Election Frequency and Voter Turnout

Filip Kostelka[*], Eva Krejčová[†], Nicolas Sauger[‡], and Alexander Wuttke[§]

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Abstract

In recent decades, liberal democracies have considerably expanded the scope for citizen participation, calling their citizens to vote in a growing number of popular votes. This research investigates the effects of the rising election frequency on electoral participation. It expands on the voting calculus and theorizes which, when, and how past votes affect current voter turnout. We argue that all election types contribute to a common factor of election frequency, whose high values depress turnout and reduce the effectiveness of party mobilization even in the most important elections. We find support for the new theory using an original database of all significant elections and referendums held in twenty-two European democracies between 1939 and 2019, two natural experiments, and survey data from the Comparative Study of Electoral Systems. Our findings shed light on contemporary participation trends and have major implications for democratic citizenship and democratic institutional engineering.

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[*]Department of Political and Social Sciences, European University Institute; and Department of Government, University of Essex; email: filip.kostelka@eui.eu

[†]Department of Politics and International Studies, University of Cambridge; email: ek506@cam.ac.uk

[‡]Centre de données socio-politiques, Sciences Po, Paris; email: nicolas.sauger@sciencespo.fr

[§]Geschwister-Scholl-Institute for Political Science, Ludwig Maximilian University of Munich; email: a.wuttke@lmu.de

Introduction

The expansion of opportunities for citizen participation has been perhaps the most striking transformation of liberal democracy in recent decades. Decentralization, regional integration, frequent use of referendums, and other institutional reforms have reshaped the functioning of democratic states (Hooghe and Marks, 2003) and, simultaneously, considerably broadened the potential scope for public involvement in political decision-making (Scarrow, 2001). But how have these reforms affected participation levels? Have they attenuated or worsened the declining trend in voter turnout that has been observed around the world since the 1960s (Kostelka and Blais, 2021)?

Answering these questions would help us understand contemporary participation dynamics and contribute to scientific debates on democratic citizenship and citizen involvement. Moreover, as theorists (Pateman, 2012; della Porta, 2019), politicians (Bowler et al., 2017), and citizens (Bowler & Donovan, 1998) call for further participatory expansion, it would also yield critical insights for decision-makers. If the participatory scope (i.e., number of popular votes) exerts an effect on citizen behavior in every single vote (i.e., voting rates), evidence of such unintended consequences would help inform future decisions about the design of electoral institutions (Fabre, 2010) and prevent the undesirable consequences of low participation (Blais et al., 2020).

The political science literature advances conflicting theoretical perspectives and presents only a few fully relevant empirical findings. Participatory theorists claim that opportunities for participation should boost overall participation levels (Pateman, 1970, 2012; della Porta, 2019). By contrast, comparativists argue that high election frequency is the reason for historically low voter turnout in countries like the United States or Switzerland (Lijphart, 1997, p. 8; Blais, 2014). Although a number of existing empirical studies corroborate the negative effect of frequent elections on participation in various contexts (Fauvelle-Aymar and Stegmaier, 2008; Schakel and Dandoy, 2014; Garmann, 2017), they typically focus on elections of the same type and status, or on turnout in less

salient, second-order elections.[1] To answer the key question of whether the recent transformation of democracy harms or benefits participation, it is important to analyze the effect of second-order contests, which have proliferated, on turnout in first-order contests such as legislative elections, which pre-existed the reforms. As we review in detail below, such studies are rare and the available results point to null effects, which questions the views of both participatory theorists and comparativists.

The present manuscript conducts the most comprehensive investigation of the effect of election frequency[2] on turnout in legislative elections to date. It bridges the competing theoretical perspectives and formulates an explicit theory on how, which, and why past electoral contests matter for legislative turnout. The theory provides a novel and systematic conceptualization of election frequency and, to describe its effects, it expands on the voting calculus (Downs, 1957). The new theory broadens the calculus perspective from a single election to the whole electoral cycle and describes how election frequency affects the individual decision to vote. We hypothesize that all separately-held elections contribute to a single cumulative factor of election frequency whose high values depress individuals' propensity to vote and reduce the effectiveness of party mobilization. Importantly, we argue that first-order elections are not immune to these detrimental effects. Drawing on the new theory, we design a new index of election frequency, which reflects countries' recent electoral history and decays non-linearly through time.

We successively analyze three types of data: an original database of all significant elections that were held in twenty-two European democracies between 1939 and 2019, two natural experiments, and survey data from the Comparative Study of Electoral System. The results lend consistent and

[1] On the distinction between first-order and second-order elections, see Reif and Schmitt, 1980.

[2] We use the terms "election frequency" and "vote frequency" interchangeably to refer to the number of times elections and other popular votes such as referendums are held. The other commonly used term in the literature and media, "voter fatigue", refers to the effects of election frequency on turnout conceptualized in the Theory section.

robust support to the hypothesized negative effect of all election types on legislative turnout. The new index of election frequency (but also alternative, more naive indicators) yields statistically and substantively significant results across the three analyses. Our findings demonstrate that participation even in first-order elections suffers from the proliferation of second-order contests and that a key mechanism is the reduction of citizens' responsiveness to mobilization. This means that the more often citizens are given the choice to participate in elections, the less often they actually turn out to vote. This has important implications for the debate between participatory theorists and comparativists; democratic institutional engineering; and our understanding of participation trends in the 21st century.

Literature Review

The theory of participatory democracy argues that participation is self-sustaining and that more opportunities for participation lead to higher participation levels. By participating in different arenas, participatory theorists claim, citizens develop attitudes and skills that are necessary for participation at all levels, including the most important, national level (Pateman, 1970, pp. 42–43; Barber, 2003, p. 152; della Porta, 2019, p. 612). Recent democratic reforms empowered citizens and extended their say at all levels of government, often allowing them not only to elect their representatives but also to vote directly on supranational, national, or local issues. These changes clearly go in the direction of "democratizing the democracy" (Pateman, 2012, p. 10) and some of the reforms supported by participative theorists (Barber, 2003, p. 307; della Porta, 2019, p. 612). The ongoing transformation of democracy and the rising number of elections and referendums thus should, if anything, boost participation rates.

This view contrasts with the usual explanations of low electoral participation in some established democracies. Scholars in comparative politics and political behavior often assume that coun-

tries like the United States or Switzerland record low turnout in federal elections because they require citizens to take part in many other popular votes (Lijphart, 1997, p. 8; Blais, 2014). However, the exact mechanisms through frequent elections affect citizens and their participation are usually not explicitly theorized, let alone tested. An important exception in this respect is Boyd (1986), who lists (but does not test) a number of potential mechanisms in the U.S. context. Two of them are relevant in a cross-national perspective: frequent elections may "satiate people's interest in politics" and the norm of "civic obligation" (Boyd, 1986, p. 94). However, these mechanisms are not embedded in a broader theoretical framework and remain under-specified. It is not spelled out what satiation really means and how it affects turnout.

In empirical terms, several studies demonstrate that distance from the last legislative election is negatively associated with current legislative turnout (Norris, 2002; Ezrow and Xezonakis, 2016). Another strand of research studies turnout in supranational or sub-national elections. It shows that a high number of past elections or the proximity to the last election depresses turnout in the current election (Rallings et al., 2003; Fauvelle-Aymar and Stegmaier, 2008; Schakel and Dandoy, 2014; Garmann, 2017; Nonnemacher, 2021) and that holding concurrent elections boosts turnout (Anzia, 2011; Leininger et al., 2018).[3] While these findings consistently suggest that frequent elections are detrimental to turnout (but see Stockemer, 2017, p. 707), they do not tell whether the proliferation of less important elections in recent decades has affected, in any way, participation in the most important – that is, national – elections.

To answer this pressing question, it is necessary to test whether turnout in legislative or presidential elections suffers from preceding referendums, sub-national elections, supranational elec-

[3]The findings are less clear in case of concurrent referendums. Several studies (Lacey, 2005; Tolbert & Smith, 2005; Tolbert et al., 2009) show that concurrently-held citizen initiatives increase turnout in the U.S. mid-term and presidential elections. By contrast, Schlozman and Yohai (2008) find that the effect holds only in mid-term elections, and Altman (2013) does not observe it in Switzerland.

tions etc. Such studies are surprisingly rare and yield inconclusive results. Boyd (1986) and Teixeira (1992) used individual-level survey data and, treating election frequency as an individual-level characteristic,[4] found that introducing party primaries reduced voter participation in U.S. presidential elections. Interestingly, a methodologically more advanced analysis, which applied an early version of a difference-in-difference design at the state level, found no effect from the introduction of presidential primaries and standalone gubernatorial elections (Cohen, 1982). More recently, several cross-sectional studies of mostly European survey data found that the use of direct democracy depresses electoral participation (Freitag and Stadelmann-Steffen, 2010; Fatke, 2015; Kern and Hooghe, 2018; for a more nuanced view see Peters, 2016). In the same vein, Kostelka and Blais (2021) observed that the total number of elective institutions is negatively associated with voter turnout in legislative and presidential elections.

By contrast, a panel study of Czech municipalities discovered that local referendums are associated with higher (and not lower) turnout in subsequent legislative elections (Dvořák et al., 2017). Finally, in the probably best causally identified study, Garmann (2017) leverages the staggered nature of local elections in the German state of Hesse and analyzes its impact on participation in nationwide contests between 1994 and 2013. While his analysis of Hesse's 426 municipalities finds support for the negative effect of proximity to the last local contest in less important elections, it suggests that the crucially important federal elections are immune to this effect (p. 32).

To summarize, the scientific literature presents a blurred picture. Theoretically, participatory theorists and comparativists disagree on the consequences of proliferated elections. Empirically, the review of existing studies shows mixed evidence, and the three best causally identified studies (Cohen, 1982; Dvořák et al., 2017; Garmann, 2017) find no effect in the most important elections. This questions both leading theoretical perspectives and suggests to policy-makers that additional

[4]Because of this analytical choice, these results should be interpreted with caution.

popular votes may not affect participation in national elections.[5] However, our review also reveals some theoretical and empirical limits of the existing research that may account for the inconclusive results. Most studies do not consider the entire spectrum of popular votes held in different polities, and discuss neither past contests' aggregation nor a time-function through which they may matter for current turnout. Likewise, they do not explicitly describe how election frequency factors in citizens' vote choice. In what follows, we tackle these fundamental issues, bridge the different theoretical perspectives, and theorize how past votes affect turnout in national elections.

Theory

Do more voting opportunities depress participation, as comparativists assume, or reinvigorate it, as participatory theorists claim? In fact, both theoretical perspectives can be reconciled by incorporating more insights from the empirical literature.

From the empirical perspective, the main weakness of participatory theory lies in that it downplays the costs of *sustained* political engagement. Political behavior research suggests that participatory theorists are right by claiming that citizens want more choice (Bowler & Donovan, 1998) and that granting it stimulates citizens' political interest, knowledge and efficacy (Smith & Tolbert, 2007). Simultaneously, however, many citizens do not want to spend significantly more time and effort on politics. This is exemplified, for instance, by municipal referendums through which voters reduced election frequency and doubled city counselors' terms of office in cities such as Canada's Montreal (in 1964) or American Buffalo (1997). When a 2016 academic pre-election survey (Lago et al., 2017) asked Spanish voters how often elections should be held, 66% of the

[5]Besides the direct effects considered in this paper, election frequency could exert indirect long-term effects on participation through electoral socialization (Franklin & Hobolt, 2011). However, recent research using *inter alia* population data and panel studies casts significant doubts on such effects of second-order elections (Bhatti et al., 2016), and, more generally, the effect of electoral socialization on long-term trends in participation (Blais & Daoust, 2020; Kostelka & Blais, 2021; Jessen et al., 2021).

respondents said once every four years, 15% did not know, and only 20% chose the last option: the more often the better. Similarly, surveys suggest that over half of Britain's population does not want to be involved in national or local decision-making, primarily for want of time (Fox, 2009). In short, it seems that, for most citizens, participating in a multitude of votes is neither desired nor feasible. This assumption is the departure point for our theorizing.

Election Frequency and Voter Fatigue: Expanding on the Voting Calculus

We provide a novel and systematic conceptualization of election frequency and expand on the classic calculus of voting (Downs, 1957; Riker & Ordeshook, 1968; Blais, 2000). Those comparativists who suspect that frequent elections keep voter turnout down in low-turnout countries (Lijphart, 1997; Blais, 2014) make an implicit assumption that citizens perceive elections as a single factor of demands on their participation. Accordingly, we explicitly conceptualize election frequency as the vector of all public votes in which citizens are invited to participate within a defined time frame. Furthermore, we assume that individual elections' contributions to this single, cumulative vector may depend on elections' characteristics, such as election scope, time and order. For readers' comfort, we discuss these contributions in detail just before the empirical analyses, at the end of the theory section.

The calculus of voting sees the voting decision as the result of a cost-benefit analysis. Voting costs C are subtracted from instrumental benefits B, multiplied by the probability of casting the decisive ballot P, and psychological rewards from voting D (see Equation 1). The main costs of voting C include the journey to the polling station J and the collection of information for vote choice I (Fauvelle-Aymar & François, 2015). Citizens vote when their personal benefits B, multiplied by P, and psychological rewards D, jointly outweigh the voting costs C. As P tends to be infinitesimal in large electorates, the key element for the decision to vote is D (Riker & Ordeshook, 1968).

$$\text{Participation} = B * P - C + D \quad \text{where} \quad C = J + I \tag{1}$$

The existing research used the calculus to theoretically analyze the effect of concurrent elections on participation. It compellingly argues that holding N elections concurrently leads to economies of scale that decrease the costs and, indirectly, increase the benefits of participation (Fauvelle-Aymar & François, 2015; Leininger et al., 2018). For the cost of a single journey to the polling station, citizens receive benefits and satisfaction from voting in N elections (Equation 2).[6] Similarly, concurrent elections allow economies of scale in campaigning and voter mobilization for political parties.[7] Campaigners can reach more citizens and in a better way. This in turn stimulates voters' partisanship and civic attitudes, which has a positive bearing on B and D (Fauvelle-Aymar and François, 2015, p. 186). The positive effect of concurrent elections on turnout was empirically corroborated by a number of studies (Fauvelle-Aymar & François, 2015; Leininger et al., 2018; Cantoni et al., 2021).

$$\text{Participation} = B_1 * P_1 + ... + B_n * P_n - \frac{J_1 + ... + J_n}{N} - (I_1 + ... + I_n) + D_1 + ... + D_n \quad (2)$$

However, the classic calculus of voting only partially captures the effect of changes in election frequency on turnout. Increases in election frequency may result either from a decoupling of previously concurrently-held elections or from an institutional reform that creates new electoral arenas. According to the calculus, decoupling elections should trigger a mirror-reversed effect on participation compared to that of concurrent elections. In each separately-held electoral contest *i*, voters incur a cost similar to that in concurrent elections, but the benefits and psychological rewards are

[6] Unlike *J*, the information costs increase as the number of elections rises. However, this increase may be marginal due to spillover effects, when voters use their preference in one election as a heuristic for another election and vote for the same political camp (Fauvelle-Aymar & François, 2015; Leininger et al., 2018). And, even if for some voters *I* becomes high, such voters may decide to mark ballots in fewer than N elections (Bowler et al., 1992; Augenblick and Nicholson, 2016). Therefore, concurrent elections cannot deter participation on election day (Leininger et al., 2018).

[7] On condition that there is an overlap in the political offer across electoral arenas. In case of no overlap, there will be no economies of scale for parties, but still much more mobilization in favor of participation.

significantly lower. Participation in each separate election should thus be weaker than in concurrent elections, reflecting a switch from Equation 2 to Equation 1. However, the calculus remains oblivious to the fact that the drop in participation may also depend on the distance in time between the newly decoupled elections. Furthermore, most of the recent increase in election frequency resulted from institutional reforms and the creation of new electoral arenas at the sub-national and supra-national levels. Through the lenses of the classic voting calculus, participation in newly-created, standalone elections directly reflects Equation 1. The calculus thus implies that the total number of elections does not matter for participation, which is at odds with many expectations in the political behavior literature.

We adopt a more comprehensive perspective and update the voting calculus, considering the entire electoral cycle and the limits of citizen participatory ethos. As stated above, citizens are willing to allot only a finite amount of time and resources to voting. We call this willingness to participate as voter stamina. This factor is best seen as one's readiness to act upon the triggers of D, i.e. citizens' attitudes and campaign mobilization. Citizen attitudes such as the feeling that voting is a civic duty and political interest are stable over one's life-course (Prior, 2010; Feitosa & Galais, 2020) and election frequency should thus not significantly affect them. But it can temporarily reduce voter stamina. If such exposure is followed by a period of no demands on citizen participation, voter stamina regenerates back to its maximal level. The temporary drop in voter stamina can be referred to by the classic but generally undefined term of voter fatigue. This concept differs from election frequency itself.[8] In the language of the regression analysis, election frequency is an independent variable and voter fatigue its effect.

The possibility of voter fatigue, i.e. a temporary reduction in willingness to act upon one's predispositions and external incentives for voting, requires a refinement of the voting calculus. In political systems in which elections are equally spaced out in the electoral cycle, election frequency

[8]Voter fatigue has also to be distinguished from choice fatigue also known as ballot roll-off, which is voters' tendency to abstain in simultaneous public votes that are placed on lower ballot positions (Bowler et al., 1992; Augenblick & Nicholson, 2016).

F and its effect – voter fatigue – remains constant for every election and so Equation 1 applies.[9] However, if elections are not equally spaced out, F varies by election and Equation 1 dodges an important aspect of participation. Election frequency F matters primarily for psychological rewards D.[10]

To understand how election frequency affects D, it is important to make a distinction, often implicit in the literature, between internally and externally induced psychological rewards from voting. The former (A) stem from citizens' internal dispositions, typically acquired during their political socialization in early adulthood. These dispositions include attitudes such as the feeling that voting is a civic duty or political interest (see Blais and Daoust, 2020).[11] Externally induced psychological rewards (M) are triggered by political mobilization (Rosenstone & Hansen, 1993; Green & Gerber, 2015). Citizens receive satisfaction by responding to mobilization calls from campaigners and their environment. This refinement of the voting calculus, plugging in the components of C and D, is presented in Equation 3. The novel features are in bold.

$$\text{Participation} = B * P - (J + I) + \boldsymbol{A} + \boldsymbol{M} \tag{3}$$

Election frequency may depress the psychological rewards A from acting upon internally induced incentives for participation. As Boyd (1986) suggested, frequent elections are likely to satiate citizens' political interest and blur the specificity of the moral imperative that a dutiful citizen needs to cast a ballot when called upon to vote. Our theory does not postulate a change in the level of those participation-friendly attitudes (Prior, 2010; Feitosa & Galais, 2020), but a partial

[9]Nonetheless, the equation would not apply in a cross-national comparison where the number and timing of standalone elections strongly vary across countries.

[10]Introducing new elective institutions and election types also reduces the competencies of the preexisting institution and thus B in the preexisting election types. However, this effect may be observable only in a pre-/post-reform comparison because it affects all post-reform elections. Furthermore, as the importance of B is negligible due to low P, this should matter little for participation from the perspective of the voting calculus.

[11]These internal dispositions may include a voting habit acquired in young adulthood (Plutzer, 2002).

deactivation[12] of their effect.[13] While following one's political interest and civic norm in a single election is not particularly costly and equals C (i.e., $J + I$), the cost of doing so systematically in an expanded pool of N elections corresponds to the N multiple of C. Since citizens want to allot a finite amount of time to voting, proliferating elections may make them reconsider what can be realistically expected from them, and their satisfaction of increasingly costly participation norms may become more conditional. They may conclude that good citizens do not vote no matter what, but only when it matters, or from time to time. This effect is thus best conceptualized as the difference between A and F and should result in the electorate's temporary decline in the propensity to vote. We thus hypothesize that election frequency reduces participation.

Hypothesis 1 *Election Frequency reduces participation.*

Psychological rewards M, which stem from compliance with mobilization calls, may also suffer from frequent elections. Insights from various areas of human life, ranging from family interactions to peer-reviewing in political science, suggest that in most situations the more frequently new social demands are made, the more likely it is that individuals will turn them down (Ryan & Deci, 2017). In other words, human pro-social behavior often reflects a diminishing marginal effectiveness of social demands. Mobilization efforts deployed several times per legislature can thus be expected less powerful than mobilization occurring only once per legislature. This drop in effectiveness is best expressed as the difference between a constant R (maximal responsiveness to mobilization calls) and F, which multiplies M. Our second hypothesis hence holds that election frequency reduces the effectiveness of voter mobilization.

[12] Activation and deactivation are concepts used in psychology to explain when individuals do not behave in line with their attitudes, and have been employed by several recent studies in political science (Hawkins et al., 2020; Artés & Jurado, 2022).

[13] Our theory does not imply an interaction between election frequency and participation-friendly attitudes because high levels of those attitudes make citizens less vulnerable to election frequency. The logic of this effect is thus not multiplicative, but additive.

Hypothesis 2 *Election frequency depresses the effectiveness of voter mobilization.*

Equation 4 incorporates the new theory. The novel, bold, elements suggest that election frequency F may affect participation through two channels: by depressing the effect of participation-friendly attitudes and mobilization's effectiveness. Voter fatigue corresponds to the differences between A and F, and R and F.

$$\text{Participation} = B * P - (J + I) + \boldsymbol{A - F + M * (R - F)} \tag{4}$$

From Elections to Election Frequency

Having expanded the voting calculus, we now aim to further clarify the key relationships among elections that account for voter fatigue. Although we assume that all public votes count towards election frequency, we do not claim that they contribute to it equally and that they are equally vulnerable to its effect. We address these questions successively: first vulnerability and then contributions to election frequency.

Vulnerability to Election Frequency

The main driver of turnout's vulnerability to F is presumably the election's importance to voters. As reviewed above, previous research has found that participation in second-order elections (SOEs) suffers from frequent elections, whereas the results remain inconclusive for first-order contests (FOEs). Theoretically, this variation in vulnerability to election frequency makes sense since D is stronger in FOEs. Citizens typically have a more elevated sense of civic duty and interest in national elections than in their sub-national or supranational counterparts (Galais & Blais, 2016). Similarly, voters face a heavier pressure to participate in national elections, because parties invest more resources into mobilization (van Klingeren et al., 2015). Since A and M are larger in FOEs, the same F should matter less for participation in FOEs compared to SOEs. This may explain why, as reviewed above, the existing literature finds abundant evidence for the negative effect of frequent

elections on turnout in SOEs, but less so in FOEs.

However, FOEs are unlikely to avoid voter fatigue completely. This would require an adjustment whereby voters facing growing demands on their participation would fully prioritize elections with the highest pay-offs. They would skip SOEs and concentrate their resources on first-order, legislative or presidential contests (Teixeira, 1992, p. 14). Such selective participation is presumably rare because citizens either may not want or cannot make such an adjustment. Their perception of differences between FOEs and SOEs is actually far from absolute. When comparing first-order, national elections and quintessential second-order elections to the European Parliament, surveys show that only half of respondents consider that national elections exert a greater impact on policy and less than 20% have a stronger sense of civic duty to vote in them (Galais and Blais, 2016, p. 762). Many citizens may thus not consciously prioritize national elections when adjusting to a rising F. Moreover, voting behavior typically reflects short time-horizons (Achen & Bartels, 2017), and many citizens thus may not keep full track of the election cycle, which makes systematic adjustments difficult. We thus hypothesize that participation in FOEs is not immune to election frequency.

Hypothesis 1.1 *Participation in first-order elections is not immune to election frequency.*

Stating hypothesis 1.1 explicitly is important because, if true, it has wide-reaching implications for democratic engineering, and it runs counter to the available empirical evidence.

Contributions to Election Frequency

Our theory has so far considered election frequency simply as a vector of past elections, but we now turn to the question of their aggregation. Contributions to election frequency may depend on at least three aspects of past votes: how many voters were eligible to vote (i.e., election scope), when those votes took place (election time), and, potentially, how important they were in voters' eyes (election order). This section does not formulate formal hypotheses, but engages in a discussion

that informs our choices in the empirical sections.

In terms of election scope, past contests should affect the future participation only of those citizens who were eligible to vote in those elections. Typically only eligible citizens are targeted by campaigning and can cast a ballot, from which voter fatigue may arise. If, for instance, legislative offices are renewed in one-third of constituencies, the contribution of this renewal to election frequency should be commensurate with the eligible share of the total electorate.

As regards election time, the literature reveals significant cognitive limits of democratic electorates (Healy and Malhotra, 2009; Wlezien, 2015;Achen and Bartels, 2017, Chapter 2). Human memory decays exponentially and voters seem to put much more weight on recent events when forming their attitudes and acting upon them (Chong and Druckman, 2010; Wlezien, 2015, p. 202; Achen and Bartels, 2017, p. 153). Accordingly, when it comes to voter fatigue, recent votes should matter much more for current turnout than votes held further in the past. Contributions to the factor of election frequency should follow a non-linear time function whereby the largest weight would be given to votes held in the immediate past and votes held at the beginning of the electoral cycle would contribute nearly nothing. This function may or not be monotonic.[14]

Finally, election order may moderate contributions to election frequency. By generating strong mobilization efforts and high turnout, first-order contests (e.g., legislative elections) may deplete the electorate's participation potential more strongly than more peripheral contests (e.g., European Parliament elections). Yet, there are a few caveats to this straightforward expectation. First, within-country differences in turnout, which are arguably the best proxy for election status, are often relatively moderate between different election types. Therefore, differences in contributions

[14] A potential source of non-monotonicity could be the most recent elections. If two elections are held a few weeks apart, the related election campaigns largely overlap and could reinforce each other. The stronger mobilization stimulation could partly compensate for the high participation costs.

to election frequency between FOEs and SOEs may be equally small. Second, if what matters is mobilization (i.e., that parties frequently call voters to the polls and voters get gradually desensitized to parties' mobilization appeals), then the effect of different election types may not differ by much. Instead, what may matter is the total number of votes and their distance in time. These caveats suggest that it may be much more important for current turnout whether *any* other election was held recently rather than whether that election was first-order or second-order.[15]

Empirical Analyses

We conduct three analyses that jointly combine the advantages of internally and externally valid research designs.[16] The first is a time-series cross-section analysis, which explores the cumulative nature of election frequency and its negative effect on turnout (Hypotheses 1 and 1.1). The second analysis focuses on Hypothesis 1.1 and aims to properly identify the causal effect of second-order elections on turnout in first-order elections via two natural experiments. The third analysis combines aggregated and individual-level data in a hierarchical analysis to test the causal mechanism described by Hypothesis 2.

[15] Another potential difference could exist between snap and regular elections. The former may constitute a greater shock to voters' calculus than regular elections. Yet, snap elections typically occur in contexts of political crisis that may be mobilizing and cross-pressure the disruptive effect. We thus do not expect them to depress participation more than regular elections.

[16] Replication materials and code can be found at Kostelka et al. (2023).

Analysis 1: Testing the Cumulative Nature of Election Frequency

Data & Methods

We combined online and archival sources to compile an original comprehensive data set of popular votes held in twenty-two European democracies between 1939 and 2019.[17] It includes all full-fledged presidential, legislative, European Parliament, municipal, and other sub-national (regional, county, etc.) elections, and referendums.[18] This altogether represents 1,537 entries for which we have the date, share of the electorate eligible to vote, and, in most cases, voter turnout.[19]

We analyze the data using OLS regression techniques for time-series cross-section data, focusing on the first rounds of lower-house elections. The dependent variable is voter turnout at the country level. We test several operationalizations of election frequency, gradually incorporating the theoretical expectations regarding past contests' aggregation and decay.

The baseline operationalization corresponds to 5 variables (*Number of Elections: 5 weeks* to *Number of Elections: 4-5 years*) that simply count the number of separately held votes J in the following intervals: 0-5 weeks (0.1 years), 0.1-0.5, 0.5-2, 2-4, and 4-5 years prior to each legislative election i. The votes held in each interval are summed and weighted by the share of the electorate that was eligible to participate in each of them. The five variables thus sum the scopes of the different separately-held votes within the relevant time interval (Equation 5 formally describes how the variable for the 0.1-0.5-year interval is calculated). We consider intervals as distant as 5 years

[17] For the list of included countries, see Figure 2.

[18] Our data excludes local referendums, parish elections, and partial elections in which less than 10% of the electorate was eligible to vote. Appendix A.6 provides further details.

[19] In 33 cases, the share of the eligible electorate in the second round of a sub-national election had to be estimated using average values from the available years or, in two instances where no other second-round has ever been held, the value of 50%. Appendix A.5 shows that leaving out these 33 cases (2% of all election entries) and the related legislative elections leaves the substantive results unaffected.

from the legislative election *i* because the general electoral cycle (in between legislative elections) lasts 4 years in most countries and, therefore, the 5-year period will include all elections and referendums held within each cycle.[20] The initial short interval (up to 5 weeks) allows for the potential non-monotonous effects of election frequency towards the electoral cycle's end.

$$\text{Number of Elections: 0.1-0.5 years}_i = \sum_{j=1}^{J} Scope_j \text{ if } 0.1 < \ Distance\ in\ years_{i-j} < 0.5 \quad (5)$$

The second operationalization, Index of Election Frequency (*IEF*, Equation 6), echoes additional expectations formulated in the theory section, of which Hypotheses 1 and 1.1. It is a new measure that combines the virtues of relative simplicity and parsimony with desirable theoretical properties. The index explicitly incorporates all votes in a single indicator while taking into account the expected non-linear decay of their contributions. For legislative election *i*, the index sums all past elections or referendums *J* held separately in the five preceding years. Before summation, each past contest *j* is multiplied by its scope (coded on a scale from 0 to 1) and divided by the exponent of its distance from the legislative election of interest *i* in years (i.e., distance in days divided by 365.25). As a result, contributions to the index steeply decrease in the first year before election *i* and subsequently gradually converge towards zero over the rest of a typical election cycle (see Figure 1).[21] The theoretical maximal contribution of 1 corresponds to a non-concurrent past election that is held in all constituencies at a distance of 0 days from the current election. In practice, the

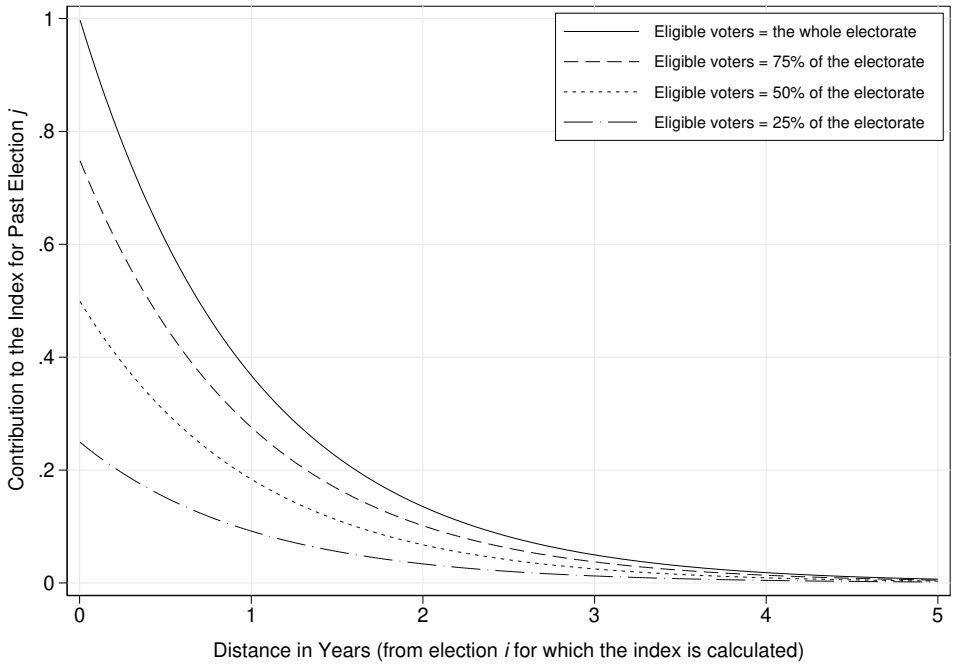
[20] Past regular and snap legislative elections count towards election frequency.

[21] Besides our theory, the specification of the decay is also informed by the baseline operationalization's regression coefficients (see Models 2 and 3 in Table 1). The time function presented in Figure 1 approximates well the coefficients' magnitude. Simultaneously, its simplicity makes it easily reusable for future studies and thus preferable to more complex alternatives.

index varies between 0 (Norway in 1945) and 3.26 (2nd legislative election in France in 1946).

$$\text{IEF}_i = \sum_{j=1}^{J} \frac{Scope_j}{exp(Distance\ in\ years_{i-j})} \tag{6}$$

Figure 1: Illustration of Contributions to the Index of Election Frequency



The third operationalization weights contributions to the IEF by the importance of each election (see Equation 7). Our baseline weighting scheme attributes the weights of 1 (lower-house elections), 0.9 (presidential and municipal elections), 0.8 (regional and local elections), 0.7 (upper house election and referendums), and 0.6 (supranational elections). This scheme reflects general differences in participation levels in our data, which are arguably the best indicators of voters' interest and past effort deployed in different types of preceding elections. We also test an alternative, data-driven weighting scheme based on the magnitudes of the regression coefficients of the IEF separately estimated for first-order (lower-house and presidential) and second-order (all other)

elections in a single regression model (see Model 8 in Table 1). This scheme gives first-order elections the weight of 1 and second-order elections the weight of 0.69.

$$\text{IEF: Weight}_i = \sum_{j=1}^{J} \frac{Scope_j * Importance_j}{exp(Distance\ in\ years_{i-j})} \tag{7}$$

Several model specifications also inspect the effect of snap elections on turnout to see if their disruption of the regular election cycle depresses participation in addition to the effect of election frequency.[22]

As our analyses employ country fixed effects (see below), we include only time-variant control variables that the literature identified as strong predictors of turnout (Stockemer, 2017). These are compulsory voting (dummy), margin of victory (the difference in vote shares between the first and second parties), majority status of the election winner (the absolute value of the difference between the score of the winning party and 50% of votes), electoral system (dummies distinguishing proportional, mix, and majoritarian systems) and concurrent legislative and presidential elections (dummy).[23] To control for other factors that may account for decline in turnout such as generational change (Blais & Rubenson, 2013) or regime change and consolidation (Kostelka, 2017), we allow for country specific linear time-trends in all analyses.

Our analyses were tested for unit heterogeneity, auto-correlation, contemporaneous correlation, and non-stationarity (Wilson & Butler, 2007). The tests revealed that the data are affected by all

[22]This possibility is discussed in Footnote 15. Snap elections is a dummy variable coded as 1 for all elections held more than 0.5 years before the end of the scheduled term of office.

[23]Appendix A.1 provides a detailed justification and the regression coefficients of the control variables.

these issues but non-stationarity,[24] which we address through country-fixed effects (FEs) and panel-corrected standard errors (PSCEs) with a first-order correlation structure (AR1).

Results

Figure 2 presents a matrix of bi-variate relationships between the number of elections in the past five years and the evolution of turnout in the twenty-two countries under study. The figure reveals a strong negative correlation (Pearson's r = -0.6). In those countries where the number of elections remained at low levels like Sweden, turnout decreased little. By contrast, where the number of elections exploded like in France or Romania, turnout plummeted. In most cases, we observe inversely related zigzag patterns between the two variables.

Table 1 reports the main analysis. Model 1 confirms that turnout levels in snap elections do not significantly differ from those in regular legislative contests. Models 2 and 3 test the baseline five-variable operationalization of election frequency without and with control variables respectively. All the related regression coefficients but the last are in the hypothesized, negative direction and statistically significant. The effect is monotonic and it clearly decays non-linearly over time. In model 3, voter fatigue exceeds two percentage points in the first half-year, but it subsequently falls under 1 point and keeps declining to become null and insignificant in the fifth year. This supports our theory and invites us to test our advanced and parsimonious operationalization, which, in a single variable, combines the whole electoral cycle and expresses the non-linear function of time.

When the Index of Election Frequency replaces the baseline operationalization in Model 4, it has the expected negative sign and is substantively (-2.88 pp) and statistically ($p < 0.001$) significant. Model 5 then tests jointly the index and the baseline operationalization, showing that the baseline operationalization' explanatory power disappears when the more comprehensive measure is introduced. Unlike all the baseline variables, the index keeps the expected sign and is substan-

[24] Appendix A.2 presents the tests and their results.

Figure 2: Bivariate Relationship Between Election Frequency and Turnout

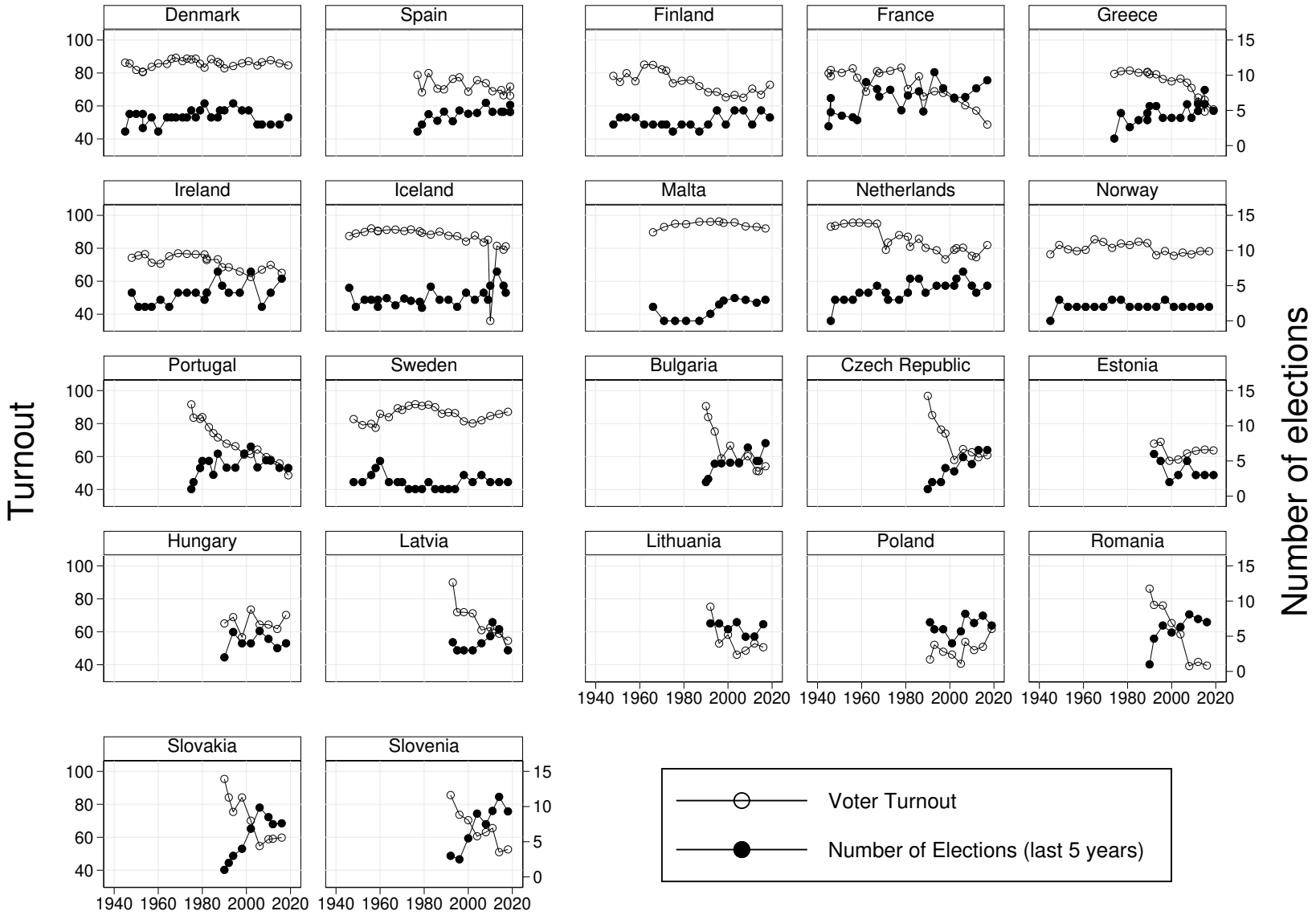


Table 1: Regression Analysis: Election Frequency and Turnout (1945-2019)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Snap Election	-0.61 (0.65)				0.30 (0.57)				
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 $(3.35)^{***}$
Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	0.789	0.798	0.905	0.905	0.908	0.904	0.905	0.905	0.905

Note: Prais-Winsten regression of country-level turnout. Panel-corrected standard errors with first-order auto-correlation. Overall R2 reported. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Additional information and robustness checks in Appendix A.

tively and statistically significant. This supports Hypothesis 1, indicating that election frequency is a comprehensive and cumulative concept.

Subsequently, Models 6 and 7 test the weighted versions of the index. Interestingly, they do not perform significantly better than the non-weighted version. In both cases, the overall R^2 remains comparable to Model 3. There is no strong reason to prefer the weighted version to the more parsimonious one. This confirms our expectation, discussed in the theory section, that the differences between election types may be relatively modest when it comes to contributions to election frequency. This finding receives further support in the remaining analyses.

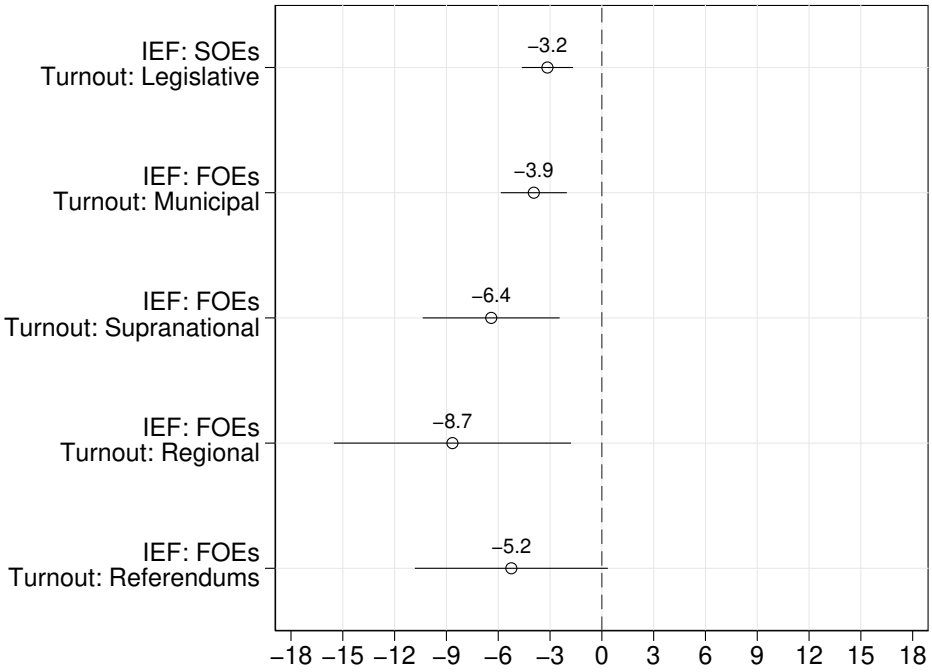
Model 8 tests the IEF calculated separately for first-order elections and second-order elections. Both regression coefficients (-3.53; -2.44) are statistically and substantively significant. This supports Hypothesis 2, showing that past SOEs (and not only FOEs) matter for turnout in FOEs. Interestingly, while the two coefficients' ratio is, as insinuated above, 1:0.69 in favor of FOEs, their difference (1.09) is not statistically significant ($p = 0.35$). There is thus no strong evidence that FOEs would exert a significantly more corrosive effect on future participation.

Model 9 further breaks down the index and enters four variables corresponding to four versions of the index calculated for different election types separately: national, supranational, and subnational elections, and referendums.[25] This is a particularly difficult test. Given that the model includes several election types, the detection of significant effects depends on the presence of specific sequences of elections in the data. However, all the regression coefficients have the expected negative sign and meet the conventional standard of statistical significance ($p < 0.05$). While national elections seem to exert a stronger effect than most other election types, none of the observed bi-variate differences are statistically significant ($p > 0.2$ in all cases). Again, this suggests that

[25]National elections correspond to presidential and legislative elections, and subnational elections include regional, local and municipal elections.

what matters for turnout is more whether any election was held recently rather than what kind of election this was.

Figure 3: Election Frequency and Turnout by Election Order



Note: Regression coefficients from Prais-Winsten regressions of country-level turnout with country FEs and country-specific trends. Confidence intervals draw on panel-corrected standard errors with first-order autocorrelation. Full models are presented in Table A6 in the Electronic Appendix.

To further investigate how different election types interact and how various sources of election frequency affect turnout in different election types, we regressed turnout in FOEs on the frequency of SOEs, and turnout in SOEs on the frequency of FOEs.[26] Figure 3 plots the results revealing that the effects of FOEs on turnout SOEs tend to be stronger than those of SOEs on turnout in FOEs. These results support the conventional view that FOEs are less vulnerable to election frequency than SOEs, but they should be interpreted with caution as the differences between individual coefficients lack statistical significance.

[26]The full regression results are presented in Table A6. Due to the data unavailability on SOEs, the models' controls include only country FEs and country-specific time-trends.

Appendix A.5 displays several robustness checks for the effects of the IEF. The result from Model 4 in Table 1 holds under alternative technical specifications (random effects, clustered instead of panel-corrected standard errors, a fist-difference estimator), with additional control variables (GDP per capita, or party competition polarization), without potential post-treatment controls (majority status, closeness), and when running the analysis for different subsets of the data (pre-1990 or post-democratisation periods, or when removing one country at a time). In total, Hypotheses 1 and 1.1 receive robust support from Analysis 1.

Analysis 2: Identifying the Causal Effect of Second-Order Elections

However robust its results, Analysis 1 still draws on correlational evidence. To bolster our confidence in Hypothesis 1.1 that second-order elections affect turnout in first-order elections, and to properly test the causal nature of this relationship, Analysis 2 leverages two natural experiments: one from the United Kingdom and another from Germany.

Case A: The United Kingdom's General Election of 2017

On April 18, 2017 British Prime Minister Theresa May announced a stunning policy U-turn calling a snap election to the House of Commons. The 2017 general election was to be held in June to allow enough time for campaigning. This meant that large swaths of Britons would have to vote twice in about a month: first in local council elections scheduled for May 4 and then in the general election on June 8.

The two successive ballots of 2017 are a rare event in contemporary British politics and an analytically opportune case for testing Hypothesis 1.1. Britain's local elections are in normal circumstances always scheduled on the same day as nationwide elections when they fall in the same

year. For example, local elections took place simultaneously with the general election in 2010 and 2015, and with the European Parliament election in 2019. However, apart from having a single polling day in the entire country and a maximal term of office of 4 years, British local government's renewal is not synchronized.[27] Consequently, in any single year, only a fraction of British citizens can vote in local elections. In England,[28] 216 (40.5%) legislative constituencies did not hold a local election in 2017. The presence of such a control group and the strength of the treatment (short 5-week time span between the local and general elections and the year-long absence of any other election)[29] constitute an excellent quasi-experimental setting for testing Hypothesis 1.1. The treatment (the conduct of the local election) is fully independent of the outcome. If Hypothesis 1.1 is correct, then those constituencies where local councils were not renewed in May should, *ceteris paribus*, see higher turnout compared to those constituencies where local elections were held.

To collect data for this analysis, we used official returns from Britain's Electoral Commission and shape files from the Office for National Statistics, and geocoded the coverage of legislative constituencies by the May 2017 local elections. The geocoding procedure had to address the variable nature of local authorities across Great Britain,[30] the fact that local authorities have several tiers (e.g., county and district tiers), and that electoral divisions (at the county level) and wards (at the district level) sometimes do not perfectly overlap or are nested within legislative constituencies.[31]

[27] Some areas elect all the local councilors every 4 years, others elect half of the local councilors every 2 years, and some elect one third of the local councilors every year for 3 years and hold no elections in the 4th year.

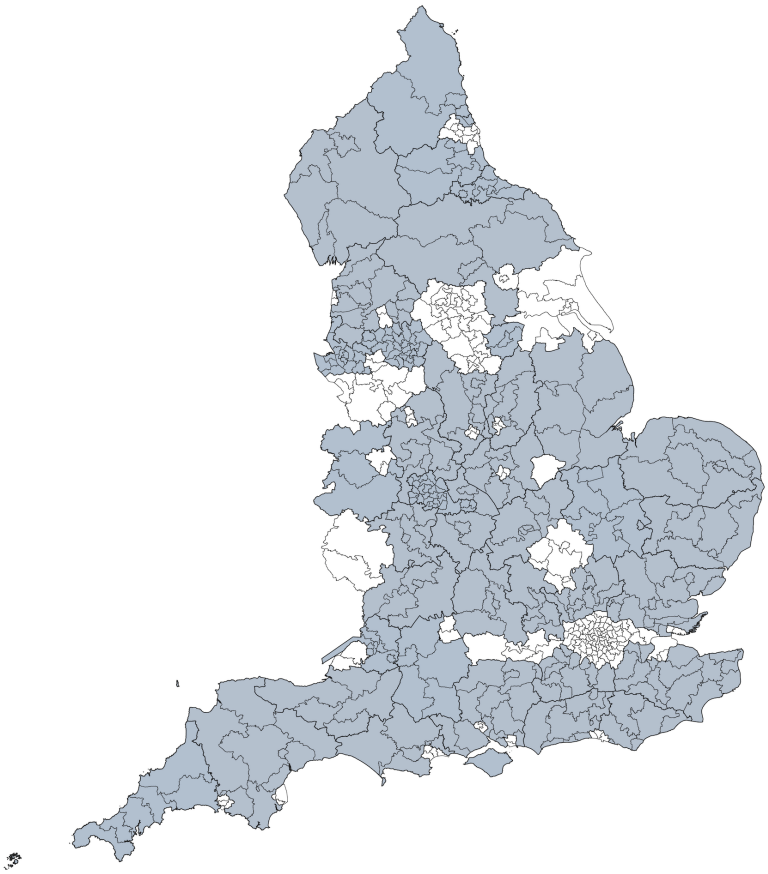
[28] The May 4 local election was not held in Northern Ireland, and it was held in all Scottish and Welsh constituencies. Our focus thus lies on England, which is the only region with variation on the independent variable.

[29] The last preceding election was the Brexit referendum of June 2016.

[30] In England, the 2017 local election took place in 27 local councils, 7 unitary authorities, 1 metropolitan borough, 6 combined authority mayors, and 2 local authority mayors.

[31] See Appendix B.1 for details.

Figure 4: England's Legislative Constituencies and Local Elections in 2017

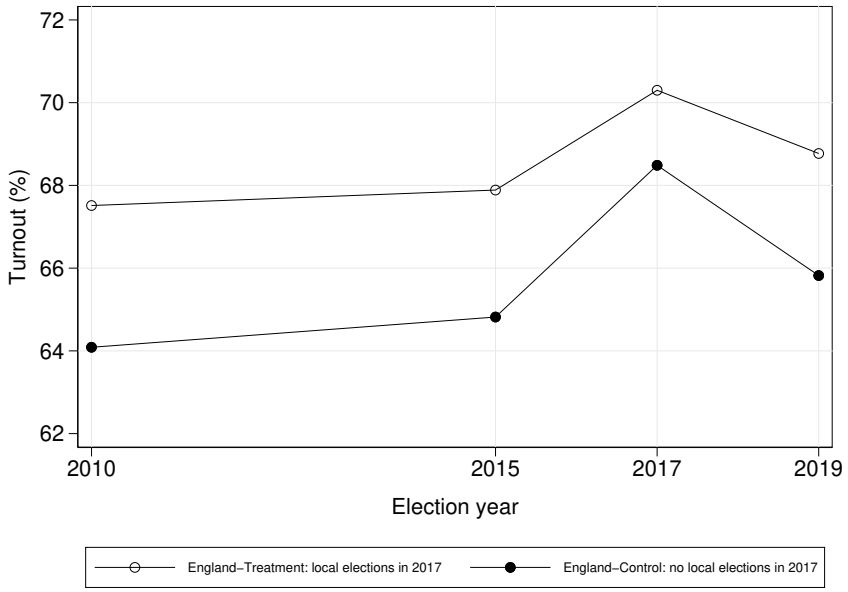


Legend: Constituencies where local elections were held in 2017 (England-Treatment) are in gray and the others (England-Control) are in white.

The first resulting variable is a dichotomous treatment coded as 1 when at least one local election was held within the constituency. We display it in Figure 4. The 216 untreated constituencies constitute our control group (England-Control). This control group can be compared to 317 (59.5%) treated English constituencies (England-Treatment). Such comparison is meaningful under the assumption of parallel trends (Angrist and Pischke, 2008), which postulates that the control and treated groups would follow the same trend in absence of the treatment. We visually inspect this assumption in Figure 5.[32] The figure shows that in 2010, 2015, and 2019, there is a fairly stable gap in turnout between England-Control and England-Treatment, oscillating around 3 percentage

[32] Appendix B.3 provides additional evidence and validates the parallel trends assumption via regression analyses.

Figure 5: Inspection of the Parallel Trends Assumption



points.[33] It significantly changes only in the treatment year, when it nearly halves (1.8 points). The parallel trend assumption holds.

Our second treatment measure (*Coverage*) is continuous as 14 constituencies were treated only partially: either because some of the wards were uncontested (and so no voting took place as there was a single candidate) or because the constituency is split across the borders of more than one county. *Coverage* thus corresponds to the estimated share of the legislative constituency's electorate that was eligible to vote in the local election.[34] In addition, we collected constituency-based information on turnout in the 2010, 2015, 2017, and 2019 general elections, margins of victory and vote shares of main political parties in the 2015 and 2017 elections, and the estimated support for "Leave" in the 2016 Brexit referendum.[35]

[33]The gap is slightly larger in 2010 (3.4 points) but identical in 2015 and 2019 (3 points).

[34]See Appendix B.1 for details.

[35]The Brexit estimates come from Hanretty, 2017 and all the other information from www.electoralcommission.org.uk.

Given the temporal proximity and similarity of party landscape,[36] our analysis focuses on the 2015 and 2017 elections. We employ two classic methods for estimating causal effects from observational two-wave panel data: the first-difference (FD) and the lagged dependent variable (LDV) estimators. The former is the most appropriate when the parallel trend assumption holds (Angrist & Pischke, 2008, Chapter 5) and the latter estimator produces the most efficient and least biased estimates when the parallel trend assumption does not hold (O'Neill et al., 2016). Furthermore, these estimators have a useful bracketing property, indicating the upper (FD) and lower (LDV) bounds of a causal effect (Angrist & Pischke, 2008, pp. 244–245).[37]

Figure 5 shows that turnout was lower than expected in those parts of England that held local elections in 2017. To validate the causal effect of election frequency, we need to rule out the effects of political factors such as support for Brexit, highlighted by earlier research (Curtice et al., 2018). Table 2 displays ten regression models. There are four FD models, where all the variables are first-differenced, and six LDV models, which control for turnout in the previous election and its square (to allow for ceiling effects). While odd models include only the treatment variables, even models incorporate all the substantive controls: margins of victory, main parties' (Conservatives, Labour, Liberal Democrats, and UKIP) vote shares, and support for "Leave".[38] The dependent variable is turnout in 2017 (Models 1-8) and in 2015 (Models 9-10).

In models 1, 2, 5, and 6, the main independent variable is the dichotomous treatment. The regression coefficients are in the expected negative direction and statistically significant. Model 2 and 6 suggest that voter fatigue provoked by the local elections reduced legislative turnout by between 0.5 and 0.4 percentage points once support for Brexit is controlled for. Models 2, 3, 7, and

[36] For instance, UKIP did not participate in the 2010 general election and the Brexit Party participated only in the 2019 election.

[37] Angrist and Pischke (2008) refer to fixed effects estimators, but those are equivalent to first-difference estimators for two-wave panels (Wooldridge, 2010, p. 487).

[38] See Appendix B for details.

Table 2: 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)
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
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	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: OLS regression of constituency-level turnout. Standard errors in parentheses. $^{*}p < 0.05$,$^{**}p < 0.01$,$^{***}p < 0.001$. Additional information and robustness checks in Appendix B.

8 test the finer, continuous version of the treatment and lead to similar and even slightly stronger estimates. Finally, models 9-10 conduct a placebo test and reassuringly find that the 2017 treatment does not yield significant effects on turnout in 2015. Altogether, these results provide strong support for Hypothesis 2.

Case B: The German State of Hesse

Our second case study builds on another natural experiment and excellent analyses by Garmann (2017). He leverages the staggered nature of local elections in the German State of Hesse to investigate the relationship between election frequency and turnout, but does not focus on first-order elections.[39] We replicate Garmann's study, and extend it by collecting additional data,[40] employing new indicators, and focusing on turnout in federal elections.

While federal, state, European Parliament, and municipal elections are held simultaneously across the whole state, district (*Landratswahlen*) and mayoral (*Burgermeisterwahlen*) elections take place 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, we regress turnout in federal elections,[41] held simultaneously within the whole state, on temporal distance from 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 FEs. This research design allows for a natural experiment as the contextual factors specific to simultaneous elections are typically the same for all constituencies and controlled for through election fixed effects. What differs is the treatment, i.e., the distance from the last local (mayoral or district) election. The full model specification includes municipality FEs, election FEs, clustered standard errors by munici-

[39] Appendix C explains in detail the differences between Garmann's study and our replication.

[40] We *inter alia* collected data on all municipal-level referendums held in Hesse between 1989 and 2013.

[41] From 1994, 1998, 2002, 2005, 2009 and 2013.

pality, and a range of time-variant controls such as party vote shares or population composition.[42]

Table 3: Testing the Causal Effect of Second-Order Elections in Hesse

	(1)	(2)	(3)	(4)
Dummy: Days 1-100	-0.68 $(0.16)^{***}$	-0.88 $(0.16)^{***}$		
IEF			-1.61 $(0.06)^{***}$	-1.41 $(0.07)^{***}$
Years (since 1990)			-0.09 $(0.02)^{***}$	0.04 (0.04)
Years (since 1990)^2			-0.02 $(0.00)^{***}$	-0.02 $(0.00)^{***}$
Constant	83.52 $(0.08)^{***}$	59.25 $(5.79)^{***}$	86.91 $(0.18)^{***}$	57.36 $(6.39)^{***}$
Municipality FE	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	No	No
Controls	No	Yes	No	Yes
N	2556	2556	2556	2556
R2	0.94	0.95	0.90	0.91

Note: OLS regression of municipality-level turnout. Clustered standard errors by municipality in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Additional information and robustness checks in Appendix C.

Table 3 displays the results, which confirm the negative causal effect of second-order elections on turnout in federal elections. We measure election frequency through two indicators. The first is a dummy coded as 1 if there was a local election held in the last 100 days.[43] According to Model 2, a local election held in the last 100 days reduces turnout in federal elections by 0.88 points ($p < 0.001$). Nevertheless, to estimate the full effect of election frequency, we need to design an alternative modeling strategy as the demeaning of inter-election differences (election FEs) absorbs significant portions of the effect of overall election frequency. In Models 3 and 4, we replace election FEs with a quadratic time trend.[44] The main independent variable becomes the index of election frequency introduced in Analysis 1. It exerts strong negative and statistically significant effects in both model specifications. According to Model 4, a past vote held three months ago reduces turnout in federal elections by nearly 1.1 points ($p < 0.001$).[45] For a vote held a year ago, the

[42] Appendix C lists all controls and their descriptive statistics.

[43] Using our preferred function of time (1/exp(distance in year)) leads to similar results (Appendix C.5).

[44] The results hold even when we apply municipality-specific linear or quadratic time trends (Appendix C.5).

[45] $-1.41 * \frac{1}{exp(1/4)} = -1.1$.

corresponding magnitude of voter fatigue is 0.52 points ($p < 0.001$). These results provide strong support for Hypothesis 1.1.

Analysis 3: Election Frequency and Party Mobilization

The third analysis zooms in to the individual level and tests whether, in line with Hypothesis 2, election frequency reduces the effectiveness of political mobilization.

We combine our original data from Analysis 1 with four waves of the Comparative Study of Electoral Systems (CSES, 2018), which includes twenty countries from Analysis 1. Given our interest in the contextual effect of election frequency, we opt for a hierarchical logistic regression analysis. We follow the empirical strategy by Arzheimer (2009) and apply country FEs, reducing thus the analysis to two-levels (75,183 individuals and 64 elections). This modeling strategy can be seen as conservative in that it leverages exclusively within-country variance. The dependent variable is individual-level turnout and we control for election-level variables from Analysis 1[46] and respondents' socio-demographic characteristics and attitudes that predict participation (Smets & van Ham, 2013; Blais & Daoust, 2020).[47] The individual-level controls include quantitative variables of age, age^2, and political efficacy (5-point scale); and dummies for gender, education (from none to university), income (quintiles 1 to 5), type of settlement (rural to big city) and party closeness (coded as 1 if the respondent feels close to a party).

The main predictors are the Index of Election Frequency from Analysis 1 (*IEF*) and the variable *Contact-Yes*. The latter variable is coded as 1 if the respondent was contacted by a party or candidate prior to the election and 0 if not. The variable is available only in waves 2 (variable

[46]Compulsory voting is excluded because there was no within-country variation over the period under study.

[47]Our analysis also applies design, post-stratification, and turnout weights.

B3003) and 4 (D3019) of the CSES, which limits the sample's size. To avoid a prohibitive loss of data, all the observations with missing values on *Contact-Yes* are included in the regression and identified by a dummy *Contact-NA*. The studies without the contact information are thus not used to estimate the effect of *Contact-Yes* but contribute to the estimation of *IEF*. We show in Appendix D.3 that the results hold when we exclude elections where *Contact-Yes* is missing or countries with high (France) or low (Norway) average values on *IEF*, or when we specify random intercepts for *Contact-Yes*. Furthermore, Appendix D.4 demonstrates that election frequency is uncorrelated with contact. This means that a negative interaction between election frequency and contact cannot be ascribed to a larger number of peripheral, less responsive voters being contacted in contexts of high election frequency.

Table 4: The Depressing Effect of Election Frequency on Political Mobilization

	(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				$-0.15\ (0.21)$	$-0.14\ (0.31)$
Constant	$0.76\ (0.05)^{***}$	$1.09\ (0.20)^{***}$	$-4.02\ (0.29)^{***}$	$-3.87\ (0.33)^{***}$	$-3.90\ (0.34)^{***}$
Country-Year Variance	$0.03\ (0.01)^{***}$	$0.02\ (0.01)^{***}$	$0.03\ (0.01)^{***}$	$0.04\ (0.02)^{+}$	$0.04\ (0.02)$
Macro-level controls	No	Yes	Yes	Yes	Yes
Individual-level controls	No	No	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
N (individuals)	75183	75183	75183	75183	75183
N (elections)	64	64	64	64	64

Note: Hierarchical logistic regression of individual-level turnout with country FEs and random intercepts by election. Standard errors in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Additional information and robustness checks in Appendix D.

The first three models in Table 4 test the index of election frequency while gradually incorporating the controls. The index's regression coefficients have a negative sign, and are statistically and substantively significant ($p < 0.001$). Based on Model 3, if election frequency increases by 1 standard deviation (0.57 on IEF), which corresponds to 1 additional election held 6 months ago, it reduces the probability to vote by 3 points. This is a strong effect, which provides yet another piece of evidence from different data in support of Hypotheses 1 and 1.1. The fourth model introduces

the contact variables. *Contact-Yes* is positively associated with participation ($p < 0.001$). When citizens are contacted by politicians and militants, they are more likely to vote. Finally, the fifth model introduces the interaction between *Contact-Yes* and *IEF*. Fully in line with Hypothesis 2, the interaction yields a strong negative coefficient ($p < 0.05$).

Figure 6: Election Frequency and Average Marginal Effect of Political Mobilization

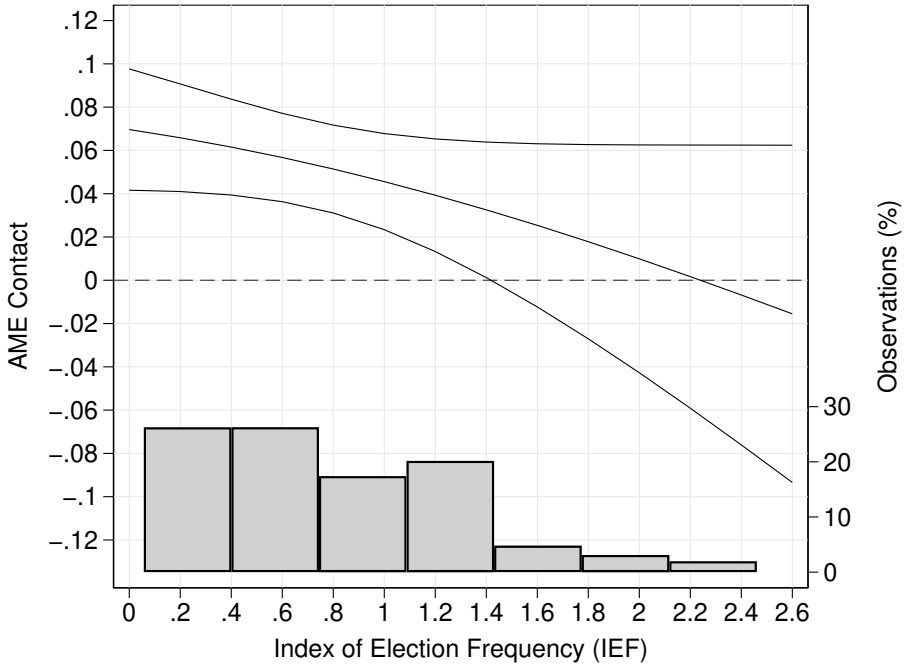


Figure 5 graphically expresses the substantive significance of election frequency's effect on mobilization. It displays the average marginal effect of *Contact-Yes* for different values of *IEF* while holding the other predictors at their observed values (Hanmer & Kalkan, 2013). The figure shows that, when election frequency is below 0.2 (Norway in most elections, or Sweden in 1998 and 2002), political mobilization strongly increases participation by over 7 percentage points. When election frequency is as high as 2.4 (Slovenia in 2004), the effect of political mobilization is greatly diminished and statistically insignificant.[48] The data thus lend support to Hypothesis 2 that election

[48] At high levels of election frequency, the present result needs to be interpreted with caution given the relatively small number of elections.

frequency reduces the effect of party mobilization.

Discussion

The expansion of the scope for citizen participation in contemporary democracies raises the question of the relationship and potential trade-offs between the growing participatory opportunities and the degree of citizen involvement. The present article theorized how election frequency plays out in the individual decision to vote by expanding on the calculus of voting. The empirical results refine several important findings in the scientific literature and provide robust evidence that frequent elections are detrimental to turnout. They demonstrate that election frequency is best understood as a cumulative indicator to which all types of votes contribute, and that legislative elections are not immune to this factor's detrimental effect on voting rates. These findings have major implications for our understanding of electoral participation, democratic citizenship, and institutional engineering.

First, the present analysis helps understand the recent global trends in turnout. While nowadays citizens may cast a ballot more often than ever before, they use this right less often than ever before. This study has shown that there is likely a causal relationship between the two trends with higher election frequency undermining electoral participation. In West European democracies covered by our study, election frequency doubled between the 1970s (IEF of 0.43 on average) and the 2010s (0.87). Based on our analyses, this may account for between 10% and 20% of the overall 13-point

decline in turnout these twelve countries recorded.[49] In countries such as France or Greece, where popular votes wildly proliferated, election frequency may have depressed participation by up to 7.3 and 4.8 points respectively.

Second, our findings speak to the important debate between comparativists and participatory theorists. They support the intuitive assumption, often voiced in the comparative politics literature but questioned by several recent and causally well-identified empirical studies, that frequent elections and referendums may account for the comparatively low voter turnout levels in countries like the United States or Switzerland (Lijphart, 1997, p. 8; Blais, 2014). The present findings show that the theory of participative democracy empirically does not always work as many would wish. More opportunities for electoral participation do not bring stronger participation by all citizens. This notably implies that, when conceptualizing democratic citizenship, political theory needs to devote greater attention to the costs of political involvement and realistic limits on citizen participation as some have recently suggested (Parvin, 2018).

Third, the good news is that the negative effects of election frequency can be altered through institutional reforms. Reducing election frequency may be, besides the adoption of enforced compulsory voting (Kostelka et al., 2022), the most effective institutional path to increase participation. Those policy-makers who are preoccupied with declining voting rates should carefully consider combining different types of votes on the same election day. This may not only prevent the negative effect of election frequency but even boost citizen participation by widening citizen choice and influence on the election day while keeping most of the participation costs constant. Sweden

[49]The conservative 10% estimate (-1.3 points) corresponds to the product of the rise in election frequency (0.45) and the IEF's regression coefficient (-2.88) from Model 4 in Table 1. When we remove the country-specific trend controls from the model, whose effects may be at least partly driven by election frequency, the IEF's regression coefficient is significantly larger (-4.25). Finally, when we address serial correlation through Driscoll and Kraay standard errors instead of the Prais-Winsten transformation, which preserves the original unbiased OLS point estimates, the IEF's regression coefficient increases to -5.84 and its contribution to the decline reaches 2.6 points.

exemplifies the effectiveness of such measures. When the country started to organize all local and national elections on the same day in the 1970s, its voter turnout increased and has remained fairly stable ever since.

Finally, this study finds that holding frequent popular votes undermines the effectiveness of political mobilization. Future research should explore empirically other micro-mechanisms through which frequent elections may affect participation. It should also explore potential elasticity of participation to election frequency. In heavily polarized contexts such as that of the current U.S. politics (Iyengar et al., 2019), the stakes of the legislative contest may reduce the depressing effect of election frequency. Conversely, this effect may be the strongest in "normal" first-order elections and, especially, when the outcome seems to be a forgone conclusion. Altogether, there are many reasons to expand on the present analyses by investigating other geographic regions, focusing on different units of analysis, or designing experimental studies.

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

Table of Contents

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) GDP p/c	(2) Polarisation (Manifesto Project)	(3) Period before 1990	(4) Period from 1990	(5) Consolidated Democracy (6th and later dem. el.)	(6) FE & clustered SE by country	(7) RE & clustered SE by country	(8) FD Model	(9) Filter for extrap. coverage	(10) No post-treatment controls	(11) 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)***
Year^2							−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

[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

[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

[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.

[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-

[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

[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.

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%; $p = 0.384$).