Online Appendix for
"Preference Representation and the Influence of Political Parties in Majoritarian vs. Proportional Systems: An Empirical Test"

A1. Classification of parties

The table below shows the classification of parties into left, center and right that we employ. Drawing on the NOMINATE scores computed by Michael Hermann from the institute Sotomo we calculated the average NOMINATE scores for all members of the respective party in the lower house from 2007-2013.

Party	Mean NOMINATE score
Left parties	
ADG	-10
PDAS	-10
AL	-9
GB	-9
GPS	-9
SP	-8
Center parties	
CSP	-6
EVP	-3
GLP	-2
CVP	0
BDP	1
LPS	2
FDP	2
Right parties	
MCR	1
EDU	5
Lega	7
SVP	8
SD	10

Except for two parties, the NOMINATE suggest a relatively clear classification into three distinct blocks. The small Christian Social Party (CSP) forms a faction with the larger Christian Democratic People's Party (CVP) which is a centrist party. Therefore we classified the party as a center party. Although the Romand Citizens' Mouvement (MCR) regards itself as "neither left- nor right-wing" it is often seen as a (far-) right-wing party. Therefore, we classified the party as a right-wing party. We provide a robustness test for our main results in Table 3(3) with an alternative classification of the parties, where we classified the MCR as a center party and the CSP as a left party. Results proof to be robust to changes to the classification.

A2. Quality of video footage

We have collected and analyzed the video streams and identified the individual voting behavior of members of the Council of States. In a small number of cases, the video stream's quality does not allow identification of all individual votes. The various checks ("four-eyes-principle") during the data collection process make us confident that MPs, which we observe less frequently, and outliers in general do not represent a problem for our analysis. The following table shows a breakdown of all potential votes in the Upper House.

Sample	Number of observations
Theoretical maximum (46 members x 48 votes)	2208
Maximum after vacancies (due to cases of death, retirement during the term and elections to the federal council)	2202
President abstains from voting	47
Abstentions and absences by regular members of the council	195
Unobserved members of the council including vote counter and vice president	224
Observed 'yes' and 'no' votes	1736

As the replacement of vacant seats requires that elections are carried out the number of elected MPs in the Upper House drops slightly below 46 which reduces the maximum of votes by 6. The presidents of both chambers usually abstain from voting (47 observations) unless a tied vote occurs. Two members of the upper house act as vote counters and one member as vice president. They are next to the president and in front of the plenum. Their votes are generally not observable on the video footage. Moreover, vote counters do not need to disclose their vote visibly. More than half of the non-observed votes (224) origin from the vote-counters and the vice president. In some cases, the aggregate results allows to derive their votes. This allows us to identify about 90 % of all individual decisions including actual abstentions (1 – 224/2202).

A3. Descriptive Statistics

Table A1: Descriptive Statistics

Variable	Description & Source	Mean	SD	N
MP=Constituents	Indicator variable: Member of parliament votes in line with majority of voters in his district. Swiss Parliamentary Services Final Votes Dataset and Année Politique Suisse.	0.637	0.481	10460
Member Council of States	Indicator variable: Member of parliament is a member of the National Council (Council of States otherwise). Swiss Parliamentary Services Final Votes Dataset.	0.166	0.372	10460
PartyLeft	Indicator variable: If member of parliament belongs to the SP, PdAS, GPS, FGA, Sol value is 1. Swiss Parliamentary Services.	0.303	0.459	10460
PartyCenter	Indicator variable: If member of parliament belongs to the CVP, GLP, LPS, FDP, CSP, BDP, EVP value is 1. Swiss Parliamentary Services.	0.422	0.494	10460
PartyRight	Indicator variable: If member of parliament belongs to the SVP, Lega, EDU, SD value is 1. Swiss Parliamentary Services.	0.276	0.447	10460
MP average non observable	Average number of non observable votes of individual members of parliament. Swiss Parliamentary Services.	0.015	0.049	10460
MP average abstention	Average number of abstentions of individual members of parliament. Swiss Parliamentary Services.	0.080	0.070	10460
Female legislator	Indicator variable: If member of parliament has a profession in the public sector or works for a union. Swiss Parliamentary Services.	0.271	0.445	10460
Age of legislator	Member of parliament's age in years. Swiss Parliamentary Services.	53.160	9.325	10460
Has children	Indicator variable: If member of parliament has children value is 1. Swiss Parliamentary Services.	0.723	0.448	10460
University degree	Indicator variable: If member of parliament has university degree value is 1. Swiss Parliamentary Services.	0.572	0.495	10460
Born ouside of constituency	Indicator variable: If member of parliament is born outside of constituency value is 1. Swiss Parliamentary Services.	0.330	0.470	10460
Time in office	Time in parliament in years. Swiss Parliamentary Services.	6.908	5.465	10460
Party CVP	Indicator variable: If member of parliament belongs to the CVP (Christian Democratic Party) value is 1. Swiss Parliamentary Services.	0.177	0.381	10460
Party FDP	Indicator variable: If member of parliament belongs to the FDP (Liberals) value is 1. Swiss Parliamentary Services.	0.174	0.379	10460
Party SP	Indicator variable: If member of parliament belongs to the SP (Socialists) value is 1. Swiss Parliamentary Services.	0.218	0.413	10460
Party SVP	Indicator variable: If member of parliament belongs to the SVP (Swiss People's Party) value is 1. Swiss Parliamentary Services.	0.264	0.441	10460
smaller Parties	Indicator variable: If member of parliament belongs to the GPS, GLP, LPS, CSP, PdAS, BDP, Lega, EDU, EVP, SD, FGA, Sol or MP is independent value is 1. Swiss Parliamentary Services.	0.167	0.373	10460
Party GLP	Indicator variable: If member of parliament belongs to the GLP (Green Liberals) value is 1. Swiss Parliamentary Services.	0.029	0.169	10460
Party BDP	Indicator variable: If member of parliament belongs to the BLP (Center conservative party) value is 1. Swiss Parliamentary Services.	0.023	0.149	10460
Party GPS	Indicator variable: If member of parliament belongs to the GPS (Green Party) value is 1. Swiss Parliamentary Services.	0.081	0.273	10460
smaller left Parties	Indicator variable: If member of parliament belongs to a small left party value is 1. Swiss Parliamentary Services.	0.004	0.063	10460
smaller center Parties	Indicator variable: If member of parliament belongs to a small center party value is 1. Swiss Parliamentary Services.	0.019	0.136	10460
smaller right Parties	Indicator variable: If member of parliament belongs to a small right party value is 1. Swiss Parliamentary Services.	0.011	0.106	10460

Notes: Unweighted descriptive statistics. Data sources indicated next to variable descriptions.

A4. Logit coefficients and standard errors of Table 3

	(1) Average abstentions	(2) Excluding MPs due to missings	(3) Party reclassification	(4) Only parties that are in CS	(5) Personal characteristics	(6) Constituency characteristics	(7) Referendum characteristics
Member Council of States	0.129*	0.142**	0.147**	0.132*	0.177**	0.199***	0.150**
	(0.076)	(0.072)	(0.070)	(0.070)	(0.069)	(0.068)	(0.067)
Left Party	-0.456***	-0.456***	-0.451***	-0.470***	-0.437***	-0.455***	-0.494***
	(0.055)	(0.055)	(0.055)	(0.056)	(0.057)	(0.057)	(0.063)
Right Party	-0.549***	-0.549***	-0.538***	-0.565***	-0.505***	-0.505***	-0.558***
	(0.050)	(0.050)	(0.051)	(0.052)	(0.053)	(0.057)	(0.058)
(Member Council of States) * (Left Party)	0.226*	0.195	0.207*	0.226*	0.202*	0.151	0.200
	(0.120)	(0.132)	(0.119)	(0.120)	(0.118)	(0.110)	(0.135)
(Member Council of States) * (Right Party)	0.282**	0.295**	0.244*	0.248*	0.233*	0.227	0.304**
	(0.128)	(0.145)	(0.125)	(0.128)	(0.129)	(0.145)	(0.137)
MP average non observable	0.087						
	(0.369)						
MP average abstention	-0.558**	-0.549**					
	(0.272)	(0.276)					
Female legislator					5.5e-03	0.015	0.023
					(0.048)	(0.045)	(0.053)
Age of legislator					-1.4e-03	-1.7e-03	-1.0e-03
					(2.5e-03)	(2.5e-03)	(2.8e-03)
Has children					8.7e-03	3.4e-03	0.037
					(0.048)	(0.048)	(0.054)
University degree					0.055	0.054	0.063
					(0.044)	(0.044)	(0.049)
Born ouside of constituency					-0.081*	-0.079*	-0.073
					(0.043)	(0.044)	(0.047)
Time in office					-7.8e-03**	-6.4e-03	-5.0e-03
					(3.8e-03)	(4.0e-03)	(4.3e-03)
Referendum type fixed effects	yes	yes	yes	yes	yes	yes	no
Constituency fixed effects	no	no	no	no	no	yes	no
Referendum fixed effects	no	no	no	no	no	no	yes
Pseudo-R2	0.034	0.033	0.033	0.035	0.035	0.037	0.199
Brier Score	0.226	0.226	0.226	0.226	0.226	0.225	0.2
n. Obs.	10460	10261	10460	10103	10460	10460	10460

Notes: * Significance level at 5%-10%. ** Significance level at 1%-5%. *** Significance level at < 1%. Robust clustered standard error estimates are given in parenthesis below the coefficient.

A5. Further Robustness Tests - National issues, interest groups, polarization and weighting

	(1) Strictly national issues	(2) Interest affiliations	(3) Left-right disagree	(4) Polarization in parliament	(5) Weighting by agreement	(6) Clear referendum decision	(7) Weighting by turnout
Member Council of States	0.036**	0.053***	0.026**	0.079***	0.022	0.028	0.035***
	(0.016)	(0.019)	(0.012)	(0.023)	(0.036)	(0.019)	(3.7e-03)
Left Party	-0.133***	-0.103***	-0.140***	-0.026	-0.122***	-0.138***	-0.103***
	(0.013)	(0.022)	(0.013)	(0.019)	(0.032)	(0.016)	(3.5e-03)
Right Party	-0.150***	-0.099***	-0.150***	-0.075***	-0.137***	-0.175***	-0.113***
	(0.013)	(0.020)	(0.013)	(0.019)	(0.032)	(0.015)	(3.3e-03)
(Member Council of States) * (Left Party)	0.063**	0.067*	0.083***	2.0e-03	0.073	0.098***	0.053***
	(0.028)	(0.037)	(0.025)	(0.047)	(0.062)	(0.034)	(6.7e-03)
(Member Council of States) * (Right Party)	0.091***	0.017	0.089***	0.064	0.061	0.103***	0.061***
	(0.026)	(0.044)	(0.026)	(0.053)	(0.064)	(0.029)	(7.4e-03)
Personal characteristics	yes	yes	yes	yes	yes	yes	yes
Referendum type fixed effects	yes	yes	yes	yes	yes	yes	yes
Effect of left party affiliation in majoritarian system	-0.070***	-0.036	-0.057**	-0.024	-0.050	-0.040	-0.050***
	(0.025)	(0.031)	(0.022)	(0.045)	(0.055)	(0.031)	(6.0e-03)
Effect of right party affiliation in majoritarian system	-0.059***	-0.083**	-0.061***	-0.011	-0.076	-0.072***	-0.053***
	(0.023)	(0.040)	(0.023)	(0.050)	(0.058)	(0.026)	(6.8e-03)
Pseudo-R2	0.049	0.040	0.040	0.029	0.049	0.060	0.034
Brier Score	0.222	0.223	0.224	0.238	0.214	0.213	0.226
n. Obs.	8226	4470	9438	5438	10460	8444	10460

Notes: * Significance level at 5%-10%. ** Significance level at 1%-5%. *** Significance level at < 1%. Center party affiliation forms the omitted category. Logit models are estimated and logit coefficients are presented in an online appendix A4. We present discrete effects which denote the change in the probability of congruence if the respective independent variable changes from 0 to 1 while all other variables are held constant at their median values. The discrete effect of the interaction terms represent the differential effect on the probability of congruence of a left and right party politicians in the Council of States in comparison to a left party politician in the National Council.

Supplementary table with logit coefficients and standard errors of Table A5

	(1) Strictly national issues	(2) Interest affiliations	(3) Left-right disagree	(4) Polarization in parliament	(5) Weighting by agreement	(6) Clear referendum decision	(7) Weighting by turnout
Member Council of States	0.035***	0.179**	0.247***	0.142**	0.337***	0.117	0.142
	(3.7e-03)	(0.080)	(0.088)	(0.066)	(0.101)	(0.194)	(0.097)
Left Party	-0.103***	-0.579***	-0.434***	-0.644***	-0.108	-0.569***	-0.614***
	(3.5e-03)	(0.055)	(0.088)	(0.055)	(0.076)	(0.149)	(0.069)
Right Party	-0.113***	-0.644***	-0.419***	-0.687***	-0.303***	-0.631***	-0.763***
	(3.3e-03)	(0.054)	(0.083)	(0.055)	(0.075)	(0.147)	(0.065)
(Member Council of States) * (Left Party)	0.053***	0.242*	0.263	0.345***	2.5e-04	0.310	0.410**
	(6.7e-03)	(0.131)	(0.166)	(0.123)	(0.205)	(0.309)	(0.166)
(Member Council of States) * (Right Party)	0.061***	0.361***	0.043	0.371***	0.254	0.248	0.410***
	(7.4e-03)	(0.120)	(0.193)	(0.127)	(0.234)	(0.313)	(0.139)
Personal characteristics	yes	yes	yes	yes	yes	yes	yes
Referendum type fixed effects	yes	yes	yes	yes	yes	yes	yes
Log-Likelihood	0.049	0.040	0.040	0.029	0.049	0.060	0.034
Pseudo-R2	0.222	0.223	0.224	0.238	0.214	0.213	0.226
Brier Score	8226.000	4470.000	9438.000	5438.000	10460.000	8444.000	10460.000
n. Obs.	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: * Significance level at 5%-10%. ** Significance level at 1%-5%. *** Significance level at < 1%. Robust clustered standard error estimates are given in parenthesis below the coefficient.

A6. Logit coefficients and standard errors of Table 4

Logit coefficients and standard errors of Table 4

	congruence with national voter		variation in seats in National Council			Match with party as dependent variable	
	(1) no personal characteristics	(2) with personal characteristics	(3) Seats <=2	(4) Seats > 2	(5) Sweet spot	(5) Weighting by agreement	(6) Clear referendum decision
Member Council of States	0.012	7.9e-03	0.038	0.140	0.056	0.090	-0.218*
	(0.011)	(0.072)	(0.071)	(0.133)	(0.091)	(0.152)	(0.127)
Left Party	0.053***	-0.770***	-0.752***	-0.413	-0.763***	-0.733***	
	(9.6e-03)	(0.043)	(0.042)	(0.298)	(0.044)	(0.071)	
Right Party	-0.061***	-0.729***	-0.699***	-0.335*	-0.724***	-0.694***	
	(0.011)	(0.045)	(0.047)	(0.203)	(0.046)	(0.076)	
(Member Council of States) * (Left Party)	-0.056***	0.526***	0.526***	0.309	0.475***	0.525**	
	(0.019)	(0.116)	(0.120)	(0.315)	(0.134)	(0.232)	
(Member Council of States) * (Right Party)	-0.213***	0.435***	0.436***	0.201	0.354**	0.484**	
	(0.050)	(0.124)	(0.125)	(0.217)	(0.176)	(0.234)	
Personal characteristics	no	yes	no	no	no	no	yes
Referendum type fixed effects	yes	yes	yes	yes	yes	yes	yes
Pseudo-R2	0.060	0.061	0.034	0.060	0.072	0.034	0.077
Brier Score	0.223	0.223	0.217	0.224	0.219	0.092	0.090
n. Obs.	10460	10460	878	9582	3386	10298	10298

Notes: * Significance level at 5%-10%. ** Significance level at 1%-5%. *** Significance level at < 1%. Center party affiliation forms the omitted category. The table represents discrete effects only (coefficients are presented in a supplement) which denote the change in the probability of congruence if the respective independent variable changes from from 0 to 1 (from the first quartile of observations to the third quartile for continuous variables) while all other variables are held constant at their median values. ' denotes discrete effects for interaction terms which represent the change in probability of congruence for a change of party affiliation from center to left (discrete effect for $\beta_1+\gamma_1$) or right (discrete effect for $\beta_2+\gamma_2$) within the majority elected Council of States. Robust standard errors for discrete effects are calculated with the Delta Method (see Ai and Northen 2003).

A7. Logit coefficients and standard errors of Table 5

	(1) PR sys. only	(2) Maj. sys. only	(3) PR sys. only - grouping smaller parties	(4) Maj. sys. Only - grouping smaller parties	(5) PR sys. only - full party controls	(6) Maj. sys. only - full party controls
Party CVP	0.425***	0.303	0.584***	0.440*	0.595***	0.409
	(0.065)	(0.220)	(0.066)	(0.267)	(0.063)	(0.271)
Party FDP	0.219***	0.104	0.370***	0.232	0.376***	0.212
	(0.052)	(0.208)	(0.053)	(0.244)	(0.052)	(0.253)
Party SP	-0.031	-0.109	0.130**	0.022	0.105*	0.079
	(0.063)	(0.317)	(0.064)	(0.412)	(0.063)	(0.406)
smaller Parties			0.393***	0.312		
			(0.082)	(0.316)		
Party GLP					1.382***	0.345
					(0.192)	(0.385)
Party BDP					0.875***	0.311
					(0.172)	(0.373)
Party GPS					0.069	0.068
					(0.090)	(0.452)
smaller left Parties					0.337***	
					(0.128)	
smaller center Parties					0.317***	
					(0.114)	
smaller right Parties					0.294	0.457
					(0.211)	(0.637)
Personal characteristics	yes	yes	yes	yes	yes	yes
Referendum type fixed effects	yes	yes	yes	yes	yes	yes
Pseudo-R2	0.022	0.040	0.026	0.041	0.035	0.039
Brier Score	0.231	0.203	0.230	0.203	0.229	0.203
n. Obs.	8724	1736	8724	1736	8724	1736

Notes: * Significance level at 5%-10%. ** Significance level at 1%-5%. *** Significance level at < 1%. The Swiss People's Party (SVP) forms the omitted category. Robust clustered standard error estimates are given in parenthesis below the coefficient.