ORIGINAL PAPER

The Impact of Incidental Environmental Factors on Vote Choice: Wind Speed is Related to More Prevention-Focused Voting

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Abstract

How might irrelevant events infiltrate voting decisions? The current research introduces a new mechanism—regulatory focus—by which incidental environmental factors can affect vote choice. Regulatory focus theory proposes that there are two fundamental psychological orientations in how people navigate their worlds: A *prevention focus* tunes cognition towards security, safety, protection, and risk aversion, whereas a *promotion focus* orients attention toward achieving growth and positive outcomes. We present a model for how wind speed on Election Day affects voting by shifting the regulatory focus of voters. We propose that increased wind speed shifts voters toward selecting prevention-focused options (e.g., restricting immigration, rejecting Brexit, rejecting Scottish Independence) over promotion-focused options (e.g., promoting immigration, favoring Brexit, favoring Scottish Independence). We further argue that wind speed only affects voting when an election clearly offers a choice between prevention and promotion-focused options. Using a mixed-method approach—archival analyses of the "Brexit" vote, the Scotland independence referendum, and 10 years of Swiss referendums, as well as one field study and one experiment—we find that individuals exposed to higher wind speeds become more prevention-focused and more likely to support prevention-focused electoral options. The findings highlight the political importance of incidental environmental factors. Practically, they speak to the benefit of absentee voting and expanding voting periods beyond traditional election days.

Keywords Voting · Environment · Wind · Decision-making · Regulatory focus theory

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Introduction

The political outcomes of democracies rest on the collective preferences of voters. The act of voting is among the most significant activities undertaken by citizens in democratic societies. As such, the health and credibility of democracies depend upon voters making decisions after careful and deliberate considerations of each electoral option (Dahl, 1998; Key, 1966). The present research adds to the growing body of evidence that irrelevant events affect public opinion and political behavior, finding that an incidental environmental factor with no relevance to electoral choices—wind speed on Election Day—can influence voting behavior in a predictable manner. More specifically, the current research offers a mixed-method approach (archival analyses, field research, and a laboratory experiment) that demonstrates exposure to higher wind speeds activates a psychological focus that makes voters more inclined to select policy options concerned with maintaining security and avoiding losses over policy options focused on advancing, growing, and making gains when such a choice exists. In psychological terms, increased wind speed affects a person's regulatory focus by making voters relatively more prevention focused than promotion focused in their decisions (Higgins, 1998).

A core question in political science focuses on democratic accountability, or the degree to which elections serve as effective tools for increasing social welfare by rewarding (sanctioning) political leaders for good (poor) performance (Ashworth, 2012). Retrospective theory of voting suggest that electoral outcomes sensibly hinge on the actual performance of political leaders (Key, 1966; Kramer, 1971). Other models of rational voting behavior argue voting decisions are based on reasoned consideration of candidate positions on policy issues (Carmines & Stimson, 1980). However, extant research has questioned the idea that democracies reflect the wisdom of thoughtful judgments by informed and engaged citizens (Achen & Bartels, 2016; Caplan, 2007). Recent scholarship has shown that decisions and behaviors that democratic idealists believe are the result of deliberate decision-making are often infiltrated by subtle environmental factors (Augenblick & Nicholson, 2016; Bhalla & Proffitt, 1999; Dijkstra et al., 2007; Eerland et al., 2011; Neumann & Strack, 2000). Voting decisions, for example, are influenced by polling locations: People assigned to vote in schools are more likely to support school funding initiatives (Berger et al., 2008). Other research finds that voters' evaluations of government performance are influenced by irrelevant events (Achen & Bartels, 2016; Healy et al., 2010).[1] Studies have also demonstrated the role of irrelevant events on the assessments of politicians (e.g., Bassi, 2019; Busby & Druckman, 2018; Busby et al., 2017; Huber et al., 2012).

In considering how decisions could be affected by incidental factors that are orthogonal to the decision at hand, a growing body of research has examined the role of weather. Weather conditions have been demonstrated to be powerful environmental factors that broadly affect people's decisions, beliefs, and behaviors. People

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[1] Fowler and Hall (2018) and Fowler and Montagnes (2015) question the findings in Achen and Bartels (2016) and Healy, Malhotra, and Mo (2010); however, Graham, Huber, Malhotra, and Mo (2023) suggest that there remain evidence of irrelevant events affecting voting behavior.

are more likely to believe in climate change on days with higher temperatures (Egan & Mullin, 2012; Zaval et al., 2014), students visiting elite colleges are more likely to enroll on cloudy days (Simonsohn, 2010), and stock returns are correlated with sunshine (Hirshleifer & Shumway, 2003). Political elites are also affected by weather conditions; Heyes and Saberian (2018) found that U.S. immigrations judges were less favorable to the applicant when temperatures were higher. Recent scholarship has also shown that weather conditions like droughts and floods before the election affect mass political behavior (Achen & Bartels, 2016). Weather conditions on Election Day may also have a pervasive influence on the construction of voting decisions because voters are inevitably exposed to weather on their way to election booths (Bowen, 1994; Nir & Druckman, 2008; Slovic, 1995).

In considering incidental environmental factors that affect voting behavior, it is important to distinguish between how such factors may influence the tendency to vote from how such factors may affect voting decisions. Extant research finds that several meteorological features affect whether one votes (i.e., the number of people who vote). Not surprisingly, bad weather, ranging from harsh temperatures to extreme rainfall, reduces voter turnout (Artés, 2014; Eisinga et al., 2012; Gomez et al., 2007). Bad weather ostensibly keeps prospective voters home because the costs of voting increase beyond the perceived benefits (Aldrich, 1993; Dyck & Gimpel, 2005; Wolfinger & Rosenstone, 1980). For example, one study finds that higher rainfall is more likely to decrease the turnout of those individuals who have a weak sense of civic duty, and for whom the perceived benefits of voting are likely to be lower (Knack, 1994).

We contribute to this important and growing body of scholarship by demonstrating that an incidental environmental factor—changes in wind speed—can affect *how* one votes without influencing *whether* one votes. Note that this finding is not at odds with previous research showing that bad weather affects turnout, as we are looking at the effects of changes in wind speed as a continuous measure, and not isolating the effect of extreme wind speeds (e.g., wind speeds during tornadoes and hurricanes). In other words, light or moderate levels of wind are not necessarily a "bad" weather event, sharply affecting the cost of voting, in contrast to hazardous winds that trigger warnings to stay home. Moreover, modest shifts in wind speed may not be directly observable, making it unlikely that varying levels of wind will reduce voter turnout. Assuming wind speeds are not extreme, individuals will experience varying levels of wind speed that do not prevent them from voting in route to their voting location, and we posit that these wind speed levels can lead to a small but meaningful change in how they vote.

In understanding how wind speed affects voter preferences, we leverage a foundational theory in psychology—regulatory focus theory—which proposes that there are two fundamental psychological orientations in how people regulate pleasure and pain. A *prevention focus* tunes cognition towards security, safety, protection, and risk aversion and focuses people on avoiding losses and failures (Roese et al., 1999; Idson et al., 2000; Zhang et al., 2014). A *promotion focus* orients attention and action toward aspirations and hopes, achieving growth and positive outcomes,

and focuses people on making gains and success.[2] Said differently, people 'play not to lose' when they adopt a prevention focus, whereas people 'play to win' when they adopt a promotion focus. We theorize that wind speed affects people's regulatory focus because higher wind speeds are experienced as more uncomfortable and hazardous compared to lower wind speeds (Koss, 2006; Jackson, 1978). As a result, people are more likely to overestimate risks when exposed to higher wind speeds (Agdas et al., 2012). This concern with and sensitivity to risk leads people towards a prevention focus (Cesario et al., 2004; Freitas and Higgins, 2002; Higgins, 2005). As a result, we predict that higher wind speeds will be associated with favoring prevention-focused over promotion-focused electoral options during voting when two such options are pitted against one another.

To test our theory, we utilized a mixed-method approach, involving diverse sources of evidence with unique strengths and limitations. Namely, we conducted a series of archival analyses of actual elections (i.e., the "Brexit" vote, the Scotland independence referendum, and 10 years of Swiss referendums), a field study, and an experiment.[3] The first two archival analyses ("Brexit" and Scotland independence) captured the main effect of wind in two elections that featured a clear choice between a prevention-focused option and a promotion-focused option.

Importantly, if wind speeds affect vote choice through shifts in voters' regulatory focus, then the effects of wind speed on voting outcomes should only be evident when there are clear prevention-versus promotion-focused options. To test this moderation hypothesis, we collected data from the last 10 years of Swiss referendums (2005–2014, $N = 24$), and asked research assistants blind to the purpose of this study to code each referendum as to whether it offered a clear choice between a prevention and a promotion-focused option. We found that wind has an effect only in referendums in which a prevention-oriented policy was pitted against a promotion-oriented policy, but not in referendums when there was a choice between referendums that did not clearly differ in their regulatory focus.

Finally, we conducted two tests of our proposed mechanism. We measured regulatory focus in a field study on multiple days that varied naturally in their levels of wind speed, and tested whether higher wind speed increased individual's prevention focus. To help address endogeneity concerns, we also conducted a laboratory

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[2] Note that regulatory focus theory is not at odds with prospect theory, which claims that losses loom larger than corresponding gains. Nevertheless, loss aversion and regulatory focus are distinct concepts. The difference between a prevention-focus and loss aversion is that (a) when you have a prevention focus, you seek to minimize losses (rather than avoid losses at all costs, as the loss aversion literature argues); and (b) that these are motivational states that can be changed. In other words, depending on the choice framing or environmental considerations, people can move in their regulatory focus, whereas loss aversion should not be sensitive to such shifts. See Idson, Liberman, and Higgins (2000) for further details around how prospect theory and regulatory focus theory are compatible, and yet, distinct theories.

[3] In examining the relationship between wind and election outcomes, we did not look beyond the Brexit referendum, the Scotland independence vote, U.S. presidential elections, and referendums in Switzerland. We excluded the U.S. analyses despite the fact that results were consistent with our theory, however, as wind speed data could only be comprehensively collected at the state level, as opposed to the county level. The authors of the study declare that we are not excluding any null findings. The replication file for all analyses can be found in the "Replication File for Political Behavior" folder in the Open Science Framework (OSF) repository: https://osf.io/9y4sn/.

experiment that only varied the presence versus absence of airflow and showed that the presence of airflow affects regulatory focus, but not other individual difference measures, thus establishing discriminant validity.

Importantly, we support our hypothesis that wind speed affects how citizens vote on Election Day through different methodological approaches. While each study we conduct has limitations, it is our consideration of the totality of evidence that lead us to support this claim. We also establish that these effects are not driven by changes in voter turnout. Our results have important implications for understanding voting behavior, and the subtle power of incidental environmental factors in infiltrating important real-world policy decisions. Moreover, we advance the literature on the effects of irrelevant events on political behavior. While previous research on the effects of irrelevant events focus on incumbent support, the current research focuses on how irrelevant events can shift what *type* of campaigns and policies are favored. Additionally, while past research on this topic has identified shifts in mood and well-being as the mechanism by which voting behavior is affected by events that are orthogonal to the electoral decision at hand, we raise an additional mechanism by which irrelevant incidental factors can affect vote choice reflecting a core psychological phenomenon—voters' regulatory focus.

Wind Speed Affects Voting Decisions by Changing Voters' Regulatory Focus

Although many voters make their voting decisions prior to Election Day, surveys show that a sizable proportion of voters make their ultimate decision on Election Day itself (Bowen, 1994; Nir & Druckman, 2008). This non-trivial number of undecided voters, without their awareness, are particularly likely to be influenced by incidental environmental factors on Election Day when making their decision on who or what to vote for (Simonson, 2008; Slovic, 1995). We propose that one incidental environmental factor—wind speed—on Election Day can affect the voting decisions of those who have not made up their mind on Election Day by changing their regulatory focus.

As we note earlier, a *prevention focus* tunes people towards protection, risk aversion, security and safety (Idson et al., 2000; Roese et al., 1999; Zhang et al., 2014), whereas a *promotion focus* orients people towards their aspirations, hopes, growth and success. These two foci are often induced through contextual factors; for example, framing a particular outcome in terms of gains or non-gains activates a promotion focus, whereas framing that same outcome in terms of losses and non-losses activates a prevention focus (Shah et al., 1998).

We posit that incidental environmental factors like wind speed affects people's regulatory focus, with higher wind speeds orienting individuals towards a prevention focus. Previous research has established that challenging environments shift people towards a prevention focus (Seibt & Förster, 2004), and wind speeds are experienced as more uncomfortable and hazardous compared to lower wind speeds (Jackson, 1978; Koss, 2006). Consistent with regulatory focus theory (Higgins, 1998), one consequence of this wind-speed induced discomfort is that people are more likely to overestimate risks when exposed to higher wind speeds (Agdas et al., 2012). Thus,

as wind speed increases, risk aversion, safety needs, and resource protection likely gain in importance, which are all features of a prevention focus. Prior research has found that an increase in prevention focus subsequently increases the attractiveness of choices that reflect a prevention focus over those that reflect a promotion focus (Cesario et al., 2004; Freitas and Higgins, 2002; Higgins, 2005). Following this logic, we predict that if higher wind speeds do indeed increase a person's prevention focus, then higher wind speeds are likely to increase the attractiveness of electoral options that reflect a prevention focus over electoral options that reflect a promotion focus.

What does a prevention- and promotion-focused choice look like in the political electoral realm? As one example, restrictive immigration policies (e.g., building border walls to block immigration), emphasizing the need to protect citizens, may reflect more of a prevention-focused view. Immigration policies that expand the number of immigrants that can enter into the country (e.g., increasing the U.S. H-1B visa cap), arguing that immigrants are good for economic development, may reflect more of a promotion-oriented perspective.

We present a theoretical model for how wind speed affects voting decisions, which is visualized in Fig. 1. Because higher levels of wind speed lead to an increased prevention focus, we predict that individuals exposed to higher wind speed will be more likely to vote in favor of the option that reflects a prevention focus, but only in elections that pit a prevention-focused against a promotion-focused option. Thus, a key electoral distinction is whether at least two political campaigns in an election differ in their regulatory focus. For example, if all of the electoral options faced by voters in a given election are prevention-focused, then there is no vote choice that is obviously more aligned with a prevention focus. As such, a wind-induced shift in prevention focus would not affect vote choice. As our proceeding analyses of elections in Switzerland will show, some, but not all, campaigns differ distinctly in the regulatory focus of the campaign.

One issue that is important to clarify is the relationship between regulatory focus and status quo preferences. One could argue that the status quo is the prevention-focused choice, as avoiding change represents the less risky choice. However, incumbency is not synonymous with a prevention focus, as an incumbent campaign could make salient promotion themes and an opposition campaign could make salient prevention themes. For instance, consider the 1964 U.S. Presidential Election. Lyndon B. Johnson was the incumbent, but he ran on a promotion-focused platform
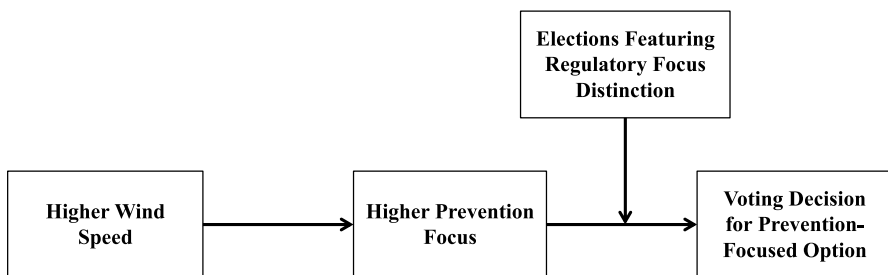

Fig. 1 Proposed theory of how wind speed affects voting decisions

focusing on the "Great Society" (Johnson, 1964). His opponent, Barry Goldwater, in contrast, ran on a strictly prevention-focused campaign, "safeguarding [the US] from the forces of tyranny abroad" (Goldwater, 1964).

Study 1: The Effect of Wind Speed on Policy Preferences: Evidence from Archival Analyses of UK Referendums

We first analyzed two recent elections in the United Kingdom (UK) that each distinctively pitched a promotion-focused campaign against a prevention-focused campaign: (1) the 2016 European membership referendum, often dubbed "Brexit," which was accepted; and (2) the 2014 Scotland independence referendum, which was rejected. These archival analyses across two separate recent elections were designed to test our hypothesis that higher levels of wind speed on Election Day are related to an increased proportion of votes for the prevention-focused electoral option over the promotion-focused electoral option.

Procedures and Design

Pretest Measuring the Regulatory Focus of UK Referendum Campaigns

To determine whether these two referendums did indeed offer a clear promotion- and prevention-focused choice set, we empirically verified whether a "No" ("Yes") vote represents a prevention-focused (promotion-focused) option. For the 2016 European membership referendum, we recruited 102 participants through Amazon's Mechanical Turk (MTurk), an increasingly popular tool to recruit research subjects in political science and psychology research (Berinsky et al., 2012; Clifford et al., 2015; Huff & Tingley, 2015). These participants read definitions of prevention and promotion foci, as well as materials from both campaigns, and then rated both campaigns on a scale ranging from 1 (very promotion-oriented) to 6 (very prevention-oriented). For the 2014 Scotland independence referendum, 98 participants recruited through MTurk read the same definitions of prevention and promotion foci, received materials from one of the two campaigns, and then rated the campaign they were presented with on the same six-point scale (see Sect. 1 in the Supplementary Materials for additional details on the coding procedure for both cases).

To test whether the electoral options in the Brexit and Scottish independence vote were perceived as differing on their regulatory focus, we conducted tests against the mid-point of the scale (3.5). We conducted one-tailed tests as we have a hypothesis about the orientation of each campaign. For Brexit, the "No" option advanced by the *Stronger In* campaign was seen as clearly prevention-oriented (*Mean* $(M) = 4.5$, *Standard Error* $(SE) = 0.17$, $t(101) = 6.05$, $p < 0.001$) whereas the "Yes" option put forward by the *Vote Leave* campaign was viewed as promotion-focused ($M = 3.05$, $SE = 0.16$, $t(101) = 2.87$, $p = 0.003$). For Scottish independence, participants rated the "No" option advanced by the *Better Together* campaign as clearly more prevention-oriented ($M = 4.56$, $SE = 0.20$, $t(51) = 5.27$, $p < 0.001$), and the "Yes" option

advocated by the *Yes Scotland* campaign as clearly promotion-focused ($M = 1.96$, $SE = 0.19$, $t(45) = 8.06$, $p < 0.001$). Thus, we observe that electoral options for both Brexit and Scottish Independence clearly differ in their regulatory focus.

Vote for Prevention-Focused Outcome

Our dependent measures draw on binary vote choice measures in which 1 denotes the prevention-focused choice and 0 denotes a promotion-focused choice in a given referendum. We coded a "No" vote in the two recent referendums in the UK (Brexit and Scottish Independence) as the prevention-focused choice in this study. A "Yes" vote in each of the referendums was coded as the promotion-focused electoral choice. The outcome measure is the proportion of votes favoring the prevention-focused ("No" vote) option—"No" to Brexit and "No" to Scottish Independence—in a given council area in the UK, which is the local administrative governing area. Voting data per council area were obtained from the official final counts as published by the Electoral Commission (2016) and the BBC (see Sect. 1 in the Supplementary Materials for further information on the data sources). Vote shares were coded such that 100 denotes a 100 percent vote for the prevention-oriented electoral option and 0 denotes a 0 percent vote for the prevention-oriented electoral option.

Wind Speed

We collected wind speed data for the Election Day of each referendum (June 23rd, 2016 for the Brexit referendum and September 18th, 2014 for the Scottish independence referendum) from an online weather application that aggregates information from 18 different data sources (www.forecast.io).[4] Our data collection strategy was informed by several prior papers that have explored the effect of weather factors—particularly rainfall, given that, to our knowledge, there are no studies on wind speed on political outcomes—on election turnout and voting. For example, Meier et al. (2019) use local rainfall data in Switzerland from 7am to 7 pm, and interpolate municipal-level averages from the three nearest stations. Similarly, Artés (2014) uses local rainfall data in Spain from 7am to 7 pm, and averaged rainfalls of all weather stations within a municipality. We therefore sourced data from one hour before to one hour after voting polls were open (6am-11 pm) to capture the average wind speeds that voters would likely encounter on Election Day. Wind speed data was available for every ten-minute interval from five different location points (northernmost, southernmost, easternmost, westernmost, central) for each council area (382 in the UK, 32 in Scotland). Consistent with prior research (Artés, 2014; Meier et al., 2019), we averaged this data across all time and location points and aggregated into a single number for each council area, consistent with prior research (see Tables S1 and S2 for more summary statistics on wind speed and all other measures we consider for the Brexit vote analysis and the Scotland Independence vote analysis, respectively). As a robustness check, for a set of analyses, we recoded these

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[4] We obtained this information before the company was purchased by Apple on March 31, 2020. The API is now fully deprecated (verified on January 11th, 2023).

objective wind speeds to be on the Beaufort wind scale, which is a scale that was developed to help individuals estimate the wind speed via visual observations, and as such, captures perceivable shifts in wind speed as both an ordinal and continuous measure, as well as the natural log of wind speed given that the distribution of wind speed is right-skewed (see Sect. 6 of the Supplemental Material files for more details on these measures).

Control Variables

As control measures, we collected election and demographic data at the council level that have been associated with voting outcomes in prior research on the effects of irrelevant events on political behavior (Berger et al., 2008; Healy et al., 2010): socioeconomic variables (i.e., age, gender, education levels, income, and unemployment), voter turnout (i.e., the number of votes on Election Day, relative to the absolute number of voters per council, measured from 0 to 100), and party identification. We used data on council composition to control for the party leaning of each council area. For the Brexit referendum analysis, we looked at council composition following the 2016 elections, which preceded the 2016 Brexit vote. For the Scottish independence analysis, we collected data on the 2014 council composition, which is based on the council composition following the 2014 elections, which preceded the 2014 Scottish independence vote. The referendum for UK to leave the European Union (EU) was advanced by the Conservative Party, one of the three largest parties in the UK. As such, for the Brexit analysis, we accounted for the percentage of council seats held by the Conservative Party in each council area. In the latter case, we considered the percentage of council seats held by the Scottish National Party (SNP), as the SNP advanced the campaign for Scotland independence.

Additionally, we collected data on other Election Day weather indicators (i.e., cloud cover, dew point, precipitation, pressure, and temperature), as well as historical wind speeds per council area.[5] The inclusion of other Election Day weather indicators increases our confidence that we are detecting an association between wind speed and election outcomes, and not the effect of other weather indicators that may be correlated with wind speed. Finally, controlling for historical wind speeds at the unit of analysis helps to show that any association between wind speed on Election Day and vote choice we detect is above and beyond any "sorting effects" of particular people choosing to live in particularly windy or less windy areas, and takes into account the fact that people in "windy" areas may be less sensitive to "high wind" days (see Sect. 1 in the Supplementary Materials for further information on our data).

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[5] For Brexit, historical wind speeds refer to average wind speeds for each year between 2011 and 2016; for Scottish Independence, historical wind speeds refer to average wind speeds for each September month between 2009 and 2014.

Results

For the Brexit referendum, we tested whether councils with higher levels of wind speed on Election Day had a higher likelihood to vote "No," the prevention-focused option to keep the UK in the EU. This was indeed the case ($B = 0.20$, $SE = 0.09$, $p = 0.04$; see Model 1 in Table 1). The same result was obtained for the Scottish independence vote: councils with higher levels of wind speed on Election Day were more likely to have higher levels of "No" votes than councils with lower levels of wind speed ($B = 0.88$, $SE = 0.24$, $p = 0.001$; see Model 1 in Table 2). We also tested for and found no evidence of spatial autocorrelation (Epperson & Li, 1996; Getis & Ord, 1992) (see Sect. 1 in the Supplementary Materials).

We next considered several alternative explanations. Reassuringly, the direction and significance of the effects in both elections were robust to the inclusion of all of our aforementioned control variables (see Models 2–6 in Tables 1 and 2, respectively). Controlling for other Election Day weather indicators did not meaningfully change our inferences (see Model 3 in Tables 1 and 2).[6] We examined

Table 1 Wind speed predicts Brexit remain vote

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Election Day Wind Speed	0.20*	0.20*	0.37*	0.11*	0.12*	0.15**
	(0.10)	(0.09)	(0.14)	(0.05)	(0.06)	(0.05)
Constant	43.11***	60.18***	3100.16**	− 598.13	− 211.21	110.50
	(1.95)	(8.43)	(1155.12)	(422.42)	(436.06)	(390.61)
Control Measures:						
Turnout		Y	Y	Y	Y	Y
Other Election Day Weather Indicators			Y	Y	Y	Y
Socioeconomic Variables				Y	Y	Y
Historical Wind Speed					Y	Y
Council Party Composition (Conservative Party)						Y
R^2	0.01	0.02	0.06	0.86	0.86	0.88
Adj. R^2	0.01	0.02	0.04	0.85	0.85	0.87
Num. obs	380	380	380	364	364	363
RMSE	10.37	10.31	10.21	3.93	3.93	3.69

Dependent variable is the share of voters that voted for the prevention-focused electoral option (a "No" vote) at the council level

Whether the estimated model includes a set of labeled control measures is indicated with a "Y"

Robust standard errors are in parentheses

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.10$ denote significance levels

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[6] We also conducted analyses to assess whether the wind speed association we detected was specifically due to wind speed or whether wind speed was part of a broader pattern of weather conditions affecting voting decisions. For Brexit, there was no other weather factor that correlated with the amount of "Remain" votes (see Table S1 in the Supplementary Materials). For Scottish independence, we found

Table 2 Wind speed predicts Scotland independence no-votes

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Election Day Wind Speed	0.88**	0.86**	0.84*	0.59*	1.04*	0.79+
	(0.24)	(0.25)	(0.34)	(0.26)	(0.35)	(0.41)
Constant	45.66***	−20.58	568.16	2707.67*	1193.69	−304.33
	(3.01)	(22.74)	(1245.39)	(1130.47)	(2498.77)	(3231.17)
Control Measures:						
Turnout		Y	Y	Y	Y	Y
Other Election Day Weather Indicators			Y	Y	Y	Y
Socioeconomic Variables				Y	Y	Y
Historical Wind Speed					Y	Y
Council Party Composition (SNP)						Y
R^2	0.19	0.35	0.53	0.78	0.84	0.85
Adj. R^2	0.16	0.31	0.40	0.65	0.62	0.62
Num. obs	32	32	32	32	32	32
RMSE	5.51	5.00	4.66	3.56	3.73	3.69

Dependent variable is the share of voters that voted for the prevention-focused electoral option (a "No" vote) at the council level

Whether the estimated model includes a set of labeled control measures is indicated with a "Y"

Robust standard errors are in parentheses

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.10$ denote significance levels

whether potential systematic differences in unemployment, education, age, gender, and average income of the council areas would affect our results. Perhaps demographic characteristics in a locality that are correlated with policy preferences were also correlated with wind speed in the locality. This was not the case: additionally controlling for these variables led to no changes in the direction or significance of the results (see Model 4 in Tables 1 and 2). Furthermore, we tested whether the correlation may have manifested not because of the momentary effect of wind speed on Election Day, but because general wind speed tendencies in different regions had a sorting effect on the types of individuals living in these regions. To rule this out, we also controlled for wind speeds on days other than Election Day. Across both the "Brexit" and Scottish Independence analyses, even when controlling for wind speeds from any other year between 2011 and 2016 for the Brexit vote analysis or from any other September month between the years of 2009 and 2014 for the Scottish independence vote analysis, the effect of Election Day wind on prevention-oriented holds (see Model 5 in Tables 1 and 2).

Footnote 6 (continued)

that with only one exception (cloud cover), no other weather indicator was correlated with the amount of "No" votes (see Table S2 in the Supplementary Materials). However, these are simple bivariate correlations with no control measures, and as such, these results are suggestive at best.

Finally, we examined whether our results were robust to the inclusion of council area partisanship, as measured by the percent of council representatives identifying with the party advancing the two referendums. In the case of the Brexit vote, the Conservative Party advanced the campaign for the UK to leave the EU. Reassuringly, our results remained when council area partisanship was additionally taken into account ($B=0.15$, $SE=0.05$, $p=0.004$; see Model 6 in Table 1). Our Scotland independence results were similarly robust when we accounted for the share of council area representatives that are part of the SNP, which was the party advancing Scotland independence ($B=0.79$, SE$=0.41$, $p=0.08$).

Another concern could be that wind speed affected people's decision to actually participate in the referendums, and maybe those who voted in the face of higher wind speeds differed systematically from those that stayed at home. We found that our results were robust to the inclusion of a measure of voter turnout (see Models 2–6 in Tables 1 and 2). Moreover, a direct analysis of voter turnout did not support this alternative explanation: Higher levels of wind speed was not correlated with the share of people that went to the voting booths, neither in all of the UK in 2016 ($B=0.01$, $SE=0.05$, $p=0.81$; see Model 1 in Table 3) nor in Scotland in 2014 ($B=0.03$, $SE=0.12$, $p=0.80$; see Model 1 in Table 4). These null effects were also robust to the inclusion of all of our control measures (see Models 2–5 in Tables 3 and 4). It is worth noting that on Election Day for both of the referendums, no council areas experienced an extreme weather event; the maximum council area average wind speed was 36.67 km/h and 21.85 km/h in the UK in 2016 and Scotland in

Table 3 Wind speed does not predict Brexit turnout

	Model 1	Model 2	Model 3	Model 4	Model 5
Election day wind speed	0.01	− 0.05	− 0.04	− 0.03	− 0.01
	(0.05)	(0.07)	(0.03)	(0.03)	(0.03)
Constant	73.50***	− 1421.72*	− 462.95 +	− 281.23	− 327.63
	(0.97)	(684.77)	(273.64)	(298.09)	(257.39)
Control Measures:					
Other Election Day Weather Indicators		Y	Y	Y	Y
Socioeconomic Variables			Y	Y	Y
Historical Wind Speed				Y	Y
Council Party Composition (Conservative Party)					Y
R^2	0.00	0.07	0.77	0.78	0.80
Adj. R^2	− 0.00	0.05	0.77	0.77	0.79
Num. obs	380	380	364	364	363
RMSE	5.09	4.95	2.47	2.46	2.32

Dependent variable is voter turnout at the council level

Whether the estimated model includes a set of labeled control measures is indicated with a "Y"

Robust standard errors are in parentheses

***$p<0.001$, **$p<0.01$, *$p<0.05$, +$p<0.10$ denote significance levels

Table 4 Wind speed does not predict Scotland independence referendum turnout

	Model 1	Model 2	Model 3	Model 4	Model 5
Election Day Wind Speed	0.03	− 0.00	0.19	0.55	0.42
	(0.12)	(0.14)	(0.26)	(0.35)	(0.44)
Constant	85.58***	503.20	210.99	− 1007.23	− 1727.54
	(1.60)	(599.25)	(1076.92)	(2848.62)	(3493.03)
Control Measures:					
Other Election Day Weather Indicators		Y	Y	Y	Y
Socioeconomic Variables			Y	Y	Y
Historical Wind Speed				Y	Y
Council Party Composition (SNP)					Y
R^2	0.00	0.10	0.30	0.40	0.42
Adj. R^2	− 0.03	− 0.11	− 0.08	− 0.32	− 0.39
Num. obs	32	32	32	32	32
RMSE	3.23	3.35	3.30	3.64	3.74

Dependent variable is voter turnout at the council level

Whether the estimated model includes a set of labeled control measures is indicated with a "Y"

Robust standard errors are in parentheses

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, [+]$p < 0.10$ denote significance levels

2014, respectively, which are considered the wind speeds of a "fresh breeze" by the US National Weather Service.[7] Theoretically, we would expect that wind speed on Election Day would have affected turnout if wind speeds were extremely high.

To further assess whether our findings are spurious, we conducted two placebo tests. Namely, we assessed whether wind speed has an effect on two socioeconomic outcomes: levels of unemployment and levels of education (see Tables S4, S5 for analyses of the Brexit vote and Tables S6, S7 for analysis on the Scotland Independence vote in the Supplemental Materials). Our theory would not predict any relationship between wind speed and these socioeconomic variables. Reassuringly, we did not find robust statistically meaningful associations between wind speed and these socioeconomic variables.

A limitation to our analyses is the fact that our measure of wind speed was based upon a simple average of five different location points in the council area without considering the population density of these five location points. To help assess whether our findings are an artifact of our measure, we leveraged the fact that there is variability in the size of council areas.[8] The average wind speed of the five weather stations is most likely a more meaningful measure of the wind speed that voters in the council area experienced on Election Day in smaller council areas.

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[7] Source: https://www.weather.gov/pqr/wind.

[8] We leveraged the "AREALHECT" measure, the Eurostat-recommended land area measure, in the Standard Area Measurements created by the Office for National Statistics (2016).

We re-analyzed the Brexit data restricting our sample to smaller council areas. For parsimony, our re-analyses considered only Model 6 of Table 1, the specification with the with the full battery of control measures (see Table S8 in the Supplemental Materials). We found that the relationship between wind speed increased from 0.15 pp ($p=0.004$) to 0.22 pp ($p=0.007$) when we limited our sample to council areas that are less than 101.68 mi^2, the median council area size. The association further increased further when we restricted our sample to council areas that are less than 50 mi^2 ($B=0.33$; $p=0.011$) and council areas that are less than 25 mi^2 ($B=0.33$; $p=0.088$). Moreover, wind speed did not predict turnout when we restricted our sample to smaller council areas.[9]

In other words, when we considered only small council areas where the average wind speed of five weather stations in the area is likely to have more accurately captured the wind speed experienced by most of the residents of the council area, the magnitude of the relationship between wind speed and vote choice was larger and remained statistically significant despite sample size reductions. This finding provides reassurance that our procedure for collecting wind speed, if anything, created noise that made it more difficult to see the relationship between wind speed and vote choice.

In sum, two archival analyses support the prediction that wind speed affects voting decisions. Across both the Brexit and the Scotland Independence campaigns, the prevention-focused voting options garnered more votes when wind speeds were higher. Note that the causal direction of the effect of wind speed on voting decisions is unambiguous; voting decisions cannot affect wind speeds. With that said, this is not an experimental analysis, and one cannot definitively rule out the possibility that our result is a spurious one. Moreover, we cannot be certain that the effect on wind speed is only present when a prevention-focused electoral option is pitted against a promotion-focused electoral option. As such, we conducted additional archival analyses, as well as a field study and a lab experiment.

Study 2: The Moderating Effect of Elections Featuring a Regulatory Focus Distinction: Evidence from Archival Analyses of Switzerland Elections

We next tested our proposed causal model through statistical moderation analyses of archival data. The model predicts that wind speed will affect voting decisions *only* in elections that pit a prevention-focused option against a promotion-focused option. To test this moderation hypothesis, we collected data from 10 years of Swiss referendums (2004–2014, which translates to 24 elections). In Switzerland, the public is frequently called upon to vote on national issues, for which interest groups run campaigns that can differ in their regulatory focus. The analyses of the Swiss elections

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[9] This subgroup analysis was not conducted for the Scotland case as the sample has only 32 observations.

also allowed us to begin examining whether the effect of wind on voting outcomes generalizes across different types of elections, different time periods, and different country contexts.[10]

Procedures and Design

Pretest Measuring the Regulatory Focus of Swiss Referendum Campaigns

To determine whether options in each election presented a clear distinction between a prevention- and promotion-focused option, we had a research team blind to the purpose of the research project summarize the main arguments put forward by the competing campaigns for each of the 24 elections in Switzerland based on official campaign materials (for additional details on each election and the procedure, see Sects. 2 and 3 in the Supplementary Materials). We then asked three different independent raters (also blind to the purpose of the research project) to rate the extent to which each campaign in each election adopted a distinct regulatory focus on a scale ranging from 1 (very promotion-oriented) to 6 (very prevention-oriented). The inter-rater reliability was high ($ICC_{45,90} = 0.90$). Promotion-oriented campaigns were those that received a score ranging from 1 to 3 and prevention-oriented campaigns were those that received a score ranging from 4 to 6. This exercise was done to generate a binary measure, which we label "regulatory focus difference": When a given campaign or referendum involved a competition between a prevention- and promotion-focused choice (1 = Yes; 0 = No). In total, 8 out of 24 elections featured this difference in campaigns.

Vote for Prevention-Focused Outcome

Voting data for each canton was acquired from the Swiss Federal Office of Statistics (Bundesamt für Statistik, 2015). Vote shares were recoded such that 1 denotes a 100 percent vote for the prevention-oriented electoral option over the promotion-oriented electoral option and 0 denotes a 0 percent vote for the prevention-oriented electoral option over the promotion-oriented electoral option.

Wind Speed

We next collected wind speed data for all Election Days from the same online weather application used in our earlier analyses of Brexit and Scotland Independence (see Sect. 2 in the Supplementary Materials for further information on the data sources). As in Study 1, we sourced data from one hour before voting polls opened to one hour after voting polls closed to ensure we captured wind speed that voters experienced during Election Day before they voted. We captured wind speed in ten-minute intervals, the most granular level of data that is freely available from our data

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[10] With that said, all of our country cases are Western democracies, and hence, additional research would be necessary to establish external validity.

source, from five different location points (northernmost, southernmost, eastern-most, westernmost, central) for each Swiss canton ($N = 26$). Wind speed data were averaged across all time and location points for each canton on Election Day, and then aggregated into a single number for each canton in a given election. The average wind speed was 15.94 km/h, and of the 624 observations, and there were three cases in which wind speed was at a level in which wind speeds could affect turnout (see Table S3 for more summary statistics information on wind speed and all other measures we consider). For robustness tests, we again recoded these objective wind speeds to be on the Beaufort wind scale, as well as the natural log of wind speed (see Sect. 6 of the Supplemental Material files for more details on these measures).[11]

Control Variables

We included several control variables at the canton level that are associated with voting behavior (Gomez et al., 2007). We collected data on socioeconomic variables (i.e., age, income, percent non-native, percent rural, percent without post-compulsory education, and unemployment) and other Election Day weather variables (i.e., cloud cover, dew point, pressure, and temperature) (see Sect. 2 in the Supplementary Materials for further information on the data sources). We also controlled for canton, as we ran a random effects model, with the canton representing the panel variable and election number representing the time variable.

Results

Effect of Wind Speed Moderated by Regulatory Focus Distinction

We assessed whether the effect of wind speed on voting decisions was contingent upon elections offering a clear choice between a promotion-focused option and a prevention-focused option. To answer this question, as noted above, we identified elections with campaigns that featured a distinctively different regulatory focus as those in which one campaign fell into the 4–6 scale range of the prevention-orientation measures, and the other fell in the 1–3 range.

Similar to our previous findings, wind speed did not influence turnout ($p = 0.73$–87) when we controlled for other Election Day weather variables and canton fixed effects or canton-level socioeconomic variables (see Table S10 in the Supplemental Materials). Moreover, as hypothesized, while wind speed had a statistically meaningful effect on support for the prevention-oriented vote choice generally (see Table S9 in the Supplemental Materials), wind speed had no robust statistically significant effect on voting decisions when the voting options did not differ distinctly in their regulatory foci (see Table 5). When we controlled for turnout, canton fixed effects or canton-level socioeconomic variables (i.e., age, education, income, percent rural, race, and unemployment), and other Election Day weather variables, wind

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[11] See https://www.weather.gov/mfl/beaufort for more details.

Table 5 Interaction between wind speed and regulatory focus difference

	Model 1	Model 2	Model 3
Wind Speed	0.13[+]	0.07	0.05
	(0.07)	(0.06)	(0.06)
Regulatory Focus Difference (RFD)	− 8.18***	− 2.95**	− 2.54*
	(1.59)	(1.07)	(1.03)
Wind Speed x RFD	0.70***	0.57***	0.55***
	(0.08)	(0.06)	(0.05)
Constant	29.86***	49.82***	6.24
	(1.62)	(2.97)	(20.03)
Control Measures:			
Turnout	Y	Y	Y
Canton Fixed Effects	Y	Y	
Other Election Day Weather Indicators		Y	Y
Socioeconomic Variables			Y
Number of Groups: States	26	26	26
Num. obs	624	624	624

Dependent variable is prevention-oriented campaign vote share at the canton level. Robust standard errors are in parentheses

Whether the estimated model includes a set of labeled control measures is indicated with a "Y"

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, [+]$p < 0.10$ denote significance levels

speed was not associated with vote choice ($B = 0.05$–0.07, $SE = 0.06$, $p = 0.27$–0.36; see Models 2–3 in Table 5).[12]

However, there was a wind speed effect when an election featured a regulatory focus distinction; the interaction term between wind speed and campaign regulatory focus difference was statistically meaningful and in the direction we expect ($B = 0.55$–0.57, $SE = 0.05$–0.06, $p < 0.001$; see Models 2–3 in Table 5). The effect of wind speed on election outcomes in favor of prevention-oriented campaigns occurred only when the election featured voting options with distinctively different regulatory focus orientation. The significance of the presence of a regulatory focus distinction becomes clearer when we visualize the relationship between wind speed on Swiss referendums by whether the elections feature a regulatory focus distinction (see Fig. 2, which used estimates from Model 3 of Table 5).

Analyses of 10 years of Swiss referendums featured clarifying findings. First, the analyses revealed a main effect of wind speed similar to what was demonstrated in

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[12] We also examined whether the effect was specifically due to wind speed, as opposed to a broader pattern of weather conditions affecting voting decisions (see Tables S3 in the Supplementary Materials). We found that, except for one instance, no other weather indicator was correlated with the number of prevention-focused votes without simultaneously also affecting turnout rates. Temperature was an exception, as increased temperature was weakly correlated with a decrease in prevention-focused vote and not correlated with turnout. However, given that we are looking at multiple correlations, it is possible to have a spurious significant correlation. Moreover, these were simple bivariate correlations, and not robust tests.
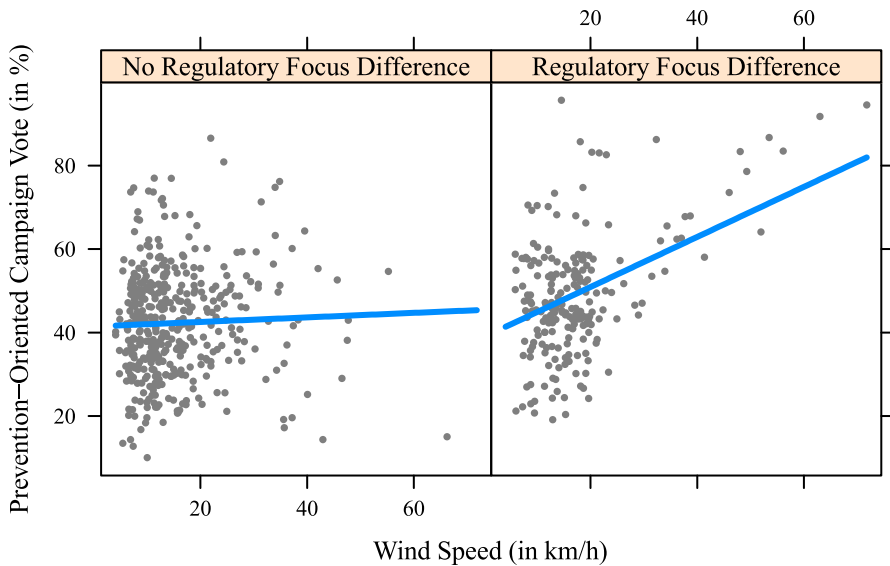
Fig. 2 Plotted relationships between wind speed and prevention-oriented vote for Swiss referendums. The left panel indicates elections for which there was no regulatory focus distinction. The right panel indicates elections for which there was a regulatory focus distinction

Study 1, with higher wind speed leading to increased support for the prevention-focused option. Second, this effect of wind speed only occurred when elections juxtaposed two competing campaigns that differed in their regulatory focus. When there was no clear distinction between prevention- and promotion-focused campaigns, higher wind speed was not related to voting decisions. Thus, the statistical moderation of archival data provides support for the proposed theoretical model.

Study 3: Wind Speed Effects Policy Preferences Through Regulatory Focus: Evidence from a Field Study and an Experimental Study

To provide further evidence of the underlying mechanism of the influence of wind speed on prevention-oriented voting, we next tested whether wind speed influences regulatory focus with a field study (Study 3a) and an experiment (Study 3b).

Study 3a: Field Study

We first tested whether naturally occurring wind speeds predict regulatory focus.

Procedures and Design

We conducted this study with 121 participants recruited on the main campus site of a private university located in the Northeast United States over 5 days. Participants were approached outdoors by research assistants blind to the field study's hypothesis.

Wind Speed Measure At the start of each interview, local wind speeds were measured using a Thermo-Anemometer (Pyle PMA90) as a continuous measure.

Regulatory Focus Measure The respondent was then asked our key outcome measure, regulatory focus. Regulatory focus at the time of the interview was measured through the following procedure. Upon providing consent to participate, participants were told: "We are interested in what you are motivated toward. Generally speaking, it is possible to distinguish between two different motivational states." Then, participants read the following definitions of both promotion and prevention focus, which we adapted from multiple publications on the subject (Higgins, 1998, 2000; Higgins et al., 1997): "People are said to be prevention-oriented when their motivation is concerned with security, safety and responsibility. This includes being currently motivated by a sense of duty and obligation. People are said to be promotion-oriented when their motivation is concerned with advancement, growth, and accomplishment. This includes being currently motivated by your hopes and aspirations." Finally, participants were asked to indicate their current levels of regulatory focus: "Based on the above definitions, do you currently feel… (please tick as appropriate)." The scale ranged from 1 ("very promotion-oriented") to 6 ("very prevention-oriented").

Results

We hypothesized that regulatory focus would become more prevention-oriented when experiencing higher wind speeds. Consistent with our theoretical prediction, wind speed was positively correlated with regulatory focus ($r = 0.17$, $p = 0.07$), such that higher levels of wind speed corresponded with an increased prevention focus.

Study 3b: Experimental Study

Given endogeneity concerns with the field study, we next experimentally manipulated the presence of airflow in the laboratory to test whether the mere presence of discernible wind versus no wind increased a prevention focus. This study also measured the Big-5 personality dimensions to establish discriminant validity (Goldberg, 1990); we predicted that wind would affect regulatory focus but not these other individual difference measures.

Procedures and Design

We recruited 140 participants to a small laboratory room located in the basement of a private university in the Northeast United States. All participants were informed, as a cover story, that fans were currently placed in the laboratory to aid with ventilation.

Airflow Manipulation Participants were randomly assigned to one of two conditions: two fans facing the participant were either switched on or switched off. Note that there are a number of differences between this experimental manipulation and naturally occurring wind speed. For instance, our manipulation projected air on participants frontally which may be experienced as more uncomfortable than the wind speed people may encounter blowing from many directions; we did not vary the degree of airflow, which did not allow us to establish whether an increase of airflow (e.g., from low to high) would lead to changes in regulatory focus, in contrast to measurements of wind speed in our earlier studies; and participants in the condition with the fan switched on were acutely aware of the presence of the fan (i.e., the manipulation of airflow), which could draw their attention to the manipulation, and thereby potentially alter their responses in contrast to variations in wind speed that may or may not draw attention but potentially affect regulatory focus. Despite these differences, we view our experimental manipulation as a helpful way to establish that the presence (versus absence) of airflow may affect participants' momentary regulatory focus.

Regulatory Focus and Personality Measures While standing in front of the fans, which were either turned on (airflow condition) or turned off (no air flow condition), participants first filled out a 10-item survey assessing their personality (Rammstedt & John, 2007) on a scale from 1 ("strongly disagree") to 5 ("strongly agree"), on questions like "I see myself as someone who is outgoing, sociable." Two items were assessed to measure each of the following five personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism (see Sect. 4 in the Supplementary Materials for exact question wordings). These questions were asked to enable a placebo test. Next, to measure regulatory focus, participants were told: "We are interested in what you are motivated toward. Generally speaking, it is possible to distinguish between two different motivational states." Participants then read the same definitions of promotion and prevention focus as in Study 3a, and then asked to indicate their current levels of regulatory focus according to the following question: "Based on the above definitions, do you currently feel… (please tick as appropriate)." The scale ranged from 1 ("very promotion-oriented") to 6 ("very prevention-oriented").

Results

We hypothesized that regulatory focus would become more prevention-oriented when experiencing airflow. As predicted, the experimental condition affected regulatory focus ($t(138) = 2.28$, $p = 0.02$), with participants in the airflow condition
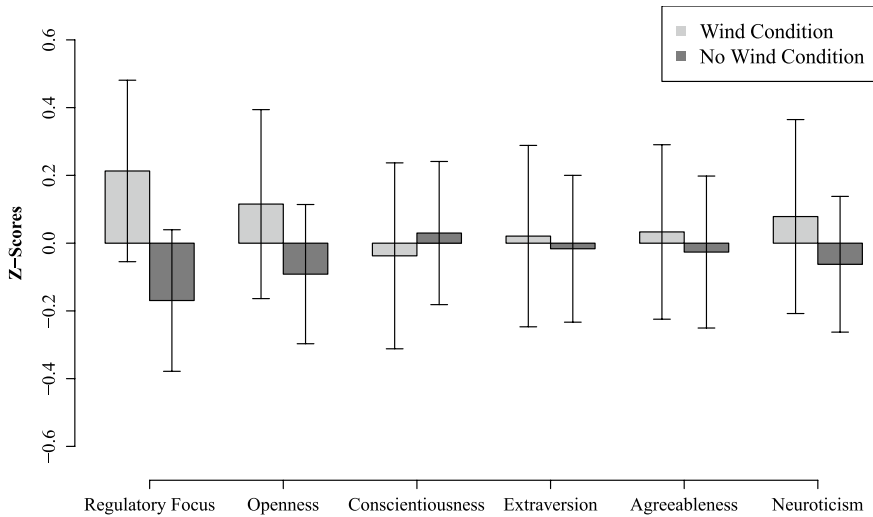
Fig. 3 Regulatory focus and personality assessment (Placebo Test) by condition. Each bar graph includes 95% confidence intervals. The six outcome measures are labelled on the horizontal axis. Each dependent variable is coded as a *z*-score to enable comparisons between each outcome measure, as regulatory focus is on a six-point scale and each personality trait measure is coded on a five-point scale

reporting a greater prevention focus ($M = 2.79$, *Standard Deviation* $(SD) = 1.47$) than the no air flow condition ($M = 2.26$, $SD = 1.29$). To establish discriminant validity, we examined participants' responses on each of the five personality measures, and found that there were no significant differences between conditions on any of the five dimensions of personality ($p > 0.23$ for each test; see Fig. 3).

The experimental study corroborates the finding from the field study that feeling airflow increase a prevention regulatory focus. Importantly, the presence of airflow only affected regulatory focus and not the other individual difference dimensions. While there are limitations to these studies, they support our argument that higher wind speed increases a regulatory prevention focus. Moreover, these findings are consistent with extant research that has demonstrated that uncomfortable and hazardous environments, which include high wind speeds (Koss, 2006; Jackson, 1978), nudge people towards a prevention focus (Seibt & Förster, 2004).

Discussion

Voting on a windy or non-windy day should have little bearing on the political preferences of individuals. The present results suggest, however, that in elections that feature a distinct choice between prevention- and promotion-oriented options, incidental environmental factors like wind speed can affect vote choice. The studies show that the effect of wind speed on voting decisions is driven, at least in part, by regulatory focus: higher levels of wind speed increase a prevention focus that, in turn, increases the attractiveness of prevention-oriented electoral options. We found this effect through observational studies across multiple countries (UK and

Switzerland) and elections. Furthermore, both field and laboratory studies corroborate the link between wind speed and regulatory focus. In sum, we find that incidental environmental factors like wind speed is among the factors that influence behavior in the ballot box.

Consistent with other studies investigating the effect of environmental cues and events that are seemingly irrelevant to politics such as voting location or prior sports events on voting behavior (Berger et al., 2008; Healy et al., 2010), the effect of wind speed on election outcomes is modest but significant. For elections that featured a distinction in regulatory focus, considering models with all of our considered covariates, a one km/h increase in wind speed was associated with an increase in votes for the prevention-focused campaign of 0.15 pp for Brexit, 0.79 pp for Scotland Independence, and 0.42 pp for Swiss referendums. Reassuringly, our conclusions are robust to alternative measurements of wind speed we considered: wind speed based upon the Beaufort wind scale, as well as the natural log of wind speed (see Sect. 6 of the Supplemental Materials to see our findings employing these alternative measures).

Although the effect size is small, its results can still be consequential. For example, in the UK Brexit Vote, where the average wind speed on Election Day across the UK was 19.26 km/h, there were councils where the referendum outcome could have been altered had wind speeds been even slightly different. For example, consider Moray, where 50.13 percent of votes were cast in favor of leaving the EU, the promotion-focused option. If wind speed had been even modestly higher that day, all else equal, our model suggests that a majority of voters in Moray would have supported remaining in the EU.

Policymakers interested in offsetting the effects of incidental environmental factors like wind speed on Election Day may consider, for example, extending voting periods beyond 1 day or making absentee voting more widely available (to minimize the influence of the external environment from 1 day). Offering citizens greater options to vote with an absentee ballot and/or participate in early voting may reduce the effects of incidental environmental factors like wind speed on voting outcomes, as these factors on Election Day will be attenuated if more voters cast their vote early or through a mail-in ballot.

In our archival analyses, we employed binary measures of regulatory focus, assessing preference for the prevention-oriented choice when juxtaposed against a promotion-oriented choice. Future studies should assess whether the extent to which the given electoral choices differ with regards to regulatory focus matters. In other words, if the distinction in regulatory focus is small, do we see a difference? Or does the difference between electoral options with regards to regulatory focus have to be sizeable? Future research should also examine whether and which other incidental environmental factors result in similar patterns. For instance, it can be argued that rain is more uncomfortable and hazardous compared to no rain, and as such, the simple presence of rain could similarly prompt a psychological prevention focus. Meier et al. (2019) recently found that rain decreases the share of votes for political change, arguing that rain reduces the willingness to take risks. Our claim that incidental environmental factors that cause discomfort like wind speed can shift regulatory focus, thereby pushing individuals to be favor prevention- over

more promotion-oriented options, helps explain their finding, assuming that political change in their dataset is generally the more promotion-oriented electoral option.

Additional research is also needed on how one could attenuate the effects of incidental environmental factors like wind speed on political behavior. Previous studies have found that awareness is an important step in attenuating the effects of irrelevant events (Healy et al., 2010; Schwarz & Clore, 1983). When affect and mood stemming from an event is brought from the subconscious to the conscious, the effect of irrelevant events and vote choice can be reduced, as this awareness allows people to understand that their current mood may be unrelated to the electoral choice at hand. Future research should assess whether awareness of the effects of wind on regulatory focus would attenuate the effects of wind on individual-level decision-making.

For democratic societies and institutions, it is important to acknowledge that people—the *dêmos*—are influenced not only by the substance of a policy and the political stances of parties and interest groups, but also by the environment in which those policies and stances are scrutinized and transformed into an actual voting decision. Only then can democracies consider institutional features that decrease the likelihood of irrelevant incidental factors and events affecting vote choice.

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