These are the Appendices to the paper "Election Frequency and Voter Turnout"

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Appendix A: ANALYSIS 1

A.1 Additional Justification of the Control Variables

According to the existing literature, voter turnout is the highest in those countries where voting is compulsory (Kostelka, Singh, and Blais forthcoming). In our analysis, the dummy variable *Compulsory Voting* is coded as 1 for pre-1971 elections in the Netherlands and pre-2000 elections in Greece. Voter turnout tends to be higher when parties can achieve majority status in parliament and thus enact their electoral programme (Franklin 2004). Accordingly, the variable *Majority Status* captures the absolute value of the difference between the score of the winning party and 50% of votes. The smaller the value, the more mobilizing should be the election. Another characteristic of party competition to consider is closeness, also known as the margin of victory. The variable *Closeness* measures the difference in vote shares between the first and second parties. The larger its value, the more predictable the election outcome, and the lower the voter turnout (Blais 2000). As voter turnout tends to be higher in proportional electoral systems (Blais 2007), we include dummy variables for proportional and mixed electoral systems; the reference being majoritarian electoral systems (including plurality systems). Since concurrently held elections record higher turnout (Leininger, Rudolph, and Zittlau 2018), we include a dummy *Concurrent Elections* coded as 1 for simultaneous legislative and presidential contests.

A.2 Statistical Tests

To choose our model specification, we ran statistical tests on our preferred Model 2 in Table 1. The Hausman specification test (H_0 = no systematic difference between the fixed and random model specifications) yielded a p-value < 0.011. The tests for auto-correlation (Woolridge 2010, H_0 = no first-order autocorrelation), non-stationarity (Baltagi 2008, H_0 = panels are non-stationary), and contemporaneous correlation (Pesaran 2004, H_0 = no contemporaneous correlation) gave the p-values < 0.05, < 0.001, and 0.002 respectively. This meant that our analysis was affected by unit heterogeneity, auto-correlation, and contemporaneous correlation, which we address through country-fixed effects and panel-corrected standard errors (PSCEs) with a first-order correlation structure (AR 1) in all models. In Table A3 below, we show that our results hold when we instead use random effects,

standard errors clustered by country (instead of the PCSEs), or a first-differenced model specification (that would address non-stationarity).

A.3 Descriptive Statistics

Table A1: Descriptive Statistics - Analysis 1

Variable	Obs	Mean	Std. Dev.	Min	Max
Turnout	320	75.31	12.71	39.2	96.79
Year	320	1989.68	20.55	1945	2019
Majority Status	320	14.49	8.55	.1	37.68
Closeness	320	10.82	9.03	0	59.08
Majoritarian	320	.04	.2	0	1
Proportional	320	.89	.31	0	1
Mixed	320	.06	.24	0	1
CV	320	.05	.22	0	1
Concurrent Elections	320	.02	.15	0	1
Snap Election	320	.32	.47	0	1
Number of Elections: 5 weeks	320	.07	.25	0	1.36
Number of Elections: 0.5 years	320	.27	.53	0	3
Number of Elections: 0.5-2 years	320	1.08	1.04	0	5
Number of Elections: 2-4 years	320	1.76	1.21	0	6.38
Number of Elections: 4-5 years	320	.98	.97	0	7.03
IEF	320	.69	.61	0	3.26
IEF: Weight	320	.57	.5	0	2.68
IEF: Weight (alt.)	320	.53	.5	0	2.56
IEF: First-Order Elections	320	.19	.35	0	1.93
IEF: Second-Order Elections	320	.49	.47	0	2.27
IEF: National Elections	320	.2	.35	0	1.93
IEF: Referendums	320	.14	.31	0	1.73
IEF: Supranational Elections	320	.08	.2	0	1.05
IEF: Subnational Elections	320	.27	.31	0	2.13

A.4 Full Table 1

Table A2: Full Table 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls:									
Majority Status			−0.24 (0.06)***	−0.22 (0.06)***	−0.23 (0.06)***	−0.22 (0.06)***	−0.22 (0.06)***	−0.22 (0.06)***	−0.23 (0.06)***
Closeness			−0.07 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.08 (0.05)
Proportional			2.21 (2.46)	2.74 (2.82)	2.15 (2.76)	2.80 (2.92)	2.51 (2.91)	2.50 (2.93)	2.80 (3.05)
Mixed			0.97 (3.55)	1.32 (3.72)	1.12 (3.64)	1.23 (3.78)	0.79 (3.78)	0.78 (3.84)	0.84 (3.93)
Compulsory Voting			6.87 (1.43)***	7.16 (1.47)***	7.12 (1.48)***	7.04 (1.48)***	7.09 (1.44)***	7.09 (1.45)***	7.19 (1.50)***
Concurrent Elections			8.88 (2.82)**	8.45 (3.07)**	9.21 (2.82)**	8.31 (3.13)**	8.38 (3.09)**	8.39 (3.09)**	8.16 (3.12)**
Snap Election	−0.61 (0.65)				0.30 (0.57)				
Election Frequency:									
Number of Elections: 5 weeks		−3.53 (1.33)**	−2.57 (1.10)*		0.82 (2.02)				
Number of Elections: 0.1-0.5 years		−2.90 (0.82)***	−2.23 (0.50)***		−0.05 (1.06)				
Number of Elections: 0.5-2 years		−1.51 (0.48)**	−0.67 (0.30)*		0.32 (0.56)				
Number of Elections: 2-4 years		−1.40 (0.44)**	−0.61 (0.31)*		−0.38 (0.34)				
Number of Elections: 4-5 years		−0.59 (0.43)	0.06 (0.28)		0.15 (0.29)				
IEF				−2.88 (0.60)***	−3.40 (1.60)*				
IEF: Weight						−3.48 (0.73)***			
IEF: Weight (alt.)							−3.53 (0.76)***		
IEF: First-Order Elections								−3.53 (1.01)***	
IEF: Second-Order Elections								−2.44 (0.64)***	
IEF: National Elections									−3.59 (1.04)***
IEF: Referendums									−1.99 (0.97)*
IEF: Supranational Elections									−3.02 (1.27)*
IEF: Subnational Elections									−2.72 (0.92)**
Constant	93.76 (2.12)***	97.35 (2.20)***	88.68 (2.99)***	87.33 (3.17)***	88.54 (3.20)***	87.50 (3.27)***	87.55 (3.26)***	87.56 (3.26)***	87.37 (3.35)***
Time Trend	Yes	Yes	No	No	No	No	No	No	No
Country-Specific Time Trend	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	320	320	320	320	320	320	320	320	320
R2	0.79	0.80	0.91	0.90	0.91	0.90	0.90	0.91	0.91

Note: The dependent variable is country-level voter turnout. Prais-Winsten regression. Panel-corrected standard errors with first-order auto-correlation. Significance levels: * $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

Table A2 displays the full version of Table 1. The regression coefficients of the control variables are all in the expected direction. For instance, voter turnout is higher when voting is compulsory and legislative elections are held concurrently with presidential elections.

A.5 Robustness Checks

Table A3: Robustness Checks - Analysis 1 (Model 4)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	GDP p/c	Polarisation (Manifesto Project)	Period before 1990	Period from 1990	Consolidated Democracy (6th and later dem. el.)	FE & clustered SE by country	RE & clustered SE by country	FD Model	Filter for extrap. coverage	No post-treatment controls	Snap Elections
Controls:											
Majority Status	−0.21 (0.05)***	−0.25 (0.07)***	−0.22 (0.08)**	−0.19 (0.09)*	−0.16 (0.04)***	−0.22 (0.06)***	−0.16 (0.11)		−0.16 (0.07)*		
Closeness	−0.09 (0.05)*	−0.09 (0.05)	−0.14 (0.06)*	−0.00 (0.06)	−0.12 (0.04)**	−0.08 (0.07)	−0.08 (0.09)		−0.04 (0.05)		
El. System: Proportional	3.78 (2.91)	2.49 (5.13)	3.88 (2.54)	27.37 (12.80)*	6.45 (3.57)	1.77 (0.57)**	8.90 (1.62)***		6.81 (2.21)**	0.83 (2.55)	0.77 (2.58)
El. System: Mixed	2.08 (3.87)	5.07 (5.73)		28.30 (14.27)*	1.33 (4.29)	0.21 (4.41)	7.07 (5.32)		6.35 (2.89)*	−0.29 (3.42)	−0.39 (3.37)
Compulsory Voting	7.22 (1.37)***	7.07 (2.24)**	13.69 (2.29)***	−8.53 (2.76)**	6.55 (2.11)**	6.82 (2.85)*	6.00 (4.17)		10.63 (2.55)***	7.61 (2.09)***	7.60 (2.10)***
Concurrent Elections	8.73 (3.33)**	10.63 (4.09)**		10.23 (2.87)***		8.79 (1.93)***	16.25 (4.44)***		8.82 (2.82)**	8.42 (2.79)**	8.40 (2.79)**
Year	−0.11 (0.07)	0.05 (0.01)***	−0.21 (0.09)*	−0.73 (0.09)***	−0.35 (0.07)***	0.06 (0.01)***	0.10 (0.13)		−0.42 (0.09)***	−0.33 (0.06)***	−0.33 (0.06)***
Year²							−0.01 (0.00)***				
GDP_pc	0.00 (0.00)***						0.00 (0.00)				
GDP_pc × GDP_pc	−0.00 (0.00)***						−0.00 (0.00)				
(sd) rile		−0.01 (0.04)									
(sd) economic_axis		−0.02 (0.03)									
(sd) cultural_axis		0.04 (0.04)									
D.Majority Status								−0.19 (0.09)*			
D.Closeness								−0.07 (0.06)			
D.Electoral system								2.05 (1.96)			
D.CV								6.75 (6.18)			
D.Joint Presidential								10.68 (4.10)*			
Election Frequency:											
IEF	−2.51 (0.59)***	−3.03 (0.62)***	−2.45 (0.64)***	−2.63 (0.93)**	−2.74 (0.46)***	−3.01 (0.55)***	−3.40 (0.89)***		−2.96 (0.70)***	−3.41 (0.64)***	−3.39 (0.64)***
D.IEF								−2.60 (0.50)***			
Snap Election											−0.10 (0.67)
Constant	81.32 (3.67)***	88.27 (4.78)***	0.00 (.)	113.38 (5.84)***	91.09 (2.96)***	94.44 (1.38)***	72.09 (3.68)***	−0.94 (0.31)**	92.21 (4.64)***	88.30 (2.74)***	88.36 (2.78)***
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Country-Specific Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
N	297.00	285.00	136.00	184.00	210.00	320.00	297.00	297.00	287.00	321.00	321.00
R2	0.91	0.91	0.87	0.93	0.99	0.78	0.58	0.16	0.91	0.86	0.86

Note: The dependent variable is country-level voter turnout. Prais-Winsten or OLS regressions. Unless stated otherwise (see model labels) panel-corrected standard errors with first-order auto-correlation. Significance levels: * $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

Table A3 replicates model 4 from Analysis 1 (Tables 1 and A2), showing that the negative effect of the index of election frequency (*IEF*) holds with additional control variables (GDP per capita, party system polarization, snap elections); when post-treatment controls (majority status closeness) are excluded; when running the analysis for different subsets of the data (e.g., pre- or post-1990 years, years of consolidated democracy); under a variety of alternative technical specifications (random effects, clustered instead of panel-corrected standard errors, a fist-difference estimator); and when legislative elections preceded by contests where coverage (i.e., the share of the electorate eligible to vote in the given election) was extrapolated are omitted. The following tables A4 and A5 demonstrate the result holds even when any individual country is removed from the analysis.

Table A4: Robustness Checks - Analysis 1 (Jackknife I)

	Without Denmark	Without Spain	Without Finland	Without France	Without Greece	Without Ireland	Without Iceland	Without Malta	Without Netherlands	Without Norway	Without Portugal	Without Sweden
Controls:												
Majority Status	−0.24 (0.07)***	−0.22 (0.07)***	−0.23 (0.06)***	−0.22 (0.07)**	−0.21 (0.07)**	−0.21 (0.06)**	−0.23 (0.07)***	−0.22 (0.06)***	−0.23 (0.07)***	−0.21 (0.06)***	−0.23 (0.07)***	−0.21 (0.06)***
Closeness	−0.08 (0.05)	−0.07 (0.05)	−0.09 (0.05)	−0.06 (0.05)	−0.07 (0.05)	−0.07 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.09 (0.05)	−0.07 (0.05)	−0.08 (0.05)	−0.08 (0.05)
El. System: Proportional	2.65 (2.86)	3.07 (2.82)	2.70 (2.88)	1.63 (2.53)	2.56 (2.83)	2.57 (2.85)	2.77 (2.86)	2.71 (2.83)	2.98 (2.85)	2.67 (2.82)	2.72 (2.84)	2.50 (2.78)
El. System: Mixed	1.21 (3.74)	1.54 (3.75)	1.40 (3.75)	0.00 (.)	4.88 (4.58)	1.16 (3.71)	1.34 (3.74)	1.31 (3.72)	1.70 (3.82)	1.24 (3.72)	1.25 (3.73)	1.04 (3.69)
Compulsory Voting	7.08 (1.49)***	7.23 (1.43)***	7.12 (1.51)***	7.22 (1.44)***	10.93 (1.70)***	7.19 (1.49)***	7.17 (1.48)***	7.17 (1.48)***	1.09 (2.70)	7.18 (1.47)***	7.12 (1.48)***	7.07 (1.47)***
Concurrent Elections	8.60 (3.06)**	8.34 (3.09)**	8.58 (3.06)**	8.38 (3.06)**	9.68 (3.22)**	8.55 (3.04)**	8.52 (3.06)**	8.48 (3.06)**	8.44 (3.10)**	8.47 (3.06)**	8.51 (3.07)**	8.45 (3.07)**
Year	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***
Election Frequency:												
IEF	−2.96 (0.68)***	−2.69 (0.60)***	−3.10 (0.63)***	−2.61 (0.74)***	−2.90 (0.61)***	−2.98 (0.62)***	−2.92 (0.62)***	−2.93 (0.61)***	−2.89 (0.63)***	−2.90 (0.61)***	−2.86 (0.63)***	−2.85 (0.61)***
Constant	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)
Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Specific Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	292.00	305.00	300.00	300.00	302.00	300.00	297.00	308.00	298.00	301.00	304.00	298.00
R2	0.90	0.91	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.91	0.90	0.91

Note: The dependent variable is country-level voter turnout. Prais-Winsten regressions. Significance levels: * $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

Table A5: Robustness Checks - Analysis 1 (Jackknife II)

	Without Bulgaria	Without Czech Rep.	Without Estonia	Without Hungary	Without Latvia	Without Lithuania	Without Poland	Without Romania	Without Slovakia	Without Slovenia
Controls:										
Majority Status	−0.21 (0.06)***	−0.23 (0.06)***	−0.21 (0.06)**	−0.22 (0.06)***	−0.20 (0.06)**	−0.19 (0.06)**	−0.22 (0.06)***	−0.25 (0.07)***	−0.23 (0.06)***	−0.23 (0.06)***
Closeness	−0.05 (0.05)	−0.11 (0.04)**	−0.08 (0.05)	−0.09 (0.05)	−0.08 (0.04)	−0.07 (0.04)	−0.08 (0.05)	−0.13 (0.05)*	−0.06 (0.04)	−0.08 (0.05)
El. System: Proportional	2.79 (2.82)	2.71 (2.78)	2.70 (2.81)	2.87 (2.79)	2.63 (2.76)	2.51 (2.80)	2.67 (2.86)	2.97 (2.77)	2.91 (2.83)	2.93 (2.86)
El. System: Mixed	−2.39 (3.45)	1.43 (3.73)	1.47 (3.60)	1.44 (3.73)	1.27 (3.69)	1.19 (3.59)	1.32 (3.74)	2.06 (4.03)	1.34 (3.73)	1.22 (3.87)
Compulsory Voting	7.37 (1.40)***	6.97 (1.46)***	7.16 (1.47)***	7.14 (1.44)***	7.15 (1.46)***	7.27 (1.71)***	7.16 (1.49)***	6.86 (1.47)***	7.25 (1.43)***	7.20 (1.46)***
Concurrent Elections	7.30 (2.99)*	8.36 (3.10)**	9.30 (3.79)*	8.32 (3.10)**	8.35 (3.07)**	8.48 (2.87)**	8.51 (3.09)**	9.08 (3.35)**	8.45 (3.07)**	6.93 (3.93)
Year	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***	0.05 (0.00)***
Election Frequency:										
IEF	−2.61 (0.59)***	−2.97 (0.57)***	−2.91 (0.61)***	−2.79 (0.60)***	−2.91 (0.60)***	−3.06 (0.58)***	−3.01 (0.60)***	−2.77 (0.61)***	−2.72 (0.60)***	−2.87 (0.63)***
Constant	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)
Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Specific Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	310	311	312	312	311	313	311	312	311	312
R2	0.91	0.91	0.90	0.91	0.90	0.91	0.90	0.90	0.91	0.90

Note: The dependent variable is country-level voter turnout. Prais-Winsten regressions. Significance levels: * $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

A.6 Regression Models for Figure 3

Table A6: Regression Models for Figure 3

	(1) IEF SOE Turnout: Legislative	(2) IEF FOE Turnout: Municipal	(3) IEF FOE Turnout: Supranational	(4) IEF FOE Turnout: Regional	(5) IEF FOE Turnout: Referendums
IEF	$-3.15\ (0.76)^{***}$	$-3.94\ (0.98)^{***}$	$-6.41\ (2.02)^{**}$	$-8.65\ (3.50)^{*}$	$-5.24\ (2.85)$
Constant	$8.25\ (40.49)$	$388.65(74.33)^{***}$	$-371.96\ (227.34)$	$435.34\ (286.02)$	$-258.90\ (318.70)$
Country-Specific Time Trend	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
N	321	214	92	43	129
R2	0.847	0.869	0.965	0.948	0.792

Note: The dependent variable is country-level voter turnout. Prais-Winsten regressions. Significance levels: $^{*}\ p < 0.05,^{**}\ p < 0.01,^{***}\ p < 0.001$.

A.7 Further Details on the Data Set of Elections

For each country, our data set spans the period starting approximately six years before the country's democratization through 2019. Election scope (i.e., the share of the country's electorate that was eligible to vote) typically draws on the number of eligible voters compared to the country's total number of registered voters. When elections took place in only some sub-national units and no national election was held in the same year,[50] the total number of registered voters was estimated using the cubic spline interpolation taking information from the last preceding and first following national elections. In rare cases, where the number of eligible voters was not available (and especially when elections were staggered), election scope draws on the number of eligible sub-national units (e.g., the share of regions in which a regional election took place).

Election Overviews by Country

Denmark
The data for Denmark include lower house (*Folketing*) and upper house (*Landsting*) legislative elections,[51] European Parliament elections, national referendums, municipal elections, and regional elections.[52] The coverage starts with the 1939 legislative election and focuses on Denmark proper, excluding Denmark's two autonomous territories (the Faroe Islands and Greenland).

Finland
The data for Finland cover presidential elections (*Presidentinvaali*), parliamentary elections (*Eduskuntavaalit*), European Parliament elections, national referendums, and municipal elections (*Kunnallisvaalit*). The coverage starts with the 1936 parliamentary election. Even though presidential elections were organized since 1919, the president was originally elected by the members of parliament and the public became involved in the vote only in 1950.[53]

France
The data for France include presidential elections (*Élections Présidentielles*), legislative elections(*Législatives*) to the lower house (*Assemblée Nationale*),[54] European Parliament elections, national referendums, regional elections

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[50]This occurred notably in Spain (asynchronous regional elections) and Malta (staggered municipal elections).

[51]Upper house elections were held for the last time in 1953.

[52]The 2005 structural reform replaced general council elections (*Amtsråd*) by regional elections (*Regionsråd*).

[53]Between 1950 and 1988, the elections were indirect: the public elected presidential electors to an electoral college. From 1994, the elections were direct.

[54]The upper house (*Sénat*) is elected indirectly.

(*Régionales*), municipal elections (*Municipales*), and departmental elections (*Départementales*).[55] In line with our inclusion criteria (coverage of at least 10% of the total population), the territorial elections that are held only in French overseas territorial collectivities were not included in the data. The data start with the 1945 legislative election.[56]

Greece

The data for Greece cover legislative elections, European Parliament elections, national referendums, regional elections, and municipal elections. They start with the last legislative election that preceded the Greek military junta (1964). The data cover all the aforementioned types of elections from 1964 onward, including *inter alia* two non-democratic national referendums in 1968 and 1973 as well as the last municipal election conducted before the establishment of the Regime of the Colonels (1964). Prefectural elections took place for the first time in 1994[57] and were replaced by regional elections in 2010 after the 'Kallikrates reform'.

Iceland

The data for Iceland include presidential elections (*Forsetakosningar*), legislative elections (*Alþingiskosningar*), national referendums, and municipal elections (*Sveitarstjórnarkosningar*). The data start with the 1942 legislative election. The first presidential election in Iceland was organized in 1944, but went uncontested.[58] The first presidential elections with at least two candidates were held only in 1952. Until 1986, municipal elections were held separately (on a different date) in municipalities with more than 300 inhabitants and those with less than 300 inhabitants. Since 1990, municipal elections are held on the same day in all municipalities (with minor exceptions in 1990).

Ireland

The data for Ireland cover presidential elections, legislative lower house (*Dáil Éireann*) elections,[59], European Parliament elections, national referendums, and local elections. The data start with the 1943 legislative elections. The first contested presidential election took place in 1945 as the 1938 election was unopposed.[60]

Malta

The data for Malta cover legislative elections (*Elezzjonijiet Ġenerali*), European Parliament elections, national referendums, and municipal elections (Elezzjonijiet tal-Kunsilli Lokali). They start with the 1953 (pre-independence) legislative election. The first municipal election was held in 1993 and the election takes place yearly: each year one-third of the councils are renewed.[61]

Netherlands

The data for the Netherlands include legislative elections (*Tweede Kamerverkiezingen*),[62] European Parliament elections, national referendums, regional elections (*Provinciale Statenverkiezingen*) and municipal elections (*Gemeenteraadsverkiezingen*). They do not include Water Board elections (*Waterschapsverkiezingen*), traditionally organized by each municipality, due to their largely apolitical nature and low relevance.[63] The data start with the 1937 legislative election.

Norway

The data for Norway cover legislative elections (*Stortingsvalg*), national referendums, regional elections (*Fylkestingsvalg*) and municipal elections (*Kommunesvalg*). Elections to the Sami parliament (Sametingsvalg) that take place

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[55]The departmental elections are results of the 2013 reform. Until then the elections were held in cantons and called accordingly (*Élections Cantonales*).

[56]The last pre-1945 legislative election took place in 1936, the last local election in 1937 (cantonal elections).

[57]Until 1994, officials in prefectures and regions were appointed indirectly.

[58]In 11 out of the total number of 19 presidential elections the presidential candidate was unopposed.

[59]The upper house (*Seanad*) is elected indirectly.

[60]In total, there were six unopposed presidential elections so far.

[61]In 2019, all 68 municipal councils were renewed simultaneously.

[62]The upper house (*Eerste Kamer*) is elected indirectly.

[63]They were held asynchronously across the country (until 2008), political parties did not participate in them (until 2008), and participation was generally under 20%. A 2014 reform made them coincide with regional elections.

at the same day as parliamentary elections were not included due to the very limited number of entitled voters.[64] The data start with the 1936 legislative election. The first direct regional elections were held in 1975 (until 1974 the county councils were elected indirectly).

Portugal
The data for Portugal include presidential elections (*Eleições Presidenciais*), legislative elections (Legislativas), European Parliament elections, national referendums, regional elections (*Legislativas Regionais*),[65] and municipal elections (*Autárquicas*).[66] The data start with the non-democratic 1965 legislative elections. The Portuguese Communities Elections, in which only Portuguese citizens abroad can vote and which generate very little interest (average turnout of approximately 2 %), are not included.

Spain
The data for Spain cover lower house (*Congreso de los Diputados*) and upper house (*Senado*) legislative elections, European Parliament elections, national referendums, regional elections (*Elecciones autonómicas*), and municipal elections (*Elecciones municipales*). The data start with the non-democratic 1967 legislative election.

Sweden
The data for Sweden include legislative elections (*Riksdagsvalet*),[67] European Parliament elections, national referendums, municipal elections (*Kommunalfullmäktigevalen*) and county council elections (*Landstingsvalen*).[68] The data start with the 1940 legislative election. Legislative elections have been held jointly with municipal and county council elections.

Bulgaria
The data for Bulgaria cover presidential elections, legislative elections, European Parliament elections (held since 2007), nationwide referendums, and municipal elections. The coverage starts with the pre-democratic 1986 legislative election.

Czech Republic
The data for the Czech Republic cover presidential elections (conducted since 2013), lower house (*Poslanecká Sněmovna*) elections, upper house (*Senát*, 1996) elections, one nationwide referendum (held in 2004), European Parliament elections (conducted since 2004), regional elections (2000), and municipal elections. The coverage starts with the pre-democratic Czechoslovak election of 1986, which filled simultaneously legislative, regional, local, and municipal offices.

Estonia
The data for Estonia mostly cover legislative elections, referendums, European Parliament elections (conducted since 2004), and municipal elections. Idiosyncratic contests include the election to the Congress of Estonia (*Eesti Kongress*) in 1990 and the only direct presidential election of 1993 (held simultaneously with the 1993 legislative election). The coverage starts with the Soviet 1989 election to the Congress of People's Deputies.

Hungary
The data for Hungary mostly cover legislative elections, referendums, European Parliament elections (conducted since

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[64]Only registered Sami can take part in the elections (in 2017 there were 16 958 persons registered as Sami in Norway).

[65]These elections concern the two autonomous regions: Azores and Madeira.

[66]The elections comprise of elections to Parish Assemblies, Municipal Assemblies and Municipal Councils held simultaneously.

[67]The Swedish parliament had two chambers until 1970. The elections to the upper house were indirect.

[68]In addition, all persons who are entitled to vote in municipal elections can also vote in elections to parish councils. Since 1970, parish council elections are held simultaneously with legislative, municipal, and county council elections. Given their simultaneity, specific nature, and low salience reflected in extremely low participation rates, these elections are not included in our data.

2004), and municipal elections.[69] The coverage starts with the pre-democratic election of 1985, which filled simultaneously legislative and local offices.

Latvia

The data for Latvia mostly cover legislative elections, referendums, European Parliament elections (conducted since 2004), and municipal elections. The coverage starts with the Soviet 1989 election to the Congress of People's Deputies.

Lithuania

The data for Lithuania mostly cover legislative elections, referendums, European Parliament elections (conducted since 2004), and municipal elections. By contrast to all other democratic legislative contests, the 2000 election to the unicameral parliament (*Seimas*) had a single round. The coverage starts with the Soviet 1989 election to the Congress of People's Deputies.

Poland

The data for Poland mostly cover presidential, simultaneous lower house (*Sejm*) and upper house (*Senat*) legislative elections, referendums, European Parliament elections (conducted since 2004), and local (i.e., simultaneous municipal, county and provincial) elections. The coverage starts with the pre-democratic local election of 1984.

Romania

The data for Romania mostly cover presidential elections, simultaneous legislative lower house (*Camera Deputaților*) and upper house (*Senat*) legislative elections, referendums, European Parliament elections (conducted since 2007), and local (i.e., simultaneous municipal and country) elections. The coverage starts with the pre-democratic legislative election of 1985.

Slovenia

The data for Slovenia mostly cover presidential elections, lower house (*Državni Zbor*) legislative elections,[70] referendums, European Parliament elections (conducted since 2004), and municipal elections. The coverage starts with the pre-democratic legislative election of 1986.

Slovakia

The data for Slovakia cover presidential elections (conducted from 1999), legislative elections, nationwide referendums, European Parliament elections (conducted since 2004), regional elections (from 2001), and municipal elections. The coverage starts with the pre-democratic Czechoslovak election of 1986, which filled simultaneously legislative, regional, local, and municipal offices.

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[69]Municipal elections were always held simultaneously with county elections (*Megyei Közgyűlés Választása*).

[70]The upper house (*Državni Svet*) is elected indirectly.

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Appendix B: ANALYSIS 2A

B.1 Details on Data Collection and Geocoding

The data set for the study of the UK's 2017 general election contains data on the 2010, 2015, 2017, and 2019 general election, the 2017 local election and the 2016 European Union membership referendum. When combining the data, the key issue is that each type of voting is organized in different administrative units that do not perfectly overlap. The general elections are held in constituencies, the referendum at the local authority level, and the local election (in England) in counties, unitary and metropolitan authorities and city mayoral and combined authority mayoral authorities that further divide into districts, divisions, local and combined authorities, and wards.

As our analysis focuses on turnout in the 2017 general election, the main geographical unit of the data set are legislative constituencies. Their boundaries are normally periodically reviewed. However, the 2013 Review was stopped and the 2018 Review has not been brought forward by the Government for approval before the 2019 general election. Therefore, legislative constituencies remained unchanged between 2010 and 2019. This facilitated the merge of the data from the 2010, 2015, 2017, and 2019 general elections, and the tracing of relevant legislative constituencies' boundaries for the subsequent remapping of local elections' data.

After the merge of legislative data, the next step consisted in incorporating the 2016 referendum and the 2017 local election. With respect to the referendum, we reused the work of Chris Hanretty (Hanretty, 2017) who applied a scaled Poisson regression model to remap the results of the 2016 EU referendum to the parliamentary-constituency level. Concerning the local election, we combined official statistics from Britain's Electoral Commission with geographical information on the boundaries of constituencies, counties, unitary authorities, and combined authorities (including wards) as provided by the Geography Portal of the British Office for National Statistics in December 2017.[71] The shapefiles allowed us to geocode which parliamentary constituencies (or which share of them) were eligible to vote in the 2017 local election.

The geocoding addresses two types of issues: that the boundaries of Westminster constituencies and local election's counties do not perfectly overlap and that some local election's wards where elections were to be held remained uncontested (voters in those wards did not have an opportunity to vote as candidates were elected unopposed). First, we created a shapefile mapping all the areas in England that were entitled to vote in the 2017 local election based on the boundaries of counties, unitary authorities, and combined authorities. In this file, we also specified wards that remained uncontested in the 2017 local election. Second, we mapped parliamentary constituencies to the file and identified constituencies that (at least partially) overlapped with the territory where the 2017 elections were held. Finally, we calculated the share of each constituency's electorate (from the 2017 general election) that was entitled to vote in the 2017 local election. The estimation combined information on territorial overlap and the number of registered voters while accounting for the uncontested wards.

Further details (including the list of uncontested wards) are available upon request.

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[71]National election Constituencies Boundaries:
https://geoportal.statistics.gov.uk/datasets/westminster-parliamentary-constituencies-december-2017-full-extent-boundaries-in-the-uk
Counties Boundaries:
https://geoportal.statistics.gov.uk/datasets/counties-december-2017-full-extent-boundaries-in-england
Unitary Authorities Boundaries:
https://geoportal.statistics.gov.uk/datasets/counties-and-unitary-authorities-december-2017-full-extent-boundaries-in-great-britain
Combined Authorities full boundaries:
https://geoportal.statistics.gov.uk/datasets/combined-authorities-march-2017-full-extent-boundaries-in-england
All the links were active as of 01/09/2020.

B.2 Descriptive Statistics

Table A7: Descriptive Statistics - Analysis 2A (Election of 2017)

	All Constituencies					England-Treatment					England-Control			
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
England-Treatment	533	0.59	0.49	0.00	1.00	317	1.00	0.00	1.00	1.00	216	0.00	0.00	0.00	0.00
Coverage: England-Treatment	533	0.58	0.49	0.00	1.00	317	0.98	0.10	0.20	1.00	216	0.00	0.00	0.00	0.00
Turnout in 2015	533	66.64	5.17	51.89	77.73	317	67.89	4.65	53.63	77.00	216	64.82	5.35	51.89	77.73
Registered voters (ln)	533	11.20	0.09	10.92	11.62	317	11.21	0.09	10.93	11.62	216	11.20	0.10	10.92	11.43
County constituency	533	0.52	0.50	0.00	1.00	317	0.70	0.46	0.00	1.00	216	0.26	0.44	0.00	1.00
Margin of victory	533	25.93	16.12	0.05	76.70	317	25.64	15.38	0.06	76.70	216	26.36	17.19	0.05	70.23
Share: Conservatives	533	44.53	14.84	0.00	69.59	317	49.64	13.18	0.00	69.59	216	37.02	13.95	7.21	64.39
Share: Labour	533	42.53	17.74	0.00	85.24	317	36.64	16.48	0.00	85.24	216	51.17	15.90	9.07	82.53
Share: LibDem	533	7.37	8.71	0.00	52.50	317	8.16	9.07	0.00	48.16	216	6.20	8.03	0.00	52.50
Share: UKIP	533	2.13	2.18	0.00	19.94	317	2.04	1.94	0.00	11.41	216	2.25	2.49	0.00	19.94
Brexit	533	53.61	11.02	18.48	74.96	317	55.92	8.61	20.41	74.96	216	50.21	13.13	18.48	72.63

B.3 Inspections of the Parallel Trend Assumption

Table A8: Inspection of the Parallel Trend Assumption

	(1) 2010	(2) 2015	(3) 2017	(4) 2019	(5) All Years
England-Tratment	$3.43\,(0.47)^{***}$	$3.07\,(0.44)^{***}$	$1.81\,(0.43)^{***}$	$2.95\,(0.50)^{***}$	
England Treatment in 2015 (placebo)					$-0.36\,(0.24)$
England Treatment in 2017					$-1.61\,(0.27)^{***}$
England Treatment in 2019 (placebo)					$-0.48\,(0.33)$
2015					$0.73\,(0.18)^{***}$
2017					$4.40\,(0.20)^{***}$
2019					$1.73\,(0.25)^{***}$
Constituency FE	No	No	No	No	Yes
N	533	533	533	533	2132
R2	0.09	0.09	0.03	0.06	0.92

Note: The dependent variable is constituency-level voter turnout. OLS regression. Reference election: 2010. Standard errors (clustered by constituency in Model 5) in parentheses. Significance levels: $^{*}\,p < 0.05,^{**}\,p < 0.01,^{***}\,p < 0.001$.

Table A8 complements the visual check of the parallel trend assumption presented in Figure 4. Models 1 to 4 confirm confirm that the difference between England-Control and England-Treatment remains fairly stable in time (around 3 percentage points) except for the treatment election (2017). Model 5 demonstrates that the treatment exerts a statistically significant effect on turnout only in 2017.

B.4 Full Table 2

Table A9: Testing the Causal Effect of Second-Order Elections in Britain

	Test: Turnout in 2017								Placebo: Turnout in 2015	
	(1) FD Model	(2) FD Model	(3) FD Model	(4) FD Model	(5) LDV	(6) LDV	(7) LDV	(8) LDV	(9) LDV	(10) LDV
Treatment										
England-Treatment (FD)	−1.26 (0.18)***	−0.52 (0.15)***								
England-Treatment					−0.93 (0.18)***	−0.38 (0.18)*				
Treatment: coverage										
Coverage: England-Treatment (FD)			−1.28 (0.18)***	−0.55 (0.15)***						
Coverage: England-Treatment							−0.95 (0.18)***	−0.41 (0.18)*		
Placebo										
England-Treatment									0.17 (0.20)	0.40 (0.20)
Controls										
FD_Registered voters (ln)		−49.87 (3.02)***		−49.77 (3.01)***						
FD_Margin of victory		0.00 (0.01)		0.00 (0.01)						
FD_Share: Conservatives		0.00 (0.03)		0.00 (0.03)						
FD_Share: Labour		0.06 (0.03)*		0.06 (0.03)*						
FD_Share: LibDem		−0.03 (0.03)		−0.02 (0.03)						
FD_Share: UKIP		0.10 (0.04)**		0.11 (0.04)**						
Share: Brexit		−0.03 (0.01)*		−0.03 (0.01)*		−0.08 (0.01)***		−0.08 (0.01)***		−0.07 (0.02)***
Registered voters (ln)						−1.04 (0.87)		−1.03 (0.86)		−2.86 (1.01)**
Margin of victory						0.00 (0.01)		0.00 (0.01)		−0.01 (0.01)*
Share: Conservatives						0.01 (0.02)		0.01 (0.02)		0.00 (0.02)
Share: Labour						0.03 (0.02)		0.03 (0.02)		−0.04 (0.02)*
Share: LibDem						0.03 (0.02)*		0.03 (0.02)*		−0.01 (0.02)
Share: UKIP						−0.14 (0.05)**		−0.14 (0.05)**		−0.06 (0.04)
Turnout in 2015					1.16 (0.35)***	1.58 (0.32)***	1.16 (0.35)***	1.58 (0.32)***		
Turnout in 2015^2					−0.00 (0.00)	−0.01 (0.00)*	−0.00 (0.00)	−0.01 (0.00)*		
Turnout in 2010									−0.20 (0.29)	0.18 (0.29)
Turnout in 2010^2									0.01 (0.00)***	0.00 (0.00)
County constituency						0.79 (0.20)***		0.80 (0.20)***		0.77 (0.23)***
Constant	3.67 (0.14)***	6.33 (0.57)***	3.67 (0.14)***	6.37 (0.57)***	2.03 (11.31)	5.44 (13.31)	2.08 (11.31)	5.18 (13.30)	44.44 (9.35)***	75.72 (14.17)***
LDV	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
N	533	533	533	533	533	533	533	533	533	533
R2	0.08	0.48	0.09	0.48	0.84	0.88	0.84	0.88	0.83	0.86

Note: The dependent variable is constituency-level turnout. OLS regression. Standard errors in parentheses. Statistical significance: $^*p < 0.05,^{**}p < 0.01,^{***}p < 0.001$.

Table A9 displays the full version of Table 2, including the regression coefficients of the control variables.

Appendix C: ANALYSIS 2B

C.1 Further Details on Garmann 2017 & the Replication

Garmann's (2017) analysis leverages the staggered nature of some local elections in the German State of Hesse to study the effect of election frequency on voter turnout. While federal, state, European Parliament, and municipal elections are held simultaneously across the whole state, district (*Landratswahlen*) and mayoral (*Burgermeisterwahlen*) elections are held at different times in the electoral calendar set by the individual 26 districts and 426 Hessian municipalities (nested within districts). To detect the effect of election frequency, Garmann regresses voter turnout in the simultaneously held elections on distance in days since the last non-simultaneous (i.e., district or mayoral) election. The units of analysis are municipalities, whose long-term characteristics are controlled for through municipality fixed effects. This research design allows for a natural experiment as the contextual factors specific to different simultaneous elections are typically the same for all constituencies and controlled for through election fixed effects. What differs is the treatment, which is the distance since the last local (mayoral or district) election. As Garmann convincingly demonstrates, the treatment's effect is unaffected or biased downwards by endogeneity, and thus can be regarded as conservative.

Garmann's analysis finds a negative effect of election frequency on voter turnout in all types of elections except for the most important, federal elections. He generously shared his data with us,[72] and we were able all his replicate the key analyses in Table A11. The first model (Column 1 in Table 4 in Garmann, 2017) regresses voter turnout in German federal elections (1994, 1998, 2002, 2005, 2009) on the distance since the last local election in days. The model includes municipality fixed effects, election fixed effects, and clustered standard errors by municipality. The second model (column 2 in Table 4 in Garmann, 2017) adds a range of time-variant controls such as party vote shares or population composition.[73] The treatment's effect is utterly null in both models, which goes against our Hypothesis 1.1. However, Garmann's aim was to compare the effect of election frequency in different types of elections and he opted for a linear operationalization of election frequency (distance in days). This served his purpose of showing that election fre-

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[72]Garmann's rigor is exemplary in that we were able to replicate all results from his article.

[73]Appendix C lists all Garmann's controls and their descriptive statistics.

quency exerts a stronger effect on less important (state, European Parliament, or municipal) elections. Yet, to dismiss fully the effect of local elections on federal elections, more robust tests are in order.

Our theory and the results of Analysis 1 suggest that the effect of past elections should follow a non-linear function and be disproportionately stronger if the distance between the past and the current election is short. We thus replace distance in days by a dummy variable, available in Garmann's original dataset, coded as 1 if there was a local election held in the last 100 days.[74] This alternative operationalization yields substantively and statistically significant results. According to Model 4 in Table A11, a local election held in the last 100 days reduces voter turnout in the federal election by 0.43 points ($p < 0.01$). In Models 5 and 6, we incorporate the 2013 federal election,[75] which yields even stronger estimates of up to 0.88 points ($p < 0.001$).[76]

So far, our focus has been on the effect of local (district or mayoral) elections. We have not made any changes to Garmann's data, and we have found strong support for Hypothesis 1.1. Nevertheless, if we want to estimate the full effect of election frequency, we need to design an alternative modeling strategy as the demeaning of inter-election differences (the election fixed effects) absorbs significant portions of the effect of overall election frequency. In Models 7 and 8, we replace the election fixed effects by a quadratic time trend.[77] The main independent variable becomes our index of election frequency as described in Analysis 1. To build this variable, we freshly collected the dates of all elections (including municipal-level referendums) held in Hesse between 1989 and 2013. The results show a strong negative and statistically significant effect. According to Model 8, a past vote held 100 days ago reduces voter turnout in the federal election by nearly 1.1 points ($p < 0.001$). For a vote held a year (365.25 days) ago, the corresponding effect is 0.52 points ($p < 0.001$). These results provide strong support for

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[74]Appendix C.4 shows that using our preferred function of time (100/(100+distance in days)) lead to similar, statistically and substantively significant, results.

[75]Garmann did not include this election in his analysis because it was held simultaneously with a state election. However, as we are interested in voter turnout in the most important, federal elections, the simultaneity with a less important, state election poses no problem (especially since any specificity of that federal election is modeled through the election fixed effects).

[76]The is probably because, by contrast to earlier federal contests, the 2013 election was not immediately preceded by other statewide elections (none had been held since early 2011).

[77]Appendix C.4 shows that the results hold even when we apply municipality-specific linear or quadratic time trends.

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Hypotheses 1 and 1.1.

C.2 Control Variables in Garmann 2017

Control variables included in Garmann 2017 and, thus, in our analysis 2B are the following: the number of registered voters, population size, proportion of youth (0-15), proportion of elderly (+65), proportion of females, proportion of foreigners, population density, real GDP per capita, concurrent elections, vote share CDU, Vote share SPD, vote share Green, vote share FDP, political competition, and number of local party lists.

C.3 Descriptive Statistics

Table A10: Descriptive Statistics - Analysis 2B

	N	Mean	SD	Min	Max
Days	2556	361.03	250.25	7.00	910.00
Dummy: Days 1 –100	2556	0.06	0.24	0.00	1.00
Days (IEF function)	2556	0.46	0.26	0.08	0.98
IEF	2556	0.93	0.64	0.12	3.82
Years (since 1990)	2556	13.50	6.40	4.00	23.00
Registered voters	2556	10215.76	23336.33	554.00	414972.00
Population size	2556	14184.68	37303.33	644.00	687775.00
Proportion of youth (0-15)	2556	15.40	1.93	8.30	22.60
Proportion of elderly (+65)	2556	18.14	3.29	8.50	31.70
Proportion of females	2556	50.56	0.99	46.30	55.10
Proportion of foreigners	2556	6.89	4.82	0.00	32.40
Population density	2556	338.66	391.15	21.48	2769.27
Real GDP per capita	2556	5772.80	3177.36	1778.13	50765.68
Concurrent elections	2556	0.05	0.22	0.00	1.00
Vote share CDU	2556	0.33	0.12	0.00	0.73
Vote share SPD	2556	0.40	0.13	0.00	1.00
Vote share Green	2556	0.05	0.06	0.00	0.36
Vote share FDP	2556	0.03	0.04	0.00	0.35
Political competition	2556	2.98	0.67	1.00	7.45
Number of local party lists	2556	1.17	0.82	0.00	7.00

C.4 Full, Extended Table 3

Table A11: Full, Extended Table 3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election Frequency:								
Days	0.00 (0.00)	0.00 (0.00)						
Dummy: Days 1-100			−0.34 (0.16)*	−0.43 (0.15)**	−0.68 (0.16)***	−0.88 (0.16)***		
IEF							−1.61 (0.06)***	−1.41 (0.07)***
Controls								
Years (since 1990)							−0.09 (0.02)***	0.04 (0.04)
Years (since 1990)^2							−0.02 (0.00)***	−0.02 (0.00)***
Registered voters		−0.00 (0.00)		−0.00 (0.00)		−0.00 (0.00)		−0.00 (0.00)
Population size		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Proportion of youth (0-15)		0.19 (0.08)*		0.19 (0.08)*		0.07 (0.07)		0.13 (0.07)+
Proportion of elderly (+65)		0.34 (0.08)***		0.34 (0.08)***		0.33 (0.06)***		0.02 (0.06)
Proportion of females		0.23 (0.13)+		0.23 (0.14)+		0.24 (0.12)*		0.58 (0.13)***
Proportion of foreigners		−0.07 (0.05)		−0.07 (0.05)		−0.01 (0.05)		0.05 (0.05)
Population density		0.01 (0.01)		0.01 (0.01)		0.01 (0.01)		0.00 (0.01)
Real GDP per capita		0.00 (0.00)**		0.00 (0.00)**		0.00 (0.00)**		−0.00 (0.00)*
Concurrent elections		1.48 (0.29)***		1.51 (0.30)***		1.27 (0.24)***		0.96 (0.24)***
Vote share CDU		0.00 (1.17)		−0.05 (1.16)		−0.44 (1.03)		−5.68 (1.31)***
Vote share SPD		−0.20 (1.26)		−0.35 (1.26)		−1.06 (1.24)		−0.65 (1.53)
Vote share Green		1.16 (1.96)		0.99 (1.97)		0.97 (1.48)		8.26 (1.58)***
Vote share FDP		3.01 (2.40)		3.41 (2.42)		2.86 (2.52)		−5.30 (2.97)+
Political competition		0.07 (0.20)		0.06 (0.20)		−0.01 (0.18)		−0.31 (0.22)
Number of local party lists		0.11 (0.12)		0.11 (0.12)		0.10 (0.10)		0.09 (0.11)
Constant	83.44 (0.07)***	58.14 (6.68)***	83.49 (0.07)***	58.34 (6.68)***	83.52 (0.08)***	59.25 (5.79)***	86.91 (0.18)***	57.36 (6.39)***
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
N	2130	2130	2130	2130	2556.00	2556	2556.00	2556
R2	0.94	0.95	0.94	0.95	0.94	0.95	0.90	0.91

Note: The dependent variable is municipality-level voter turnout. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Clustered standard errors by municipality in parentheses. Note: Models 5 to 8 are Models 1 to 4 from Table 3 produced in full.

C.5 Robustness Checks

Table A12: Robustness Checks - Analysis 2B

	(1) Time function no controls	(2) Time function controls	(3) IEF linear trend	(4) IEF quadratic trend
Days (IEF function)	−0.73 (0.23)**	−0.79 (0.25)**		
IEF			−1.10 (0.08)***	−1.04 (0.11)***
Years (since 1990)			−0.53 (0.04)***	0.02 (0.73)
Years (since 1990)^2				−0.02 (0.03)
Constant	83.99 (0.20)***	59.67 (5.83)***	68.22 (8.88)***	78.19(13.33)***
Municipality FE	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	No	No
Controls	No	Yes	Yes	Yes
Municipality-specific linear trend	No	No	Yes	Yes
Municipality-specific quadratic trend	No	No	No	Yes
N	2556	2556	2556	2556
R2	0.94	0.95	0.94	0.96

Note: The dependent variable is municipality-level voter turnout. Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Clustered standard errors by municipality in parentheses.

Table A12 replicates the analysis of municipality-level voter turnout in German federal elections, presented in Tables 3 and A11. Models 1 to 2 replace the treatment dummy variable (whether a local election was held in the last 100 days) by the distance since the last local election in days transformed via the time function that underpins the Index of Election Frequency (1/exp(distance in years)). The results are nearly identical, supporting the causal, negative effect of local elections on turnout in federal elections. Model 3 and 4 employ the Index of Election Frequency (*IEF*) and demonstrate that its negative effect holds even when we control for municipality-specific linear or quadratic time trends.

Appendix D: ANALYSIS 3

D.1 Descriptive Statistics

Table A13: Descriptive statistics - Micro Analysis (CSES Data)

	N	Mean	SD	Min	Max
Turnout	75183	0.70	0.46	0.00	1.00
IEF	75183	0.78	0.54	0.06	2.46
Contact: No	75183	0.35	0.48	0.00	1.00
Contact: Yes	75183	0.09	0.29	0.00	1.00
Contact: NA	75183	0.56	0.50	0.00	1.00
Majority Status	75183	17.07	7.20	4.80	31.80
Closeness	75183	8.82	7.95	0.20	42.12
Majoritarian	75183	0.03	0.17	0.00	1.00
Proportional	75183	0.92	0.26	0.00	1.00
Mixed	75183	0.05	0.21	0.00	1.00
Concurrent Elections	75183	0.03	0.18	0.00	1.00
Snap Election	75183	0.22	0.42	0.00	1.00
Age	75183	45.62	17.36	17.00	100.00
Female	75183	0.51	0.50	0.00	1.00
No Education	75183	0.05	0.21	0.00	1.00
Education: Primary	75183	0.37	0.48	0.00	1.00
Education: Secondary	75183	0.28	0.45	0.00	1.00
Education: Post-Secondary	75183	0.13	0.34	0.00	1.00
Education: University	75183	0.17	0.38	0.00	1.00
Income: Quintile 1	75183	0.20	0.40	0.00	1.00
Income: Quintile 2	75183	0.22	0.41	0.00	1.00
Income: Quintile 3	75183	0.22	0.41	0.00	1.00
Income: Quintile 4	75183	0.19	0.39	0.00	1.00
Income: Quintile 5	75183	0.18	0.38	0.00	1.00
Rural Area or Village	75183	0.26	0.44	0.00	1.00
Small/Mid-Sized Town	75183	0.28	0.45	0.00	1.00
Suburb of a Large City	75183	0.18	0.38	0.00	1.00
Large City	75183	0.27	0.45	0.00	1.00
Close to a Party	75183	0.41	0.49	0.00	1.00
Efficacy	75183	3.80	1.24	1.00	5.00

D.2 Full Table 4

Table A14: Full Table 4

	(1)	(2)	(3)	(4)	(5)
IEF	$-0.21\,(0.05)^{***}$	$-0.27\,(0.05)^{***}$	$-0.32\,(0.06)^{***}$	$-0.38\,(0.08)^{***}$	$-0.35\,(0.12)^{**}$
IEF X Contact-Yes					$-0.23\,(0.11)^{*}$
Contact-Yes				$0.30\,(0.08)^{***}$	$0.51\,(0.11)^{***}$
IEF X Contact-NA					$-0.01\,(0.18)$
Contact-NA				$-0.15\,(0.21)$	$-0.14\,(0.31)$
Majority		$-0.01\,(0.01)$	$-0.00\,(0.01)$	$-0.01\,(0.01)$	$-0.01\,(0.01)$
Closeness		$-0.01\,(0.00)^{**}$	$-0.01\,(0.01)$	$-0.01\,(0.01)$	$-0.01\,(0.01)$
Majoritarian		$0.12\,(0.11)$	$0.19\,(0.16)$	$0.37\,(0.31)$	$0.34\,(0.27)$
Mixed		$-0.15\,(0.14)$	$-0.10\,(0.20)$	$-0.13\,(0.22)$	$-0.15\,(0.22)$
Concurrent Elections		$0.25\,(0.32)$	$0.38\,(0.36)$	$0.47\,(0.45)$	$0.46\,(0.45)$
Snap Election		$0.16\,(0.05)^{***}$	$0.19\,(0.06)^{***}$	$0.20\,(0.06)^{**}$	$0.19\,(0.07)^{**}$
Age			$0.09\,(0.01)^{***}$	$0.09\,(0.01)^{***}$	$0.09\,(0.01)^{***}$
Age^2			$-0.00\,(0.00)^{***}$	$-0.00\,(0.00)^{***}$	$-0.00\,(0.00)^{***}$
Female			$0.01\,(0.03)$	$0.01\,(0.03)$	$0.01\,(0.03)$
Education: Primary			$0.31\,(0.11)^{**}$	$0.30\,(0.11)^{**}$	$0.30\,(0.11)^{**}$
Education: Secondary			$0.62\,(0.12)^{***}$	$0.61\,(0.12)^{***}$	$0.61\,(0.12)^{***}$
Education: Post-Secondary			$0.67\,(0.11)^{***}$	$0.67\,(0.11)^{***}$	$0.67\,(0.11)^{***}$
Education: University			$1.13\,(0.14)^{***}$	$1.12\,(0.14)^{***}$	$1.12\,(0.14)^{***}$
Income: Quintile 2			$0.16\,(0.07)^{*}$	$0.16\,(0.07)^{*}$	$0.16\,(0.07)^{*}$
Income: Quintile 3			$0.30\,(0.06)^{***}$	$0.30\,(0.06)^{***}$	$0.30\,(0.06)^{***}$
Income: Quintile 4			$0.51\,(0.05)^{***}$	$0.51\,(0.05)^{***}$	$0.51\,(0.05)^{***}$
Income: Quintile 5			$0.52\,(0.10)^{***}$	$0.52\,(0.10)^{***}$	$0.52\,(0.10)^{***}$
Small/Mid-Sized Town			$-0.10\,(0.06)$	$-0.10\,(0.06)$	$-0.10\,(0.06)$
Suburb of a Large City			$-0.11\,(0.06)$	$-0.11\,(0.06)$	$-0.12\,(0.06)$
Large City			$-0.11\,(0.08)$	$-0.11\,(0.08)$	$-0.11\,(0.08)$
Close to a Party			$0.98\,(0.05)^{***}$	$0.97\,(0.05)^{***}$	$0.97\,(0.05)^{***}$
Efficacy			$0.34\,(0.02)^{***}$	$0.34\,(0.02)^{***}$	$0.34\,(0.02)^{***}$
Constant	$0.76\,(0.05)^{***}$	$1.09\,(0.20)^{***}$	$-4.02\,(0.29)^{***}$	$-3.87\,(0.33)^{***}$	$-3.90\,(0.34)^{***}$
Country-Year Variance	$0.03\,(0.01)^{***}$	$0.02\,(0.01)^{***}$	$0.03\,(0.01)^{***}$	$0.04\,(0.02)$	$0.04\,(0.02)$
Country FE	Yes	Yes	Yes	Yes	Yes
N (individuals)	75183	75183	75183	75183	75183
N (elections)	64	64	64	64	64

Note: The dependent variable is individual-level voter turnout. Hierarchical logistic regression with country fixed effects and random intercepts by election. Standard errors in parentheses. Significance levels: $^{*}\,p < 0.05$,$^{**}\,p < 0.01$,$^{***}\,p < 0.001$.

D.3 Robustness Checks

Table A15: Robustness Checks - Analysis 3

	(1) W/t France	(2) W/t Norway	(3) W/t Contact: NA	(4) Random Slope
IEF	$-0.35\,(0.12)^{**}$	$-0.38\,(0.16)^{*}$	$-0.05\,(0.11)$	$0.01\,(0.11)$
IEF X Contact: Yes	$-0.23\,(0.11)^{*}$	$-0.30\,(0.12)^{*}$	$-0.24\,(0.11)^{*}$	$-0.20\,(0.08)^{*}$
Contact: Yes	$0.51\,(0.11)^{***}$	$0.60\,(0.13)^{***}$	$0.52\,(0.11)^{***}$	$0.58\,(0.11)^{***}$
IEF X Contact: NA	$-0.01\,(0.18)$	$0.04\,(0.25)$		
Contact: NA	$-0.14\,(0.31)$	$-0.22\,(0.42)$		
Majority	$-0.01\,(0.01)$	$-0.01\,(0.01)$	$0.01\,(0.01)$	$0.00\,(0.01)$
Closeness	$-0.01\,(0.01)$	$-0.01\,(0.01)$	$0.00\,(0.01)$	$-0.00\,(0.01)$
Majoritarian		$0.36\,(0.28)$		
Mixed	$-0.15\,(0.22)$	$0.01\,(0.26)$	$-0.41\,(0.29)$	$-0.45\,(0.26)$
Concurrent Elections	$0.46\,(0.45)$	$0.47\,(0.46)$	$-0.09\,(0.20)$	$-0.28\,(0.17)$
Snap Election	$0.19\,(0.07)^{**}$	$0.20\,(0.08)^{**}$	$0.06\,(0.10)$	$-0.02\,(0.09)$
Age	$0.09\,(0.01)^{***}$	$0.09\,(0.01)^{***}$	$0.10\,(0.01)^{***}$	$0.09\,(0.01)^{***}$
Age^2	$-0.00\,(0.00)^{***}$	$-0.00\,(0.00)^{***}$	$-0.00\,(0.00)^{***}$	$-0.00\,(0.00)^{***}$
Female	$0.02\,(0.03)$	$-0.01\,(0.03)$	$0.05\,(0.05)$	$0.03\,(0.04)$
Education: Primary	$0.28\,(0.12)^{*}$	$0.30\,(0.11)^{**}$	$0.46\,(0.19)^{*}$	$0.27\,(0.09)^{**}$
Education: Secondary	$0.60\,(0.14)^{***}$	$0.63\,(0.13)^{***}$	$0.69\,(0.21)^{**}$	$0.49\,(0.11)^{***}$
Education: Post-Secondary	$0.65\,(0.12)^{***}$	$0.68\,(0.12)^{***}$	$0.75\,(0.19)^{***}$	$0.64\,(0.12)^{***}$
Education: University	$1.11\,(0.15)^{***}$	$1.09\,(0.14)^{***}$	$1.20\,(0.23)^{***}$	$0.97\,(0.12)^{***}$
Income: Quintile 2	$0.18\,(0.07)^{**}$	$0.15\,(0.07)^{*}$	$0.17\,(0.13)$	$0.22\,(0.06)^{***}$
Income: Quintile 3	$0.33\,(0.06)^{***}$	$0.28\,(0.06)^{***}$	$0.29\,(0.10)^{**}$	$0.35\,(0.07)^{***}$
Income: Quintile 4	$0.53\,(0.05)^{***}$	$0.47\,(0.05)^{***}$	$0.52\,(0.08)^{***}$	$0.53\,(0.08)^{***}$
Income: Quintile 5	$0.53\,(0.10)^{***}$	$0.46\,(0.10)^{***}$	$0.41\,(0.18)^{*}$	$0.51\,(0.11)^{***}$
Small/Mid-Sized Town	$-0.07\,(0.04)$	$-0.12\,(0.06)$	$-0.09\,(0.05)$	$-0.08\,(0.06)$
Suburb of a Large City	$-0.08\,(0.06)$	$-0.14\,(0.07)^{*}$	$0.02\,(0.10)$	$-0.02\,(0.08)$
Large City	$-0.06\,(0.06)$	$-0.17\,(0.08)^{*}$	$-0.10\,(0.09)$	$-0.09\,(0.08)$
Close to a Party	$0.99\,(0.05)^{***}$	$1.02\,(0.05)^{***}$	$0.95\,(0.08)^{***}$	$0.95\,(0.08)^{***}$
Efficacy	$0.34\,(0.03)^{***}$	$0.34\,(0.03)^{***}$	$0.31\,(0.04)^{***}$	$0.33\,(0.04)^{***}$
Constant	$-3.95\,(0.35)^{***}$	$-3.77\,(0.38)^{***}$	$-4.76\,(0.55)^{***}$	$-4.25\,(0.50)^{***}$
Country-Year Variance	$0.04\,(0.03)$	$0.05\,(0.03)$	$0.02\,(0.01)^{*}$	$0.01\,(0.01)^{*}$
Contact Variance				$0.06\,(0.02)^{**}$
Country FE	Yes	Yes	Yes	Yes
N (individuals)	73328	66650	33199	33257
N (elections)	63	59	31	31

Note: The dependent variable is individual-level voter turnout. Hierarchical logistic regression with country fixed effects and random intercepts by election. Standard errors in parentheses. Significance levels: $^{*}\ p < 0.05,^{**}\ p < 0.01,^{***}\ p < 0.001$.

Table A15 replicates the analysis of individual-level voter turnout in legislative elections, presented in Tables 4 and A14. It shows that the negative effect of election frequency on the relationship between party contact and voter turnout holds even when we remove countries with the maximal (France, Model 1) or minimal (Norway, Model 2) average values on the Index of Election Frequency, when we limit the analysis to those elections for which the variable Contact is available (Model 3), and when we specify a random slope for the variable Contact (Model 4).

D.4 Effect of Election Frequency on Contacting Frequency

Table A16: Effect of Election Frequency on Contacting Frequency

	(1)	(2)	(3)
IEF	0.22 (0.15)	0.14 (0.16)	0.12 (0.14)
Majority		−0.01 (0.01)	−0.00 (0.01)
Closeness		−0.02 (0.02)	−0.02 (0.01)
Mixed		0.89 (0.48)	1.14 (0.43)**
Concurrent Elections		0.25 (0.16)	0.36 (0.17)*
Snap Election		0.04 (0.22)	0.05 (0.20)
Age			0.02 (0.01)*
Age^2			−0.00 (0.00)*
Female			−0.13 (0.06)*
Education: Primary			0.46 (0.18)*
Education: Secondary			0.64 (0.16)***
Education: Post-Secondary			0.46 (0.17)**
Education: University			0.77 (0.16)***
Income: Quintile 2			−0.13 (0.06)*
Income: Quintile 3			0.04 (0.07)
Income: Quintile 4			0.04 (0.07)
Income: Quintile 5			0.04 (0.08)
Small/Mid-Sized Town			0.11 (0.07)
Suburb of a Large City			−0.07 (0.12)
Large City			−0.03 (0.09)
Close to a Party			0.41 (0.06)***
Efficacy			0.08 (0.01)***
Constant	−2.81 (0.19)***	−2.35 (0.46)***	−3.86 (0.56)***
Country-Year Variance	0.06 (0.02)**	0.06 (0.02)**	0.05 (0.02)**
Country FE	Yes	Yes	Yes
N (individuals)	33199	33199	33199
N (elections)	31	31	31

Note: The dependent variable is the binary variable Contact: Yes. Hierarchical logistic regression with country fixed effects and random intercepts by election. Standard errors in parentheses. Significance levels: * $p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

Table A16 investigates if Election Frequency is positively associated with contacting frequency. It replicates the first three models from Table 4 and and A14, but the dependent variable is the binary variable Contact: Yes (coded as 1 if respondents were contacted by parties, 0 if no) instead of turnout. It demonstrates that, unlike turnout, contact is not significantly associated with election frequency. Based on Model 3, a one-standard-deviation increase in election frequency (i.e. an increase of 0.57 on IEF) increases the probability of contact by 0.0096 (i.e., 0.1%; $p = 0.384$).