The Passive-Aggressive Voter: The Calculus of Casting an Invalid Vote in European Democracies

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Supplemental File (Online Appendix)

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Appendix A. Descriptive Statistics

	Mean	Std.Dev.	Min.	Max.	N
Full Sample					
Invalid Vote	0.01	0.11	0	1	23864
Abstain	0.13	0.34	0	1	23864
Vote for Niche Party	0.21	0.4	0	1	23864
Vote for Mainstream Party	0.65	0.48	0	1	23864
Effective Number of Distinct Party Families	3.82	0.95	1.56	5.31	23864
Political Information	0.08	0.98	-2.59	2.15	23864
Compulsory Voting (No Sanction)	0.06	0.24	0	1	23864
Compulsory Voting (Weak Enforcement)	0.02	0.13	0	1	23864
Compulsory Voting (Strong Enforcement)	0.08	0.27	0	1	23864
Post-communist Country	0.22	0.41	0	1	23864
Age	47.3	16.96	17	99	23864
Gender (Female)	0.5	0.5	0	1	23864
Education	2.29	1.13	0	5	23864
Ideological Extremity	0.81	0.61	0.01	2.79	23864
Satisfaction with Democracy	0.3	1.16	-2	2	23864
Party Systems with Voluntary Voting					
Invalid Vote	0.01	0.1	0	1	20074
Abstain	0.12	0.33	0	1	20074
Vote for Niche Party	0.22	0.41	0	1	20074
Vote for Mainstream Party	0.65	0.48	0	1	20074
Effective Number of Distinct Party Families	3.96	0.9	1.86	5.31	20074
Political Information	0.07	0.98	-2.59	2.15	20074
Post-communist Country	0.22	0.42	0	1	20074
Age	47.4	16.82	17	99	20074
Gender (Female)	0.5	0.5	0	1	20074
Education	2.31	1.12	0	5	20074
Ideological Extremity	0.82	0.6	0.01	2.79	20074
Satisfaction with Democracy	0.35	1.15	-2	2	20074
Party Systems with Compulsory Voting					
Invalid Vote	0.02	0.15	0	1	3790
Abstain	0.15	0.36	0	1	3790
Vote for Niche Party	0.14	0.34	0	1	3790
Vote for Mainstream Party	0.69	0.46	0	1	3790
Effective Number of Distinct Party Families	3.03	0.82	1.56	3.74	3790
Political Information	0.09	0.97	-1.82	1.98	3790
Post-communist Country	0.18	0.39	0	1	3790
Age	46.82	17.66	18	93	3790
Gender (Female)	0.5	0.5	0	1	3790
Education	2.19	1.16	0	5	3790
Ideological Extremity	0.74	0.67	0.01	2.57	3790
Satisfaction with Democracy	0.05	1.21	-2	2	3790

Additional Variables Employed in Robustness Checks

Number of Distinct Party Families	5.51	1.09	3	8	23864
Political Knowledge	6.69	1.33	0.13	8.39	21993
Satisfaction with Democracy (Election)	0.27	0.49	-0.74	1.15	23864
Trade Union Membership	0.3	0.46	0	1	22149
Urban/Rural Residence	2.67	1.14	1	4	21852
Household Income	3.07	1.38	1	5	17712
Retrospective Evaluation	0.06	1.19	-2	2	22520

Appendix B. Variable Names and Operationalization

Variable Name	Question / Module†	Operationalization
Dependent Variable		
Invalid Vote	B3006, C3023_LH_PL	1 if (R)espondent casts a blank or invalid vote, 0 otherwise
Abstain	B3004, C3021_1	1 if R does not turn out, 0 if R casts a vote
Vote for a Niche Party*	B3006, C3023_LH_PL	1 if R votes for a communist, nationalist, green or ethnoterritorial party, 0 otherwise
Vote for a Mainstream Party*	B3006, C3023_LH_PL	1 if R votes for a conservative, Christian democrat, social democrat or liberal party, 0 otherwise
Independent Variables		
Effective Number of Distinct Party Families*	B5002_, C5002_	Number of distinct party families weighted by the total vote share of political parties from each party family. See McDonald and Moral (2015) for detailed information.
Political Information	B3047_, C3036_	1 if R gives a correct answer, -1 if wrong answer, DK, or NA. Standardized by dividing the difference from the survey mean by the standard deviation of the survey.
Compulsory Voting	B5037, C5044_1	0 No compulsory voting, 1 compulsory voting with no sanction, 2 with weak enforcement, 3 with strong enforcement
Post-communist Country		1 if R's country has a history of communism, 0 otherwise
Gender (Female)	B2002, C2002	1 if R is female, 0 if ale
Education	B2003, C2003	0 No education/primary incomplete, 1 primary complete/secondary incomplete, 2 secondary complete, 3 post-secondary/university incomplete, 4 university complete, 5 graduate degree
Ideological Extremity	B3045, C3013	Absolute distance between the R's stand and the survey mean on the left-right scale divided by the standard deviation of the survey
Satisfaction with Democracy	B3012, C3019	-2 Very dissatisfied, -1 dissatisfied, 0 neither satisfied nor dissatisfied, 1 satisfied, 2 very satisfied
Age	B2001, C2001	Age of R at the time of the post-election survey
Variables Employed in Robustness Checks		
Satisfaction with Democracy (Election)	B3012, C3019	Mean `Satisfaction with Democracy' score in the survey, see the operationalization of the individual-level variable above.
Number of Distinct Party Families*	B5002_, C5002_	Simple (unweighted) count of distinct party families
Political Knowledge	B3038_, C3011_	Mean absolute distance between R's placements and the mean placements of political parties in the survey, see Gordon and Segura (1997) for detailed information
Trade Union Membership	B2005, C2005	1 R is member of a trade union, 0 otherwise
Urban/Rural Residence	B2030, C2030	1 Rural area or village, 2 small or middle-sized town, 3 suburbs of large town or city, 4 large town or city

Household Income	B2020, C2020	1 Lowest household income quintile, 2 second quintile, 3 third quintile, 4 fourth quintile, 5 highest quintile
Retrospective Evaluation of Government	B3011, C3006	-2 Very bad job, -1 bad job, 0 neither good or bad, 1 good job, 2 very good job

Notes: †Question numbers starting with B are from the second and those starting with C are from the third module of the Comparative Study of Electoral Systems data (2007, 2013).
For question wordings, see the codebook of the respective module (CSES 2007, 2013). Stata do file for data operationalization is available online at https://dataverse.harvard.edu/dataverse/mertmoral
*Respective party families are coded from the Comparative Manifesto Project dataset (Volkens et al., 2013). Electoral coalitions and `special issue' parties are not examined in empirical analyses.

Appendix C. Observed and Actual Election Results

Country	Year	Invalid Vote %		Abstain %		Niche Vote %		Mainstream Vote %	
		Observed†	Actual*	Observed†	Actual*	Observed†	Actual‡	Observed†	Actual‡
Austria	2008	0.7	2.1	12.4	21.2	25.5	38.6	61.5	57.4
Belgium	2003	2.6	4.3	12.2	8.4	13.8	17.7	71.4	73.4
Croatia	2007	1.1	3.5	16.5	14.9	75.8	21.7	6.7	55.7
Czech Republic	2006	0.1	1.5	20.5	40.4	18.5	20.6	60.8	70.9
Czech Republic	2010	0.2	0.4	26.7	35.5	20.5	19.1	52.7	74.9
Denmark	2007	0.3	0.7	2.4	13.4	29.6	29.1	67.7	71
Estonia	2011	0.3	1.6	18.1	22.4	2.7	16.8	78.9	79.2
Finland	2007	0.3	2.6	19	29.1	30.3	14.7	50.3	77.4
Germany	2005	0.3	0.6	5.4	37.4	22.8	24.6	71.4	63.3
Greece	2009	3.3	1.6	12	16.4	13	17.6	71.6	70.7
Iceland	2007	1.5	2.9	12.6	16.4	18	49.5	68	30.5
Iceland	2009	4.9	2.1	5.9	35.3	25.6	29.4	63.7	66.3
Italy	2006	1.6	1.5	30.1	20.9	31.8	31.6	36.5	66.1
Latvia	2010	0.7	0.3	19.1	24.6	24.3	33.7	55.9	63.9
Netherlands	2002	0.1	0.4	2.7	22.6	29.2	10.1	68.1	59.5
Netherlands	2010	0.1	3.1	7.7	40.3	28.2	17.7	63.9	76.1
Norway	2005	0.1	2.3	13.5	39.4	13.8	6.3	72.5	78
Portugal	2009	3.8	2.6	23.7	24.3	12.8	10.8	59.7	83.5
Slovenia	2004	3.7	1.8	21.2	24.7	4.5	6.2	70.7	89
Spain	2004	1.4	0.6	8.5	36.5	10.3	2.5	79.8	90.6
Spain	2008	1.3	0.7	16.7	35	7.8	22.1	74.1	48.3
Sweden	2002	1.9	1.5	11.4	19.9	8.8	8.4	78	77.6
Sweden	2006	1.3	1.8	6.3	18	15.7	14	76.8	75.4

*Institute for Democracy and Electoral Assistance (IDEA) Voter Turnout data (http://www.idea.int/vt/viewdata.cfm)
†Author's calculation from the CSES data (http://www.cses.org/datacenter/download.htm)
‡Author's calculation from the CSES data. Party families are coded from the CMP data (https://manifestoproject.wzb.eu/countries)

Appendix D. Robustness and Sensitivity Checks

	Satisfaction w/ Democracy	Political Knowledge	# Distinct P. Families	Additional Controls
Invalid Vote				
Effective Number of Distinct Party Families	-0.234*	0.126		-0.344*
	(0.077)	(0.233)		(0.094)
Number of Distinct Party Families			-0.480*	
			(0.069)	
Political Information	0.535‡		0.842*	0.763*
	(0.216)		(0.297)	(0.270)
Political Knowledge		0.171		
		(0.143)		
Political Information x Eff. Num. Dist. Par. Fam.	-0.194*			-0.226*
	(0.060)			(0.073)
Political Knowledge x Eff. Num. Dist. Par. Fam.		-0.081‡		
		(0.037)		
Political Information x Num. Dist. Par. Fam.			-0.197*	
			(0.061)	
Compulsory Voting (No Sanction)	-0.899*	-0.448†	-0.326	-0.404
	(0.236)	(0.251)	(0.216)	(0.301)
Compulsory Voting (Weak Enforcement)	0.129	0.515	0.321	1.189‡
	(0.402)	(0.399)	(0.402)	(0.501)
Compulsory Voting (Strong Enforcement)	0.851*		0.619*	
	(0.176)		(0.172)	
Post-communist Country	-1.088*	-0.659*	-0.437‡	-0.459
	(0.203)	(0.199)	(0.200)	(0.300)
Age	-0.018*	-0.024*	-0.019*	-0.024*
	(0.004)	(0.004)	(0.004)	(0.006)
Gender (Female)	-0.054	-0.091	-0.061	-0.157
	(0.125)	(0.136)	(0.126)	(0.173)
Education	0.028	0.086	0.061	0.028
	(0.060)	(0.065)	(0.060)	(0.092)
Ideological Extremity	-0.745*	-0.859*	-0.763*	-1.102*
	(0.134)	(0.150)	(0.130)	(0.198)
Satisfaction with Democracy (Election)	-1.553*			
	(0.203)			
Satisfaction with Democracy		-0.528*	-0.474*	-0.397*
		(0.059)	(0.053)	(0.076)
Trade Union Membership				0.731*
				(0.185)
Urban/Rural Residence				-0.025
				(0.078)
Household Income				-0.229*
				(0.065)
Retrospective Evaluation				-0.398*
				(0.077)
Constant	-1.501*	-2.101‡	-0.264	-0.692
	(0.329)	(0.944)	(0.370)	(0.523)
Abstain				
Effective Number of Distinct Party Families	-0.030	0.043		0.034
	(0.028)	(0.089)		(0.038)
Number of Distinct Party Families			-0.050‡	
			(0.024)	
Political Information	-0.240‡		-0.148	0.001
	(0.093)		(0.121)	(0.118)
Political Knowledge		-0.187*		
		(0.052)		

Political Information x Eff. Num. Dist. Par. Fam.	-0.028			-0.075‡
	(0.025)			(0.030)
Political Knowledge x Eff. Num. Dist. Par. Fam.		-0.002		
		(0.014)		
Political Information x Num. Dist. Par. Fam.			-0.034	
			(0.022)	
Compulsory Voting (No Sanction)	-0.286*	-0.267*	-0.317*	-0.382*
	(0.099)	(0.097)	(0.085)	(0.118)
Compulsory Voting (Weak Enforcement)	1.511*	1.309*	1.485*	1.573*
	(0.132)	(0.127)	(0.129)	(0.188)
Compulsory Voting (Strong Enforcement)	-0.037		-0.060	
	(0.080)		(0.082)	
Post-communist Country	0.749*	0.642*	0.730*	0.794*
	(0.058)	(0.048)	(0.047)	(0.067)
Age	-0.020*	-0.026*	-0.021*	-0.024*
	(0.001)	(0.001)	(0.001)	(0.002)
Gender (Female)	-0.077†	-0.079†	-0.078†	-0.127‡
	(0.042)	(0.044)	(0.042)	(0.055)
Education	-0.320*	-0.354*	-0.306*	-0.236*
	(0.021)	(0.022)	(0.022)	(0.030)
Ideological Extremity	-0.440*	-0.455*	-0.444*	-0.448*
	(0.039)	(0.040)	(0.039)	(0.053)
Satisfaction with Democracy (Election)	-0.247*			
	(0.057)			
Satisfaction with Democracy		-0.319*	-0.304*	-0.298*
		(0.019)	(0.018)	(0.025)
Trade Union Membership				-0.228*
				(0.067)
Urban/Rural Residence				0.017
				(0.024)
Household Income				-0.219*
				(0.021)
Retrospective Evaluation				-0.097*
				(0.025)
Constant	0.275‡	1.653*	0.468*	0.602*
	(0.130)	(0.347)	(0.146)	(0.205)
Niche Vote				
Effective Number of Distinct Party Families	0.353*	0.672*		0.289*
	(0.021)	(0.120)		(0.027)
Number of Distinct Party Families			0.176*	
			(0.017)	
Political Information	0.481*		0.457*	0.526*
	(0.077)		(0.090)	(0.096)
Political Knowledge		0.270*		
		(0.073)		
Political Information x Eff. Num. Dist. Par. Fam.	-0.117*			-0.123*
	(0.019)			(0.023)
Political Knowledge x Eff. Num. Dist. Par. Fam.		-0.057*		
		(0.018)		
Political Information x Num. Dist. Par. Fam.			-0.076*	
			(0.015)	
Compulsory Voting (No Sanction)	-1.027*	-0.846*	-1.191*	-1.072*
	(0.106)	(0.107)	(0.101)	(0.121)
Compulsory Voting (Weak Enforcement)	0.830*	1.243*	1.112*	1.385*
	(0.124)	(0.123)	(0.124)	(0.168)
Compulsory Voting (Strong Enforcement)	-0.411*		-0.356*	

	(0.072)		(0.073)	
Post-communist Country	-0.169*	0.127*	0.166*	0.420*
	(0.052)	(0.044)	(0.044)	(0.057)
Age	-0.010*	-0.011*	-0.011*	-0.013*
	(0.001)	(0.001)	(0.001)	(0.001)
Gender (Female)	0.128*	0.134*	0.122*	0.113*
	(0.034)	(0.035)	(0.034)	(0.041)
Education	-0.014	-0.003	0.014	0.038†
	(0.016)	(0.016)	(0.016)	(0.021)
Ideological Extremity	0.423*	0.421*	0.400*	0.401*
	(0.027)	(0.029)	(0.027)	(0.033)
Satisfaction with Democracy (Election)	-0.687*			
	(0.051)			
Satisfaction with Democracy		-0.288*	-0.291*	-0.234*
		(0.015)	(0.015)	(0.019)
Trade Union Membership				0.120*
				(0.045)
Urban/Rural Residence				0.028
				(0.019)
Household Income				-0.162*
				(0.016)
Retrospective Evaluation				-0.211*
				(0.018)
Constant	-2.198*	-3.894*	-1.983*	-1.707*
	(0.102)	(0.500)	(0.112)	(0.154)
Log lik.	-20389.460	-18643.050	-20259.902	-12737.827
χ^2	2810.880	2816.872	2919.061	2181.123
N	23864	21993	23864	15611

Notes: Multinomial logistic regression coefficients. Base category is casting a vote for a mainstream party. Robust standard errors in parentheses. Two-tailed tests. † $p<0.1$, ‡ $p<0.05$, * $p<0.01$

Appendix E. Multivariate Probit Regression Estimates

	Invalid Vote	Abstain	Niche Vote
Effective Number of Distinct Party Families	-0.185*	-0.056*	0.181*
	(0.030)	(0.013)	(0.012)
Political Information	0.192‡	-0.187*	0.301*
	(0.096)	(0.045)	(0.044)
Political Information x Eff. Num. Dist. Par. Fam.	-0.061‡	0.001	-0.064*
	(0.027)	(0.012)	(0.011)
Compulsory Voting (No Sanction)	-0.114	-0.114‡	-0.392*
	(0.097)	(0.050)	(0.053)
Compulsory Voting (Weak Enforcement)	-0.051	0.631*	0.377*
	(0.161)	(0.070)	(0.067)
Compulsory Voting (Strong Enforcement)	0.327*	0.029	-0.236*
	(0.071)	(0.041)	(0.038)
Post-communist Country	-0.302*	0.387*	-0.006
	(0.072)	(0.026)	(0.024)
Age	-0.005*	-0.009*	-0.004*
	(0.002)	(0.001)	(0.001)
Gender (Female)	-0.023	-0.063*	0.077*
	(0.049)	(0.022)	(0.019)
Education	0.035	-0.160*	0.024*
	(0.023)	(0.011)	(0.009)
Ideological Extremity	-0.308*	-0.282*	0.279*
	(0.045)	(0.019)	(0.015)
Satisfaction with Democracy	-0.165*	-0.119*	-0.125*
	(0.020)	(0.009)	(0.008)
Constant	-1.196*	-0.010	-1.614*
	(0.138)	(0.064)	(0.059)
$\rho_{2,1}$	-0.067*		
	(0.021)		
$\rho_{3,1}$	-0.085*		
	(0.019)		
$\rho_{3,2}$	-0.451*		
	(0.017)		
Log lik.	-20717.371		
χ^2	2952.683		
N	23864		

Notes: Standard errors in parentheses. Two-tailed tests. † p<0.1, ‡ p<0.05, * p<0.01