281	
	(0.361)	
Party Midpoint		5.190
		(2.264)
Incumbent	9.501	9.501
	(0.345)	(0.345)
Open Seat	3.824	3.824
	(0.331)	(0.331)
District Partisanship (μ)	10.086	10.086
	(0.309)	(0.309)
ln(Dem. Spending) - ln(Rep. Spending)	3.189	3.189
	(0.090)	(0.090)
Candidate Quality (Dem.)	1.113	1.113
	(0.263)	(0.263)
Candidate Quality (Rep.)	-1.204	-1.204
	(0.263)	(0.263)
Dem. President	1.641	1.641
	(0.513)	(0.513)
GDP Growth	-0.108	-0.108
	(0.068)	(0.068)
Midterm	2.058	2.058
	(0.310)	(0.310)
Pres. Approval	-0.048	-0.048
	(0.007)	(0.007)
Dem. President * GDP Growth	-1.017	-1.017
	(0.206)	(0.206)
Dem. President * Midterm	-3.508	-3.508
	(0.498)	(0.498)
Dem. President * Pres. Approval	0.209	0.209
	(0.017)	(0.017)
Concomitant Model (α)		
(Intercept)	-0.857	
	(0.443)	
Election	0.004	
	(0.042)	
Post-1994	2.162	
	(0.410)	
Senate	-0.559	
	(0.369)	
Num obs.	3626	
BIC	23230	

Table 5A: Parameter Estimates and Standard Errors for the Components and Concomitant Equation of the Mixture Model. Midpoints calculated from CFscore estimates based solely on contributions raised during the primaries.

A.6 Supervised Measures of Candidate Ideology from Bonica (2017) (DW-NOMINATE)

Model Components		
	Candidate-Centered	**Party-Centered**
(Intercept)	41.079	39.256
	(0.437)	(0.429)
Candidate Midpoint	1.897	
	(0.298)	
Party Midpoint		0.737
		(1.321)
Incumbent	10.416	10.416
	(0.329)	(0.329)
Open Seat	4.242	4.242
	(0.328)	(0.328)
District Partisanship ($\boldsymbol{\mu}$)	9.990	9.990
	(0.309)	(0.309)
ln(Dem. Spending) - ln(Rep. Spending)	3.187	3.187
	(0.087)	(0.087)
Candidate Quality (Dem.)	1.277	1.277
	(0.263)	(0.263)
Candidate Quality (Rep.)	-1.340	-1.340
	(0.265)	(0.265)
Dem. President	0.988	0.988
	(0.521)	(0.521)
GDP Growth	-0.050	-0.050
	(0.071)	(0.071)
Midterm	2.070	2.070
	(0.319)	(0.319)
Pres. Approval	-0.047	-0.047
	(0.007)	(0.007)
Dem. President * GDP Growth	-0.640	-0.640
	(0.197)	(0.197)
Dem. President * Midterm	-4.349	-4.349
	(0.492)	(0.492)
Dem. President * Pres. Approval	0.186	0.186
	(0.016)	(0.016)
Concomitant Model ($\boldsymbol{\alpha}$)		
(Intercept)	-0.503	
	(0.495)	
Election	-0.063	
	(0.046)	
Post-1994	2.993	
	(0.502)	
Senate	-0.819	
	(0.376)	
Num obs.	3724	
BIC	23941	

Table 6A: Parameter Estimates and Standard Errors for the Components and Concomitant Equation of the Mixture Model

Note: Candidate midpoints are calculated from a set of supervised measures from Bonica (2017).

A.7 Constructing Party Means Based on Party-Leaders

	Party Means Based on Party Leaders	Party Means Based on Incumbent MCs
(Intercept)	-2.046	-0.920
	(0.693)	(0.421)
Election	0.012	-0.003
	(0.042)	(0.041)
Post-1994	3.009	2.243
	(0.619)	(0.430)
Senate	-0.954	-0.621
	(0.366)	(0.356)
Num obs.	3957	3957
Log-Likelihood	-12576	-12597
BIC	25342	25386

Table 7A: Parameter Estimates and Standard Errors for the Components and Concomitant Equation of the Mixture Model.

Note: Party means in column 1 are calculated based on members in leadership positions and committee chairs/ranking members. Party means in column 2 are calculated based on all members of Congress.

A.8 Evidence of an Interactive Effect on Local Pivot Probability and Majority Pivot Probability on Total Spending in House Races

Local Pivot Probability	|Vote Margin|		CQ Rating	
	(1)	**(2)**	**(3)**	**(4)**
|Vote Margin|	344.1***	273.0***		
	(44.6)	(56.6)		
Competitive Seat (CQ)			549.9***	550.2***
			(33.9)	(44.2)
Post-1994	-104.9**	503.6**	-164.5***	229.1
	(48.2)	(219.9)	(44.3)	(192.2)
|Vote Margin|×Post-1994	592.9***	226.0***		
	(71.09)	(87.3)		
Competitive Seat (CQ) ×Post-1994			580.3***	381.8***
			(52.4)	(69.0)
Time-Trend (Cycle)	91.6***	104.1***	99.21***	109.2***
	(7.6)	(10.4)	(6.78)	(9.14)
(Intercept)	148.4***	-158.1	58.0*	-162.7*
	(39.4)	(103.0)	(35.1)	(89.9)
Random Effects	√		√	
Fixed Effects		√		√
Num obs.	2,913	2,913	2,989	2,989

Table 8A: Total Combined Spending by Major Party Candidates in House Elections
Note: Local Pivot probability is measured in two ways. In columns 1 and 2, it is measured as the absolute value of the vote share margin, $|v_d - 0.5|$. In columns 3 and 4, we construct and indicator variable for competitive and non-competitive seats using the Congressional Quarterly ratings of race competitiveness for House elections. If the CQ rated a seat as Leans Democratic, Tossup, or Leans Republican, *Competitive Seat* is assigned a value of 1. If the CQ rates a seat as Safe Democratic, Likely Democratic, Likely Republican, or Safe Republican, *Competitive Seat* is assigned a value of 0.

A.9 Over Time Changes in Partisanship in Contributions and Roll Call Voting

Figure A1 tracks the proportion of donors giving exclusively to one party during each election cycle. Only donors who gave to two or more candidates during the election cycle are used to construct the trend. For reference, we include a corresponding trend line for the aggregate proportional reduction in error (APRE) from a partisan model of roll call voting in Congress—i.e. assuming candidates always vote with the majority of their party. Roughly speaking, each measures the importance of partisanship in structuring the respective behavior over time.

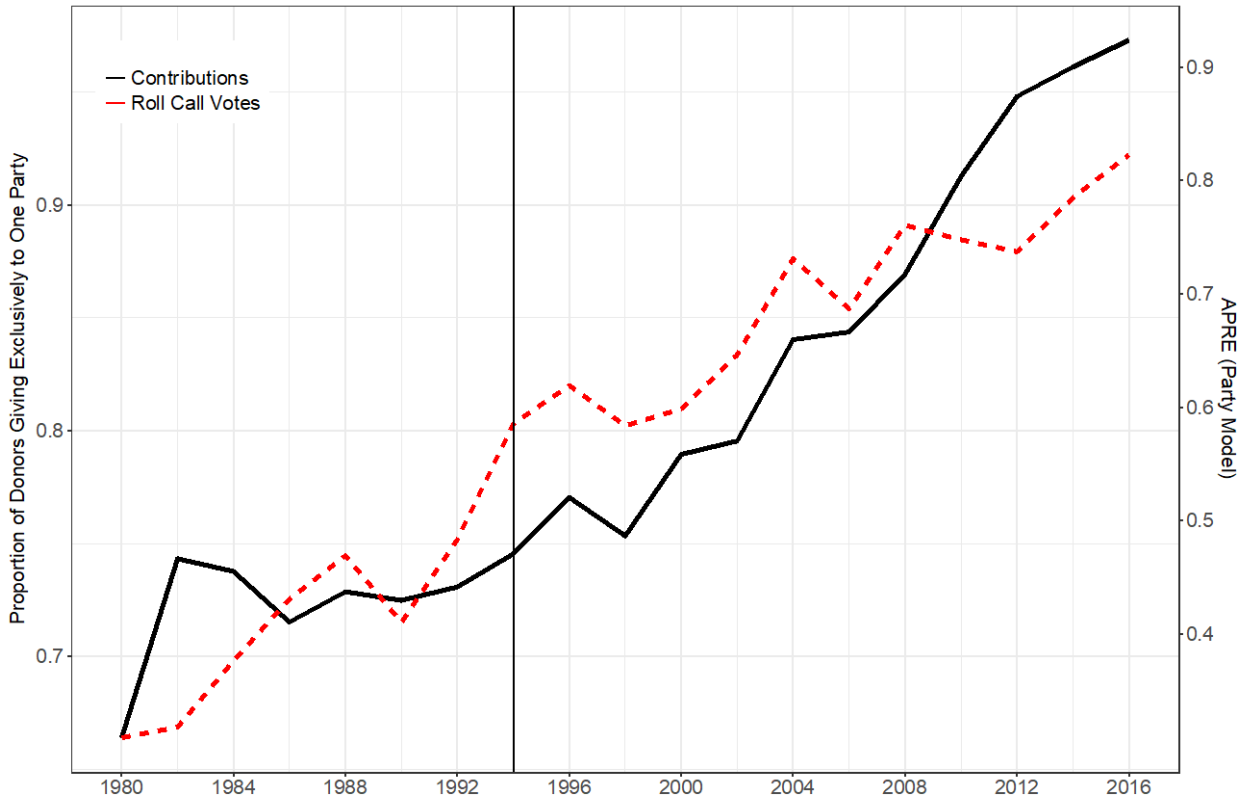


Figure A1: Partisanship in Contributions and Roll Call Voting
Note: The trend lines compare changes in the importance of partisanship for donors and members of Congress. Only donors who gave to two or more candidates during the election cycle are used to construct the trend for contributions. Unanimous roll call votes are excluded when constructing the trend for roll call votes.

We find no evidence of a sudden break after 1994 in the proportion of donors giving to both parties. We do observe a slight uptick in 1996, but it is no larger than the subsequent upticks in 2000 and 2004 and is much smaller than the ones in 2010 and 2012. Donors have certainly

become more partisan since 1994 but so has congressional voting. The percentages of donors who gave to both parties fell from 34% in 1980 to just 3% in 2016. Over the same period, the party model APRE increased from 0.31 to 0.82 in the 114th Congress.

A.10 Stability of Estimated Ideal Points Before and After 1994

A potential concern is that donors changed their behavior after 1994 in ways that affect the estimated candidate positions. We explore this possibility by looking at period specific estimate of candidate ideal points based derived from campaign contributions and roll call voting. We identified 137 legislators whose careers spanned the 102nd through the 106th Congresses. Figure A2 tracks changes in period-specific CFscores for these legislators. Figure A3 does the same using period-specific DW-NOMINATE scores. The relationships between period-specific estimates from one cycle to the next can be seen in Figure A5 and A6 for the CFscores and DW-NOMINATE, respectively. The figures also compare the period-specific estimates against the static estimates. Figure A6 compares the period-specific CFscores against the period-specific DW-NOMINATE score. Lastly, Figures A7 and A8 plot distributions of within-legislator changes in period-specific scores between the 102th and 106th Congresses.

Figure A2: Period-Specific CFscore Scores

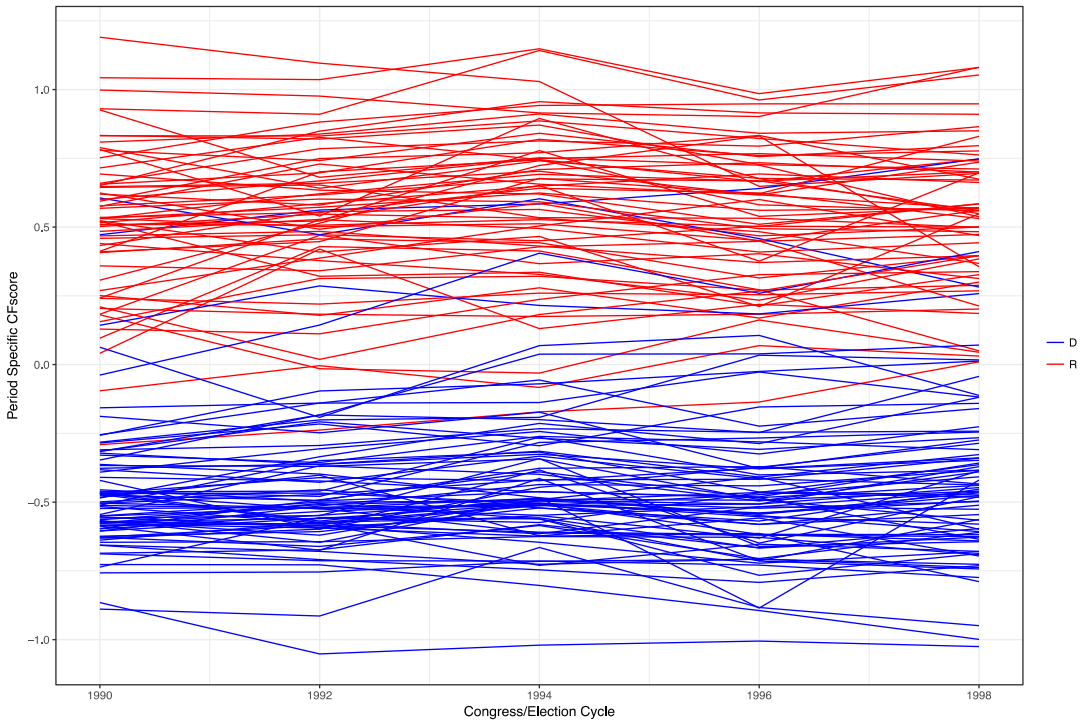
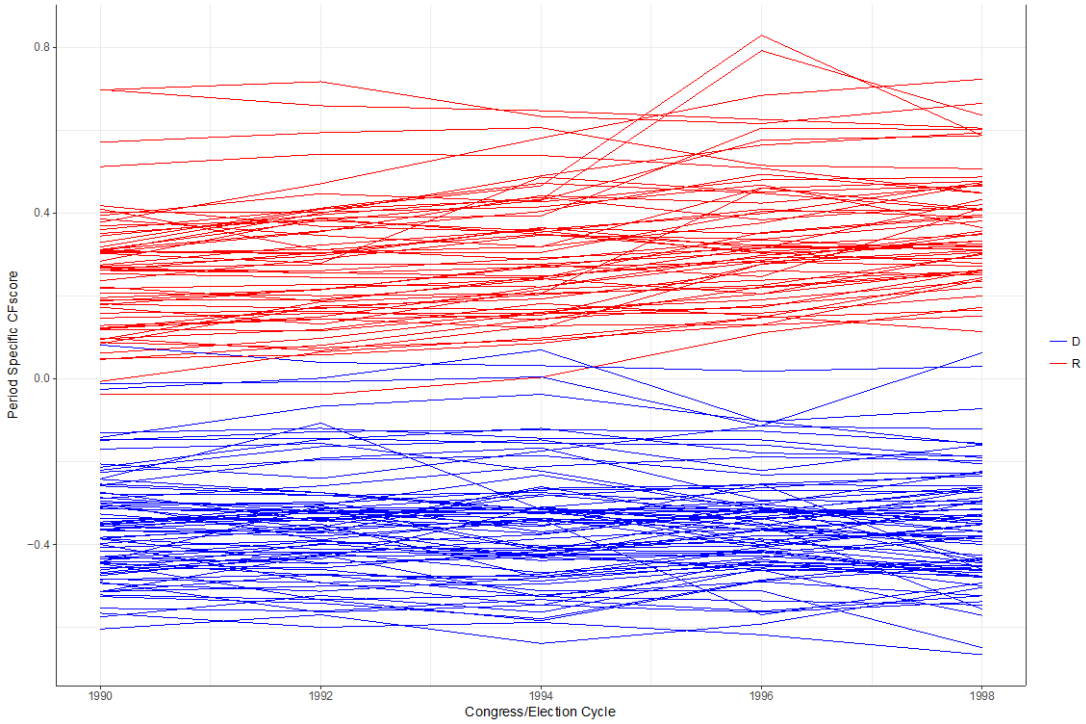


Figure A3: Period-Specific DW-NOMINATE Scores



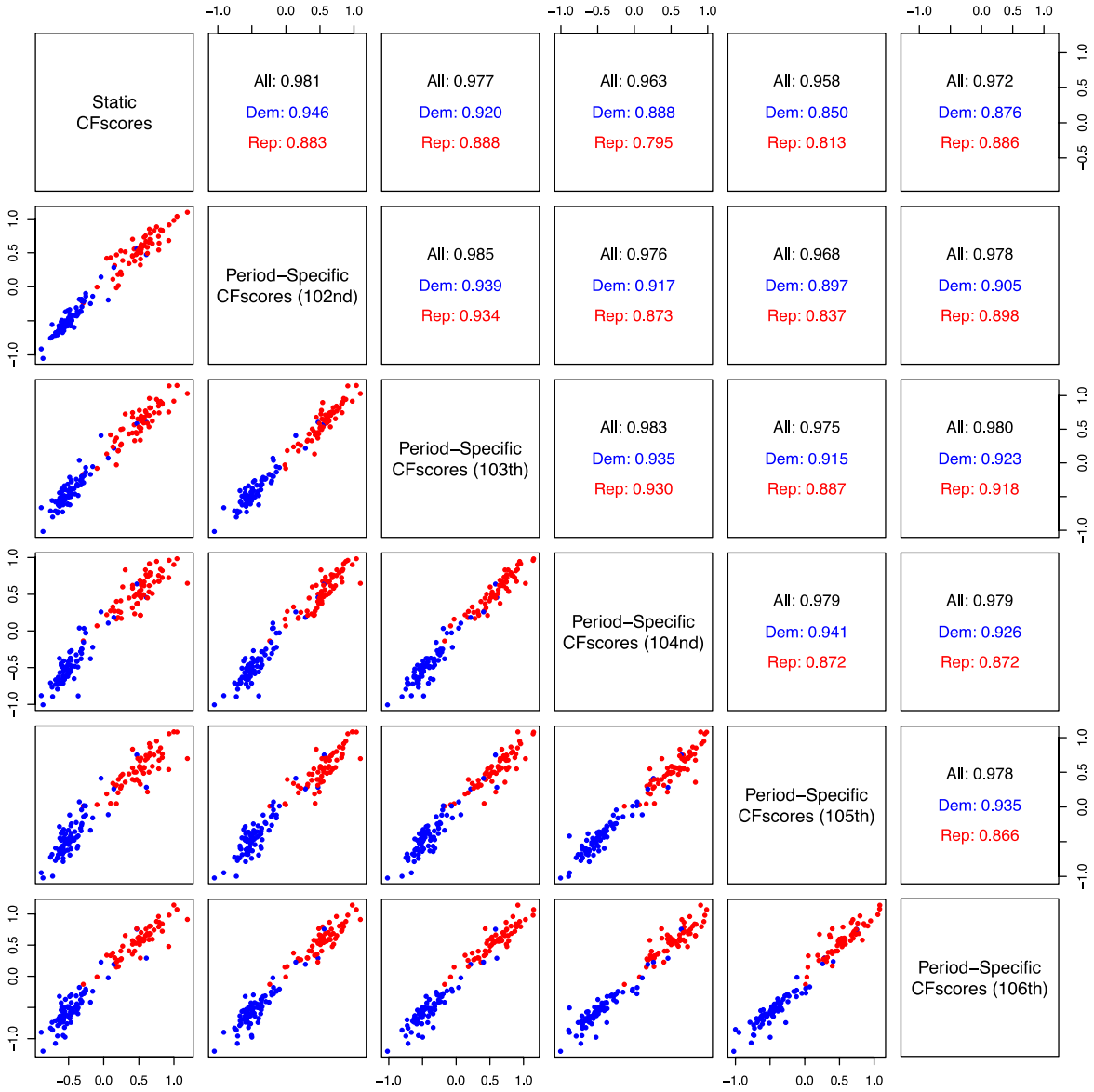


Figure A4: Scatterplot Comparisons of Static and Period-Specific CFscores.
Note: The upper-right panels report the overall and within-party correlations.

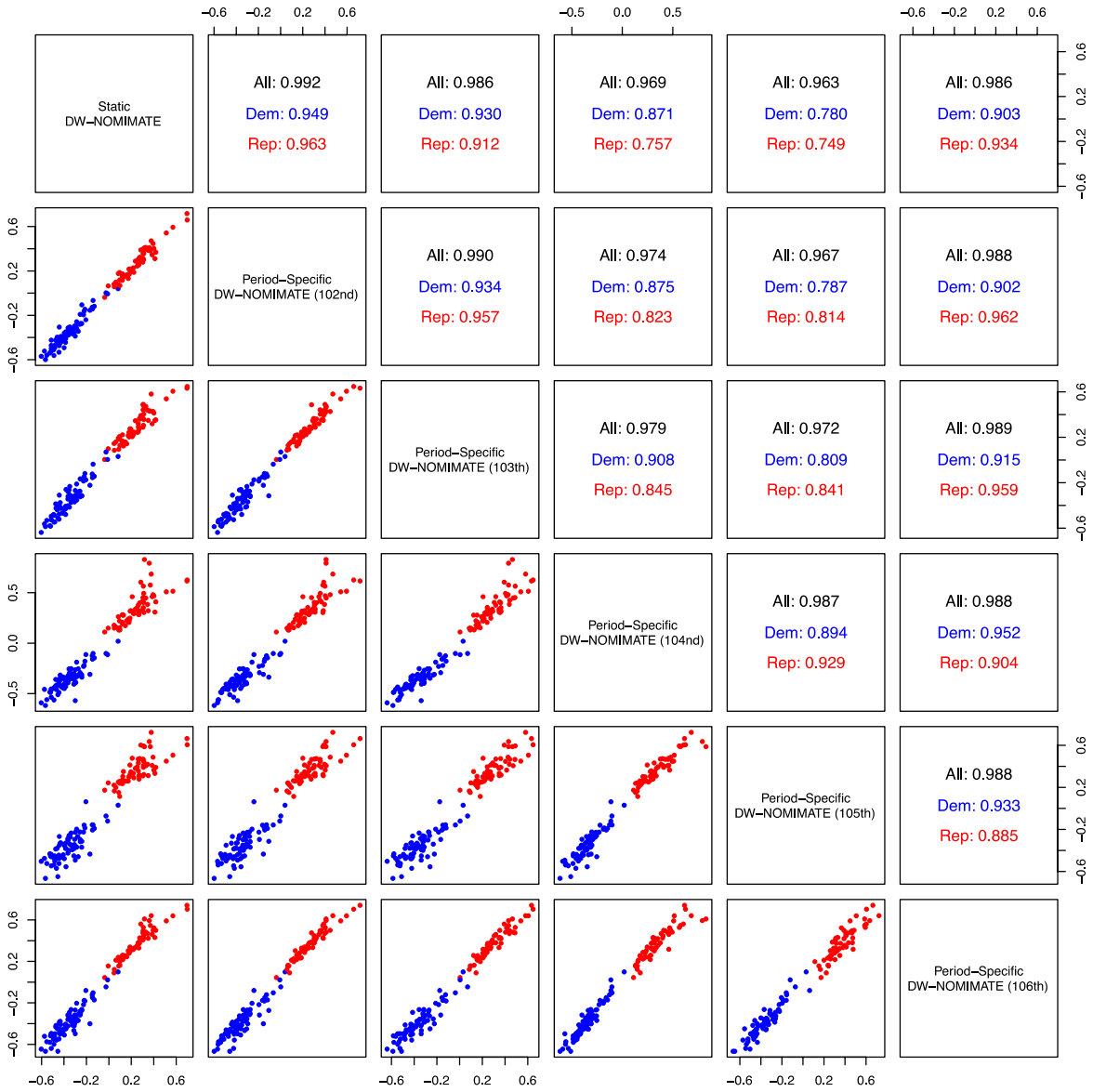


Figure A5: Scatterplot Comparisons of Static and Period-Specific CFscores.
Note: The upper-right panels report the overall and within-party correlations.

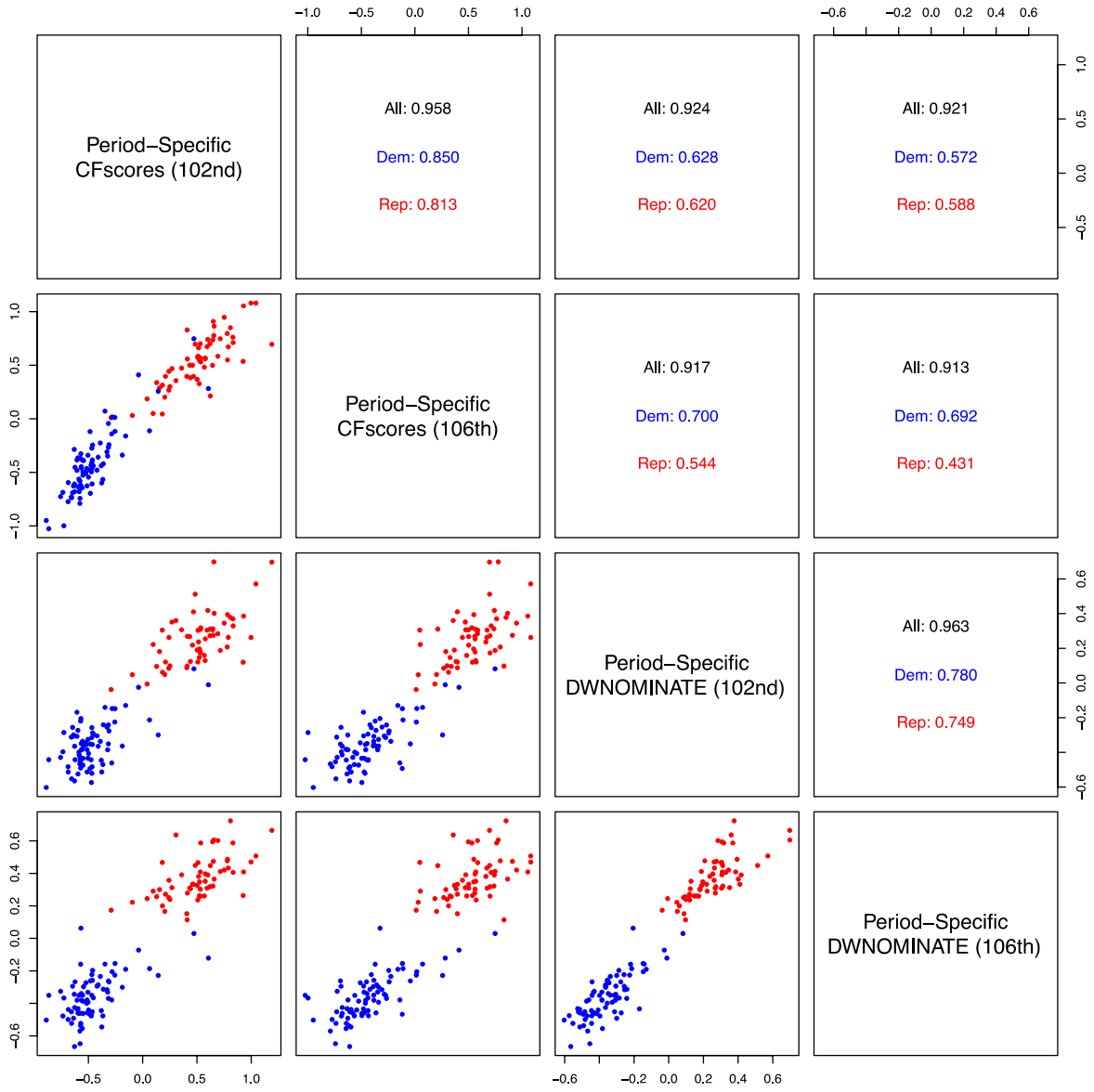


Figure A6: Scatterplot Comparisons of Period-Specific CFscores and DWNOMINATE scores for the 102nd and 106th Congresses.
Note: The upper-right panels report the overall and within-party correlations.

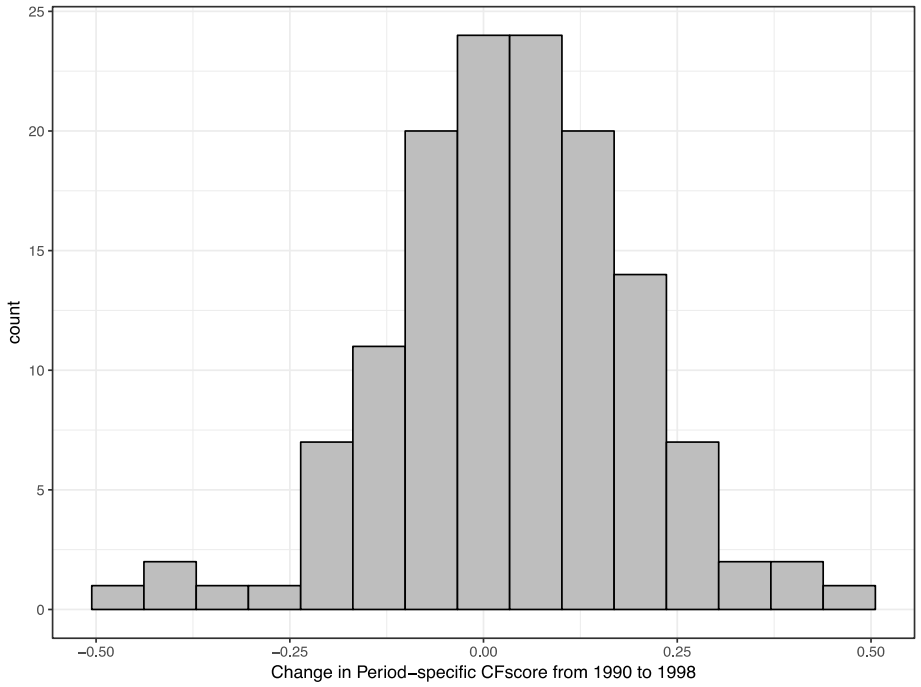


Figure A7: Differences in Period-Specific CFscores for 102nd and 106th Congresses

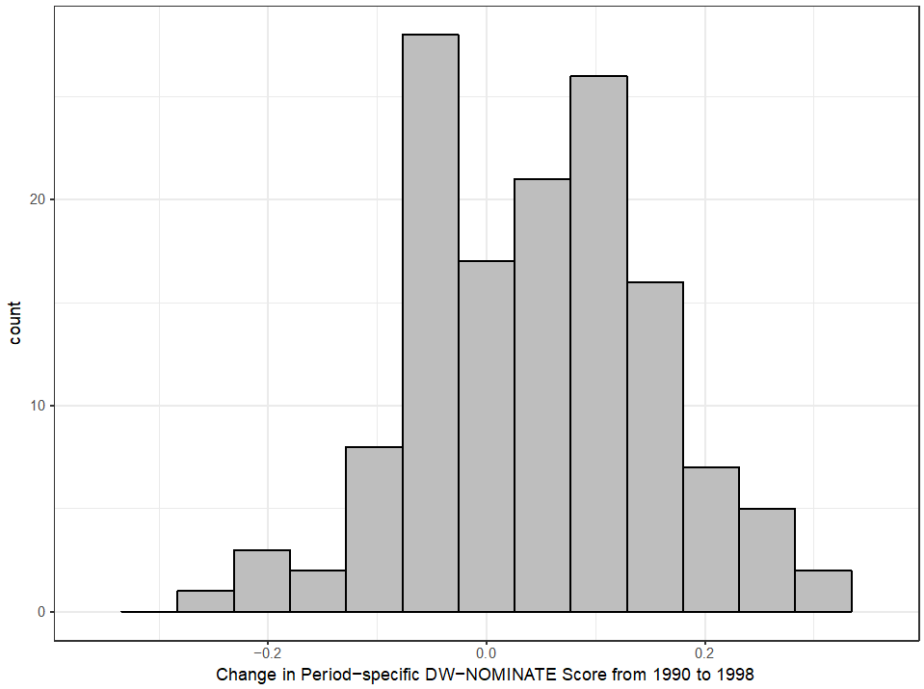


Figure A8: Differences in Period-Specific DWNOMINATE Scores for 102nd and 106th Congresses