

Supplementary Materials for “*Paper Stones Revisited*”

Appendix 1: Classification of parties in CSES dataset.

	Mainstream Left	Radical Left	Greens	Radical Right
Australia	<ul style="list-style-type: none"> • Australian Labour Party 		<ul style="list-style-type: none"> • Australian Greens 	<ul style="list-style-type: none"> • One Nation
Austria	<ul style="list-style-type: none"> • Social Democratic Party of Austria 	<ul style="list-style-type: none"> • Communist Party of Austria 	<ul style="list-style-type: none"> • The Greens 	<ul style="list-style-type: none"> • Freedom Party of Austria • Alliance for the Future of Austria
Denmark	<ul style="list-style-type: none"> • Social Democratic Party 	<ul style="list-style-type: none"> • Socialist People's Party • Red-Green Unity List 		<ul style="list-style-type: none"> • Danish People's Party
Finland	<ul style="list-style-type: none"> • Social Democratic Party 	<ul style="list-style-type: none"> • Left Alliance • Communist Party of Finland • For Peace and Socialism – Communist Workers' Party • Finnish workers' Party 	<ul style="list-style-type: none"> • Green League 	<ul style="list-style-type: none"> • True Finns/Finns Party
France	<ul style="list-style-type: none"> • Socialist Party 	<ul style="list-style-type: none"> • Left Front • French Communist Party • Workers' Struggle • New Anticapitalist Party • Workers' Party 	<ul style="list-style-type: none"> • Greens/Europe Ecology • José Bové • Radical Party of the Left 	<ul style="list-style-type: none"> • National Front
Germany	<ul style="list-style-type: none"> • Social Democratic Party 	<ul style="list-style-type: none"> • Left Party/Party of Democratic Socialism 	<ul style="list-style-type: none"> • Alliance 90/Greens 	<ul style="list-style-type: none"> • Alternative for Germany • The Republicans • German People's Union • National Democratic Party of Germany
Great-Britain	<ul style="list-style-type: none"> • Labour Party 		<ul style="list-style-type: none"> • Green Party 	<ul style="list-style-type: none"> • United Kingdom Independence Party
Greece	<ul style="list-style-type: none"> • Pan-Hellenic Socialist Movement (PASOK) 	<ul style="list-style-type: none"> • Communist Party • Coalition of the Radical Left (Syria) 	<ul style="list-style-type: none"> • Ecologists-Greens • Democratic Left (DIMAR) 	<ul style="list-style-type: none"> • Golden Dawn • Independent Greeks • Popular Orthodox Rally
Iceland	<ul style="list-style-type: none"> • Social Democratic Alliance/ Social Alliance Party • Icelandic Movement (merge 2009) 	<ul style="list-style-type: none"> • Left-Green Movement 		
Ireland	<ul style="list-style-type: none"> • Labour Party 	<ul style="list-style-type: none"> • Sinn Fein • Workers' Party • Irish Socialist Network • Socialist Party 	<ul style="list-style-type: none"> • Green Party 	

Netherlands	<ul style="list-style-type: none"> • Labour Party 	<ul style="list-style-type: none"> • Socialist Party 	<ul style="list-style-type: none"> • Green Left • Party for the Animals 	<ul style="list-style-type: none"> • List Pim Fortuyn • Freedom party
New Zealand	<ul style="list-style-type: none"> • Labour Party 	<ul style="list-style-type: none"> • Jim Anderton's Progressive Coalition/ Party • Alliance 	<ul style="list-style-type: none"> • Green Party 	<ul style="list-style-type: none"> • New Zealand First
Norway	<ul style="list-style-type: none"> • Labour Party 	<ul style="list-style-type: none"> • Socialist Left Party • Red Electoral Alliance/Red 	<ul style="list-style-type: none"> • Green Party 	<ul style="list-style-type: none"> • Progress Party
Spain	<ul style="list-style-type: none"> • Spanish Socialist Party 	<ul style="list-style-type: none"> • United Left 	<ul style="list-style-type: none"> • Ecologists 	
Sweden	<ul style="list-style-type: none"> • Social Democratic Party 	<ul style="list-style-type: none"> • Left Party 	<ul style="list-style-type: none"> • Green Party • Feminist Initiative 	<ul style="list-style-type: none"> • Sweden Democrats
Switzerland	<ul style="list-style-type: none"> • Social-Democratic Party 	<ul style="list-style-type: none"> • Swiss Labour Party 	<ul style="list-style-type: none"> • The Greens • Left parties 	<ul style="list-style-type: none"> • Swiss People's Party • Ticino League • Geneva Citizens' Movement • Swiss Democrats • Freedom Party

Appendix 2: The class composition of the electorate, averages for available election surveys 2001-15.

	production and service workers	socio-cultural professionals	other non-workers
Australia	23%	22%	55%
Austria	37	16	47
Denmark	37	21	42
Finland	43	16	41
France	41	16	43
Germany	37	16	47
Greece	27	14	59
Iceland	38	14	48
Ireland	39	14	47
Netherlands	30	20	50
New Zealand	29	18	53
Norway	32	20	48
Spain	41	7	52
Sweden	41	25	34
Switzerland	22	20	58
UK	38	14	48
Average	33	17	50

Estimates based on data from CSES Modules 2-4, pooling all available data for the period 2001-15 (i.e., pooling several election surveys for one country when possible) and including non-voters. See text for class definitions. For Modules 2-3 of the CSES, our coding of the class membership of respondents is based on the two-digit level of the 1988 version of the ILO's International Standard Classification of Occupations (ISCO); for Module 4, it is based on the three-digit level of the 2008 version. Unemployed and retired survey respondents as well as home-keepers are assigned a class based on their prior occupation or dropped for lack of information on prior occupation.

Appendix 3: Unionization by social class, averages for available election surveys 2001-15.

	workers	socio-cultural professionals	other non-workers
Australia	31%	37%	22%
Austria	31	54	30
Denmark	90	90	79
Finland	61	73	59
France	7	16	11
Germany	20	19	15
Greece	13	14	10
Iceland	88	92	80
Ireland	38	57	35
Netherlands	29	31	23
New Zealand	14	27	12
Norway	59	45	37
Spain	6	21	7
Sweden	62	74	59
Switzerland	14	27	14
UK	20	43	21
average	41	46	32

CSES-based estimates of the proportion of (self-reported) union members in a given social class. See text for class definitions and Appendix 2 for additional explanations.

Appendix 4: Formal notation

Model 3 in Appendices 5 and 6 can be written as follows:

$$\begin{aligned}
 Y_{ijk} &\sim \text{Bernoulli}(\hat{\pi}_{ijk}) \\
 \text{logit}(\pi_{ijk}) &= \beta_0 + \beta_1(\text{union membership})_{ijk} + \beta_2(\text{social class})_{ijk} + \\
 &+ \beta_3(\text{class profile})_{jk} + \beta_4(\text{social class}_{ijk} * \text{class profile}_{jk}) + \dots + \\
 &\gamma_{1jk[i]}(\text{social class})_{ijk} + u_{0jk[i]} + u_{1k[i]} \\
 \hat{V} &= \text{MVN} \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{bmatrix} \sigma_{u_0}^2 & \sigma_{u_0\gamma_1} \\ \sigma_{u_0\gamma_1} & \sigma_{\gamma_1}^2 \end{bmatrix} \right) \\
 u_{1k} &\sim N(0, \sigma_{u_1}^2)
 \end{aligned}$$

where i is an index at the individual level, j is an index at the country-election level and k an index at the country level. Y_{ijk} is the individual choice to leave the mainstream Left, which is assumed to be Bernoulli distributed, thus yielding a standard multilevel logit model. The logit of the probability to leave the mainstream left depends on a combination of union membership and social class at the individual level, class profile of electoral mobilization at the country-election level, a cross-level interaction between social class and class profile, several controls at the individual and country-election level, a random slope for social class (γ_{1jk}), a random intercept at the country-election level (u_{0jk}), a random intercept at the country level (u_{1k}). Model 4 in Appendix 6 adds an additional layer of complexity by also interacting union membership with respondents' class and with the class profile of electoral mobilization.

Appendix 5: Class, union membership and the decision to leave the mainstream Left, 2-class models with 40 elections, for Figure 1.

	M1	M2	M3
Union member	-0.291*** (0.048)	-0.290*** (0.048)	-0.289*** (0.048)
Workers	-0.068 (0.057)	-0.064 (0.057)	-0.068 (0.054)
Age	-0.021*** (0.001)	-0.021*** (0.001)	-0.021*** (0.001)
Female	0.012 (0.042)	0.012 (0.042)	0.012 (0.042)
University education	-0.109* (0.052)	-0.110* (0.052)	-0.109* (0.052)
Residence (ref.=large city)			
Village	0.177** (0.063)	0.177** (0.063)	0.180** (0.063)
Small/Med city	0.157** (0.056)	0.161** (0.056)	0.161** (0.056)
Suburbs	0.066 (0.062)	0.066 (0.062)	0.068 (0.062)
Class profile	0.542 (0.340)	0.118 (0.365)	0.189 (0.381)
Compet. Radical left	0.038+ (0.020)	-0.005 (0.022)	-0.005 (0.022)
Compet. Radical right	0.004 (0.012)	-0.002 (0.014)	-0.001 (0.014)
Compet. Greens	0.026 (0.029)	0.049 (0.034)	0.047 (0.034)
PMincumb&crisis		1.835*** (0.491)	1.820*** (0.481)
Govtparty		0.171 (0.152)	0.162 (0.151)
Class profile*worker			-0.317+ (0.176)
Constant	0.391** (0.136)	0.188 (0.190)	0.193 (0.189)
Var. random intercept	0.000 (0.000)	0.251* (0.080)	0.249* (0.079)
Var. random slope	0.033*** (0.012)	0.031*** (0.012)	0.019*** (0.010)
Var. random intercept	0.366*** (0.050)	0.135*** (0.028)	0.134*** (0.028)
N level-1 (2,3)	11694 (40,16)	11694 (40,16)	11694 (40,16)
AIC	14038.4	14030.5	14029.5
ICC	0.100	0.105	0.104
Log likelihood	-7002.2	-6996.2	-6994.7

Note: Estimates from multilevel logistic regressions, based on 40 country-elections. Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix 6: Class, union membership and the decision to leave the mainstream Left, 2-class models with 38 elections, for Figures 2, 4 and 5.

	M1	M2	M3	M4
Union member	-0.297*** (0.049)	-0.295*** (0.049)	-0.294*** (0.049)	-0.345*** (0.059)
Workers	-0.078 (0.058)	-0.072 (0.059)	-0.077 (0.055)	-0.140* (0.068)
Age	-0.021*** (0.002)	-0.021*** (0.002)	-0.021*** (0.002)	-0.021*** (0.002)
Female	0.009 (0.042)	0.009 (0.042)	0.009 (0.042)	0.012 (0.042)
University education	-0.107* (0.052)	-0.106* (0.052)	-0.104* (0.052)	-0.102+ (0.052)
Residence (ref.=large city)				
Village	0.174** (0.064)	0.173** (0.064)	0.173** (0.064)	0.174** (0.064)
Small/Med city	0.153** (0.057)	0.156** (0.057)	0.155** (0.057)	0.157** (0.057)
Suburbs	0.066 (0.063)	0.066 (0.063)	0.068 (0.063)	0.070 (0.063)
Class profile	0.132 (0.419)	-0.078 (0.376)	-0.043 (0.411)	-0.119 (0.417)
Compet. Radical left	0.034 (0.021)	-0.001 (0.021)	-0.000 (0.021)	-0.001 (0.021)
Compet. Radical right	0.011 (0.017)	0.005 (0.015)	0.006 (0.015)	0.005 (0.015)
Compet. Greens	0.059 (0.036)	0.062+ (0.034)	0.059+ (0.034)	0.060+ (0.034)
PMincumb&crisis		1.415** (0.512)	1.407** (0.502)	1.427** (0.505)
Govtparty		0.155 (0.142)	0.138 (0.141)	0.142 (0.141)
Class profile*worker			-0.437* (0.192)	-0.488* (0.234)
Class profile*union member				0.227 (0.214)
Union member*worker				0.148 (0.093)
Class profile*worker*union member				0.108 (0.345)
Constant	0.307 (0.190)	0.215 (0.198)	0.219 (0.198)	0.231 (0.200)
Var. random intercept (cntry)	0.281+ (0.095)	0.302* (0.084)	0.299* (0.082)	0.311* (0.084)
Var. random slope	0.032*** (0.012)	0.033*** (0.012)	0.019*** (0.010)	0.019*** (0.010)
Var. random intercept	0.171*** (0.034)	0.107*** (0.023)	0.106*** (0.023)	0.106*** (0.023)
N level-1 (2,3)	11443 (38,15)	11443 (38,15)	11443(38,15)	11443 (38,15)
AIC	13730.3	13726.1	13723.2	13724.5
ICC	0.121	0.111	0.110	0.113
Log likelihood	-6848.1	-6844.0	-6841.6	-6839.3

Note: Estimates from multilevel logistic regressions, based on 38 country-elections. Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix 7: Class, union membership and the decision to leave the mainstream Left, 3-class models with 38 elections, for Figure 3 and Table 4.

	M1	M2
Union member	-0.294*** (0.049)	-0.200** (0.076)
Social class (ref.=working class)		
Socio-cultural prof.	0.077 (0.069)	0.115 (0.089)
Other non-workers	0.074 (0.057)	0.145* (0.070)
Class profile	-0.414 (0.433)	-0.542 (0.446)
Compet. radical left	-0.001 (0.021)	-0.002 (0.021)
Compet. radical right	0.006 (0.015)	0.005 (0.015)
Compet. Greens	0.063+ (0.034)	0.063+ (0.034)
PMincumb&crisis	1.463** (0.498)	1.497** (0.501)
Govtparty	0.133 (0.141)	0.137 (0.141)
Class profile*socio-cultural	0.344 (0.226)	0.350 (0.306)
Class profile*other non-workers	0.478* (0.203)	0.516* (0.242)
Class profile*union member		0.322 (0.286)
Union member*socio-cultural		-0.085 (0.119)
Union member*other non-workers		-0.177+ (0.101)
Class profile*socio-cultural*union member		-0.080 (0.441)
Class profile*other non-workers*union member		-0.033 (0.388)
Constant	0.155 (0.204)	0.105 (0.207)
Var. random intercept (country)	0.323* (0.085)	0.332* (0.086)
Var. random slope	0.005*** (0.003)	0.004*** (0.003)
Var. random intercept	0.186*** (0.045)	0.172*** (0.042)
N	11443	11443
AIC	13727.6	13732.0
ICC	0.134	0.133
Log likelihood	-6841.8	-6839.0

Note: Estimates from multilevel logistic regressions, based on 38 country-elections. Standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The models include controls for age, sex, education and residence (not shown).

Appendix 8: Statistical significance of class differences in Figure 3.

	Class profile of electoral mobilization					
	-0.4	-0.2	0	0.2	0.4	0.6
workers – socio-cultural professionals	-0.013 (0.592)	0.002 (0.921)	0.016 (0.263)	0.029 ⁺ (0.079)	0.042 ⁺ (0.063)	0.055 ⁺ (0.071)
workers – other non-workers	-0.025 (0.225)	-0.004 (0.748)	0.015 (0.190)	0.034* (0.019)	0.053* (0.010)	0.071* (0.010)

Note: Differences between workers and the two other classes in the predicted probabilities of leaving the mainstream Left at different values of the class profile of electoral mobilization, based on M1 in Appendix 7. P-values in parentheses: ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-test of equality hypothesis.

Appendix 9: Class, union membership and new voting choices of mainstream Left leavers , 3-class models with max 40 elections, for Figure 6 and Tables 5-6.

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
	Mains.Right	Non-voting	Rad.Left	Greens	Rad. Right	Mains.Right	Non-voting	Rad.Left	Greens	Rad. Right
Union member	-0.162 ⁺ (0.084)	-0.366 ^{**} (0.117)	0.673 ^{***} (0.123)	0.171 (0.120)	-0.124 (0.157)	0.078 (0.127)	-0.493 ^{**} (0.155)	0.552 ^{**} (0.178)	-0.084 (0.229)	-0.111 (0.211)
Social class (ref.=workers)										
Socio-cultural prof.	0.074 (0.112)	-0.761 ^{***} (0.165)	0.058 (0.160)	0.895 ^{***} (0.157)	-0.564 [*] (0.234)	0.302 [*] (0.145)	-0.955 ^{***} (0.212)	-0.123 (0.217)	0.726 ^{***} (0.192)	-0.297 (0.278)
Other non-workers	0.301 ^{***} (0.084)	-0.532 ^{***} (0.108)	-0.098 (0.119)	0.501 ^{***} (0.134)	-0.358 [*] (0.148)	0.433 ^{***} (0.105)	-0.591 ^{***} (0.127)	-0.157 (0.156)	0.410 ^{**} (0.158)	-0.422 [*] (0.183)
Age	0.000 (0.003)	-0.010 [*] (0.003)	0.010 [*] (0.004)	-0.006 (0.004)	0.013 [*] (0.005)	0.000 (0.003)	-0.010 ^{**} (0.003)	0.009 [*] (0.004)	-0.006 (0.004)	0.013 ^{**} (0.005)
Female	-0.049 (0.072)	0.001 (0.097)	0.166 (0.102)	0.358 ^{***} (0.104)	-0.661 ^{***} (0.135)	-0.038 (0.072)	-0.006 (0.097)	0.157 (0.102)	0.348 ^{***} (0.105)	-0.660 ^{***} (0.135)
University education	0.128 (0.088)	-0.706 ^{***} (0.130)	0.054 (0.127)	0.621 ^{***} (0.120)	-0.297 ⁺ (0.172)	0.136 (0.088)	-0.712 ^{***} (0.130)	0.046 (0.128)	0.616 ^{***} (0.120)	-0.293 ⁺ (0.172)
Residence (ref.=large city)										
Village	0.305 ^{**} (0.105)	-0.022 (0.139)	-0.317 [*] (0.155)	-0.409 ^{**} (0.155)	0.171 (0.190)	0.314 ^{**} (0.106)	-0.029 (0.139)	-0.327 [*] (0.156)	-0.416 ^{**} (0.156)	0.191 (0.190)
Small/Med city	0.190 [*] (0.095)	-0.032 (0.126)	-0.263 ⁺ (0.136)	-0.168 (0.139)	0.136 (0.178)	0.191 [*] (0.095)	-0.032 (0.126)	-0.260 ⁺ (0.136)	-0.169 (0.140)	0.130 (0.178)
Suburbs	0.264 [*] (0.106)	-0.217 (0.154)	-0.153 (0.145)	-0.201 (0.152)	0.055 (0.216)	0.270 [*] (0.106)	-0.218 (0.154)	-0.150 (0.145)	-0.200 (0.152)	0.046 (0.216)
Union*Socio-cultural						-0.496 [*] (0.200)	0.461 (0.302)	0.349 (0.278)	0.444 (0.294)	-0.760 ⁺ (0.457)
Union*Other non-workers						-0.320 ⁺ (0.167)	0.165 (0.228)	0.116 (0.228)	0.251 (0.283)	0.219 (0.289)
Constant	-0.624 ^{**} (0.217)	-0.622 [*] (0.283)	-2.391 ^{***} (0.335)	-2.349 ^{***} (0.343)	-2.262 ^{***} (0.369)	-0.759 ^{***} (0.223)	-0.553 ⁺ (0.287)	-2.317 ^{***} (0.343)	-2.238 ^{***} (0.351)	-2.269 ^{***} (0.377)
Var. intercept (country)	0.151 ⁺ (0.080)	0.389 (0.130)	0.504 (0.183)	0.755 (0.192)	0.194 (0.132)	0.150 ⁺ (0.079)	0.390 (0.129)	0.504 (0.183)	0.750 (0.192)	0.195 (0.132)
Var. intercept	0.418 [*] (0.074)	0.403 [*] (0.081)	0.546 (0.107)	0.190 ^{**} (0.054)	0.928 (0.186)	0.420 [*] (0.074)	0.400 [*] (0.080)	0.544 (0.106)	0.196 ^{**} (0.056)	0.921 (0.185)
N	3824	3824	3097	3305	2878	3824	3824	3097	3305	2878
AIC	4918.7	3048.4	2723.5	2665.2	1783.2	4915.7	3050.0	2725.9	2667.0	1782.6
ICC	0.147	0.194	0.242	0.223	0.254	0.148	0.194	0.242	0.223	0.253
Log Likelihood	-2447.4	-1512.2	-1349.7	-1320.6	-879.6	-2443.8	-1511.0	-1348.9	-1319.5	-877.3

Note: Estimates from multilevel logistic regressions, based on maximum 40 country-elections. Standard errors in parentheses; ⁺ $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$.

Appendix 10: Replication of Table 7 with standard errors clustered by country (without Greece 2012 and Austria 2013).

	(1)	(2)
Right-Left position	.003 (.342)	.001 (.742)
pro-labor statements	.028** (.008)	.032*** (.001)
no radical competitor		.271** (.002)
constant	1.090*** (.000)	.994*** (.000)
N	36	36
adj. R-square	.067	.142

P-values in parentheses: *** $p < 0.001$, * $p < 0.05$. See text for explanations.

Appendix 11: Replications of Table 7 with measures of party positions from the Chapel Hill Expert Survey (without Greece 2012 and Austria 2013).

	general Right-Left position		economic Right-Left position	
	(1)	(2)	(1)	(2)
Right-Left position (CHES)	.097 (.316)	.100 (.381)	.001* (.041)	.001* (.041)
pro-labor statements (CMP)	.034* (.041)	.033* (.057)	.037* (.016)	.039* (.016)
no radical competitor		-.017 (.955)		.146 (.537)
constant	.543 (.145)	.533 (.205)	.861*** (.000)	.845*** (.000)
N	22	22	22	22
adj. R-square	.168	.122	.299	.276

P-values in parentheses: * $p < 0.05$. See text for explanations. The measures of party positions from the Chapel Hill Expert Survey refer to the election for which the class profile of newcomers is measured or to the previous election. In addition to Finland 2015 (missing for lack of CMP data), Greece 2012 and Austria 2013 (dropped on account of small numbers of voters), all Australian, Icelandic, New Zealand and Norwegian elections are missing for lack of CHES data.

Sources: Comparative Manifesto Project (<https://manifesto-project.wzb.eu/>) and Chapel Hill Expert Survey Trend File (<https://www.chesdata.eu/1999-2014-chapel-hill-expert-survey-ches-trend-file>).