

2 Turnout as a Habit

3 John H. Aldrich · Jacob M. Montgomery ·
4 Wendy Wood

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7 **Abstract** It is conventional to speak of voting as “habitual.” But what does this
8 mean? In psychology, habits are cognitive associations between repeated responses
9 and stable features of the performance context. Thus, “turnout habit” is best
10 measured by an index of repeated behavior and a consistent performance setting.
11 Once habit associations form, the response can be cued even in the absence of
12 supporting beliefs and motivations. Therefore, variables that form part of the
13 standard cognitive-based accounts of turnout should be more weakly related to
14 turnout among those with a strong habit. We draw evidence from a large array of
15 ANES surveys to test these hypotheses and find strong support.

16
17 **Keywords** Habit · Voter turnout · Automaticity

18
19 Turnout to vote is one of the fundamental acts of democratic politics. As such, there
20 has been a huge literature seeking to understand it—and a great deal has been learned.
21 Even though a wide panoply of factors are, as hypothesized, related to turnout, those
22 that are also related to candidate choice are almost invariably more strongly related to
23 vote choice than to the decision to turnout. For example, Campbell et al. found that the

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A4 J. H. Aldrich · J. M. Montgomery (✉)
A5 Department of Political Science, Duke University, 326 Perkins Library,
A6 Box 90204, Durham, NC 27708-0204, USA
A7 e-mail: jacob.montgomery@duke.edu

A8 W. Wood
A9 Department of Psychology, University of Southern California,
A10 Los Angeles, CA 90089, USA

24 intensity of partisan preference was strongly related to turnout (1960, Table 5-1,
 25 p. 97), but they also showed a substantially stronger relationship between intensity of
 26 partisan choice and candidate preferences (Table 4-1, p. 69). Equally, voting as an act
 27 of political participation is less strongly explained by relevant variables than, for
 28 example, participation in campaigns or other modes of political participation. Verb
 29 and Nie, for example, found that their turnout-to-vote factor was noticeably less
 30 strongly related to overall political participation than were their campaign and
 31 communal activity factors (1972, Table B-2, p. 358).

32 We consider in this paper whether there may be a reason for this asymmetry in
 33 predicting vote choice as opposed to turnout. In particular, we explore empirically
 34 whether turnout reflects two styles of decision making. Some people decide to
 35 turnout as it is usually understood, as the result of deliberation or conscious
 36 weighing of relevant factors. Other citizens determine whether to vote as the result
 37 of what is understood theoretically in social psychology as habituated responses,
 38 responding automatically to quite different sorts of cues. If there are people both
 39 with and without a strong habit for voting, then turnout behavior is determined in
 40 two distinct ways, with two distinct sets of predictive variables. With some citizens
 41 deliberating and others responding more automatically, it is unsurprising that
 42 empirical accounts based on the uniform decision-making assumption yield
 43 estimates that are biased downward for individuals who employ the assumed
 44 decision-making model, and inflated for those who do not.

45 **Turnout and Habit**

46 What might it mean that people vote out of habit? A well developed theory in social
 47 psychology, with a large amount of empirical evidence, points toward a specific
 48 understanding of "habit" (Wood and Neal 2007). We will develop this theory, and
 49 the testable hypotheses that flow from it, in detail below. For now, we offer a simple
 50 indication of what the theory entails. Habit involves repetition of a response under
 51 similar conditions so that the response becomes automatically activated when those
 52 conditions occur. Everyone necessarily starts off with no strength of habit for
 53 turnout at all. Turnout, like any other response, becomes automated through
 54 behavioral repetition.

55 Repetition is, however, insufficient to develop a strong habit. A habit forms from
 56 repetition of a response in the same, or very similar, context. In this way, voting
 57 differs from some other behaviors that are profitably studied by the theory of habit.
 58 Consider, for example, seat belt use. Many people have formed a habit to use their
 59 seat belts. They did so by repeatedly clicking on their seat belts every time they got
 60 in the car. For this response, repetition is variable (some people repeat the behavior,
 61 others do not), but the decision context is fixed, or very nearly so. One is always in
 62 the car, the seat belt is always in the same location, and so on. Thus, the critical
 63 difference in explaining who does and who does not have a habit for seat belt use is
 64 simply repetition. For turnout, like a great many behaviors, however, the context is
 65 not fixed, and so we must consider not only the repetition of that behavior but also
 66 whether those repetitions are made in similar contexts.

67 A great many variables shape the context in which the turnout decision is made.
 68 We focus here on one in particular—moving to a new community. We examine
 69 moving because it has been studied, is easily measurable, and has been consistently
 70 measured in the ANES data we evaluate. But we also focus on it because, once a
 71 voter does move, the context is necessarily sufficiently disrupted that any existing
 72 habit is no longer employable, and the voter cannot be deciding to turnout based on
 73 contextual cues that stimulate a habit. Virtually all who move must register to vote
 74 again, find their new precinct polling place, and so on. The requirement to
 75 consciously consider the process of voting necessarily returns turnout to a
 76 conscious, deliberate, and non-habitual response. Thus, we will be able to make a
 77 fairly clean division in our data. Those who have just moved cannot be turning out
 78 due to a habitual response. Those who have not moved *might* be turning out due to
 79 recurring cues that activated the habitual response.

80 Similarly, repetition of behavior allows for nearly as clean a break in the data.
 81 Those who have not voted regularly cannot have a habit. Those who do vote
 82 regularly *might*. It is this interactive structure—of two variables that are both
 83 necessary conditions but neither alone is sufficient for a voter to have responded
 84 from habituation—that we exploit empirically. Using measures of both context
 85 stability and repeated past voting we test a number of hypotheses, including the one-
 86 model-fits-all assumption discussed above. Before turning to our analysis, however,
 87 we first place these expectations within the framework of past work in political
 88 science that relates decision making variables, social mobility, and past voting to
 89 turnout behavior. We then provide in more detail the psychological theory of habit
 90 we advocate and specify our hypotheses.

91 Variables Shaping Turnout and Habit: Decision Making Variables

92 The study of turnout has been dominated by work that assumes that voters
 93 consciously weigh a variety of factors in determining whether they vote. Whether
 94 those factors are understood as attitudes, psychological traits, or measures related to
 95 cognitive processing in the social psychological tradition, or as preferences,
 96 expectations, costs and benefits in the rational choice tradition, all presume that
 97 voters are consciously aware of these factors (although they may not be aware of
 98 how they enter into their voting calculus). Indeed, there is a fairly high degree of
 99 consensus on what those factors are. Campbell et al. (1960, chapter 5) examined
 100 closeness of the election, the intensity of partisan preferences, interest in the
 101 election, concern about the outcome, political efficacy, and citizen duty in their
 102 pioneering development of the social psychological approach to the study of
 103 turnout. Riker and Ordeshook (1968) used a subset of those variables (closeness,
 104 concern about the outcome, and citizen duty) in their equally pioneering
 105 development of the rational choice explanation of turnout. The difference was not
 106 about what to measure but about how to understand and interpret the measures. Of
 107 course, much has happened since then. The list of variables has grown longer and
 108 understanding of them more refined, but these two approaches remain the dominant
 109 theories, and their choices of variables remains virtually identical.



110 Variables Shaping Turnout and Habit: Moving as an Exemplar of Context

111 The U.S. is an unusually mobile society, and mobility has a strong negative
 112 correlation with political participation. To explain this relationship, Squire et al.
 113 (1987) noted that moving requires reregistering to vote. Elaborating further,
 114 Rosenstone and Hansen wrote (1993, p. 156), “Finally, the social matrix in which
 115 people live also structures the benefits and costs of political involvement in
 116 consequential ways.” Specifically, moving might shape voting because it affects
 117 social embeddedness. That is, information flows more strongly among those with
 118 the greatest social ties, and social approval and respect for voting is highest among
 119 those most embedded. Also, changing the context of voting requires reregistering,
 120 often just as the costs are highest to get established in new homes, schools, and jobs.
 121 Thinking along these two lines led Rosenstone and Hansen to measure length of
 122 time lived in the home rather than whether people had recently moved or not.
 123 Highton (2000) directly tested these two hypotheses about mobility more recently.
 124 His conclusion was that “...it appears that the explanation for the relationship
 125 between moving and turnout derives more from the need to register after moving
 126 than the disruption of social ties” (2000, p. 109). The theory of habit anticipates just
 127 this effect. The disruption of social and physical context removes the environment
 128 as a cue to repeated choice, requiring the voter to think not only about whether but
 129 also about how to go about voting (and often to take new and more costly actions,
 130 such as reregistering and locating one’s new voting place to implement the
 131 decision).

132 Variables Shaping Turnout and Habit: Repeated Behavior

133 Campbell et al. included one other individual variable in their account of political
 134 participation in addition to those mentioned above. In fact, it was the first one they
 135 considered: regularity of voting in prior elections (1960, Table 5-2, p. 93). “It is
 136 plausible to think of voting as a type of conduct that is somewhat habitual,” they
 137 wrote, “and to suppose that as the individual develops a general orientation towards
 138 politics he comes to incorporate either voting or non-voting as part of his normal
 139 behavior” (Campbell et al. 1960, p. 92). While most scholars know, as a sort of folk
 140 wisdom, that those who reported voting regularly in the past are much more likely
 141 than others to vote in the future, it wasn’t until the work of Green and his colleagues
 142 (discussed below) that *repeated behavior*, and the consideration of habit, became
 143 objects of study once again. Previous scholars had based their thinking on the
 144 syllogism that “similar causes produce similar effects.” For example, Campbell
 145 et al. (1960, p. 94) wrote “From this viewpoint our inquiry into the determinants of
 146 voting turnout is less a search for psychological forces that determine a decision
 147 made anew in each campaign than it is a search for the attitude correlates of voting
 148 and non-voting from which these modes of behavior emerged and by which they are
 149 presently supported.” Similarly, Campbell (2006) has argued that one can be
 150 “socialized into acting out of a sense of duty” during early adolescence (p. 5), and it
 151 is the persistence of one’s sense of duty that explains repetition in turn out.

152 In recent years, however, there has been renewed attention to the role that
 153 repeated voting itself may influence behavior. Green and Shachar (2000) found a
 154 powerful effect of lagged turnout on current turnout. Gerber et al. (2003) extended
 155 this by finding that voters who were experimentally stimulated to cast their vote in
 156 one election were significantly more likely to vote in the next election. Plutzer
 157 (2002) used panel data to show an effect of past behavior on future performance
 158 independent of political resources, psychological engagement in politics, and the
 159 costs of voting. Using latent growth model techniques, he showed that the act of
 160 voting itself seems to build inertia towards voting in future elections. Finally, Denny
 161 and Doyle (2009) used a two-step estimation model with panel data to control for
 162 both observed and unobserved individual heterogeneity and found that voting in one
 163 election increased the likelihood of future turnout by approximately 13%. Thus, a
 164 variety of studies and methods indicate that there is something to the fact of
 165 repetition itself that increases the likelihood of subsequent turnout.

166 As Green and his colleagues noted, these advances are valuable but incomplete.
 167 Citizens might repeatedly vote for a variety of reasons, including those not relevant
 168 to habit. Green and Shachar (2000) felt sufficiently concerned about this point that
 169 they called the pattern “consuetude,” a synonym for habit. Finding a strong effect
 170 for a lagged variable, for example, might incorporate a range of quite dissimilar
 171 decision processes. They posit that such correlations across time may have at least
 172 five different potential causes: (i) increased campaign activity focused on previous
 173 voters, (ii) alterations in individuals’ broad political orientations, (iii) increased
 174 positive attitudes towards the act of voting, (iv) lowering informational barriers to
 175 the act of voting, and (v) alterations in individual self-conceptualizations to
 176 encompass regular voting as part of self-image. Other scholarly work on this
 177 question has primarily placed the development of regular voting patterns as a result
 178 of one or all of these related factors (see also Fowler 2006; Kanazawa 2000;
 179 Valentino et al. 2009). Despite this movement toward empirical demonstrations of
 180 habit, the inability to settle on the reason for repeated behavior has left the theory of
 181 habitual turnout undeveloped.

182 Variables Shaping Turnout and Habit: Repeated Behavior in a Similar Context

183 Theories of automaticity developed in social psychology provide a sophisticated
 184 theoretical grounding to understand turnout as a habit. Responses given automat-
 185 ically are activated quickly in memory by associated cues, often without intention or
 186 deliberation. Some forms of automatic responding require that people hold
 187 supporting goals—that they vote automatically only when they wish to vote (see
 188 Bargh and Chartrand’s 1999 auto-motive model). This sense of automatic, habitual
 189 voting was developed by Marcus et al. (2000) in their “affective intelligence
 190 theory” (see also Marcus 2002). In this view, habit in politics depends on anxiety.
 191 For Marcus et al., “The notion of habitual behavior is captured in the concept of the
 192 ‘normal,’ vote which posits a standing decision based on party affiliation and a
 193 dynamic process of possible party defection and rational calculation based on the
 194 short-term forces of candidate qualities and the current issue agenda” (p. 21). In
 195 brief, they argued that habits are sets of automatic scripts executed in response to



196 specific circumstances that are monitored by unconscious emotional subsystems for
 197 compatibility with goals. Habits are broken when a behavioral script no longer
 198 achieves desired goals, resulting in negative emotions.

199 Yet the meaning of habit and automaticity in psychology is broad, and some
 200 forms of automaticity do not depend on goals and emotions (Bargh 1994; Moors and
 201 De Houwer 2006). In fact, the classic definition of habit in social psychology
 202 involves responding based on learned associations between contexts and responses
 203 without necessarily holding supporting intentions and attitudes (Triandis 1977; Neal
 204 et al. 2006; Wood and Neal 2009). In this view, people can turn out to vote
 205 habitually even when they do not strongly value voting in this election (although
 206 they may have in the past) or no longer believe that it is the right thing to do. For
 207 people with habits, the responses involved in voting (e.g., driving to the polling
 208 place) are activated in memory when they perceive simple context cues (e.g.,
 209 political signs posted in the neighborhood, election day headlines in news reports, a
 210 coworker wearing an “I voted” sticker).

211 Thus, while recognizing that some kinds of automatic political behaviors depend
 212 on emotions and goals, in the present research we test whether voting can be
 213 habitual in this more restrictive sense. That is, we tested whether people respond
 214 directly to the cues in the context in which behavior is set and are not strongly
 215 influenced by whether they hold appropriate motivations or emotional states.
 216 Turnout habits would then refer to an automatized behavior that is divorced from
 217 the goals that helped generate the habit in the first place.¹ Thus, our research does
 218 not represent a “critical test” between two theories of automaticity, because we
 219 recognize that automaticity in politics may often depend on goals. Instead, our
 220 research tests whether turnout can *also* be habitual in the sense that it continues
 221 despite the reduced effect of motivational variables among those with strong habits
 222 (as in hypothesis 4, below).

223 To apply the theory of habit to turnout, the core concept of habit needs to be
 224 measured in a way that is faithful to the theory. Strength of habit derives from
 225 repetition of the behavior in a similar context of choice. Scholars have long argued
 226 that one of the strongest variables shaping turnout is having voted in the past.
 227 Similarly, they have found that moving is one of the major disruptions in life,
 228 revealed politically by a substantial decline in electoral participation. The theory of
 229 habit requires that these are interactive. Repetition of voting does not indicate that a
 230 strong habit has been formed unless it has been done in a very similar context.
 231 Moving might have many effects on political considerations. Chief among these is
 232 the disruption in political context, but that holds largely for those who are regular
 233 voters. Thus, the theory as operationalized by these two measures implies that only

IFL01 ¹ There is a subtle point here regarding the role of goals and motivations in the affective intelligence
 IFL02 theory. This theory states that once habits form, the behavior may continue independent of the presence of
 IFL03 the original motivations that encouraged habit formation. However, the emotional surveillance system
 IFL04 constantly checks the degree to which automatic behavioral scripts are facilitating the achievement of
 IFL05 desired goals. It is when behaviors no longer lead to expected outcomes that anxiety increases and habits
 IFL06 are broken. Thus, unlike our theory, goals and motivations are still crucial in the affective intelligence
 IFL07 theory, albeit one step removed from the kinds of direct cognitive reasoning in standard behavioral and
 IFL08 rational-choice models of turnout.

234 those citizens who vote often and have not moved recently will have developed a
235 strong habit for turnout to vote. To see how we get to this point, we need now to turn
236 to the social psychological theory of habit as context–response associations and
237 derive the testable hypotheses that form the core contribution of this paper.

238 **The Theory of Habit and Testable Hypotheses Derived from It**

239 Our habit theory of voting is built on the idea that people learn context–response
240 associations and these are then available in memory to guide subsequent responses.
241 Our application of habit to turnout begins with the voter initially going through a
242 series of careful calculations and eventually voting. If those calculations are
243 embedded in a consistent context and if the result of those calculations consistently
244 points the individual to choose to vote, then she will apply less and less careful
245 consideration and deliberation to the task. Thus, by the time she has a strong habit,
246 she performs significantly fewer conscious calculations in deciding to turnout in the
247 current election.

248 Repetition, or the “Practice Makes Perfect” Hypothesis

249 When habitual voters perceive the contexts in which they have voted in the past, the
250 response of voting is likely to be activated in memory. Also, alternative responses
251 may be deactivated in memory when one choice is made repeatedly (McCulloch
252 et al. 2008). Through ideomotor processes that connect thinking to doing, people
253 then may act on the response that they have in mind (Bargh and Chartrand 1999). Of
254 course, people do not reflexively perform every idea that comes into their mind.
255 They may consciously decide to override a habitual response and choose to do
256 something new. But such decisions take effort in order to override established
257 patterns of response and choose novel actions (Neal et al. 2010; Quinn et al. 2010).
258 Given the demands of everyday life, people (perhaps quite “rationally”) do not
259 always engage in effortful control of habits. Thus, they may repeat habits in part
260 because acting on the readily available response in memory is easier than
261 deliberately choosing to perform an alternative. This theory of the psychological
262 processes behind habits is clearly relevant for understanding turnout, and thus
263 provides a theoretical basis for such findings as those from Campbell et al. through
264 Green and colleagues of the strong effects of prior voting on current turnout
265 decisions. Hence:

266 **Hypothesis 1** The more often and more regularly one voted in the past, the more
267 likely a strong habit for voting has formed. As a result, past voting should be
268 strongly related to current voting.

269 Influence of Context: The Mobility Hypothesis

270 Scholars have long understood that turnout also is a product of the context in which
271 people vote. In particular, residential mobility has a strong negative correlation with



272 likelihood of turnout (e.g. Verba and Nie 1972; Highton 2000). Psychological
 273 studies of people's everyday behavior, based on the theory of habit automaticity,
 274 find that contextual features have a causal role in triggering habit performance. In
 275 particular, habit performance is readily disrupted by changes in everyday
 276 performance contexts (Wood et al. 2005). In this theory, "context" is defined as
 277 the set of preceding actions, cues, events, and people that are associated with regular
 278 repetition of the action. Cues may be "triggering" events that initiate action such as
 279 a neighbor who posts yard signs as elections approach, co-workers who arrive with
 280 an "I voted" sticker or regularly chosen radio programs that remind listeners that
 281 Election Day is here. Cues may also be intermediate, such as familiar street layouts
 282 that tell an individual where to turn the car en route to a polling location or where
 283 to park.

284 With respect to voting, the performance context is particularly deeply disrupted
 285 when people move to a new location. As with all context disruptions, the features of
 286 context that cued habitual voting in the old location are broken and need to be
 287 reestablished in the new location before a strong habit for turnout can be
 288 reestablished. But the legal environment imposes even higher degrees of conscious
 289 consideration for turnout for movers. Movers must process information and make
 290 decisions such as to reregister and find the location of their new polling place. We
 291 therefore predict that people who move (or otherwise experience a change in the
 292 context of voting) will turnout less often than non-movers, even with the same
 293 attitudes and beliefs, even when the movers are highly motivated to vote, and even
 294 when they have qualified for and actually registered to vote. Hence:

295 **Hypothesis 2** Stability in the decision-making context is also a necessary
 296 condition for a strong voting habit to form. Equally, disruptions in context (e.g.,
 297 changing voting places, such as by moving) disrupt turnout, regardless of how much
 298 one would like to or feel obligated to vote. Thus, the consistency of the context of
 299 voting should be strongly related to turnout.

300 The Combination of Repetition in a Common Context: The Interaction 301 Hypothesis

302 Because habits in our definition develop from learning of associations between
 303 responses and features of performance environments, the best indicator of strong
 304 habits is the conjunction of repeated responses and stable performance cues.
 305 Although researchers have sometimes estimated habit strength solely from past
 306 performance frequency, this measure reliably indicates habit strength only for
 307 behaviors that are always performed in the same context (e.g., wearing seatbelts).
 308 Thus, for responses that can be performed in a variety of contexts, like snacking,
 309 exercising, and drinking milk, past behavior frequency did not directly predict
 310 future performance, but only did so when people had performed the behaviors in
 311 stable contexts (Danner et al. 2008). Of course, turnout is precisely the sort of
 312 behavior for which frequency of past performance and consistency of performance
 313 context might vary independently. In short, both need to be measured to assess
 314 strength of voting habits. Thus, we reach a third testable hypothesis:

315 **Hypothesis 3** Frequency of past turnout and a stable performance context are
 316 individually necessary and jointly sufficient for forming a strong habit to vote.
 317 Therefore, a strong habit to vote will be concentrated among those who have voted
 318 regularly in the past while doing so in the same context. At the same time, those
 319 who have either not voted regularly or who have moved (or otherwise had a
 320 disruption in the voting context) or both will not have a strong habit to vote.

321 Although the conjunction of repeated behavior within a stable context is a
 322 reliable indicator of habit strength, it should not be conflated with habit itself. As we
 323 have previously stated, habits are cognitive associations that link specific context
 324 cues to specific behavioral scripts. Repeated behavior and a stable context are
 325 merely the conditions under which such strong associations are likely to be formed
 326 and are thus the best available observable indicator of these mental associations.

327 A Decreased Role for Motivated Decision Making: The Dual Decision-Making 328 Model Hypothesis

329 Triandis (1977) was the first to argue that, once habits have developed to guide
 330 behavior, behavioral intentions and motivated decisions such as caring about the
 331 outcome of an election are less predictive and less helpful for understanding
 332 behavior. This reduced role for beliefs and motives in guiding habits reflects that
 333 habit performance, as we are defining habit here, is cued directly by recurring
 334 contexts and thereby depends less on decision making and goals.

335 Empirical support is accumulating for the reduced influence of motivated
 336 decision-making as habits develop. For example, in Ferguson and Bibby's (2002)
 337 study of blood donation, people who were habitual donors and had given at least
 338 five times in the past tended to continue to donate regardless of their current
 339 intentions. In contrast, occasional donors were guided by their intentions to donate.
 340 Similar results have been found with a variety of behaviors, including purchasing of
 341 fast food and watching TV news (e.g., Webb and Sheeran 2006; Ji and Wood 2007).
 342 Thus:

343 **Hypothesis 4** Motivations to turnout (e.g., high sense of citizen duty, intensity of
 344 partisan choice, caring about the outcome, etc.) should be strongly related to turnout
 345 among those without a strong habit for the vote. Those same motivations should be
 346 less strongly related to turnout among those with a strong habit.

347 Note that this hypothesis posits the existence of *at least two distinct data*
 348 *generating processes* within the general population. On the one hand, individuals
 349 lacking strong voting habits will be more likely to vote when they are more highly
 350 motivated to do so by the particular election, its candidates, parties, and issues at
 351 hand or by a more general normative commitment to voting and democracy. On the
 352 other hand, individuals with strong voting habits will turnout regardless of the
 353 particular candidates, issues, or parties in the election and regardless of their
 354 generalized attitudes towards voting and democracy. This implies that estimating
 355 distinct models for each group will better fit the data.



356 Summary and Discussion

357 The psychological theory of habit leads to several testable hypotheses. People have
 358 strong habits only with the combination of frequently performed behavior in similar
 359 performance contexts. As outlined in our first two hypotheses, both repetition of
 360 behavior and stability of context may themselves be associated with turnout. Both
 361 of these hypotheses have received support in the literature. However, the theory of
 362 habit formation yields two additional hypotheses, both of which are, we believe,
 363 novel and both of which generate non-obvious and thus more powerful and
 364 informative tests.

365 Our third hypothesis is that it is the combination of prior repetition in a stable
 366 setting that comprises habit. We test whether this interaction adds explanatory
 367 power above and beyond that which can be explained by the best current account of
 368 turnout in literature positing turnout as a deliberative choice—which is to say within
 369 the strongest extant explanation. We seek to show that the interaction adds
 370 explanatory power above and beyond that of the repetition and mobility included
 371 additively. Our fourth hypothesis is that citizens with a strong voting habit differ
 372 from those without such a habit, and that these group behaviors can best be
 373 explained using two separate models. In particular, the deliberative and information
 374 processing variables, such as evaluations of the candidates, issues, and parties, or
 375 the concern about the election outcome, should play a smaller role among the voter
 376 with a strong habit than among those who do not have as strong a habit. Even
 377 though those with a strong habit might well care about the outcome of the election
 378 just as much as those who have a weak voting habit, that concern will not shape
 379 their behavior, or at least not as much as it does those without a strong habit.
 380 Support for this hypothesis will lend strong support for our restrictive definition of
 381 habit and turnout that, unlike the emotion-based affective intelligence type of
 382 automaticity, does not depend on supporting motivations, goals, and emotional
 383 states.

384 Finally, *we do not make any claims about individuals who regularly fail to vote.*
 385 That is, our argument does not imply that some individuals may be habitual non-
 386 voters. In fact, habitual voting theory has very little to say about repeat nonvoters.
 387 People do not readily form links between a context and a non-response simply
 388 because an infinite number of nonresponses is associated with any one context.²
 389 Indeed, it is not clear that habitual non-voting is even a sensible concept in any
 390 automaticity-based theory of habits. With these clarifications and caveats in mind,
 391 we can now turn to our empirical strategy.

2FL01 ² It might be possible to hypothesize the existence of two kinds of non-voters. First, there may be
 2FL02 individuals who make a conscious and deliberate decision every Election Day to abstain. It could be
 2FL03 argued that such individuals could develop a habit of abstention. But there are also the second type of
 2FL04 non-voters who are simply unaware and inattentive. These individuals would be only vaguely aware of
 2FL05 the election, and their non-voting behavior would not be the result of any intentional decision. However,
 2FL06 our current theoretical presentation and empirical analysis remains silent about the role of habitual non-
 2FL07 voting because our measures do not allow us to discriminate between these two types of individuals. In
 2FL08 any case, there is little, if any, evidence to suggest that a large amount of non-voting is a result of
 2FL09 *intentional* abstention rather than passive inaction.

392 **Data and Measures**

393 We test our hypotheses using data from ANES surveys. We do so because they are
 394 the highest quality election surveys, because they cover many different elections,
 395 because they offer the largest number of surveys with turnout having been validated
 396 against election records, and because they are the data on which most other theories
 397 of turnout have been tested. These tests, like ours, took advantage of the presence
 398 of variables measured in close-to-identical form over this very large number of
 399 elections. We next describe the measurement of variables involved in the testing of
 400 our hypotheses. A more detailed discussion of several measures (especially the
 401 components of habit) may be found in the online Appendix.

402 **Dependent Variable and Election Years**

403 The dependent variable is, of course, turnout. We use only the validated vote for
 404 surveys conducted during presidential election years.³ That means we look at the
 405 ANES surveys of 1964, 1972, 1976, and 1980. We also use the only congressional
 406 election year survey with validated vote, 1974, but also look at 1958, 1966, and
 407 1994.⁴ These collectively provide a reasonable diversity of congressional election
 408 settings for estimating our models. We also chose these surveys because of the
 409 availability of measures of relevant independent variables.

410 **Repeated Turnout**

411 We consider those individuals who reported that they always vote or who reported
 412 voting in the previous two elections as repeated voters. This is a conservative
 413 criterion because not everyone who responds affirmatively to these questions will
 414 actually have voted sufficiently often to generate a strong habit (let alone doing so in
 415 a stable context). Nonetheless, the respondents who indicated that they did not vote
 416 in the two past elections or that they did not always vote can confidently be
 417 classified as having a low level of repetition.

418 **Stable Context**

419 A stable performance context is the second necessary condition for forming a strong
 420 habit to vote. Many possible aspects of the context could become associated with
 421 responses and then guide habit performance. Unfortunately, ANES surveys include
 422 few measures to tap the concept. One aspect that is regularly available is whether
 423 the individual lived in the same place. Obviously, the mere fact that one has long
 424 lived in the same location is not a direct measure of the full set of contextual stimuli

3FL01 ³ We have run our model on all available presidential election years, but only report the years with
 3FL02 validated turnout. The results for other years are available on request.

4FL01 ⁴ Because of a concern for consistency in coding, we did not use the ANES cumulative file.

425 that might evoke the habit-induced behavior. We do know that those who have
 426 recently moved cannot have a strong habit until they are living in a sufficiently
 427 stable context long enough to form or reinvigorate one. We consider those
 428 respondents who indicated having lived in the same location for at least five
 429 elections (and hence 10 years) as having maintained a stable context sufficiently for
 430 a habit to have formed.

431 Habit: The Combination

432 The above two necessary conditions are, according to the theory, jointly sufficient
 433 for the individual to develop a strong habit. Given that alternative variables were
 434 only inconsistently included in the data base, we calculated habit as a dichotomous
 435 measure.⁵ Individuals who reported high past performance frequency and high
 436 context stability on the proxy measures were coded as 1 (strong habits), and those
 437 who did not meet both criteria were coded as 0 (weak habits). As before, we note
 438 that, due to over-reporting of voting, those who reported not voting regularly almost
 439 certainly did not do so. Also, those who reported moving recently almost certainly
 440 did not have a stable context for voting. Thus, those scored as zero on each measure
 441 are quite unlikely to have met the conditions necessary for forming a strong habit to
 442 vote, whereas all those with a strong habit are concentrated among those scoring 1
 443 on this measure. These two variables and their combination are appropriate for
 444 examination of our first three hypotheses.

445 Motivations for Voting (Plus Control Variables)

446 The final set of variables concerns motivations for voting. We have chosen to
 447 replicate the comprehensive model of turnout presented by Rosenstone and Hansen
 448 (1993; see especially their chapter 5). One of its major advantages is that it is
 449 estimated using the ANES, so that we can use the same form of each variable on the
 450 same data that they did.⁶ The Rosenstone and Hansen model also includes control
 451 variables generally employed in estimation of turnout models, such as education,
 452 income, and the like. Hence their model is, for us, divided into two parts, the set of
 453 variables for assessing motivational and goal-directed models of turnout and hence
 454 for testing hypothesis 4, and the controls as typically used in the literature for
 455 ensuring reasonable specification. Their list of attitudinal variables, those implicated
 456 in the social psychological and rational choice theoretic assumption of conscious
 457 deliberation, includes internal and external political efficacy, strength of party
 458 identification, affect for the parties, affect for the presidential candidates, concern
 459 about the election outcome, and perceived closeness of the election. We focus our
 460 analysis on these variables. Full description of each of these variables is available in
 461 the Survey Question Appendix.

5FL01 ⁵ See Aldrich et al. (2007) for further analyses of some of these alternatives. Note that the choice among
 5FL02 these various measures does not affect the results of the tests of our hypotheses.

6FL01 ⁶ See the online Appendix for a lengthier discussion of these issues.

462 Preliminary Empirics of Habit and Turnout

463 In this section we examine some empirical aspects of habit and its relationship to
 464 turnout before turning to the test of our hypotheses in the next section. In particular,
 465 we want to show that the two components of our habit measure are not strongly
 466 correlated and that each is distinctly related to turnout. That is, each component of
 467 habit contributes its own explanatory power. Finally we look at the relationship
 468 between habit and our motivational variables. Some might argue that those high on
 469 the habit variables, perhaps because they are both regular participants and have been
 470 embedded in their community for a decade, are simply surrogates for those with
 471 high interest in politics, sophistication, interest, and thus involvement. Others might
 472 suspect that, were we to find a reduced effect of these motivational variables on
 473 turnout among those measured as having a habit to vote, this pattern reflects that
 474 those with a voting habit have very little variance across the motivational variables,
 475 and thus those variables cannot affect turnout among that set, due simply to lack of
 476 variation. As we will see, none of those concerns are present in the data.

477 Table 1 presents a simple cross tabulation between the two components of our
 478 habit measure. The two measures correlate only at a modest 0.10. Furthermore,
 479 these two variables are neither overwhelmingly common nor uncommon in the
 480 electorate. Thus, both are consequential contributors to the incidence of strong
 481 habits.

482 In Table 2 is a cross tabulation of the two components of habit as well as the
 483 habit interaction variable with turnout. Note that many vote without a strong habit, a
 484 substantial number abstain even though scored as having a strong habit, and both
 485 stable context and repeated behavior are independently as well as jointly related to
 486 turnout. There is, in other words, variation to explain.

487 In Table 3, we consider whether those who have a strong habit are very different
 488 from those without a strong habit for voting on our motivational measures. As
 489 Table 3 demonstrates, while there are small differences on these measures between
 490 the strong and not-strong habit respondents, the differences in mean scores are
 491 surprisingly small, and there is virtually identical variation on these measures
 492 among those with and those without a strong habit to vote.

Table 1 Cross tabulation of individual components of habit indicator

	Repeated behavior		Total
	0	1	
Stable context = 0	2,731 (38.35)	4,390 (61.65)	7,121 (100.00)
Stable context = 1	2,625 (29.30)	6,334 (70.70)	8,959 (100.00)
Total	5,356 (33.31)	10,724 (66.69)	16,080 (100.00)

Row percentages are in parentheses

Table 2 Turnout, habit, and indicators of habit strength

	Habit		Total	Turnout		Total
	Weak habit	Strong habit		No vote	Vote	
Turnout						
No vote	4,584 (81.05)	1,072 (18.95)	5,656 (100.00)			
Vote	4,542 (47.95)	4,931 (52.05)	9,473 (100.00)			
Consistent voter						
Inconsistent	5,356 (100.00)	–	5,356 (100.00)	3,448 (69.52)	1,512 (30.48)	4,960 (100.00)
Consistent	4,390 (40.94)	6,334 (59.06)	10,724 (100.00)	2,255 (21.93)	8,026 (78.07)	10,281 (100.00)
Stable context						
Not stable	2,625 (29.30)	6,334 (70.70)	8,959 (100.00)	3,022 (34.14)	5,829 (65.86)	8,851 (100.00)
Stable	7,121 (100.00)	–	7,121 (100.00)	3,353 (45.45)	4,025 (54.55)	7,378 (100.00)

Row percentages are in parentheses



Table 3 Means and variance of cognitive predictors by habit

Variable name	Within group means and variances	
	Habit	No habit
Close	0.557 (0.247)	0.526 (0.249)
Candidate affect	0.282 (0.067)	0.273 (0.064)
Party affect	0.185 (0.050)	0.158 (0.045)
Duty	0.696 (0.278)	0.596 (0.333)
Contacted	0.371 (0.234)	0.248 (0.186)
Care	0.710 (0.206)	0.577 (0.244)
Internal efficacy	0.308 (0.213)	0.293 (0.207)
External efficacy	0.583 (0.170)	0.537 (0.176)
Party ID	0.675 (0.097)	0.590 (0.111)
Interest	0.403 (0.241)	0.287 (0.205)
Differences	0.370 (0.233)	0.315 (0.216)

Variance in parentheses

493 **Analysis and Results**

494 Testing Hypotheses 1–3

495 In Fig. 1 we report the result of estimating the model that consists of the Rosenstone
 496 and Hansen predictors to which is added the three measures of repeated behavior,
 497 stable context, and their interaction or habit variable, for each of the ten ANES
 498 surveys. Reported in that figure are the point estimates and confidence intervals for
 499 our three variables. Our three research questions are, first, is the repeated behavior
 500 measure substantively and statistically significant? Second, is the same true for the
 501 context stability variable? Finally, is that also true for the habit strength variable? In
 502 the initial analysis, we add each variable separately (we fit the full interactive
 503 models below).⁷

504 Each of the three variables is correctly signed and statistically significant in every
 505 election, except for the context stability measure in the 1972 survey. In this one
 506 case, the variable is significant at the more generous 0.10 level. In other words, in 29
 507 of 30 cases, the variable is statistically significant at conventional levels, and nearly
 508 so in the other remaining case.

509 With our theory implying an interactive formulation, the best way to assess
 510 substantive significance is to report first differences (Brambor et al. 2006). We
 511 report them for each of the three variables under consideration in Fig. 2. For
 512 example, the bottom panel of Fig. 2 presents point estimates and 95% confidence
 513 intervals for the change in predicted probability associated with moving both
 514 components of the habit measure from zero to one.⁸ These can be roughly

7FL01 ⁷ Full model specifications for all years are available upon request. We note that this is not quite the exact
 7FL02 hypothesis test for interactive hypotheses, but we will demonstrate that below.

8FL01 ⁸ Estimates were made using the Zelig program in R v2.9. All control variables were set at their actual
 8FL02 data points, and the 95% CI represent the estimate of first differences averaged across all respondents in a
 8FL03 given year. This method of examining an interactive model follows the suggestion of Brambor et al.
 8FL04 (2006).

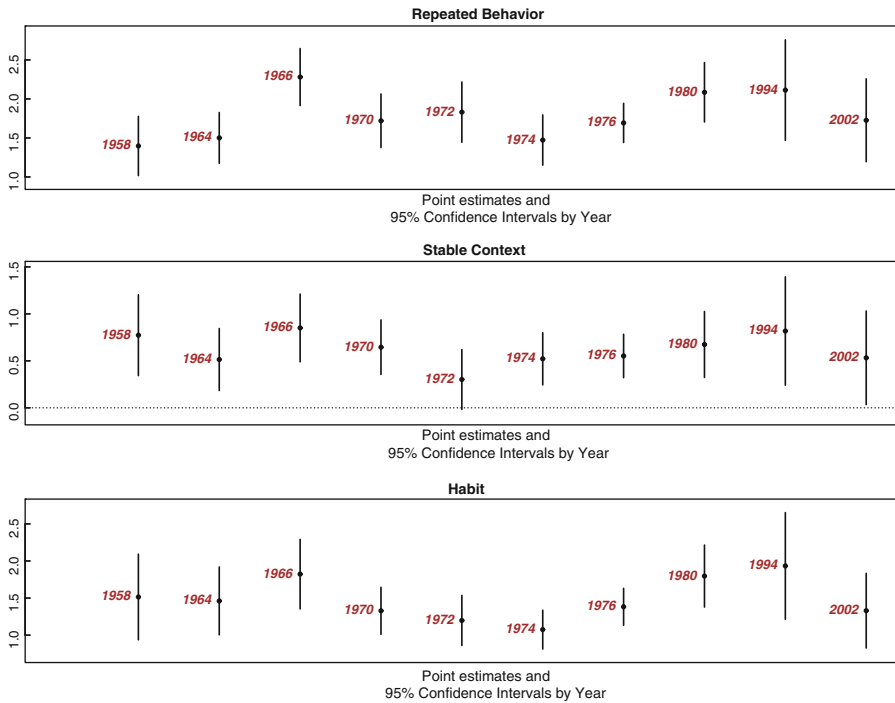


Fig. 1 Coefficient estimates and 95% CI for main variables considered separately by year. *Note:* Full model specifications for each year are available upon request

515 understood as the average difference in expected probability of voting between
 516 individuals with and without habits. Each of the three variables can be seen to add a
 517 substantial increment to the probability of voting. Context stability adds about 0.10
 518 or more in each year, while having voted regularly in the past adds substantially
 519 more, anywhere from a bit more than 0.20 to as much as 0.50 in 1966. Finally, the
 520 marginal effect of the addition of the habit combination is typically larger than the
 521 sum of the two separate components, thus increasing the likelihood of turnout by
 522 anywhere from as “little” as 0.30 to as much as 0.50.

523 Are these large effects? The answer is relative. First, the habit variable has the
 524 largest effect of any single variable in every estimation, and, second, the effect of
 525 these three variables is far larger than the effects of any other variables in the
 526 Rosenstone–Hansen model (data available on request). In any case, the estimations
 527 imply that each of the first three hypotheses is strongly and consistently supported—
 528 the indicated variable is statistically significant and adds substantial explanatory
 529 power even controlling for all other variables that are used to explain turnout in
 530 ANES data. It thus appears that habit, as the interaction of repeated behavior and
 531 stable context, is necessary for correctly understanding turnout. We provide a
 532 second test of this conclusion below.

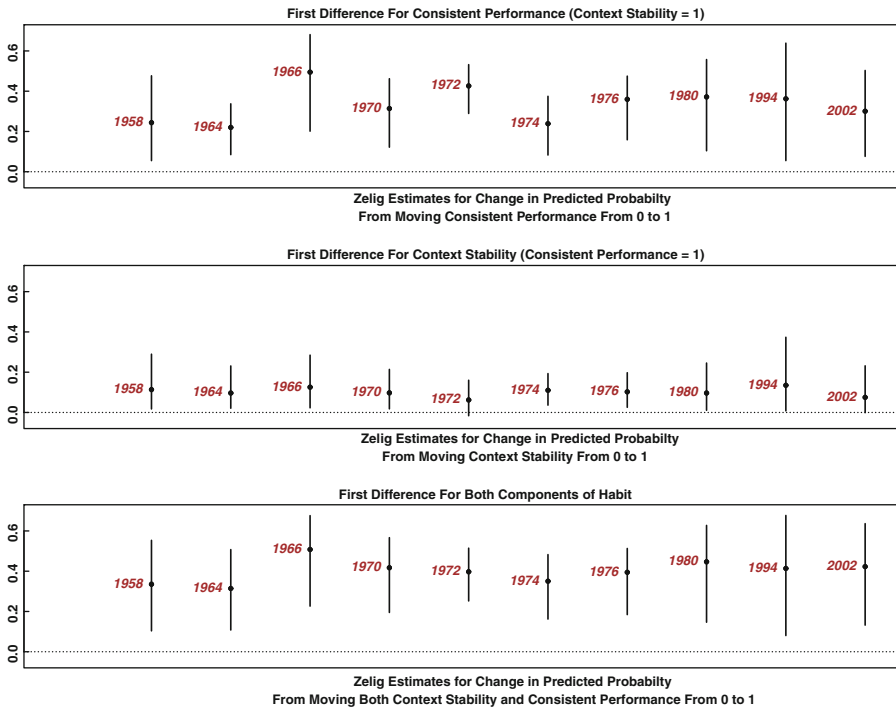


Fig. 2 Estimates of first-differences for indicator of habit (by year). Full model specifications for each year are available upon request

533 Testing Hypothesis 4

534 Our fourth hypothesis is that motivational variables, such as caring about the
 535 election outcome, long studied as the causes of participation, are of central
 536 importance for explaining turnout among those without a strong habit. These
 537 variables will, however, be substantially less strongly related to turnout among those
 538 with a strong habit for voting. This is, perhaps, the most crucial hypothesis as it is a
 539 straightforward implication of our theory of habit and yet is very different from
 540 what the best prior research on turnout has studied.

541 We test this through use of structural equations (SEM) modeling (Asparouhov
 542 and Muthén 2006). This is an appropriate approach because the hypothesis states
 543 that the explanatory power of the full set of motivational variables will be high for
 544 those without a habit and low for those with a habit, which in turn implies that the
 545 covariance between the dependent (or left-hand-side) variable and this set of
 546 explanatory (right-hand-side) variables will be significantly (and substantially)
 547 lower among those with than those without a strong habit. But that hypothesis is just
 548 what a multi-group (here, two-group) SEM is designed to evaluate—are the full set
 549 of motivational variables substantially less influential among those with a strong
 550 habit than among those without a strong habit? We conducted a multiple-group

551 analysis, using our habit indicator to divide the sample into two groups, those with
552 and those without a strong habit to vote.⁹

553 We focus initially on the five decision variables from the Rosenstone–Hansen
554 model. *Care about the Outcome*, *Strength of Party Identification*, *Internal Efficacy*,
555 *External Efficacy*, and having reported being *Contacted* by a candidate or party are
556 key measures in the Rosenstone–Hansen model and are available for all of the years
557 in our time-series (except 1958 and 1970).¹⁰

558 First, as hypothesized, the relationship between these variables and turnout is
559 lower for citizens with strong voting habits. The first three columns of Table 4
560 present the relevant evidence for testing this claim (see also the full estimation
561 results in the online Appendix). The first two columns show the regression estimates
562 for the five basic motivation variables if they are estimated separately for
563 individuals with strong and weak habits. As can be seen, the relationships between
564 the independent variables and the probability of turning out are smaller (and less
565 likely to be statistically significant) in the strong habit group in every instance.
566 Second, allowing the coefficients to be estimated separately for each group
567 significantly improves the fit of the model compared with one in which the
568 coefficients on the decision variables are constrained to be equal for those with and
569 those without a strong voting habit ($p < 0.001$ in all cases).

570 We repeated the SEM-based test of hypothesis 4 with additional decision-
571 relevant variables that were available on only some of the election years: affect
572 towards the parties (*Party Affect*), affect towards the candidates (*Candidate Affect*),
573 perceived *Closeness* of the election, and *Interest* in the campaign. We also include
574 the perception of major *Differences* between the parties as it is available for all of
575 these years, although it was not included in the Rosenstone–Hansen model. These
576 variables could be tested only in the surveys in 1964, 1972, 1976, and 1980.
577 Fortunately, validated votes were collected in all of these surveys rather than having
578 to rely on self-reported voter turnout. Again, the SEM model results (presented in
579 the online Appendix) show that we can reject the null hypothesis that the
580 coefficients for these decision variables should be constrained to be the same across
581 the habit and non-habit group. Similarly, the coefficient estimates (see middle
582 column, Table 4) show that the coefficients are substantially smaller among
583 respondents with strong habits than among those without.

584 Finally, we replicate these results but now also include the full battery of control
585 variables in the Rosenstone–Hansen model. These variables, like the year dummies,
586 are held constant across all models. We focus here on the six decision-relevant
587 variables available in the maximum possible number of years (*Care*, *Party ID*,
588 *Internal efficacy*, *External efficacy*, *Contacted*, and *Differences*). Using these six

9FL01 ⁹ All results were conducted in MPLUS v4.2 using a WLSMV estimator and a probit link function. A full
9FL02 discussion of the SEM analysis used here is presented in the online Appendix.

10FL01 ¹⁰ We estimate a fixed effects model, that is, we include dummy variables to control for year effects.
10FL02 These results do not include the additional control variables in the Rosenstone–Hansen model. Those are
10FL03 included below.

Table 4 Coefficient estimates from multiple group analysis from both the constrained and unconstrained models^a

	Five variables		Ten variables		Full model with controls ^b	
	Estimated separately by group		Estimated separately by group		Estimated separately by group	
	Habit	No habit	Habit	No habit	Habit	No habit
Care	0.358 (0.051)	0.467 (0.036)–0.431 (0.029)	0.177 (0.076)	0.207 (0.051)	0.198 (0.042)	0.349 (0.058) 0.428 (0.041) 0.402 (0.033)
Internal efficacy	0.08 (0.055)	0.165 (0.039) 0.137 (0.032)	0.068 (0.079)	0.122 (0.053)	0.106 (0.044)	0.051 (0.067) 0.023 (0.045) 0.032 (0.037)
Party ID	0.103 (0.076)	0.378 (0.054) 0.286 (0.044)	–0.044 (0.117)	0.304 (0.076)	0.2 (0.064)	0.089 (0.089) 0.35 (0.063) 0.262 (0.051)
External efficacy	0.23 (0.058)	0.384 (0.043) 0.329 (0.035)	0.266 (0.081)	0.401 (0.057)	0.356 (0.047)	0.112 (0.068) 0.154 (0.050) 0.14 (0.040)
Contacted	0.276 (0.051)	0.524 (0.040) 0.431 (0.031)	0.139 (0.072)	0.449 (0.054)	0.405 (0.051)	0.244 (0.058) 0.393 (0.045) 0.338 (0.035)
Differences			–0.047 (0.071)	0.172 (0.048)	0.172 (0.048)	–0.002 (0.057) 0.147 (0.042) 0.096 (0.034)
Party affect			–0.005 (0.165)	0.164 (0.123)	0.078 (0.096)	
Candidate affect			–0.049 (0.151)	–0.023 (0.104)	–0.024 (0.062)	
Closeness			–0.026 (0.077)	0.027 (0.049)	0.099 (0.041)	
Interest			0.263 (0.074)	0.234 (0.053)	0.135 (0.042)	

^a Year dummies are suppressed for the sake of clarity. Comparative model fit statistics and *n*-sizes for the constrained and unconstrained models are shown in the online appendix

^b Additional control variables are available upon request



589 variables, we again follow the analytic procedure described above. The online
 590 Appendix presents the information about the fit indices as extra constraints are
 591 added. The final three columns of Table 4 present the relevant estimates of the
 592 effect of these decision-variables once this larger battery of controls is included. All
 593 of our previous findings hold.

594 In sum, we have strong evidence that the three measures pertinent to habit are
 595 individually and collectively statistically significant, and, indeed, provide the largest
 596 explanatory power for turnout in ANES data, compared with all other variables in
 597 the Rosenstone–Hansen complex. Thus, hypotheses 1 through 3 are each strongly
 598 supported. Furthermore, we have examined carefully the effect of the motivational
 599 variables, standard to social psychological and rational choice theoretic explana-
 600 tions of turnout, and discovered that their effects are significant and substantively
 601 important—but only among those who do not have a strong habit for voting. Among
 602 those who do have a strong habit, the effects of the motivational variables are
 603 significantly different and much smaller substantively. Before concluding, we return
 604 to hypothesis three, that repetition and stability of context are interactive.

605 The Importance of Repetition and Stable Context Further Examined

606 With full SEM estimates now introduced, we can return to provide another set of
 607 tests of hypothesis 3. The unique triggers to habit performance require an interaction
 608 between a stable context and consistent behavioral performance—only by
 609 repeatedly voting in the past in stable contexts can voters form strong habits to
 610 vote in the future. Habitual voting is not identical to repeatedly voting due
 611 to strongly held, consistently made decisions involving, for example, one's duty to
 612 vote or perceived large differences between candidates.

613 How else might we seek to demonstrate that the strength of repetition and
 614 stability in context explain turnout because they interact, as our theory of turnout as
 615 habit predicts? Like hypothesis 4, this third hypothesis is particularly important to
 616 our theory, in this case for demonstrating that repetition matters because it helps
 617 establish a habit, and that context stability matters in large part because it works
 618 along with repetition to form a strong habit for voting. Here, we consider what
 619 happens to the fit of our models if we estimate our full equation but eliminate first
 620 one and then the other component of the habit interaction terms.

621 We fit logistic models predicting turnout using the same Rosenstone–Hansen
 622 predictors as the models reported in Table 4. The only change we made was to
 623 include our dichotomous indicators of consistent behavior, stable context, and their
 624 interaction, which is our measure of habit. The full model results for these analyses
 625 are presented in Table 5. Figure 3 shows the point estimate and 95% confidence
 626 interval for the change in predicted probability associated in moving each
 627 component from zero to one separately while the other is held constant (either at
 628 zero or at one). As can be seen, the estimated first difference is consistently smaller
 629 and less likely to be statistically distinguishable from zero when the other
 630 component of habit is absent (i.e., set equal to zero). That is, stable context is less
 631 likely to change a person's odds of voting in the absence of repetition. Similarly, the

Table 5 Simple logistic models with interactions^a

	Five variable model	Ten variable model	Model with controls ^b
Intercept	-2.229 (0.111)	-2.028 (0.138)	-3.181 (0.149)
Care	0.652 (0.051)	0.311 (0.074)	0.613 (0.057)
Internal efficacy	0.054 (0.056)	0.013 (0.078)	-0.034 (0.064)
Party ID	0.357 (0.077)	0.262 (0.110)	0.282 (0.088)
External efficacy	0.374 (0.062)	0.427 (0.083)	0.158 (0.069)
Contacted	0.645 (0.057)	0.488 (0.078)	0.571 (0.062)
Strong habit	1.646 (0.072)	1.532 (0.095)	0.526 (0.111)
Stable context	0.142 (0.081)	0.055 (0.103)	0.054 (0.092)
Consistent behavior	0.565 (0.100)	0.632 (0.132)	1.416 (0.081)
Differences		0.156 (0.070)	0.280 (0.056)
Party affect		0.252 (0.179)	
Candidate affect		-0.064 (0.149)	
Closeness		0.001 (0.072)	
Interest		0.313 (0.075)	
<i>N</i>	10,551	5,758	8,907

SE in parentheses

^a Year dummies suppressed for clarity

^b Additional control variables available upon request

632 estimated effect of previous voting on future voting is moderated by the presence or
 633 absence of a stable context.

634 Perhaps an even stronger test is to repeat the SEM models, as analyzed above, but
 635 this time to consider how the two components of habit individually affect the
 636 decision-relevant coefficients in the Rosenstone–Hansen model. That is, is there a
 637 significant difference in the effect of, say, concern about the outcome, among those
 638 who vote regularly and those who do not, ignoring the stability of context (and vice
 639 verse for context stability)?¹¹

640 The results (presented in the online Appendix) show that treating both individuals
 641 with and without strong voting habits as identical does not significantly affect the
 642 model fit ($p = 0.6$) when respondents are grouped solely based on constituent
 643 behavior performance (i.e., regular past voting or not). And, of course, the
 644 magnitudes of change for the model fit indices are not as large. If we consider only
 645 stability of context, that is, whether or not respondents lived in the same community
 646 for at least 10 years, we also find no significant differences in coefficients
 647 ($p = 0.73$). Together, these results illustrate that simple measures of just past
 648 performance or just stable context alone are not a sufficient measurement of habit

11FL01 ¹¹ It might be possible to take this idea even further and divide the population into four groups based on
 11FL02 the two dichotomous indicators of context stability and repeated behavior. However, it is unclear what
 11FL03 patterns we would expect to see amongst the intermediate categories (stable context but inconsistent
 11FL04 voters versus unstable context and consistent voters). As a robustness check, this would seem to add more
 11FL05 confusion than clarity. Moreover, the differences between coefficient estimates become increasingly
 11FL06 difficult to discriminate as sample sizes in each group shrink and confidence intervals increase.

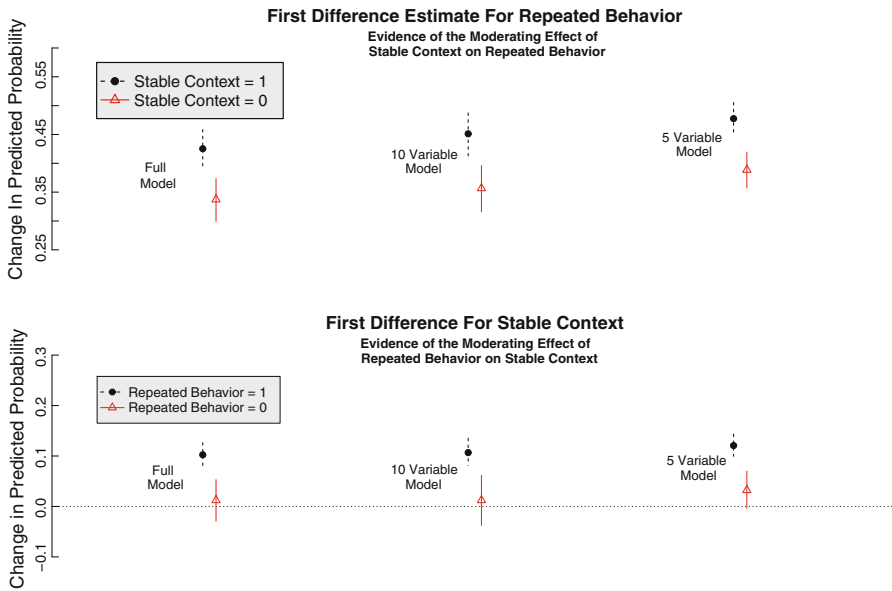


Fig. 3 Using first difference estimates to explore the moderating effect of stable context and consistent behavior on each other. The dependent variable in all models is turnout. These results are simulated using simple logistic regressions with interactions presented in Table 5. First-difference estimates were generated using the Zelig package in R

649 strength. Rather, it is precisely the interaction between repetition and context that
 650 provides the strong statistical and substantive power we reported above.

651 A Note on Affective Intelligence

652 Because strong habit voters repeated past behavior without relying on their
 653 motivations and decision making, turnout to vote appears to be a type of
 654 automaticity that is not dependent on goals. In contrast to the automaticity that may
 655 characterize other political behaviors (see Marcus et al. 2000), habitual turnout is
 656 disrupted by changes in context because, in new contexts, the practiced response is
 657 not activated in memory. In our account, the disruption with change in context does
 658 not occur because of increases in voters' anxiety or other emotion-inducing aspects
 659 of a changed social context. To secure our interpretation, in addition to our primary
 660 demonstration above that motivations and decision-making are relatively unimpor-
 661 tant in influencing turnout among habitual voters, we conducted another, more
 662 focused test by evaluating whether negative emotions induced by changes in context
 663 are responsible for disrupting turnout. We focused these analyses on the ANES data
 664 from the 1980 election because this was the only year in our dataset that included an
 665 extensive battery of questions measuring respondents' affective response to their
 666 political environment. The details of the analyses are reported in the online
 667 Appendix, but the results provide no evidence indicating that the effect of habit
 668 strength on turnout is moderated by social context or anxiety.

669 **Conclusion**

670 In this paper, we developed and tested a model of habit strength applied to voter
 671 turnout. Just as our psychological theory suggested, the empirical estimates we
 672 provided allowed us to infer that “habit” requires an interaction between repetition
 673 of behavior and stability of performance context. Not only was this interactive habit
 674 strength measure both statistically significant and substantively very large, it helped
 675 to define two distinct groups of individuals who approach turnout very differently.
 676 Unlike casual voters, the behavior of those with a strong habit was not as well
 677 predicted by the standard decision-making variables, such as strength of preference,
 678 care about the election, etc. The effect of these decision-making variables,
 679 individually and collectively, was far weaker among those with a strong voting habit
 680 than those without one. For these individuals, voting is likely to be triggered by
 681 stable cues in the performance context, regardless of their decisions concerning
 682 turnout. These results are not a statistical artifact of reduced variation among those
 683 with a strong voting habit because the variation on decision-making variables was
 684 just as great among the 40% with a strong habit as among those without a strong
 685 voting habit.

686 Before concluding, it is worth considering what these results imply for
 687 researchers, campaigns, and civic groups who are seeking effective strategies to
 688 promote political participation. Do these results imply that efforts to increase
 689 participation are not worthwhile amongst individuals with strong habits? The
 690 answer appears to be that individuals with a strong habit respond to a different set of
 691 influences than non-habitual behaviors. Indeed, this intuition is supported by the
 692 notion that campaigns themselves often target voters with differing turnout
 693 messages depending on the frequency of their own past turnout behavior.
 694 Performance of strong habits does not emerge, or emerges far less strongly, from
 695 beliefs and goal-directed motivations, but instead is triggered by such context cues
 696 as political candidate signs, stable polling places, and evidence that others have
 697 voted. The present research does not, indeed cannot, document exactly what aspects
 698 of stable living environments trigger voting. Subsequent research would profitably
 699 address the specific context cues that promote and maintain voting habits.

700 In research on habits outside of the voting domain, context cues that triggered
 701 performance included physical location (as in the present analysis of stable
 702 domicile) and social cues such as the behavior of others (Danner et al. 2008; Ji and
 703 Wood 2007). Research has demonstrated that everyday lifestyle habits are
 704 dependent on such cues (Wood et al. 2005). When these cues did not change, the
 705 habits maintained. With respect to voting, we expect that the cues stimulating
 706 turnout among voters with strong habits would not necessarily provide information
 707 about the election and citizens’ roles in it. Instead, habit cues might be simpler
 708 stimuli such as candidate signs and “I voted” stickers. More finely-grained research
 709 on cues to voting is clearly needed to understand the mechanisms that promote and
 710 maintain strong habits to turnout.

711 We understand our results using the ANES, that is using the best available
 712 observational data, as establishing a strong case for the theory of habit and voting. It
 713 is, of course, limited in the way that even the highest quality survey data are always



714 limited. Thus, future research should begin to supplement survey analysis by
 715 developing experimental designs to study more precisely the causal effects of the
 716 roles of past performance, stable contexts, and their conjunction in order to more
 717 directly eliminate individual heterogeneity as a confounding variable in the study of
 718 habits. Gerber et al.'s (2003) study of the downstream effect of experimental
 719 treatments on future behavior provides a baseline for using experiments to study
 720 habit formation. Future work might build on this finding by focusing on
 721 interventions that specifically facilitate the linkage of contextual cues with desired
 722 behavioral responses and to clarify the specific mechanisms that help citizens build
 723 strong voting habits.

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 725 Abigail Panter, and Eric Plutzer. We are particularly grateful to Ashley Taylor for her assistance with
 726 early data analyses. A previous version of this paper was presented at the 2008 Annual Meeting of the
 727 Midwest Political Science Association. Montgomery received funding from a National Science
 728 Foundation Graduate Research Fellowship.

729 Survey Question Appendix

730 Income

731 Question wording varied from year to year, but this variable is always coded as
 732 family income. In the early years of the time-series (1958–1966) the question
 733 focused on the family's expected income for this year. Afterwards the question
 734 focused on the family income in the previous year. *Coding*: 0 if 1–16th percentile,
 735 0.25 if 17th–33rd percentile, 0.50 if 34th–67th percentile, 0.75 if 68th–95th
 736 percentile, 1 if 96th–100th percentile.

737 Coded using variables v580501, v640269, v660235, v720420, v742549,
 738 v763507, v800686, v700388, v941404, P023149.

739 Education

740 Question wording has varied from year to year, but for most of the time series it is
 741 possible to construct stable categories. *Coding*: 0 if 8 grades or less, 0.25 if 9–12
 742 grades with no diploma or equivalency, 0.50 if 12 grades, diploma, or equivalency,
 743 0.75 if some college, 1 if college degree or higher.

744 For 1994, the 1992 panel data was used. For the 2002 year, the 2000 response
 745 was used. Individuals who reported having community college or junior college
 746 degrees were coded as 0.75.

747 Coded using variables v580478, v640196, v660197, v720300, v700269,
 748 v742423, v763398, v800445, v941209, P023131.

749 Unemployed

750 Questions that asked about employment status of respondent wording changed
 751 somewhat from year to year. From 1958 to 1966 this data was only collected about



752 the head of the household rather than the respondent. *Coding:* 1 if unemployed, 0
 753 otherwise.

754 Coded using variables v580479, v640202, v660199, v700275, v720306,
 755 v742443, v763409, v800515, v941216, P025183.

756 Age

757 *Coding:* Age in years.

758 Age Squared

759 *Coding:* The square of the above response.

760 External Efficacy

761 *Question wording:* “Now I’d like to read some of the kinds of things people tell us
 762 when we interview them. Please tell me whether you agree or disagree with these
 763 statements.” “I don’t think public officials care much what people like me think.”
 764 “People like me don’t have any say about what the government does.” *Coding:* for
 765 each item, coded 0 if agree, 1 if disagree, then summed and rescaled to zero–one
 766 interval.

767 Internal Efficacy

768 *Question wording:* “Sometimes politics and government seem so complicated that a
 769 person like me can’t really understand what’s going on.” *Coding:* 0 if agree, 1 if
 770 disagree.

771 Duty

772 *Question wording:* “If a person doesn’t care how an election comes out then that
 773 person shouldn’t vote in it.” *Coding:* 0 if agree, 1 if disagree. We note here that this
 774 variable does not appear in the final Rosenstone–Hansen mode, but we wished to
 775 include it in this analysis. In future versions of this paper this variable may not be
 776 included.

777 Strength of Party Identification

778 *Question wording:* “Generally speaking, do you usually think of yourself as a
 779 Republican, a Democrat, and Independent, or what?” (If Republican or Democrat)
 780 “Would you call yourself a strong (Republican/Democrat) or not very strong?” (If
 781 independent, other, or no preference) “Do you think of yourself as closer to the
 782 Republican or Democratic party?” *Coding:* 0 if independent or apolitical, 0.33 if
 783 independent leaning toward a party, 0.67 if a weak partisan, 1 if a strong partisan.

784 Affect for Party

785 *Question wording*: “Is there anything in particular you like about the Republican
 786 party?” “Is there anything in particular you dislike about the Republican party?”
 787 “Is there anything in particular you like about the Democratic party?” “Is there
 788 anything in particular you dislike about the Democratic party?” *Coding*: the
 789 absolute value of the difference between two sums, coded to the zero–one interval:
 790 the sum of Democratic party “likes” and Republican party “dislikes” minus the
 791 sum of Democratic party “dislikes” and Republican party “likes.” For the 2002
 792 respondents, their responses from 2000 were used. For 1974 respondents, their
 793 responses from the 1972 surveys were used.

794 Care

795 *Question wording* (Presidential year): “Generally, speaking, would you say that you
 796 personally care a good deal which party wins the presidential election this fall, or
 797 don’t you care very much which party wins?” *Question wording* (Mid-term): “Now
 798 I’d like to talk with you a bit about the elections which took place this fall. As you
 799 know, representatives to the Congress in Washington were chosen in this election
 800 from congressional districts all around the country. How much would you say that
 801 you personally cared about the way the elections to congress came out: very much,
 802 pretty much, not very much, or not at all?” *Coding*: 1 if care a good deal, pretty
 803 much, or very much. 0 otherwise (including non-response).

804 Wording does change somewhat from year to year. This variable was coded
 805 using variables v580312, v640020, v660063, v700164, v720029, v742026,
 806 v763030, v800061, v940209, P023007.

807 Affect for Candidate

808 *Question wording*: “Is there anything in particular you like about [the appropriate
 809 Republican candidate]?” “Is there anything in particular you dislike about [the
 810 appropriate Republican candidate]?” “Is there anything in particular you like about
 811 [the appropriate Democratic candidate]?” “Is there anything in particular you
 812 dislike about [the appropriate Democratic candidate]?” *Coding*: the absolute value
 813 of the difference between two sums, coded to the zero–one interval: the sum of
 814 Democratic candidate “likes” and Republican candidate “dislikes” minus the sum
 815 of Democratic candidate “dislikes” and Republican candidate “likes.”

816 Church

817 *Question wording* (1952–1968): “Would you say you go to church regularly, often
 818 seldom, or never?” *Coding*: 0 if never, 0.33 if seldom, 0.67 if often, 1 if regularly.

819 *Question wording* (1970–2002): “Would you say you go to (church/synagogue)
 820 every week, almost every week, once or twice a month, a few times a year, or
 821 never?” *Coding*: 0 if never, 0.33 if a few times a year, 0.67 if once or twice a month,

822 1 if every week or almost every week. In 1994 an experimental version of this
 823 question appeared, so 1992 responses were used instead.

824 Years in Community

825 *Question wording:* “How long have you lived here in your present (city/town)?”
 826 *Coding:* actual number of years. When respondent chose “all of my life” their age
 827 was imputed here. When this variable was used on the right hand side, it is
 828 transformed using a natural logarithm to induce normality.

829 Contacted

830 *Question wording:* “The political parties try to talk to as many people as they can to
 831 get them to vote for their candidates. Did anyone from one of the political parties
 832 call you up or come around and talk to you about the campaign? Which party was
 833 that?” *Coding:* 0 if not contacted, 1 if contacted.

834 South

835 Observed by interviewer. *Coding:* 1 if lives in Alabama, Arkansas, Florida, Georgia,
 836 Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, or
 837 Virginia, 0 otherwise.

838 Border

839 Observed by interviewer. *Coding:* 1 if lives in Missouri, Kentucky, Maryland,
 840 Oklahoma, or West Virginia, 0 otherwise.

841 Black

842 The question wording on race and ethnicity have probably changed more throughout
 843 the ANES time-series than any other variable here. Throughout most of the time-
 844 series blacks, “negro”, or African-American is presented as one option. *Coding:* 1 if
 845 black, 0 otherwise. In the 2002 survey respondents were allowed to mark multiple
 846 racial and ethnic categories. All respondents who marked more than three categories
 847 were coded as missing and otherwise were coded as 1 if any of their choices
 848 included black or African-American.

849 Hispanic

850 This variable is missing for 1958. In the early years of the time series (1964) the best
 851 we were able to do was include the “other” category (*coding:* 1 if other, 0
 852 otherwise) as this seemed to be the category that shifted most when Hispanic
 853 options were added in 1966. From 1966 until 1976 respondents were given the
 854 option to identify themselves as Mexican–American or Puerto Rican (*coding:* 1 if
 855 Mexican or Puerto Rican and 0 otherwise). For 1980 and 1994 ethnicity was coded

856 separately and all those of Hispanic origin are coded as 1, and respondents were
857 coded as 0 otherwise. In 2002 multiple choices were allowed, and we followed the
858 analogous scheme as described in the “black” variable above.

859 Race and ethnicity variables were coded using variables, v580469, v640183,
860 v660237, v720425, v742554, v763513, v800721, v800722, v700391, v941435,
861 v941419, P023150.
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