Why Is Voting Habit-Forming?*

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Abstract

Recent studies point to two likely explanations for habitual voting. The first is that voting causes psychological changes that make individuals more likely to view themselves as “voters.” The other asserts that voting eases institutional barriers, making future voting less costly. These mechanisms lead to divergent expectations about when and where we should observe habitual voting that are used here to develop an indirect test of these two mechanisms. I implement this test using survey data from Sweden and the United States and find that both mechanisms are present but that the institutional mechanism explains most of the large effect typically associated with habitual voting.

Keywords: Voter Turnout; Habitual Voting; Voter Registration; Causal Mechanisms

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Introduction

Recent studies have yielded persuasive empirical evidence that voting is habitual (Gerber et al. 2003; Denny and Doyle 2009; Meredith 2009). All other things being equal, voting in one election increases individuals’ probabilities of voting in the next election. This realization has the potential to revolutionize the study of voter turnout. Scholars will be able explicate more complete theoretical and empirical models of voter turnout, and policy-makers will be able to develop both more effective initiatives to enhance turnout and better tools for assessing the success of those initiatives. Unfortunately, this potential cannot be fully realized until the mechanisms through which habit formation occurs are identified. Although several mechanisms have been proposed, existing accounts of habitual voting have been unable to determine which are valid.

The purpose of this manuscript is to assess the validity of the two most likely mechanisms for habitual voting. The first is that voting may reinforce feelings of civic mindedness, encouraging one to view him or herself as a “voter,” which makes future voting more likely (Green and Shachar 2000). The second is that voting lowers institutional barriers. Individuals face very high costs the first few times they turn out to vote – e.g. registration, learning the voting procedure, locating their polling place, remembering the date of the election, etc. (Plutzer 2002; Brady and McNulty 2011). As individuals gain experience voting, these costs dissipate, which makes future voting less costly (Gerber et al. 2003).

Unfortunately, existing surveys do not ask questions about either individuals’ feelings toward the voting process or their self-images with respect to voting, making a direct test of these mechanisms impossible. Instead, I develop an indirect test. Given that the effect of habit is predicted to be fairly universal according to the psychological mechanism but is dependent on experience with the voting procedure and institutional context according to the institutional mechanism, one can assess the impact of each mechanism by comparing the effect of habit across contexts. In the analysis below, the effect of habit is estimated using data from Sweden, a context with low institutional barriers, and the United States, a context with high institutional barriers. I argue that the difference in the effect of habit between these two contexts represents the proportion of habit-formation that can be attributed to each of these mechanisms.

The following section defines habitual voting and describes the four explanations provided for habitual voting in the literature. The next section develops an indirect empirical test that can be used to assess the validity of the two most plausible mechanisms for habitual voting. This test relies on identifying a context with few institutional barriers to voting, and I argue in this section that Sweden provides such a context. The statistical model used to test for the presence of habitual voting in Sweden and the United States and the data used to estimate this model are also described in this section. The final sections present and discuss the empirical results.

These results suggest that much of the effect of habit from previous studies can be attributed to the institutional mechanism because I find that the effect of habitual voting in the United States is much larger than the effect of habitual voting in Sweden. I do find that habitual voting is present in Sweden, which provides indirect evidence for the presence of a psychological mechanism. However, since the effect of habitual voting is substantially stronger in the contexts with high institutional barriers to voting, I conclude that much of
the effect of habit from previous studies can be attributed to the institutional mechanism.

Defining Habitual Voting

Numerous scholars have argued that voting is habitual (Milbrath 1965; Verba and Nie 1972; Brody and Sniderman 1977; Miller and Shanks 1996; Green and Shachar 2000; Franklin 2004; Gerber et al. 2003; Fowler 2006; Denny and Doyle 2009; Aldrich et al. 2011; Dinas 2012; Gorecki 2012). Yet, habitual voting is rarely well defined. Most definitions conflate persistence and habit. For instance, individuals who consistently vote in elections are often termed “habitual voters” (Plutzer 2002; Franklin 2004; Fowler 2006), but there are a variety of reasons why we might observe persistence that are unrelated to habit formation.

Perhaps the best definition of habit (and the one used here) is that given by Green and Shachar (2000), who define voting as habitual if, other things being equal, voting in one election increases the probability that one will vote in the next election. More formally, if $p_t$ is one’s underlying probability of voting at time $t$, $y_t$ indicates one’s voting decision at time $t$, and $\delta$ is the effect of habit, then this definition implies:

$$p_t = p_{t-1} + \delta y_{t-1}$$

The definition of habitual voting formalized in equation 1 has two important implications. First, it specifies precisely why future voting is more likely: casting a ballot updates individuals’ underlying probabilities of voting. Second, the definition clarifies that habitual voting only affects individuals’ true underlying probabilities of voting. Thus, one needs to adjust individuals’ observed probabilities of voting for any persistence that results from observed or unobserved time invariant individual characteristics, or heterogeneity, – e.g. gender or education – that might cause them to make the same turnout decisions in across elections (Green and Shachar 2000). The equation further stipulates that one can only detect the presence of habit by estimating two latent variables: individuals’ initial and updated probabilities of voting. The former probability is often overlooked in models of habitual voting, but unless this probability is explicitly taken into account, the estimated effect of habit will have a severe upward bias (Denny and Doyle 2009).

Despite the difficulties that arise when estimating the effect of habit, several studies have managed to provide evidence that turning out to vote changes individuals’ underlying probabilities of voting. Notably, all of the these studies take place in either the United States or in the United Kingdom. Gerber et al. (2003) provide experimental evidence supporting the habitual voting hypothesis. They rely on experimental randomization to balance both participants’ initial probabilities of voting and time-invariant heterogeneity between individuals. As a result, any difference in turnout between the treatment and control groups in future elections can be attributed to changes in participants’ underlying probabilities of voting that are caused by the treatment. Meredith (2009) uses discontinuities imposed by voting age restrictions to estimate the difference in turnout between individuals whose birthday is just before the voting age cut-off and those whose birthday is just after the voting

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1 A plethora of terms have evolved to describe what I am referring to as habitual voting. Besides habit, scholars have referred to this phenomena as consuetude (Green and Shachar 2000), inertia (Plutzer 2002), and state dependence (Denny and Doyle 2009).
cut-off. Assuming individuals’ birthdays are orthogonal to their underlying probabilities of voting, the fact that individuals eligible to vote in the previous election turn out at a higher rate in the present election suggests that voting is habitual. Lastly, Denny and Doyle (2009) use panel data from the United Kingdom to estimate the effect of habit. After statistically controlling for both time invariant heterogeneity and individuals’ initial probabilities of voting, the authors find that voting in the prior election increases individuals’ probabilities of voting in the present election by about 0.11. These studies provide substantial support for the habitual voting hypothesis but none are able to identify why individuals develop such habits.

Explanations of Habitual Voting and Their Implications

Green and Shachar (2000) provide four potential mechanisms for habitual voting that have been frequently reiterated in subsequent studies. The first mechanism is psychological and involves changes in individuals’ broad political orientations – e.g. partisanship, interest in politics, political efficacy, etc. Many of these broad political orientations are thought to affect turnout, so if voting affects these orientations, then there would be a reciprocal causal link between them and turnout. Finkel’s (1985) findings about political efficacy are a potential example of this reciprocity. He finds that voting increases individuals’ familiarity and confidence in the electoral process, which increases their sense of political efficacy. These individuals are then more likely to vote as a result. Nevertheless, this mechanism seems fairly unlikely. In general, these broad political orientations tend to be relatively stable over time. For instance, partisanship is traditionally thought to be very stable over individuals’ lives (Miller and Shanks 1996), and in a recent multi-country study, Prior (2010) finds that interest in politics is similarly stable within individuals over time. Even if individuals’ political orientations change as a result of voting, though, indicators of these orientations are typically included in statistical models of voter turnout, so changes in these orientations are unlikely to explain habitual voting (Green and Shachar 2000; Gerber et al. 2003).

Another mechanism that has been proposed to explain habitual voting posits that political actors (e.g. political parties, candidates, and issue activists) treat voters and non-voters differently. For instance, voters are much more likely to be contacted by these actors than non-voters (Huckfeldt and Sprague 1992). Part of this difference may be due to the difficulty involved in contacting non-voters, but as a result of this difficulty and the fact that non-voters may be perceived as less likely to be susceptible to such efforts, political actors are presumably less likely even to attempt to contact non-voters. Since individuals who are contacted by such mobilization efforts are significantly more likely to vote (Gerber and Green 2000), the fact that voters are more likely to be contacted by mobilization efforts may explain habitual voting. However, this mechanism is as unlikely as the first. The effect of voter mobilization efforts is typically small, especially when typical methods of contacting voters (e.g. phone calls or direct mail) are used (Gerber and Green 2000). Also, habitual voting is still observed when contact by a political campaign is included as a covariate in statistical models (Green and Shachar 2000).

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Denny and Doyle (2009) report two effects for habitual voting 0.13 and 0.11. I use the latter estimate here because it was estimated using the same estimator as the one used below.
The third mechanism is that voting lowers institutional barriers. Countries’ election laws establish the procedure through which votes are cast, and it takes time for inexperienced voters to learn these procedures. In the meantime, they face a variety of costs not shared by experienced voters. For instance, in countries where registration is not automatic, first-time voters must register to vote, a potentially costly obstacle to voting that substantially decreases voter turnout (Rosenstone and Wolfinger 1978). Even if registration is automatic, however, inexperienced voters must find the polling location, learn how to cast a vote, remember the day of the election, differentiate between political parties, etc. (Plutzer 2002; Brady and McNulty 2011). These institutional barriers slowly dissipate as one gains experience voting, leaving experienced voters with fewer costs to pay and also possibly with more positive “conative attitudes” towards voting (Gerber et al. 2003). In either case, voting becomes more likely as individuals become more experienced voters. I refer to this as the institutional mechanism.

Lastly, voting may cause habit-formation by reinforcing feelings of civic mindedness. According to this mechanism, turning out to vote causes individuals to increasingly think of themselves as “voters” and regard turning out to vote as “what people like me do on election day” (Green and Shachar 2000, 571). In some sense, this mechanism is similar to the first mechanism about changes to individuals’ broad political orientations. The difference is that the political orientation being changed under this mechanism is specific to voting, not a general feeling about politics, like political efficacy or political interest. I refer to this as the psychological mechanism.4

Assuming the first two mechanisms described above play no role in explaining habit-formation, we are left with the psychological mechanism (δ_p) and the institutional mechanism (δ_i):

\[ \delta = \delta_p + \delta_i \]  

(2)

These two mechanisms imply different conditions under which the effect of habit will be observed. The psychological mechanism predicts that the effect of habit will be universal. Regardless of ones personal characteristics or the context in which one votes, turning out to vote should always reinforce feelings of civic mindedness and, as a result, change individuals’ underlying probabilities of voting in future elections. The magnitude of the change may vary based on individual or contextual factors but there should always be some change. Alternatively, according to the institutional mechanism, the effect of habit should be highly dependent on both personal characteristics and context. Once individuals become experienced voters, their underlying probabilities of voting are no longer expected to change as a result of casting a ballot. Practically speaking, experience is a function of age and voting frequency, so the institutional mechanism would predict that older and more frequent voters would not be affected by habit. Similarly, one might expect the effect of habit to be conditional on the difficulty of the voting procedure. Arduous procedures should lead to large changes first time voters’ underlying probabilities of voting, while easy procedures should lead to smaller changes in first time voters’ underlying probabilities of voting.

3Note that I am conflating the institutional and informational costs of first time voting here because I cannot differentiate between these costs in the analysis below.

4Note that it may be more accurate to refer to the psychological mechanism as the attitudinal or behavioral mechanism because I am not testing whether or not psychological changes are caused by voting. I use the term psychological mechanism to reflect the psychological changes implied by the term habitual voting.
Disentangling the Two Mechanisms

Evidence supporting either the psychological or the institutional mechanism is quite limited. The institutional mechanism has the most evidence supporting it. Cohort analyses performed in the United States and abroad provide evidence that habits are either established, or not, after individuals have had an opportunity to participate in three elections (Miller and Shanks 1996; Franklin 2004). Similarly, Plutzer (2002) finds evidence that the underlying probabilities of voting among individuals who participate in the first election they are eligible to vote and those who do not converge after about three elections. It seems that most individuals fall into patterns of habitual voting or habitual non-voting after only a few elections (Fowler 2006), which is what one would expect if the institutional mechanism is valid.

There is little evidence for or against the psychological hypothesis. On the one hand, individuals who believe that voting is a duty are consistently more likely to vote (Blais 2000). Similarly, research on adherence to the law suggests that adherence to social norms, like voting, is symmetric and fairly universal (Tyler 1990); adherence to norms in the past increases the likelihood of future adherence, and vice versa. Furthermore, Denny and Doyle (2009) note that the effect of voting in the prior election in Britain is not conditional on certain individual characteristics (e.g. gender, education, and ability). This result suggests the effect of habit is fairly universal, but their study is limited to three elections and one cohort of British voters. All of this evidence suggests that habit-formation might be partially driven by the psychological mechanism. Yet, as noted in the previous paragraph, individuals seem to settle into patterns of voting after only a few elections, which means that individuals’ underlying probabilities of voting must not change (or at least not change much) after participating in a few elections, suggesting the possibility that habit-formation might be driven purely by the institutional mechanism.

The primary limitation to identifying the effects of these two mechanisms is data availability. Both individuals’ feelings about the voting process and their self-images with respect to voting are rarely (if ever) explored in existing surveys (Gerber et al. 2003). This lack of data makes creating a direct test of these two hypotheses, using existing data, virtually impossible. Even if one had the resources to collect original survey data, it would take years to collect the panel data necessary to test for the presence of habitual voting.

Due to these data limitations, at present, only an indirect test of these mechanisms is possible. Here, I identify two indirect tests. The validity of these tests rests on the assumption that some voters are expected to be unaffected by the institutional mechanism. As a result, their present turnout decisions are affected by their previous turnout decisions solely through the psychological mechanism. Given the conditions for the institutional mechanism to operate specified in the previous section, either experienced voters or individuals in contexts with low institutional barriers to voting might satisfy this assumption. Thus, the first test estimates the effect of the institutional mechanism by taking the difference in the effect of habit between experienced ($\delta^E$) and inexperienced voters ($\delta^I$):

$$\delta^I - \delta^E = (\delta^I_p + \delta^I_i) - (\delta^E_p) = \delta^I_i \quad (3)$$

The second test estimates the effect of the institutional mechanism by taking the difference in the effect of habit between a context with low institutional barriers ($\delta^L$) and a context
with high institutional barriers ($\delta^H$):

$$\delta^H - \delta^L = (\delta^H_p + \delta^H_i) - (\delta^L_p) = \delta^H_i$$ (4)

According to these tests, failure to observe habitual voting among experienced voters or in a context with low institutional barriers will provide support for the institutional mechanism. Finding that there is no difference in the effect of habit between experienced and inexperienced voters or between contexts with low and high institutional barriers to voting, on the other hand, will provide support for the psychological mechanism. All other results will suggest that both mechanisms explain at least some of the effect of habit. Importantly, the validity of these conclusions rests on two critical, yet untestable, assumptions: 1) the effect of habit for experienced voters and individuals in contexts with low institutional barriers is only attributable to the psychological mechanism – i.e. $\delta^E = \delta^E_p$ and $\delta^L = \delta^L_p$, and 2) the effect of the psychological mechanism is the same, on average, for experienced and inexperienced voters as well as for voters in contexts with high and low institutional barriers – i.e. $\delta^i_l = \delta^E_p$ and $\delta^H_i = \delta^L_p$. These are admittedly strong assumptions, so let us briefly consider the implications if they are untrue.

The first assumption is critical for identifying the effect of the psychological mechanism. The estimated effect of the psychological mechanism is just the residual of the effect habitual voting after removing the portion of that effect explained by the institutional mechanism. It is only through assuming away all other mechanisms, including the institutional mechanism, that I am able to state that this residual represents the fraction of the effect explained by the psychological mechanism. Although I do try to rule out some alternative mechanisms below, it is impossible to rule out all other possible mechanisms, so any statements made about the effect of the psychological mechanism should be interpreted with caution.

The assumptions above are less important for identifying the effect of the institutional mechanism because most violations will lead to underestimates of the effect of the institutional mechanism. For instance, if assumption 1 is violated and some experienced voters or voters in contexts with low institutional barriers are affected by the institutional mechanism, artificially increasing $\delta^E_p$ or $\delta^L_p$, then $\delta_i$ on the right side of equations 3 and 4 will be artificially small. Similarly, if assumption 2 is violated and some experienced voters or voters in contexts with low institutional barriers are affected more by the psychological mechanism than their counterparts – i.e. $\delta^E_p > \delta^L_p$ or $\delta^E_p > \delta^H$ –, $\delta_i$ on the right side of equations 3 and 4 will also be artificially small.

Only if the psychological mechanism has a larger effect on inexperienced voters than experienced voters – i.e. $\delta^i_l > \delta^E_p$ – or a larger effect on voters in contexts with high institutional barriers than on voters in contexts with low institutional barriers – $\delta^H_p > \delta^L_p$ – will the effect of the institutional mechanism be overestimated. Although this might be possible when moving from one institutional context to another, it seems unlikely that the psychological mechanism will ever have a stronger effect on inexperienced voters than experienced voters because, if the effect of the psychological mechanism changes at all, its effect should diminish as one gets more experience voting, not the reverse.\(^5\) Thus, based

\(^5\)The idea of the psychological mechanism diminishing as one gets more experience voting might seem at odds with my statements above claiming there is always some psychological effect. However, I am not stating here that the effect of the psychological mechanism will eventually diminish to zero, just that the effect might get smaller over time as one gets more experience voting.
on these tests, the fraction of the effect of habitual voting attributed to the institutional mechanism is likely to be underestimated, implying that the fraction of the effect attributed to the psychological mechanism is likely to be overestimated.

Keeping these biases in mind, let me now explain how the tests described in equations 3 and 4 were implemented using data from Sweden and the United States. Sweden represents a context with virtually nonexistent institutional barriers to voting. Consequently, as denoted in equation 4, any difference in the effect of habit between these two countries represents the portion of that effect which can be attributed to the institutional mechanism. Of course, this assumes that the institutional mechanism is absent in Sweden. I assess the plausibility of this assumption by comparing the effect of habit in Sweden for experienced and inexperienced voters and the effect of habit on experienced voters in the United States. The remaining parts of this section compare the institutional barriers to voting in Sweden and the United States, explain how the effect of habit is estimated, and describe the data used in that estimation.

Voting in Sweden versus the United States

According to one first-time voter in the 2010 Swedish election, "it’s a quick and simple process" (Demsteader 2010). Contrast this assessment with that of a New York voter, who describes the process there as "difficult and frustrating" ("How to Turn Off Voters." 2010). The difference in these two opinions is primarily the result of differences in the electoral rules between the two countries. In Sweden, voting is remarkably simple, while in the United States, it is not.\(^6\)

The most striking difference between the election rules in Sweden and the United States is voter registration. Registration is automatic in Sweden. The Swedish Tax Agency determines who is eligible to vote 30 days prior to the election, and all eligible citizens and residents are sent voting cards from the Swedish Election Authority that contain information about the date of the election and the location of their polling station (Swedish Election Authority 2010). Registration is not automatic in the U.S. Traditionally, eligible voters either had to mail their registration form to the local election office or go to that office in person to register. Recent changes in the United States have made registering easier, but it is still a significant barrier for first time voters.

Once registered, voters in both countries are ready to go to the polls. For Swedish voters, elections for all three levels of government take place on the third Sunday of September, every four years (Swedish Election Authority 2010).\(^7\) To vote, they can go to the polling station for their district on election day, go to any advance polling location in the entire country up to 18 days before the election, or vote by proxy, allowing a third-party (e.g. a mailman) to take their ballot to either a polling station or an advance polling location (Swedish Election Authority 2010). Once at the polling station, lines are rare and the ballot papers are easy to understand (Demsteader 2010).

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\(^6\)In the United States, voting procedures are decided by the states, and as a result, there is a lot of variance in procedures between states (for examples of some of these differences, see (Declare Yourself 2010)). Nonetheless, even in the state with the easiest voting procedure, voting is still far more difficult than in Sweden.

\(^7\)Prior to 1994, elections in Sweden occurred every three years.
In contrast, the voting date and location are far more restrictive in the United States. Federal elections are generally held every 2 years on the Tuesday after the first Monday of November and, prior to 2000, only a handful of states allowed some non-excuse form of early voting (Gronke et al. 2007). This severely limits the time period as well as the number and types of polling locations available to American citizens. In addition, lines are common in some places in the United States and the sheer number of elections on a typical United States’ ballot makes it difficult to understand.8

To summarize, in Sweden, voter registration is automatic, the election day is fixed and on a weekend, early voting is allowed for 18 days, numerous polling locations are available, no-excuse absentee voting is possible, lines are rare at polling locations, and the actual ballot casting procedure is simplistic. All of these features make voting in Sweden significantly easier than voting in the United States, where most prior studies of habitual voting have taken place.9 Given the ease of the voting process in Sweden, it is little wonder that Sweden has a significantly higher average turnout rate (83%, on average, since 1976) than the United States (53%, on average, since 1968) (International Institute for Democracy and Electoral Assistance 2006). Since so few institutional barriers to voting exist in Sweden, if there is evidence of habitual voting in Sweden, most (if not all) of the effect of habit can be attributed to the psychological mechanism.

### Estimating the Effect of Habit

Estimating the effect of habit on individuals’ underlying probabilities of voting requires a probability model – typically a probit model –, and since the estimation requires panel data, a dynamic non-linear panel data model is necessary. Thus, for $i$ individuals and $t = 0, 1, 2, ..., T$ time periods, the following probit equation is typically estimated:

$$ y_{it}^* = \delta y_{i,t-1} + \beta x_{it} + v_{it} \quad (5) $$

where $y_{it}^*$ is a latent variable representing the unobserved propensity to vote, $y_{i,t-1}$ is a binary indicator of individuals’ voting decisions in the previous election, $x_{it}$ is a set of independent variables, and $v_{it}$ is an error term. An individual votes (i.e. $y_{it} = 1$) if $y_{it}^*$ is greater than 0 and abstains otherwise. In this equation, the effect of habit is represented by $\delta$.

There are two problems with this equation: unobserved heterogeneity and initial conditions. Starting with unobserved heterogeneity, individuals might possess time invariant characteristics that affect their underlying probabilities of voting. If these characteristics are omitted from $x_{it}$ or they are unobservable, then this will cause a spurious correlation between past and present turnout. We can correct for this possibility by incorporating a random intercept term ($\epsilon_i$) into the model:

$$ v_{it} = \epsilon_i + u_{it} \quad (6) $$

It is well-known that maximum likelihood estimates will be inconsistent if $\epsilon_i$ is not independent of all the independent variables in the equation. One can correct for this possibility by

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8See figure A1 in the online appendix for example ballot papers for both countries.

9Only one study of habitual voting took place outside of the United States. Denny and Doyle (2009) find evidence of habitual voting in the United Kingdom, where voting is almost as restrictive as in the United States.
assuming $\epsilon_i$ is a linear function of the means of the time-varying independent variable and an error term ($\sigma_i$), which is normally distributed and independent of both the independent variables and $u_{it}$ (Chamberlain 1984):

$$\epsilon_i = \alpha_0 + \alpha \bar{x}_i + \sigma_i \quad (7)$$

Given equations 6 and 7, equation 5 can be rewritten as:

$$y_{it}^* = \delta y_{i,t-1} + \beta x_{it} + \alpha \bar{x}_i + \sigma_i + u_{it} \quad (8)$$

Incorporating the means of all time-varying independent variables and an individual specific error term in equation 8 corrects for the unobserved heterogeneity problem.

There is also an initial conditions problem. Since individuals’ voting behavior is observed after the start of the stochastic process generating that behavior, the lagged dependent variable will be correlated with the individual specific error term ($\sigma_i$). Unless this correlation is corrected for, it will cause $\delta$ to be severely overestimated (Denny and Doyle 2009). To correct for this bias, Wooldridge (2005) developed a conditional maximum likelihood estimator that removes the correlation between $y_{i,t-1}$ and $\sigma_i$ by conditioning on the initial observation of the dependent variable ($y_{i0}$) and the means of all time-varying independent variables. Since the means of the time-varying independent variables are already incorporated in equation 8, one only needs to add $y_{i0}$ the equation to solve the initial conditions problem:

$$y_{it}^* = \delta y_{i,t-1} + \gamma y_{i0} + \beta x_{it} + \alpha \bar{x}_i + \sigma_i + u_{it} \quad (9)$$

Equation 9 is used to estimate the effect of habit, which, according to the habitual voting hypothesis, should be positive and statistically significant. The next section describes the data used to estimate this equation.

**Voter Turnout Data**

The analyses below use data from the Swedish Election Studies (SES) conducted between 1979 and 2006 and the 1972-1976 panel of the American National Election Studies (ANES). These two data sets are ideal for assessing habitual voting. Both studies utilize panel designs, which is essential to assess habit-formation (Green and Shachar 2000). Since testing for the presence of habitual voting involves tracking changes in individuals’ underlying probabilities of voting across elections, estimating individuals’ underlying probabilities of voting at two (or more) elections is essential. Each of the election studies used here contains information about individuals’ turnout decisions for three elections – the election prior to the one for which they were first interviewed (election 0), and the two elections for which they were interviewed (elections 1 and 2).

There is a great deal of persistence in individuals’ turnout decisions. This is illustrated in figure 1. 82% of respondents in Sweden and 77% of respondents in the United States consistently turned out to vote. Even among the 16% of Swedish respondents and 21% of American respondents who were inconsistent in their turnout behavior, individuals who voted in the prior election are always more likely to vote in the next election than those who abstained in the prior election. Equation 9 is employed below to estimate what portion of this persistence can be attributed to habit.
Figure 1: Voter Turnout by Voting History

(a) Sweden

(b) United States

Notes: Each node contains the percentage of interviewees who voted, or abstained, in that election given their turnout decision in the previous election. The number of interviewees in each cell are in parentheses. For Sweden, data are from the 1979, 1982, 1985, 1988, 1991, 1994, 1998, 2002, and 2006 Swedish Election Studies, and validated turnout is used for all elections. For the United States, data are from the 1972-1976 panel of the American National Election Studies, and self-reported turnout is used for all elections.
The other advantage of these studies is that the turnout data they provide are validated. Since turnout is both the dependent variable and the key independent variable, a valid and reliable measure of turnout is essential; otherwise, the estimated effect of habitual voting will be biased. Minimizing this bias is particularly important in the present study; otherwise, the differences in habit-formation between Sweden and the United States could be caused by differences in the reliability of the dependent variable, not different patterns of habit-formation. Since survey respondents’ self-reports of turnout are plagued by misreporting, they are unreliable measures of individuals’ turnout decisions. Validated turnout data are significantly more reliable because they are created using official records.

This is demonstrated in figure 2, where respondents’ self-reported and validated turnout rates are compared with actual turnout for each election in each country. In the figure, self-reported turnout is consistently higher than validated turnout, which is consistently higher than actual turnout. The difference between self-reported and validated turnout represents misreporting by respondents, and the difference between validated and actual turnout represents the fact that voters are more likely to be included in the survey sample than non-voters.

Covariates

In addition to individuals’ voting histories, the models incorporate a number of additional covariates that are typically thought to affect individuals’ turnout decisions. These covariates can be divided into time invariant and time varying covariates. The models estimated in both Sweden and the United States include time invariant variables for age and gender. In addition, the models estimated for the United States also include time-invariant variables indicating race and region. A number of time variant covariates are included in the analysis for both Sweden and the United States, including income, education, marital status, political interest, political efficacy, party identification, and feelings of alienation and indifference towards the parties running in the election. In addition, in the United States, time-variant variables identifying individuals contacted by a voter mobilization drive and those who are new residents in the community are included in the analysis. In Sweden, a time-variant variable indicating individuals assigned to the pre-election survey is included.

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10 When the effect of habitual voting is estimated using self-reported turnout, the effect is more than double the effect estimated when using validated turnout.

11 In the United States, turnout is provided for both the voting age population (V.A.P.) and individuals registered to vote in all three elections.

12 Notice that overreporting is far greater in the United States than in Sweden and is particularly high for unregistered voters in the United States. The reason is twofold. First, unregistered respondents are much more likely to lie about their turnout behavior. Second, all respondents who did not respond to the ANES are purged from the data and unregistered voters are much more likely not to respond.

13 I refer the reader to the online appendix for a longer justification for the inclusion of each covariate.

14 Neither of these factors is relevant in Sweden. Few Swedes are contacted by voter mobilization drives, only about 7% in 2002 based on estimates from the Comparative Survey of Electoral Systems (2008), and since voter registration is automatic, moving should have no effect on the rate at which individuals turn out to vote.

15 All respondents included in the 1972-1976 ANES panel study are given both pre- and post-election surveys.
Figure 2: Respondent Turnout versus Actual Turnout

trol for any omitted election-specific characteristics (e.g. competitiveness, feelings toward the incumbent government, etc.) that might bias the estimated effect of habit.\textsuperscript{16}

**Missing Data**

Most covariates have missing data for some observations. Overall, approximately 37\% of observations are missing data for at least one of the covariates in Sweden and 45\% of observations are missing data for at least one of the covariates in the United States. However, this missing data problem is exacerbated by the use of Wooldridge’s (2005) correction for the initial conditions problem because his correction requires the data to be balanced across panels. As a result, individuals, not observations, must be deleted from the sample if listwise deletion is used, leaving only 47\% of the observations in Sweden and 35\% of the observations in the United States. This level of missingness could severely bias estimates if listwise deletion is used to address the missing data problem (King et al. 2001). Instead, I use multiple imputation. Assuming the data are missing at random (or better), multiple imputation removes any bias in coefficient estimates that would arise from the use of listwise deletion (King et al. 2001). Ten imputed datasets were created for each panel using the Amelia II program (Honaker et al. 2009) and the results are pooled using Stata’s “mi estimate” command.

Although applying multiple imputation is fairly straightforward, two peculiarities arose in the present data. First, data on validated turnout are systematically missing for individuals who were not eligible to vote in one (or more) of the elections and for a number of individuals in the United States whose voting records could not be found. All individuals with missing validated turnout data are excluded from the analysis. Second, the ANES data do not include validated data for the 1968 election. Since this is the initial election in which the respondents are observed, this omission makes estimating equation 9 using all validated data impossible. One potential solution to this problem is to use respondents’ self-reported turnout to estimate equation 9. Another potential solution is to treat validated turnout in 1968 as missing data and try to impute it.\textsuperscript{17} In the analyses below, estimates are provided using both of these solutions.

**Results**

The results are divided into three sections. The first assesses the effect of habitual voting in the United States, the second assesses the effect of habitual voting in Sweden, and the third combines these results to assess the plausibility of the two mechanisms and to test the robustness of the results.

\textsuperscript{16}See tables A1-A3 in the online appendix for more information on the variables included in the analysis.\textsuperscript{17}To be specific, I estimated a model where validated 1972 turnout is the dependent variable and the independent variables are self-reported turnout in 1972 from the 1976 survey and all the time invariant variables included in the models below. I then use the estimates from that model to predict validated turnout in 1968 using data from the 1972 survey. I have used alternative imputation strategies and all yield approximately the same results as those reported below.
Table 1: Estimated Effect of Habit in the United States

|                | $E[Pr(Vote_t|Vote_{t-1})]$ | $E[Pr(Vote_t|Abstain_{t-1})]$ | $\hat{\delta}$ | N   |
|----------------|----------------------------|-------------------------------|-----------------|-----|
| Turnout$^{vald}$ | 0.91                       | 0.69                          | 0.22***         | 1,534 |
|                | (0.85 - 0.97)              | (0.48 - 0.90)                |                 |     |
| Turnout$^{Self}$ | 0.95                       | 0.81                          | 0.14***         | 1,534 |
|                | (0.93 - 0.97)              | (0.71 - 0.92)                |                 |     |

Notes: The table contains the estimated underlying propensity to vote of individuals who voted in the prior election given that those individuals voted or abstained in the previous election. The 95% confidence intervals for these estimates are in parentheses. $\hat{\delta}$ represents the estimated effect of habit and is calculated by subtracting the second and third columns. The statistical significance of $\delta$ is determined using a Wald test, where $Pr(X_2 = 0) < 0.01 =***$, $Pr(X_2 = 0) < 0.05 =**$, $Pr(X_2 = 0) < 0.1 =*$. 

Habitual Voting in the United States

The results from the United States are provided in table 1. In the table, the second column provides the estimated probability (and 95% confidence interval) that an individual who voted in the prior election votes in present election. The third column provides the probability the same individual would have voted in the present election had that individual not voted in the previous election. The effect of habit ($\hat{\delta}$) is provided in the last column and is calculated by subtracting these two quantities. The first row reports the predicted probabilities when respondents’ turnout decisions in 1968 are imputed, and the second row reports the predicted probabilities when respondents’ turnout decisions in 1968 are based on self-reports.

The results reported in table 1 support a long list of existing studies that find habitual voting is quite strong in the American electorate. On average, American voters’ underlying probabilities of voting increase by 0.14 - 0.22 as a result of voting in the previous election. As noted previously, however, the accuracy of these estimates is questionable. The estimate based on imputed data is likely an overestimate for the given sample, and the estimate based on self-reports is likely an underestimate for the given sample. There is also the problem, noted in footnote 12 above, that individuals with a higher underlying probability of voting are the ones most likely to be in the 1972-1976 ANES sample, which would undoubtedly change the estimated effect of habitual voting.

Notwithstanding these limitations, the estimates reported in table 1 are just slightly higher than estimates from prior studies. For instance, Meredith (2009) finds that voting in the 2000 election increased the probability of voting in 2004 election by 0.05 to 0.08 and that voting in the 2004 election increased the probability of voting in the 2006 election by 0.10 to 0.11. In the United Kingdom, another context with relatively high institutional barriers, Denny and Doyle (2009) find that voting in the prior election increases the probability of voting in the present election by 0.11. Based on these estimates, then, it seems like the

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18Full model results are available in table A6 of the online appendix.
Table 2: Estimated Effect of Habit in Sweden

|                          | $E[Pr(Vote_t|Vote_{t-1})]$ | $E[Pr(Vote_t|Abstain_{t-1})]$ | $\delta$ | N     |
|--------------------------|-----------------------------|-------------------------------|----------|-------|
| All Eligible Voters      | 0.98                        | 0.92                          | 0.06***  | 23,542|
|                          | (0.97 - 0.99)               | (0.87 - 0.97)                 |          |       |
| Age = 21-25              | 0.96                        | 0.89                          | 0.07***  | 23,542|
|                          | (0.95 - 0.97)               | (0.84 - 0.95)                 |          |       |
| Age = 26+                | 0.98                        | 0.92                          | 0.06***  | 23,542|
|                          | (0.97 - 0.99)               | (0.87 - 0.97)                 |          |       |
| Low Prob. Voters         | 0.95                        | 0.86                          | 0.09***  | 23,542|
|                          | (0.94 - 0.96)               | (0.80 - 0.93)                 |          |       |
| High Prob. Voters        | 0.99                        | 0.95                          | 0.04**   | 23,542|
|                          | (0.98 - 0.99)               | (0.91 - 0.98)                 |          |       |

Notes: The table contains the estimated underlying propensity to vote of individuals who voted in the previous election given that those individuals voted or abstained in the previous election. The 95% confidence intervals for these estimates are in parentheses. $\delta$ represents the estimated effect of habit and is calculated by subtracting the second and third columns. The statistical significance of $\delta$ is determined using a Wald text, where $Pr(X_2 = 0) < 0.01 =***$, $Pr(X_2 = 0) < 0.05 =**$, $Pr(X_2 = 0) < 0.1 =*$. Effect of habit in contexts with high institutional barriers to voting is somewhere in the neighborhood of 0.10 to 0.14.\(^{19}\)

**Habitual Voting in Sweden**

Table 2 provides the results from Sweden.\(^{20}\) Table 2 can be interpreted the same as table 1. The rows in the table represent different sub-samples of the population.

The first row represents the predicted probabilities from a model estimated using all of the respondents in the 1979-2006 Swedish Election Surveys. These probabilities represent the average effect of habit among eligible Swedish voters, which turns out to be 0.06. In other words, respondents who voted in the prior election have about a 0.06 higher underlying probability of voting in present election as a result. Thus, even after controlling for a large number of covariates, correcting for state dependence, and correcting for unobserved heterogeneity, voting in the prior election still has a significant, positive effect on Swedes’ underlying probabilities of voting.

The other results presented in table 2 evaluate the assumption that institutional barriers to voting are low in Sweden. To assess this assumption, I tested if there is any difference in the effect of habit between experienced and inexperienced voters by interacting the past

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\(^{19}\)I ignore the 0.05 estimate from Meredith (2009) and the 0.22 estimate from table 1 because they are outliers among all the other estimates.

\(^{20}\)Full model results are available in table A5 of the online appendix.
voting variables with binary variables representing inexperienced voters. I operationalize inexperience in two ways. The first is based on age, where individuals who are between 21 and 25 during the first wave of the panel are recorded as inexperienced.\(^\text{21}\) The second is based on the probability of voting, where individuals who did not respond to one (or more) of the surveys are recorded as inexperienced. Survey non-respondents are assumed to be less likely to vote and, hence, less familiar with the voting procedures. Interacting these two binary variables with the turnout variables provides a sense of how much habitual voting varies based on voting experience.

The results from the model where age was interacted with prior turnout are provided in rows 2 and 3 of table 1. Young (21-25 year old) and old (aged over 26) Swedes experience about the same increase in their underlying probabilities of voting from turning out to vote in the prior election, 0.07 and 0.06, respectively. The fact that old Swedes’ underlying probabilities of voting are affected by prior turnout provides some evidence for the psychological mechanism, since old Swedes should face few institutional barriers to voting. The fact that both old and young Swedes’ experience about the same change in their underlying probabilities of voting as a result of prior turnout corroborates the argument that Sweden is a country with few institutional barriers.

The results from the model where a binary variable indicating low probability voters was interacted with prior turnout are provided in rows 4 and 5. In this model, there is a large difference in the effect of habit between low and high probability voters. The underlying probability of voting for low probability voters is expected to increase by 0.09, compared to an increase of only 0.04 for their high probability counterparts; a statistically significant difference ($Pr(X^2 = 0) = 0.01$). Therefore, based on these probabilities, one might conclude that institutional barriers have some effect, but even after the effect of the institutional mechanism is removed, habit still has a positive and statistically significant effect on individuals’ underlying probabilities of voting, suggesting the psychological mechanism is also present.

**Explaining the Effect of Habit**

Recalling the test formalized by equation 4, the effect of habit attributable to the institutional mechanism can be determined by subtracting the effect of habit in Sweden from the effect of habit in the United States. By this metric, the institutional mechanism explains between forty percent ($0.10 - 0.06 = 0.04$) and sixty percent ($0.14 - 0.06 = 0.08$) of the change in the probability of voting that results from habit-formation and the psychological mechanism explains the remaining rest ($0.06$) of the change in the underlying probability of voting that results from habit-formation.

This conclusion depends on two assumptions. The most critical of which is that only the psychological mechanism can explain habitual voting in Sweden. To rule out the presence of the institutional mechanism in Sweden, we can compare the effect of habitual voting among experienced and inexperienced voters. There is some evidence in table 2 that low probability voters are affected more by habit than high probability voters. Given that the effect of habit

\(^{21}\) Only age ranges are provided in the Swedish data, so I am forced to use ranges rather than a continuous variable for age in the estimation.
is only reduced by 0.02 for high probability voters, though, it seems safe to conclude that institutional barriers have a relatively small effect on habitual voting for the vast majority of Swedish voters.

Of course, there could be other mechanisms, besides the institutional one, in operation in either Sweden or the United States, and the presence of these other mechanisms could bias the results. The most likely other mechanisms are those cited in the literature – i.e. voters are more likely to be contact by mobilization efforts and voting changes individuals’ broad political orientations. The former is unlikely in Sweden because few individuals are contacted by voter mobilization efforts. In the United States, it is true that individuals who voted (and reported voting) are more likely to be contacted by a political party and that individuals who are contacted are more likely to vote (and report voting). Nevertheless, since contact and average contact are included as covariates in the regression equations underlying the estimates reported in table 1, this is an unlikely explanation of the effect of habit in the United States.\textsuperscript{22} Similarly, several variables capturing individuals’ broad political orientations (e.g. political interest, party identification, feelings toward the party system, and political efficacy) as well as average levels of these variable are included in the models underlying the estimates reported in tables 2 and 1, so it seems equally unlikely that changes in individuals’ broad political orientations are driving the effect of habit. Even if the statistical controls included in the models are insufficient to completely remove the effect of changes in individuals’ broad political orientations, though, the effect of this mechanism should be the same in Sweden and the United States, so the conclusion that habit is mostly explained by institutional factors would not change.

Aside from these two mechanisms, in the process of analyzing the Swedish data, another potential mechanism revealed itself. In Sweden, the effect of habit is the strongest among the oldest members of society ($\hat{\delta}_{\text{Age}=61+} = 0.11; Pr(\chi^2 = 0) = 0.02)$.\textsuperscript{23} After a certain age, it seems that voting in the prior election acts as a proxy indicating one’s health. There is significant evidence that healthy individuals are more likely to vote (Denny and Doyle 2007, 2009). It makes sense, then, that an individual who was physically and mentally capable of voting in the prior election is more likely to be capable of turning out in the present election. This effect should disappear if we included an indicator of one’s physical and mental health as a covariate. After accounting for this fifth potential mechanism, the portion of habit-formation explained by the psychological mechanism decreases slightly to 0.04, and the portion of habit-formation explained by the psychological mechanism increases to range between 0.06 and 0.10.

Yet another potential source of bias, that does not involve alternative mechanisms, is a non-random survey sample. In Sweden, the analyses were performed using a representative sample of the Swedish population. In the U.S., since survey non-respondents are dropped from the data, the survey sample no longer represents the population, so the effect of habit might be different from what it would have been had data been available for the entire population. To assess this possibility, the average effect of habitual voting in Sweden was reestimated using only individuals who responded to both waves of the survey. In this smaller sample, the estimated effect of habit shrinks to 0.02.\textsuperscript{24} This suggests that the effect

\textsuperscript{22} Note that both contact variables are statistically insignificant when analyzed with other covariates.

\textsuperscript{23} Note that the effect of old age is similar in the United States.

\textsuperscript{24} The number of observations shrinks from 23,542 to 16,756 when after removing individuals who failed
of habit in the U.S. may actually be much larger than that reported in table 1, if the estimate were made using a representative sample of the population. Although such a change would not increase the size of the effect attributable to the psychological mechanism, it would substantially increase the size of the effect attributable to the institutional mechanism.

Habit Among Registered Voters in the United States

There are two potential sources of bias related to the estimator specified in equation 9. First, since Sweden has significantly higher turnout than the United States, the low probabilities estimated in table 2 might be caused by ceiling effects – i.e. the fact that much higher coefficient estimates are required in Sweden to cause the same change in the probability of voting as in the United States. Second, when models that correct for initial conditions are barely identified, as these are, the effect of habit can be biased (Arulampalam and Stewart 2009). To rule out these two sources of bias, I reestimated equation 9 using data from the vote registry in Clark County, Nevada. Although somewhat arbitrary, the use of the Clark Country registry satisfied two key criteria: 1) it was freely available online, making the analysis replicable, and 2) of the registries that satisfied condition 1, this one had data on the most federal elections, at 5. The use of registered voters eliminates perhaps the largest barrier to voting in the United States, so one should expect the effect of habit in this sample to be similar to that in Sweden.

The resulting analysis suggests that Clark County residents who voted in the prior election had a probability of voting in the present election of 0.04 (bootstrapped 95% confidence interval = 0.02 – 0.06) higher, on average, than if they would have abstained in the prior election. This effect is identical to that found among high probability voters in Sweden, confirming the results of the above analysis. To further analyze the effect of habit in Clark County, another model was estimated that interacted both prior and initial turnout with age and age squared, to account for the fact that the effect of habit is expected to be highest among the youngest and oldest voters. Figure 3 reports the change in the probability of voting attributable to habit by age. The effect of habit is statistically significant regardless of the age of the voter and slightly curvilinear as age increases, having the largest effect on young, inexperienced voters and older voters whose health may prevent them from turning out. This is consistent with the pattern found in Sweden and corroborates the results from table 2 in a sub-sample with lower (average) turnout.

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25 These data are available at http://www.clarkcountynv.gov/Depts/election/Pages/VoterDataFiles.aspx
26 To prepare the data for analysis, I removed all individuals listed as inactive, all individuals who were not registered for the entire period for which the data are available, and data for all local elections. The resulting data set is a balanced panel that provides information on the turnout decisions of 322,064 registered voters in Clark County for 5 federal elections – 2000, 2002, 2004, 2006, and 2008. Turnout among these individuals is, on average, 74% across the five elections. Covariates in the analysis include age, gender, partisanship, as well as precinct and election fixed-effects.
Notes: The figure contains the estimated difference in the underlying propensity to vote of between individuals who voted and abstained in the previous election in the sub-sample of individuals who voted in the previous election. Bootstrapped 95% confidence interval of this difference are illustrated by the dashed lines.
Summary of Results

After considering multiple potential sources of bias in the estimated effects attributable to the institutional and psychological mechanism, the best estimate of the portion of habit-formation explained by the psychological mechanism is 0.04. Subtracting this from the estimated effect of habit in the United States yields an estimated effect from the institutional mechanism ranging from 0.09 to 0.18. This should be considered the lower bound of the effect of the institutional mechanism because the unrepresentative sample in the data from the United States causes the effect of habit to be underestimated. Therefore, based on these estimates, the institutional mechanism explains at least 70% (0.09/0.13) of the effect of habit, and the psychological mechanism explains at most 30% (0.04/0.13) of the effect of habit.

Conclusions

The purpose of this study has been to disentangle the two most likely mechanisms for habitual voting: the institutional mechanism and the psychological mechanism. To accomplish this goal, I assessed the presence of habitual voting in Sweden and the United States. Since Sweden has few institutional barriers to voting, at least compared to the United States, the difference in the effect of habit between these two countries can be interpreted as the portion of habit-formation that can be attributed to the institutional mechanism. In addition, I used variance in the theoretical effect of habit between experienced and inexperienced voters to verify the assumption that Sweden has lower institutional barriers and to further test the effect of the institutional mechanism.

The results of these tests suggest the presence of (at least) three different mechanisms through which habitual voting operates. A large proportion of the effect of habit seems to be explained by the institutional mechanism. The effect of habitual voting on experienced voters in both the United States and Sweden is estimated to be around 0.04. This is significantly smaller than the estimated effect of habit for inexperienced voters in the United States, which ranges from 0.10 to 0.14. Similarly, in Sweden, inexperienced voters in Sweden are affected much more by habitual voting than experienced voters; the effect of habit amongst the former is around 0.09. Based on these estimates, and assuming that institutional barriers to voting are absent for experienced voters, the institutional mechanism explains between 60% ((0.10 − 0.04)/0.10) and 71% ((0.14 − 0.04)/0.14) of the effect of habit. Notably, these estimates underestimate the effect of the institutional mechanism for two reasons. First, it is unlikely that experienced voters are completely unaffected by institutional barriers. Second, survey samples in the United States tend to be biased towards individuals with higher underlying propensities to vote. The effect of habit for inexperienced voters in the United States would be substantially higher if we had a truly representative sample of the population.

There also seems to be a health-related mechanism that explains some of the effect of habitual voting. In both Sweden and the United States, the effect of habit is largest in elderly voters. It seems that, after a certain age, voting in the prior election acts as a proxy indicating one’s health, corroborating findings that suggest healthy individuals are more likely to vote
(Denny and Doyle 2007, 2009). One might dub this a confounding mechanism because its effect on individuals' propensity to vote is slightly different than what is predicted by habitual voting. As noted above, habitual voting is referring to an additive effect, whereby voting increases individuals' underlying propensities to vote. However, the health-related mechanism identified in this study is driven by the fact that non-voting decreases unhealthy individuals' underlying propensities to vote. Thus, the effect of health identified in this study may be artificially inflating the effect of habitual voting in studies that use a sample of the entire population but do not control for respondents' health, such as those conducted by Green and Shachar (2000) and Gerber et al. (2003).

Lastly, some of the effect of habit seems to be explained by the psychological mechanism. Recall that the effect of habitual voting for experienced voters in the United States and Sweden is about 0.04. Thus, even in situations when institutional barriers to voting are minimized, we still observe habitual voting. This suggests that habitual voting cannot be explained solely by the presence of institutional barriers to voting. I have argued that this effect can be attributed to the psychological mechanism, where previous voting reinforces feelings of civic mindedness, but given the indirect nature of the tests performed here, it is possible that some other mechanism is driving the effect of habitual voting in experienced voters. Perhaps future researcher will be able to design a better test of the presence of this mechanism. Until then, it seems safe to conclude that most of the effect of habitual voting is driven by institutional barriers to voting and that the most plausible explanation for the remainder of the effect is the psychological mechanism.

The results of this study help improve our understanding of individuals' turnout decisions in a few of respects. First, these results qualify those reported by Plutzer (2002). He finds that the underlying probabilities of young Americans who voted in the first election in which they were eligible and those who abstained in this formative election converge after a couple of elections. The results reported here support Plutzer's (2002) argument that convergence is probably caused by a reduction in institutional barriers after those who initially abstained turn out in a couple of elections. However, the results reported here refine our understanding of this process because they suggest that this convergence is contextual. One would not expect to see similar convergence looking at young Swedes, because institutional barriers to voting are significantly lower in Sweden than in the United States. Perhaps more importantly, the results reported here suggest that full convergence may never be achieved. Since some of the effect of habitual voting is not explained by institutional barriers to voting, it is possible that abstaining in even one election can cause long-term difference in one's underlying probability of voting when compared to an identical individual who voted in that election.

Another implication of these results is that election-specific factors should matter less as individuals become more experienced voters. Recent research suggests that at least some election-specific factors (e.g. contact by mobilization campaigns) have the largest impact for individuals with a moderate probabilities of voting (Arceneaux and Nickerson 2009). Since individuals' underlying probabilities of voting increase each time they vote, regardless of whether institutional barriers or present or not, then as individuals become more experienced with voting and their underlying probability of voting increases, their turnout decisions should be less influenced by these election-specific factors. This reinforces the conclusion reached by Fowler (2006) that, after a few elections, individuals fall into patterns of voting,
or not, at each election.

Lastly, the results reported here reinforce what many have previously concluded: voter turnout is most easily increased by the reduction in institutional barriers. Sweden is a context with few institutional barriers to voting, and as a result, over the past 40 years, aggregate voter turnout in Sweden has been 30 points higher, on average, than aggregate voter turnout in the United States. Recent reforms in the United States (and the United Kingdom) have eased some institutional barriers to voting, so we should see inexperienced voters begin turning out to vote at higher rates there. However, due to increases in Swedish voters’ underlying probabilities of voting resulting from years of voting, even if all institutional barriers to voting were removed in the United States, we would not expect aggregate turnout in the two countries to converge for at least a generation.
References


