

Appendix and Supplemental material not intended for publication-Round 1

Submission Number: EB-25-00517

Supplemental Materials

A1. Variable Coding

Demographics

We coded a battery of socio-demographic and institutional independent and control variables in each of the six election years as follows. We coded *Age* in ascending categorical order from: ("1=17-25; 2=26-35; 3=36-45; 4=46-55; 5=56-65; 6=66-75; 7=76 or older"). *Income* remained a continuous ascending variable. *Education* was coded as in ascending categorical order from: ("1=Elementary; 2=Lower Vocational; 3=Secondary; 4=Middle level vocational/Higher level secondary; 5=Higher level Vocational/University"). *Marital status* was coded categorically where: ("1=Never married; 2=Widowed; 3=Divorced; 4=Married"). *Religious denomination* was coded as a binary where: ("0=Female; 1=Male"). We then assessed if voters were either *leftist or rightist* on an ordinal scale coded (1=leftist...10=rightist). We dichotomised the scale at a cut-off of 5, with each respondent below the cut-off being a *left-wing* voter and each above being a *right-wing* voter. This formed an external dummy variable to divide our model specifications.

Institutional Indices

The most basic institutional predictor: *Degree of urbanisation* was indexed by the DPES on the volume of post-code registrations geographically. We flipped this as a descending ordinal variable where: ("1=Very strongly urban....5=Not urban"). The remaining institutional predictors provided by the DPES contain a number of pre-determined institutional scores (index) variables available for analysis including *political cynicism* and *political interest* constructed on a Mokken scale. We adopted the pre-defined measures of political cynicism and political interest as calculating institutional measurements can predicate complex underlying relationships relative to attitudes, social and culture norms, religion, emotions and interpersonal behaviours and psychology (Enke 2020). Therefore, capturing institutional influence empirically is multifaceted and cannot equate to a single measurement. As a result, to measure these phenomena requires substitution with a number of proxy variables. Drawing from the institutional constructs from the DPES:

Political cynicism is constructed on a 4-point ordinal scale from: ("0=low...3=high"). It draws from a battery of categorical predictors ranging from the opinion of politicians fulfilling promises (1=fully agree, 2=agree, 3=disagree, 4=fully disagree), whether the agendas of politicians are pro-social or personal (1= fully agree, 2=agree, 3=disagree, 4=fully disagree) and whether politicians collude to gain access to the political domain rather than gaining entry on the merit of their own abilities (1=fully agree, 2=agree, 3=disagree, 4=fully disagree). Political cynicism is then constructed on a 4-point ordinal scale from: ("0=low...3=high"). We then split political cynicism at the median to create a median interaction effect where (0=low cynicism; 1=high cynicism).

Political interest was measured on a 5-point ordinal scale from: ("0=low...4=high"). It was constructed from a battery of categorical descending variables pertaining to how often the respondent informs themselves about national news (I=Always, 2=often, 3=now and then, 4= seldom or never, 5=does not read papers); national problems (I=joins conversation, 2=listens with interest, 3=does not listen); foreign news (I=nearly always, I=often, I=now and then, I=seldom or never, I=does not read papers) and general interest in politics (I=very interested, I=fairly interested, I=not interested).

A2. Robustness and Sensitivity Analysis

We ran several robustness methods across our linear probability regression analyses that we briefly summarize. First, we present a series of robustness tests for the political cynicism index variable adopted in our main analysis. Second, within our linear probability model construction, we compare our main results from a pooled specification to a normal interaction effect between age and political cynicism, continuous age and age squared. Third, as a matter of robustness for the entire analysis, we introduced variables in a stepwise method to determine the sensitivity of our results. Specifically, when we controlled for socio-demographic variables across each election year, we find no significant difference in coefficient estimation or general significance level magnitude changes. Our results do not change and we maintain similar coefficient ranges with no change to the level of significance in our fully specified models.

Testing Political Cynicism

As a robustness measure for political cynicism, we examined our Mokken scale estimates across the pre-existing index for political cynicism from 1989-2010 to ensure each represented a significant scale of a *Loevinger H coefficient* of (*H* 0.30) or greater determining a validated prediction (Gillespie et al. 1987). We also included our results for the political interest index. The robustness testing is detailed in Table A1.

Table A1: Mokken Scale Predictions - Loevinger H Coefficients (1989-2010)

	1989	1994	1998	2002	2006	2010
	H	Н	Н	Н	Н	Н
Political Interest	0.58680	0.55659	0.58427	0.49315	0.50191	0.54800
Political Cynicism	0.44377	0.40333	0.48404	0.43956	0.42263	0.43779

We then tested the sensitivity of these estimates by running each of the index variables independently within a fully specified model. Drawing from Table A2, we can see that the estimates remain significant within the same confidence intervals across specification (2) where (p=0.019), specification (3) where (p=0.000) and specification (4) where the variable remains insignificant at (p=0.182). In comparison, the underlying control variables shown in specifications (1-4) do not report any spurious change in correlation magnitude or significance deeming a robust fit.

Table A2: Robustness Testing – Political Cynicism

(0.0182 0.0197) 0.0183 0.0195) 0.0161 0.0195) 0.0208	-0.0172** (0.00734) 0.0190 (0.0198) 0.0173 (0.0195) -0.0161 (0.0196)	-0.0256*** (0.00691) 0.0155 (0.0200) 0.0132 (0.0197) -0.0223	-0.00920 (0.00688) 0.0179 (0.0202) 0.0191 (0.0200) -0.0166
Politician Agenda Politician Ability Age 26-35	0.0197) 0.0183 0.0195) 0.0161 0.0195)	0.0190 (0.0198) 0.0173 (0.0195) -0.0161	0.00691) 0.0155 (0.0200) 0.0132 (0.0197) -0.0223	(0.00688) 0.0179 (0.0202) 0.0191 (0.0200)
Politician Ability Age 26-35	0.0197) 0.0183 0.0195) 0.0161 0.0195)	0.0190 (0.0198) 0.0173 (0.0195) -0.0161	0.00691) 0.0155 (0.0200) 0.0132 (0.0197) -0.0223	(0.00688) 0.0179 (0.0202) 0.0191 (0.0200)
Age 26-35 (1	0.0197) 0.0183 0.0195) 0.0161 0.0195)	(0.0198) 0.0173 (0.0195) -0.0161	0.0155 (0.0200) 0.0132 (0.0197) -0.0223	(0.00688) 0.0179 (0.0202) 0.0191 (0.0200)
26-35	0.0197) 0.0183 0.0195) 0.0161 0.0195)	(0.0198) 0.0173 (0.0195) -0.0161	(0.0200) 0.0132 (0.0197) -0.0223	0.0179 (0.0202) 0.0191 (0.0200)
26-35	0.0197) 0.0183 0.0195) 0.0161 0.0195)	(0.0198) 0.0173 (0.0195) -0.0161	(0.0200) 0.0132 (0.0197) -0.0223	(0.0202) 0.0191 (0.0200)
(0.0197) 0.0183 0.0195) 0.0161 0.0195)	(0.0198) 0.0173 (0.0195) -0.0161	(0.0200) 0.0132 (0.0197) -0.0223	(0.0202) 0.0191 (0.0200)
	0.0183 0.0195) 0.0161 0.0195)	0.0173 (0.0195) -0.0161	0.0132 (0.0197) -0.0223	0.0191 (0.0200)
36-45	0.0195) 0.0161 0.0195)	(0.0195) -0.0161	(0.0197) -0.0223	(0.0200)
	0.0161 0.0195)	-0.0161	-0.0223	
	0.0195)			
		(0.01)	(0.0198)	(0.0201)
	0.0208	-0.0215	-0.0290	-0.0211
	0.0201)	(0.0202)	(0.0203)	(0.0207)
	.0458**	-0.0463**	-0.0529**	-0.0433**
	0.0203)	(0.0205)	(0.0206)	(0.0211)
	.0535**	-0.0531**	-0.0562**	-0.0624***
(1	0.0230)	(0.0232)	(0.0237)	(0.0239)
	0.00667	-0.00693*	-0.00564	-0.00695*
	0.00407)	(0.00410)	(0.00414)	(0.00420)
	00619**	-0.00609**	-0.00687**	-0.00648**
	0.00306)	(0.00307)	(0.00311)	(0.00316)
	.0188**	-0.0185**	-0.0187**	-0.0226**
	0.00862)	(0.00865)	(0.00873)	(0.00892)
Education -0	.0100**	-0.00905**	-0.00763*	-0.0106**
(0	0.00402)	(0.00407)	(0.00415)	(0.00420)
Income 0.	.000239	0.000303	0.000576	-3.86e-05
(0	.00110)	(0.00110)	(0.00112)	(0.00115)
Marital Status -(0.00641	-0.00666	-0.00619	-0.00625
(0	0.00404)	(0.00406)	(0.00410)	(0.00422)
Religious Denomination -(0.00890	-0.00705	-0.00607	-0.0106
(0	0.00878)	(0.00881)	(0.00889)	(0.00905)
	196***	0.227***	0.261***	0.228***
(0.0252)	(0.0283)	(0.0304)	(0.0319)
Wave Fixed Effects	YES	YES	YES	YES
Observations	6,363	6,315	6,235	6,006
R-squared	0.016	0.016	0.018	0.016

Notes: Models (1-4) represent pooled linear probability regression estimates of swing voters. All estimates are unstandardized coefficients. P-values are denoted by ***p<0.01, **p<0.05, *p<0.1. Robust standard errors specified in parentheses.

Testing the Functional Form of Age and Political Cynicism

We introduce a pooled control model from the main analysis and compare this to a normal interaction specification, followed by continuous age and age squared in Table A3.

Table A3: Sensitivity Analysis – Continuous Age & Political Cynicism

	(1)	(2)	(3)
VARIABLES	Continuous	Continuous	Squared
	Age	Age *	Age
		Interaction	
Age	-0.0234***	-0.0232***	-0.0211***
	(0.00474)	(0.00477)	(0.00521)
Squared Age			-0.00617
			(0.00439)
Political Cynicism	0.0121***	0.0115**	0.0121***
	(0.00435)	(0.00446)	(0.00435)
Age x Political Cynicism		-0.00482	
		(0.00430)	
Sex (Males)	-0.0219**	-0.0215**	-0.0217**
	(0.00869)	(0.00869)	(0.00868)
Education	-0.00748*	-0.00739*	-0.00786*
	(0.00406)	(0.00406)	(0.00406)
Income	0.000590	0.000662	0.000389
	(0.00110)	(0.00110)	(0.00111)
Marital Status	-0.00376	-0.00381	-0.00538
	(0.00388)	(0.00388)	(0.00404)
Religious Denomination	-0.00916	-0.00912	-0.00860
	(0.00881)	(0.00881)	(0.00881)
Degree of Urbanisation	-0.00596*	-0.00599*	-0.00611**
	(0.00307)	(0.00307)	(0.00307)
Political Interest	-0.00624	-0.00623	-0.00633
	(0.00409)	(0.00409)	(0.00409)
Constant	0.177***	0.175***	0.190***
	(0.0221)	(0.0220)	(0.0238)
Wave Fixed Effects	YES	YES	YES
Observations	6,300	6,300	6,300
R-squared	0.016	0.016	0.016

Notes: Models (1-4) represent pooled linear probability regression estimates of swing voters. Age & political cynicism variables are z-standardised. P-values are denoted by ***p<0.01, **p<0.05, *p<0.1. Robust standard errors specified in parentheses.

Testing Regression Specifications

We present linear probability stepwise regression specifications across a pooled sample in Table A4. Political cynicism is always a statistically significant and positive predictor of swing voting. Similarly, age is always a negative predictor.

Table A4: Robustness Testing – Stepwise Regressions

VARIABLES	(1) Pooled	(2) Pooled	(3) Pooled	(4) Pooled	(5) Pooled	(6) Pooled	(7) Pooled	(8) Pooled
VARIABLES	roolea	roolea	rooieu	rooled	rooled	roolea	rooled	rooted
Age	-0.0141*** (0.00241)	-0.0128*** (0.00244)	-0.0127*** (0.00244)	-0.0131*** (0.00244)	-0.0148*** (0.00258)	-0.0147*** (0.00269)	-0.0143*** (0.00275)	-0.0138*** (0.00279)
Political Cynicism	0.0137*** (0.00466)	0.0128*** (0.00467)	0.0130*** (0.00467)	0.0138*** (0.00467)	0.0123*** (0.00475)	0.0140*** (0.00487)	0.0139*** (0.00487)	0.0136*** (0.00488)
Political Interest		-0.0109*** (0.00369)	-0.0113*** (0.00370)	-0.00897** (0.00377)	-0.00646 (0.00395)	-0.00660 (0.00408)	-0.00628 (0.00409)	-0.00624 (0.00409)
Degree of Urbanisation			-0.00690** (0.00296)	-0.00684** (0.00295)	-0.00720** (0.00297)	-0.00669** (0.00303)	-0.00638** (0.00304)	-0.00596* (0.00307)
Sex				-0.0227*** (0.00838)	-0.0234*** (0.00845)	-0.0223** (0.00867)	-0.0212** (0.00868)	-0.0219** (0.00869)
Education					-0.00630* (0.00378)	-0.00709* (0.00404)	-0.00729* (0.00405)	-0.00748* (0.00406)
Income						0.000372 (0.00106)	0.000601 (0.00110)	0.000590 (0.00110)
Marital Status							-0.00372 (0.00387)	-0.00376 (0.00388)
Religious Denomination								-0.00916 (0.00881)
Constant	0.127*** (0.0139)	0.144*** (0.0152)	0.170*** (0.0185)	0.177*** (0.0188)	0.199*** (0.0222)	0.193*** (0.0229)	0.201*** (0.0248)	0.204*** (0.0250)
Wave Fixed Effects	YES							
Observations R-squared	6,805 0.011	6,805 0.013	6,805 0.013	6,805 0.014	6,653 0.015	6,325 0.016	6,312 0.016	6,300 0.016

Notes: Models (1-10) represent pooled linear probability regression estimates of swing voters. All estimates are unstandardized coefficients. P-values are denoted by ***p<0.01, **p<0.05, *p<0.1. Robust standard errors specified in parentheses.

References Mentioned in Supplemental Materials

Enke, B. (2020). "Moral values and voting". Journal of Political Economy 128, 3679-3729.

Gillespie, M., Tenvergert, E. M., and Kingma, J. (1987). "Using Mokken scale analysis to develop unidimensional scales". *Quality and Quantity* **21**, 393-408.