Online Appendix for the paper: "Understanding Pre-Electoral Coalitions in Central and Eastern Europe"

Additional information on measurement and the empirical analysis

The unit of analysis in the dataset used in the paper is party-dyad in an electoral period. The total number of dyads in the dataset is 5877. As mentioned in the manuscript, Models 1 and 3 use a subset of the dataset that includes only the parties whose electoral support in the previous election was at least 1 percent of the vote. This subset of the dataset includes 2935 dyads. Models 2 and 4 are estimated using the subset of the dataset that includes only the parties that obtained at least 1 percent of the vote in the current election, which provides 4636 dyads. The total number of dyads that resulted in electoral coalitions is 483 (or 8 percent of all dyads), and they represent 117 alliances. The number of allied party dyads in the two subsets of the dataset was 229 (Models 1 and 3) and 374 (Models 2 and 4). Table 3 presents, for each country, the total number of dyads and the number of dyads that were alliances.

The relatively low share of electoral coalition dyads (8 percent) makes the formation of coalitions a rare event, although less rare than in some other analyses that use the dyadic data (e.g. the international conflict studies). Consequently, as in other studies that use dyadic data, including previous studies of electoral coalition formation (Golder 2006), the predicted probabilities of electoral coalitions are fairly low. However, the mean predicted probability (using the estimates of Model 2) of parties forming a coalition for the dyads that actually were in coalitions was 0.30, which was much higher than the mean probability for the dyads that did not have coalitions (0.06).

The mismatch between the number of coalitions and the number of electoral coalition dyads results from the presence of more than 2 parties in some coalitions. 61 percent of alliances included 2 parties, while others included 3, 4 or 5 parties with the exception of three coalitions (the Solidarity Electoral Action in Poland in 1997 and the Union of Democratic Forces in Bulgaria in 1991 and 1994) that consisted of an even larger number of parties

Table 3: Number of dyads per country

Country	Total no of dyads	Total no of coalition dyads	No of dyads (M1 and M3)	No of coalition dyads (M1 and M3)	No of dyads (M2 and M4)	No of coalition dyads (M2 and M4)
Bulgaria	855	176	335	61	583	131
Croatia	491	42	239	24	402	37
Czech Republic	376	6	187	4	332	6
Estonia	411	23	229	12	335	22
Hungary	169	5	131	5	137	4
Latvia	660	45	347	29	525	34
Lithuania	565	12	315	11	488	9
Poland	743	96	366	42	559	66
Romania	486	37	239	14	364	35
Slovakia	759	34	354	26	585	24
Slovenia	362	7	193	1	326	6
Total	5877	483	2935	229	4636	374

(between 11 and 13). These three alliances together represented 199 electoral coalition dyads. One of the robustness checks (Table 6) provided below present the analyses that use the sub-samples which exclude the dyads of these three coalitions.

Robustness checks

Several additional analyses were performed in order to check the robustness of the results of the empirical analysis. First, Model 2 was estimated using 11 subsets of the data, each of which excluded one of the 11 countries included in the original analysis (Table 4). Second, all four models were re-estimated without the dyads of the three very large electoral coalitions (as discussed above) excluded (Table 5). Third, all four models were re-estimated with random intercept terms at the level of countries and elections, unlike in the original analysis, which included random intercepts only at the level of elections (Table 6). Fourth, all four models were re-estimated with country-level fixed effects (Table 7; Bulgaria was chosen as a reference category). In the latter models, the variable indicating non-closed list was excluded from analysis, since it is measured at the country level.

Table 4: Robustness check 1: Estimatations of Model 2 using the sub-samples that exclude one country

	Country excluded										
	BG	HR	CZ	EE	HU	LT	LV	PL	RO	SI	SK
Intercept	−3.97***	−3.72***	−3.79***	−3.88***	−3.74***	−3.86***	−3.85***	−3.58***	−4.03***	−3.68***	−3.74***
	(0.34)	(0.34)	(0.30)	(0.32)	(0.32)	(0.30)	(0.33)	(0.30)	(0.36)	(0.30)	(0.31)
Two small parties	1.18***	1.44***	1.32***	1.46***	1.40***	1.49***	1.53***	1.08***	1.44***	1.26***	1.30***
	(0.25)	(0.25)	(0.24)	(0.26)	(0.25)	(0.25)	(0.26)	(0.25)	(0.27)	(0.24)	(0.25)
Small+larger party	0.43	0.48	0.45	0.58*	0.54*	0.52*	0.58*	0.40	0.50	0.37	0.37
	(0.25)	(0.25)	(0.24)	(0.26)	(0.25)	(0.25)	(0.26)	(0.25)	(0.27)	(0.24)	(0.25)
Ideological similarity	0.98***	0.75***	0.81***	0.79***	0.78***	0.80***	0.70***	0.71***	0.86***	0.77***	0.80***
	(0.17)	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)	(0.15)	(0.15)	(0.15)	(0.14)	(0.15)
Genuinely new party	−0.46*	−0.83***	−0.75***	−0.85***	−0.77***	−0.78***	−0.79***	−0.75***	−0.84***	−0.91***	−0.78***
	(0.20)	(0.20)	(0.19)	(0.20)	(0.19)	(0.19)	(0.19)	(0.21)	(0.20)	(0.20)	(0.20)
Non-closed list	−0.74*	−0.91**	−0.72*	−0.83**	−0.89**	−0.64*	−0.94**	−0.97***	−0.67	−0.71**	−0.81**
	(0.32)	(0.31)	(0.28)	(0.29)	(0.28)	(0.26)	(0.31)	(0.27)	(0.31)	(0.28)	(0.28)
PEC in the previous election	2.63***	2.93***	2.74***	2.67***	2.70***	2.75***	2.51***	2.72***	2.71***	2.69***	2.76***
	(0.25)	(0.21)	(0.20)	(0.20)	(0.20)	(0.20)	(0.21)	(0.20)	(0.21)	(0.20)	(0.20)
Election-level variance	0.72	0.67	0.65	0.68	0.60	0.51	0.75	0.53	0.69	0.62	0.62
Log Likelihood	-759.18	-854.69	-948.91	-910.45	-962.68	-929.69	-884.25	-817.15	-873.75	-949.21	-889.46
N	4053	4234	4304	4301	4499	4148	4111	4077	4272	4310	4051
Number of elections	58	58	58	59	59	59	58	58	58	58	57

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

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The results of the analyses presented in the paper remained largely robust to these tests. Specifically, the exclusion of some countries did not change substantially the size and statistical significance of the coefficients of five out of six variables of interest (two small parties, ideological closeness, genuinely new party, open- or flexible-list system, and previous electoral cooperation). However, the coefficient of the variable capturing the presence of two small parties in the coalition became statistically insignificant (at the 0.05 level of significance) in some model specifications, especially those that use the sample of parties with at least 1 percent of the vote in the current election.

Table 5: Robustness check 2: Models 1-4 for the sub-samples excluding large coalitions

	Vote $\geq$ 1% previous elec. (1)	Vote $\geq$ 1% current elec. (2)	Vote $\geq$ 1% previous elec. (3)	Vote $\geq$ 1% current elec. (4)
Intercept	-4.35^{***}	-4.09^{***}	-5.27^{***}	-4.47^{***}
	(0.35)	(0.31)	(0.54)	(0.51)
Two small parties	0.74^{*}	0.95^{***}	0.85^{*}	0.96^{**}
	(0.29)	(0.25)	(0.39)	(0.35)
Small+larger party	0.59^{*}	0.35	0.52	0.21
	(0.25)	(0.24)	(0.33)	(0.33)
Ideological similarity	1.10^{***}	1.09^{***}	1.01^{***}	0.93^{***}
	(0.21)	(0.17)	(0.22)	(0.18)
Genuinely new party		-0.40^{*}		-0.35
		(0.20)		(0.21)
Non-closed list	-0.40	-0.65^{*}	-0.32	-0.65^{*}
	(0.34)	(0.28)	(0.28)	(0.27)
PEC in the previous election	2.25^{***}	2.54^{***}	2.09^{***}	2.37^{***}
	(0.24)	(0.23)	(0.24)	(0.24)
Party system polarisation			0.02	0.00
			(0.02)	(0.02)
Two small parties *polarisation			0.01	0.02
			(0.02)	(0.02)
Small+larger party *polarisation			0.02	0.02
			(0.02)	(0.02)
Com. successor			0.44	0.67
			(0.53)	(0.43)
Age of democracy			0.06^{*}	0.03
			(0.03)	(0.02)
Com. successor * age of dem.			0.03	0.00
			(0.04)	(0.03)
Extreme party			-1.52^{***}	-1.60^{***}
			(0.38)	(0.32)
PEC threshold			0.01	0.02
			(0.08)	(0.08)
Election-level variance	0.84	0.60	0.45	0.55
Log Likelihood	-527.76	-766.69	-504.09	-740.53
N	2868	4490	2868	4490
Number of elections	64	64	64	64

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 6: Robustness check 3: Models 1-4 with country-level random intercepts

	Vote ≥ 1% previous elec. (1)	Vote ≥ 1% current elec. (2)	Vote ≥ 1% previous elec. (3)	Vote ≥ 1% current elec. (4)
Intercept	−4.27***	−3.80***	−4.68***	−3.35***
	(0.32)	(0.33)	(0.52)	(0.53)
Two small parties	1.41***	1.34***	1.77***	1.38***
	(0.27)	(0.24)	(0.35)	(0.33)
Small+larger party	0.71**	0.46	0.65*	0.33
	(0.25)	(0.24)	(0.32)	(0.32)
Ideological similarity	0.82***	0.79***	0.71***	0.63***
	(0.18)	(0.14)	(0.19)	(0.15)
Genuinely new party		−0.77***		−0.73***
		(0.19)		(0.19)
Non-closed list	−0.39	−0.81*	−0.37	−0.82*
	(0.30)	(0.33)	(0.30)	(0.33)
PEC in the previous election	2.70***	2.71***	2.54***	2.54***
	(0.21)	(0.20)	(0.21)	(0.20)
Party system polarisation			0.02	−0.01
			(0.02)	(0.02)
Two small parties *polarisation			−0.01	0.00
			(0.02)	(0.02)
Small+larger party *polarisation			0.01	0.01
			(0.02)	(0.02)
Extreme party			−1.76***	−1.37***
			(0.37)	(0.25)
Com. successor			−0.06	−0.29
			(0.52)	(0.41)
Age of democracy			0.02	−0.02
			(0.02)	(0.02)
Com. successor * age of dem.			0.06	0.05
			(0.04)	(0.03)
PEC threshold			0.06	0.06
			(0.08)	(0.09)
Election-level variance	0.59	0.57	0.36	0.53
Country-level variance	0.01	0.09	0.04	0.10
Log Likelihood	-622.12	-978.50	-596.74	-954.94
N	2935	4636	2935	4636
Number of elections	64	64	64	64
Number of elections	11	11	11	11

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

Table 7: Robustness check 4: Models 1-4 with country-level fixed effects (Bulgaria is a reference category)

	Vote ≥ 1% previous elec. (1)	Vote ≥ 1% current elec. (2)	Vote ≥ 1% previous elec. (3)	Vote ≥ 1% current elec. (4)
Intercept	−4.10***	−3.43***	−4.26***	−2.76***
	(0.42)	(0.40)	(0.47)	(0.50)
Two small parties	1.33***	1.30***	1.71***	1.35***
	(0.26)	(0.24)	(0.34)	(0.33)
Small+larger party	0.63*	0.42	0.58	0.30
	(0.25)	(0.24)	(0.32)	(0.32)
Ideological similarity	0.81***	0.79***	0.72***	0.63***
	(0.18)	(0.14)	(0.19)	(0.15)
Genuinely new party		−0.76***		−0.69***
		(0.19)		(0.19)
PEC in the previous election	2.62***	2.68***	2.43***	2.51***
	(0.21)	(0.19)	(0.21)	(0.20)
Party system polarisation			0.02	−0.02
			(0.02)	(0.02)
Two small parties *polarisation			−0.01	0.00
			(0.02)	(0.02)
Small+larger party *polarisation			0.02	0.01
			(0.02)	(0.02)
Extreme party			−1.72***	−1.35***
			(0.38)	(0.25)
Com. successor			−0.11	−0.35
			(0.52)	(0.41)
Age of democracy			0.02	−0.05
			(0.03)	(0.03)
Com. successor * age of dem.			0.06	0.06
			(0.04)	(0.03)
PEC threshold			0.12	0.25*
			(0.11)	(0.11)
Croatia	0.06	−0.55	−0.66	−0.06
	(0.48)	(0.45)	(0.56)	(0.55)
Czech Republic	−1.29	−1.80**	−1.82**	−2.16**
	(0.71)	(0.63)	(0.69)	(0.67)
Estonia	−0.67	−0.85	−0.72	−1.10*
	(0.57)	(0.53)	(0.49)	(0.50)
Hungary	−0.25	−1.03	−0.85	−1.92*
	(0.65)	(0.69)	(0.73)	(0.83)
Latvia	−0.01	−0.69	−0.62	−0.29
	(0.47)	(0.46)	(0.50)	(0.49)
Lithuania	−0.95	−2.06***	−1.25*	−2.34***
	(0.57)	(0.58)	(0.50)	(0.57)
Poland	0.39	−0.20	−0.01	−0.55
	(0.48)	(0.46)	(0.43)	(0.46)
Romania	−0.21	0.04	−0.86	−0.16
	(0.53)	(0.46)	(0.49)	(0.47)
Slovakia	−0.12	−0.97*	−1.00	−0.88
	(0.50)	(0.47)	(0.60)	(0.59)
Slovenia	−2.19*	−1.78**	−2.26*	−1.62**
	(1.10)	(0.65)	(1.07)	(0.62)
Election-level variance	0.33	0.39	0.12	0.28
Log Likelihood	-614.53	-969.78	-588.13	-944.51
N	2935	4636	2935	4636
Number of elections	64	64	64	64

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