

Online supplementary material for Clarity of Voter Choices: neglected foundation for ideological congruence (Russo, Franklin, Beyens)

Online Appendix A (supplement to Appendix A in the main text): Data sources

Table A3: Countries included in Eurobarometer per year (our time-series subset starts in 2004).

Countries	Start in	Notes
France	1970	
Belgium		
The Netherlands*		
Germany West		
Italy*		
Luxembourg	1973	
Denmark		
Ireland		
Great Britain		
Northern Ireland	1975	Treated as one country with GB
Greece	1980	
Spain	1995	
Portugal	1985	
Germany East	1990	Treated as one country with Germany West
Norway	1990	Not included from spring 1996 onwards
Finland	1993	
Sweden	1994	
Austria*	1994	
Cyprus (Republic)	2004	
Czech Republic		
Estonia		
Hungary		
Latvia		
Lithuania		
Malta*		
Poland		
Slovakia		
Slovenia		
Bulgaria		
Romania		
Croatia		

Notes: * Not included due to lack of election within 6 months of EB with all required questions.

Table A4: Total number of respondents per country and per election

Country	year											Total N per country
	2004	2005	2006	2007	2008	2009	2010	2011*	2014	2015	2016	
France				1036								1036
Belgium				1022			1003		1012			3037
Netherlands			1018					1016				2034
Germany			1015				1023		1049			3087
Italy			1006		1061							2067
Luxembourg	619					504						1123
Denmark		1051		1002				1009		1001		4063
Ireland				1007				1015			1004	3026
Great Britain		1044					999			1014		3057
Northern Ireland		303					301			300		904
Greece	1000			1000		1000				999		3999
Spain	1023				1033						1009	3065
Portugal		1003				1025		1048			1013	4089
Finland				1038				1002		1013		3053
Sweden				1005			1050		1008			3063
Austria				1011	1003							2014
Cyprus			507					504			500	1511
Czech Republic			1068				1024					2092
Estonia				1012				1000		1001		3013
Hungary			1005				1021		1087			3113
Latvia				1013			1003	1009	1003			4028
Lithuania		1003				1010					1009	3022
Malta					500							500
Poland		1000			1000					1012		3012
Slovakia			1078				1027				1011	3116
Slovenia		1045			1006				1046			3097
Bulgaria		1001				1008			1006			3015
Romania		1004				1043						2047
Croatia					1000						2092**	3092
Total N per year	2642	8454	6697	10146	6603	5590	8451	7603	7211	6340	7638	77375

* Left-right continuum available only for one Eurobarometer (spring)

** Two elections

Table A3: Number elections per country-year (only for included countries)

Country	year											Elections per country
	2004	2005	2006	2007	2008	2009	2010	2011*	2014	2015	2016	
France				1								1
Belgium				1			1		1			3
Netherlands			1					1				2
Germany			1				1		1			3
Italy			1		1							2
Luxembourg	1					1						2
Denmark		1		1				1		1		4
Ireland				1				1			1	3
United Kingdom		1					1			1		3
Greece	1			1		1				1		4
Spain	1				1						1	3
Portugal		1				1		1			1	4
Finland				1				1		1		3
Sweden				1			1		1			3
Austria				1	1							2
Cyprus			1					1			1	3
Czech Republic			1				1					2
Estonia				1				1		1		3
Hungary			1				1		1			3
Latvia				1			1	1	1			4
Lithuania		1					1				1	3
Malta					1							1
Poland		1			1					1		3
Slovakia			1				1				1	3
Slovenia		1			1				1			3
Bulgaria		1				1			1			3
Romania		1				1						2
Croatia					1						2	3
elections per year	3	8	7	10	7	6	8	8	7	6	8	78

*Left-right continuum available only for one Eurobarometer (spring)

Online Appendix B: Variables, diagnostics and robustness checks

1) Sources for the ParlGov measure of party left-right location: Castles and Mair 1983, Huber and Inglehart 1995, Benoit and Laver 2006, CHES 2010. Original values were rescaled (0-10) before calculating the mean (<http://www.parl.gov/documentation/codebook/#party>). See Appendix A in the main text for additional details.

2) Supportive tables, figures and associated commentary

Table B1: Overview of the variables – original values with respondent-level N’s (cf. Table A1 in the main text, which reports N’s at the election level, at which data were collected)

Variable	Obs	Mean	Std. Dev.	Min	Max
Party Polarization	98,075	0.42	0.07	0.16	0.66
Voters Polarization	78,311	2.19	0.32	1.50	3.19
Voter-government left-right congruence	37,494	0.45	2.53	-7.1	7.2
Number of effective parties	98,075	5.05	1.78	2	12.3 *
Size of largest party	46,593	2.34	1.18	15.3	58.8
Majority Government	37,494	0.87	0.33	0	1

Note: For analysis, all variables were rescaled to range from 0 to 1 (see Table B2).

* Party systems with 12 parties were coded 10 to avoid outlier effects (see text following Table B2). There were no 11-party systems.

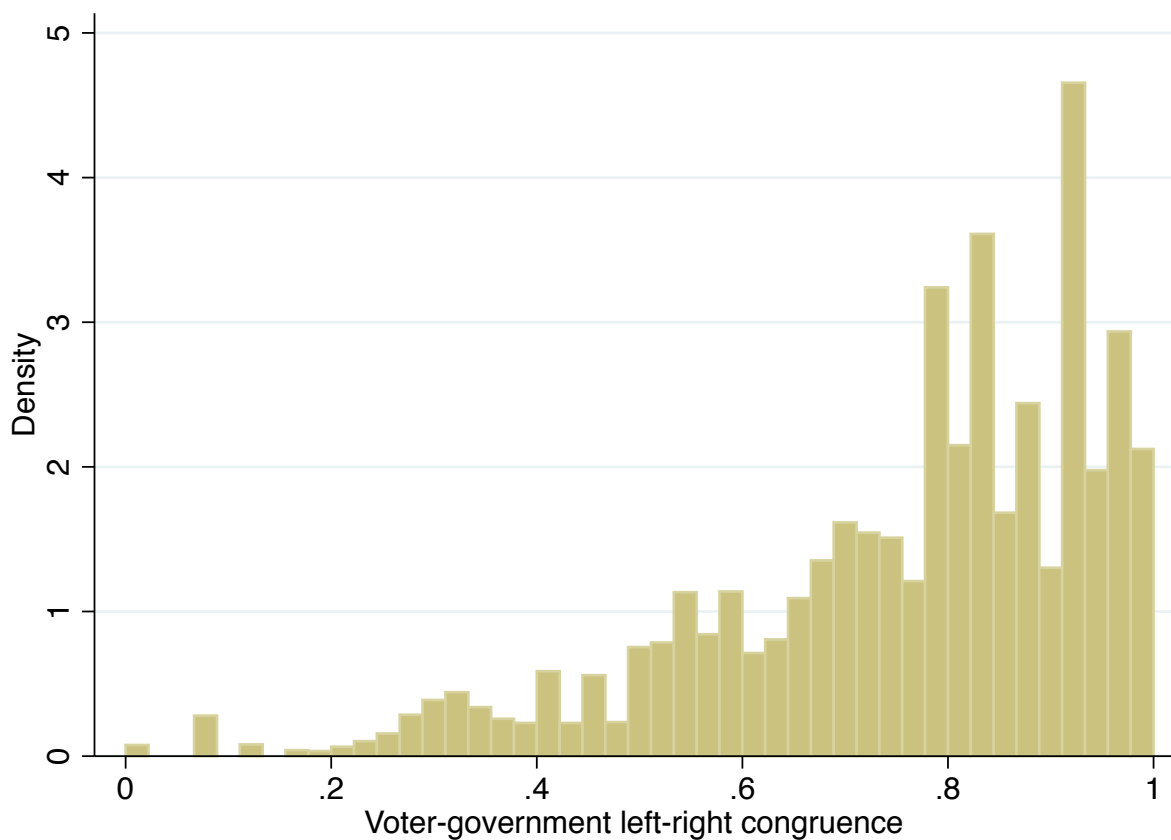
Table B2: Continuous inputs centered, re-scaled 0-1, inverted and/or capped as necessary, with respondent-level N’s (cf. Table A2 in the main text for N’s at the election level).

Variable	Obs	Mean	Std. Dev.	Min	Max
Party Polarization *	37,494	0.20	0.18	0	1
Voters Polarization *	37,494	0.26	0.18	0	1
Voter-government left-right Congruence *	37,494	0.76	0.19	0	1
Number of effective parties**	37,494	0.54	0.38	0	1
Electoral Clarity (1 - largest party abs gap to 50%)	37,494	0.42	0.27	0	1
Majority government	37,494	0.87	0.33	0	1

Note: Obs are valid Ns with listwise deletion when predicting left-right voter-government congruence.

* Centered; ** Capped at 10 parties and linearized (see text).

Numbers of effective parties in the electorate (ENEP) have a curvilinear effect on congruence, with a steep decline in congruence over the first 8 parties that flattens out thereafter, with some hint of a negative effect with more than 10 parties (cf. Berggren et al. 2004) that, however, does not prove statistically significant in our data because there are so few very large party systems. Given that we have no systems with 11 parties, the few 12-party systems have considerable leverage, so we cap our measure at 10. The variable is then linearized by taking its square root.



Note that 54 percent of cases in our data have left-right congruence values above 0.79 and only 10 percent of cases have left-right congruence values below 0.5.

Figure B1: Density plot for voter-government left-right congruence (also shown underlying Figure 2)

The main text shows density plots graphing voter-government left-right congruence and party polarization, both underlying Figure 2. The density plot for voter-government left-right congruence is repeated above in a more familiar orientation. A density plot for voter polarization is not presented in the main text but appears below.

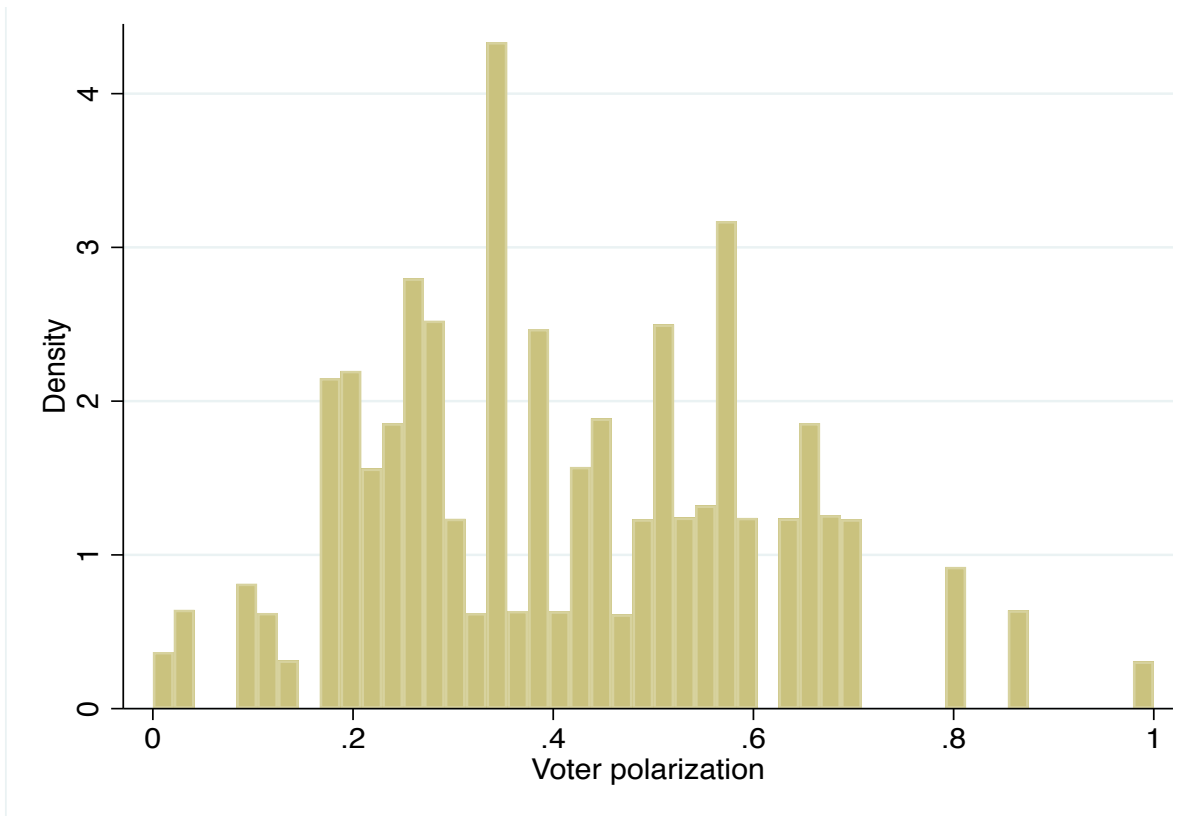


Figure B2: Density plot for voter polarization

3) Multicollinearity, “out of bounds” predictions, and robustness checks

Regarding risk of multicollinearity between measures of political system clarity, in Table B3 no inter-correlations are above 0.7. More importantly, electoral clarity is negatively correlated with the other measures of system clarity. For a formal test, the largest R^2 is 0.46 ($-.68^2$), yielding a Variance Inflator Factor $[-(1 - 0.49)^{-1}]$ of 1.2, far below the danger-point for multicollinearity (Kennedy 2008: 199).

Table B3: Intercorrelations between measures of political system clarity

	Effective N of electoral parties (1 - proportion of max)	Largest party gap to 50% of seats (1 - abs(proprtn))	Majority government	Voter-government congruence	Party polarization	Voter polarization
Effective N of electoral parties (1 - proportion of max<12)	1.00					
Largest party gap to 50% of seats (1 - abs(proportion))	-0.68	1.00				
Majority government (0,1)	0.09	-0.25	1.00			
Voter-government congruence (0-1)	-0.02	0.08	0.22	1.00		
Party polarization	0.14	0.11	-0.13	-0.08	1.00	
Voter polarization	-0.22	0.11	0.30	0.10	0.01	1.00

We turn now to “out of bounds” predictions of left-right proximity made in Figure 1 in the main text (predicted values of left-right congruence greater than 1.0). Figure B3 shows the joint distribution of cases with different degrees of party and voter polarization and tells us that there are four elections with outlying values that might have been responsible for these findings. But if we remove these data-

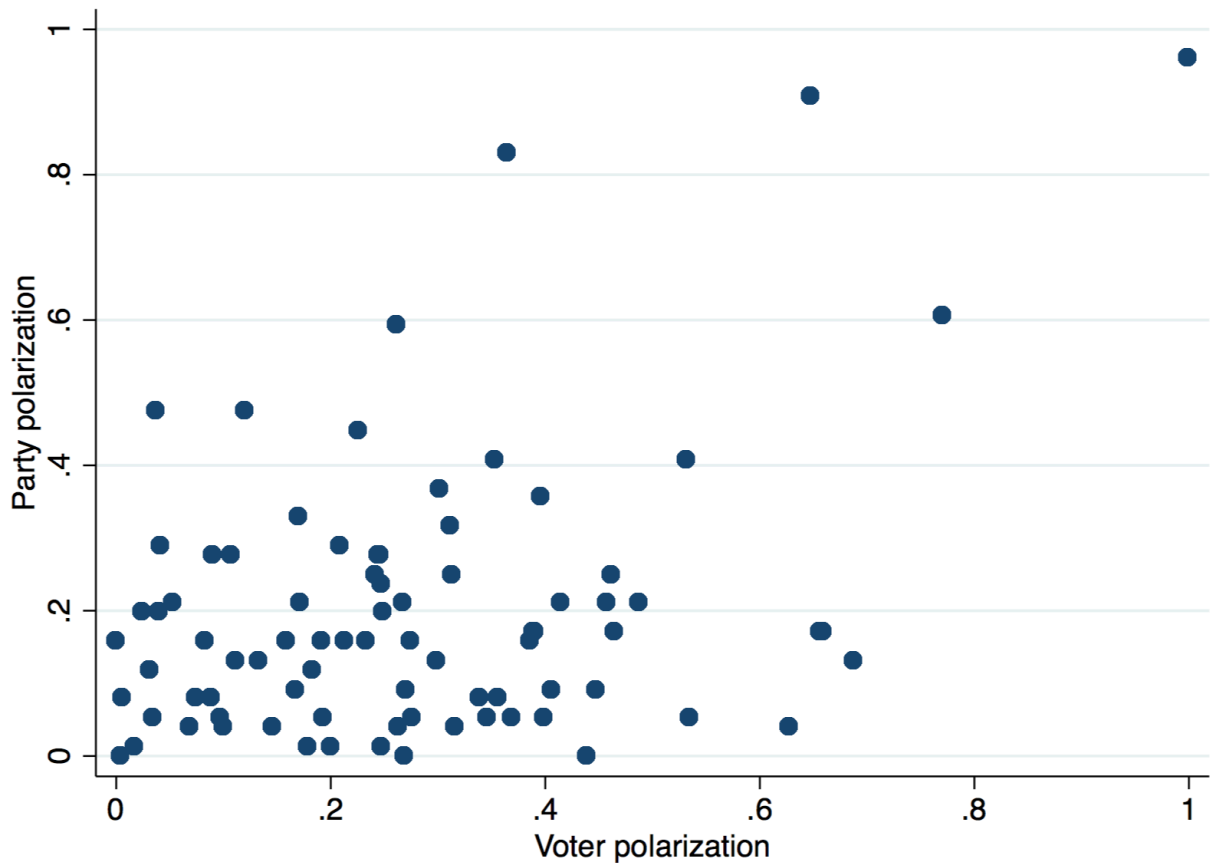


Figure B3: Conjunctions of values for party and voter polarization

points (those with values above 0.75 on either axis) – which include all of those in the top-right quadrant – we get very much the same predictions in Figure B4 (below) as shown by Figure 2 in the main text . So those predictions occur even when the relevant quadrant of Figure B3 is empty, suggesting that such values are not due to undue outlier leverage but should be seen as by-products of a powerful model.

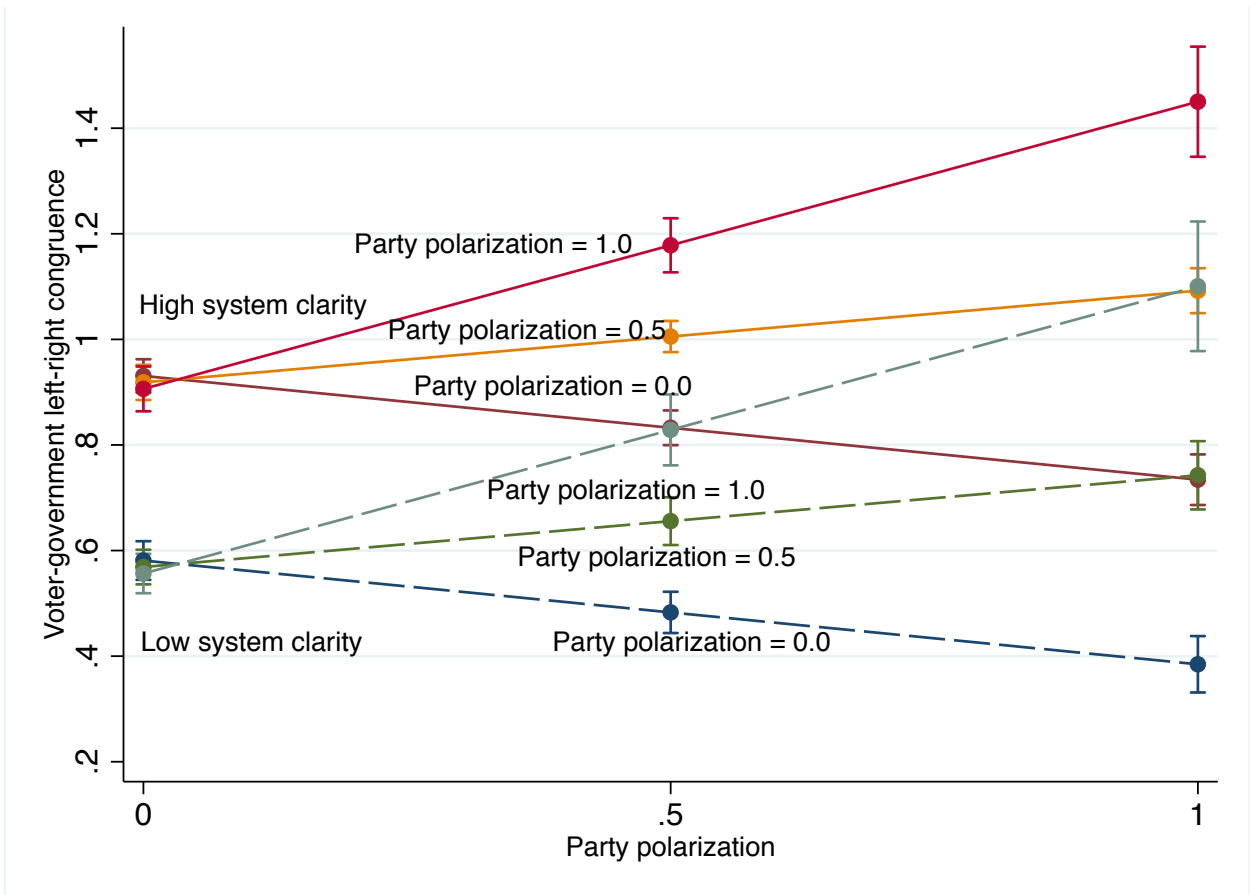


Figure B4: Figure 2 replicated with high party and voter polarization elections removed

As mentioned in the main text some scholars might argue that a fixed effects model would be more appropriate to our research design than the multilevel mixed effects model shown in the main text. Table B4, presents the results from such a fixed effects model. As can be seen, the picture we get from this table is much the same as the one we get from the mixed effects model in Table 1 of the main text, and most of the coefficients are also very similar.

Table B4 Effects of polarization on voters' ideological congruence with government left-right position, controlling for aspects of political system clarity (fixed effects model)

Outcome: Ideological congruence (0-1)	
Inputs	Coef. (s.e.)
1) Party polarization (0-1)	-0.17 (0.02)
2) Voter polarization (0-1)	-0.04 (0.02)ns
3) Party polarization * voter polarization	0.47 (0.05)
4) Electoral clarity (1 - largest party abs. proportion gap from 50% of seats)	0.18 (0.01)
5) Majority government (0, 1=yes)	0.04 (0.01)
6) Party system clarity (1 - proportion of max n of parties <12)	0.29 (0.02)
7) Intercept	0.44 (0.02)
Observations	37,296
Number of countries	27

Note: All coefficients significant at the $p < 0.001$ level, one-tailed, except where marked "ns".

References for Appendix B

- Bakker, R., C. De Vries, E. Edwards, L. Hooghe (2015) "The Chapel Hill expert survey trend file, 1999–2010" *Party Politics* (21: 1): 143-152.
- Benoit, K. and Laver, M. (2006) *Party policy in modern democracies*. London: Routledge.
- Castles, F. and P. Mair (1983) "Left–Right Political Scales: Some 'Expert' Judgments" *European Journal of Political Research* (12): 73-88.
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- Kennedy, P. (2008) *A Guide to Econometrics*, 6th edition. (Oxford: Blackwell).