Making Voting Easier: Convenience Voting in the 2008 Presidential Election

R. Michael Alvarez

Ines Levin

J. Andrew Sinclair

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Abstract

In this study we analyze the choice of voting mode in the 2008 presidential election. We use a large-sample survey with national coverage that allows us to overcome limitations of previous studies. Our analysis provides a number of insights into some of the important debates about convenience voting. Among other things, we find little support for the hypothesis that convenience voting methods have partisan implications; although we do find voter attributes that lead to the choice of some particular convenience voting mode. Results like these have important implications for future moves towards convenience voting and the design of new outreach campaigns.

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Introduction

Absentee voting has long been used in elections in the U.S. (Harris 1934, Steinbicker 1938). But as Americans are increasingly busy, mobile, and diverse, in recent decades many new steps have been taken to make the voting process more convenient. Some of the most significant of these efforts have occurred at the federal level, including Section 203 of the Voting Rights Act (VRA) that required voting materials, including ballots, be provided in languages other than English; passage of the National Voter Registration Act (NVRA), which attempted to make the registration process easier by allowing for the provision of registration materials in public agencies and registration by mail; and the Help America Vote Act (HAVA), that required, among other reforms, that states allow provisional voting for individuals who are not on the rolls but otherwise are believed to be registered to vote.

At the state and local levels, there have also been additional efforts to make the voting process easier and more convenient. These efforts have been motivated to alleviate problems that potential voters have faced when they attempt to participate, to increase voter turnout, as well as to improve the administration of elections (Alvarez and Hall 2007; Caltech/MIT Voting Technology Project 2001; Gronke et al. 2007). States have shifted their pre-election voter registration deadlines closer to election day, with many states now allowing election day voter registration or registration online. Others have worked to allow voters the opportunity to cast ballots by mail; Oregon has been running elections exclusively by mail since 2000, and other states, like Washington, are in a situation where the overwhelming bulk of their ballots are being cast by mail. Some

states now allow voters the opportunity to cast ballots in person before an election in convenient locations, for example, at government buildings or shopping malls.

While these convenience voting efforts have occurred throughout the nation, there is still surprisingly little research about their efficacy. There have been studies that have tried to associate convenience reforms with voter turnout, and others that have looked at whether convenience reforms have changed the composition of the electorate. We review these studies in more detail below, and point out their deficiencies. As a general matter, past research on convenience voting has often suffered from a variety of methodological flaws, the most important of which has been a reliance on either single-state or single-jurisdiction studies (which lack generalizability), their reliance on datasets that lack important covariates, and the use in many of these studies of methodologies that do not allow for proper study of the decisions being made by individual voters. In our paper, we use a large-sample, national survey conducted in 2008; this survey provides national coverage, with a large variety of covariates, to study the choice of voting mode in the 2008 presidential election across the nation. We use a Bayesian hierarchical multinomial logit model that allows us to estimate a well-specified model of individual voter choices regarding how they cast their ballots. This model lets us test hypotheses about voter choices regarding how they cast their ballots that avoid some of the methodological problems that plague previous studies.

Previous Research

Previous research has primarily studied whether convenience voting increases turnout or changes the composition of the electorate. One of the early and most important papers is Patterson and Caldeira (1985), covering the 1978, 1980 and 1982

general elections in California and the 1982 general election in Iowa. They explored the effects of a liberalized California absentee voting law on partisan composition and turnout after Deukmejian's surprising California gubernatorial victory over Tom Bradley. They concluded that "where more people vote, more vote through the mails" and that "partisan candidates are likely to harvest absentee votes in the very localities where their party is otherwise strong" (Patterson and Caldeira 1985). Their paper was limited in generalizability as they examined only four elections in two states; their paper was methodologically problematic since they used OLS regression on county-level data for each election. With the small number of observations (California only has 58 counties and Iowa 99), the number of covariates available at the county level, and the obvious use of ecological data, it should not be surprising that the results greatly differed across their four regressions (King 1997).

Dubin and Kalsow (1996) conducted a similar analysis using a more extensive data set from California. With data from 33 elections from1962 to 1994, they estimate a model of absentee voting using county-level figures. Methodologically distinct from many of the other papers in this literature, Dubin and Kalsow use a nested logit to test two different models of how the voting decision is made. Oddly, their results indicate that voting behavior regarding choice of voting mode differs between the primary and general elections they study.

Barreto et al. (2006) provide a more recent contribution to the study of convenience voting in California by looking at the 2003 recall election. This study, unlike the other two major California papers, used survey data from two different sources: the *Los Angeles Times* exit poll and a survey of California absentee voters. They concluded:

"absentee voters do not differ significantly from the overall state electorate in terms of their vote preferences, despite being older and better educated." While this conclusion generally fits with some of the other literature, this paper only covers a single and very atypical election in California, so generalizing these results to other states and elections is difficult.

A different branch of the literature on convenience voting deals with studies the particular case Oregon's "Vote-Only-by-Mail" (VOBM) elections.[1] These studies (Magelby 1987; Southwell and Burchett 1997, 2000; Karp and Banducci 2000; Berinsky et al. 2001; Hanmer and Traugott 2004) fail to reach consensus on the turnout and the composition questions, and also do not generalize well to the study of convenience voting as a whole since VOBM is such a special case. Also, these papers are mostly motivated to answer the question: does VOBM increase turnout? Berinksy et al. find that VOBM "increases turnout by a small amount" but only because of "selective retention of voters"—those "already predisposed to vote" (Berinsky et al. 2001, 194). Most states offer some combination of vote-by-mail, early in-person voting, and traditional polling-

[1] There is an important terminological distinction to make regarding methods of convenience voting. Since states like California derived their liberalized convenience voting system from "absentee voting," systems like Oregon's were, for a time, called "vote-by-mail" to make the distinction between the two. Now, however, California's system is no longer solely "absentee voting" as it allows voting by mail and early in-person voting. Therefore, we refer to Oregon's system, where *all* ballots are submitted by mail, as "vote-*only*-by-mail" or VOBM.

place voting and the general consensus amongst the rest of the literature is that adding more alternatives does not increase turnout (without, at least, some partisan activity). Stein (1998) conducted a survey of voters (1,362 Election Day and 1,541 early) in the 1994 Texas election and determined the difference between early voters and polling place voters was primarily attitudinal (Stein 1998, 67). Early voters were more interested in politics and had stronger partisan and ideological positions than election-day voters but were not significantly better educated, nor more likely to be from one party or another, and did not have meaningful wealth advantages over election-day voters (Stein 1998, 67). Stein's work largely confirms a previous study (Stein and Garcia-Monet, 1997) of the 1992 Texas election that has a smaller sample (254 respondents). Gronke et al. (2004, 2008) made much the same observation about convenience voters in general: strength of partisanship may inform voting mode decisions, although the multivariate analysis in Gronke and Toffey (2008) fails to show this. This is consistent with the general theme in the literature that the profile of a likely voter and a convenience voter are very similar. Finally, Neeley and Richardson (2001) use survey data from a single county in Tenessee research to study "who votes early" (Neeley and Richardson 2001). They find no support for the hypothesis that early voting increased turnout but observed that early voters did have attitudinal differences from the in-person voter (Neeley and Richardson 2001).

In addition, there are studies that use national-level data. For example, Oliver (1996) performed a cross-sectional analysis of convenience voting behavior in the 1992 general election using the Current Population Survey (CPS) Voter Supplement and his own survey of political party organizations. He found that turnout increased in liberalized convenience voting states only when combined with state party mobilization

efforts (Oliver 1996, 510). He also observed that convenience voting did not increase turnout because many voters found it more costly to learn how to use the new methods than to vote in the traditional polling place (Oliver 1996, 503). Moreover, he argued that Republicans appear to benefit only because in 1992 all but one of the state party organizations he surveyed that targeted convenience voters were Republican (Oliver 1996, 507). Unfortunately, he only studied the 1992 election, and thus it is difficult to generalize from his results. Further, the CPS dataset contains only a limited number of questions. In addition his observation about party activity, perhaps true in 1996, seems likely to be untrue today. As a result, a broader examination of his results will contribute to our understanding of this problem.

Karp and Banducci (2001) conducted another national study using data from the National Election Studies (NES) survey. They tested whether the supposed Republican advantage in absentee voting resulted from self-selection or mobilization efforts (Karp and Banducci 2001, 185). They estimated three binomial logit models in which each compares two of the three choices: vote absentee, vote in person, and not vote at all. They concluded that absentee voters are merely voters already likely to turn out to vote (Karp and Banducci 2001, 189). They also found no evidence of a partisan difference between absentee and Election Day precinct voters (Karp and Banducci 2001, 191). However, this study only included 446 voters in 42 states pooled over five successive elections. Despite this, the results fit the general pattern that "persons who vote early are likely to be educated, active in politics, and partisan" (Karp and Banducci 2001, 191).

Finally, Berinksy (2005) argued that the reforms that allow for convenience voting "ensure that those citizens who are most engaged with the political world—those

with politically relevant resources—continue to participate, whereas those individuals without such resources fall by the wayside" (Berinsky 2005, 472). His argument is that convenience voting reforms enable voter "retention" from one election to another by "smoothing over the idiosyncrasies that cause engaged citizens to sometimes miss casting their voters in elections," such as illness on Election Day (Berinsky 2005, 478). As evidence to support his argument that voting reforms bring out voters with a "high propensity to vote," is based on his review of the then-existing literature. However, his claim that "a series of scholars have come to a single conclusion" is misleading in the sense that, while scholars generally agree that convenience reforms have not greatly stimulated turnout among the poor, uneducated, or politically disinterested, scholars do *not* agree on exactly who uses these different convenience voting alternatives.

Our view of the literature differs from the overall picture presented in Berinksy's paper (2005). The literature is limited in scope so it is too early to declare some kind of academic consensus. There are very few examples of national studies in the literature and the two most prominent studies (Oliver 1996; Karp and Banducci 2001) suffer from either a limited set of survey questions (Oliver 1996, with the CPS data) or a small sample size (Karp and Banducci 2001, with the NES data). Most of the other studies only cover a single state or a single election. Further, most of the literature (and reviews, such as Berinsky's 2005 paper) treats evidence about one form of convenience voting as evidence about all kinds of convenience voting, without distinguishing between voting by mail and voting early. Lastly, many of the studies are not methodologically convincing or produce results that are puzzling.

We improve the study of convenience voting in a number of ways. First, we separate the "in-person-early" voter from the "by-mail" voter. This enables us to test our first hypothesis: individual characteristics, such as socio-demographic variables, partisanship and ideology have the same effect on early voting as they do on by-mail voting. This hypothesis would not hold, for example, if elderly or disabled people for whom the trip to the polling place imposes a high cost to voting were more likely to vote by mail instead of in person before Election Day. For that population, early in-person and Election Day precinct voting pose exactly the same problem, since both methods require voters to mobilize to the polling place. Testing this hypothesis allows us to determine whether different convenience voting methods are perfect substitutes, even though much of the discussion in the early literature in this field treated these different rules as if they were. This should help clarify the academic discussion on convenience voting.

In addition, the national coverage of our survey study allows us to examine hypotheses for which the literature has generated contradictory or nonsensical results, addressing the generalizability problem of previous studies. According to the conventional wisdom, convenience voting might affect the partisan and ideological composition of the electorate. In line with this, our second hypothesis is that Republican and conservative voters are less likely to vote in person on Election Day, and more likely to take advantage of convenience voting opportunities. Also, as we mentioned before, a recurrent result in the previous literature is that convenience voters tend to have stronger partisan and ideological positions. Thus, our third hypothesis is that strength of partisanship increases the probability that a voter will choose one of the convenience voting options, relative to precinct voting on Election Day.

Finally, previous studies have found that election administration and voting technology have implications for political representation, in particular regarding race and ethnicity (Alvarez et al. 2008; Sinclair and Alvarez 2008; Bullock et al. 2005; Tomz and Van Houweling 2003). Therefore, it is possible that voters belonging to different racial or ethnic groups have different preferences for voting modes. Also, the 2008 presidential election was the first where a black candidate had a strong chance of winning the Presidential race, and enthusiasm among black voters might have caused them to vote in person before Election Day. In the days preceding November 4 researchers examined early voting figures by race, and argued that black voters were making wider use of early voting, relative to the 2004 election (McDonald 2008). Accordingly, our fourth hypothesis is that non-white voters were more likely to vote early.

To address these four hypotheses, we have attempted to avoid the pitfalls encountered by some of the previous authors. Our large survey with national coverage should address both sample size and generalizeability problems. In addition, the use of individual-level survey data avoids any difficulties with ecological inference (as noted by Neeley and Richardson, 2001, among others), and the availability of numerous questions related to political behavior allows us to control for important covariates such as partisanship and ideology. The next section discusses the specifics of our methodology and research design.

Methodology and Research Design

In this paper, we use data from a unique study of voter attitudes about election administration and voting behavior, the 2008 *Survey of the Performance of American*

Elections.[2] This first-of-its-kind survey was developed to provide a comprehensive national assessment of voter experiences with the electoral process in the 2008 presidential election; the general election survey (which we use in our analysis), while implemented the week after the election, had been extensively pilot tested in prior gubernatorial elections in the fall of 2007 (Mississippi, Kentucky and Louisiana) as well as in the 2008 "Super Tuesday" presidential primary states.

The survey interviews we use in this study were conducted online, with 200 interviews from registered voters in every state (yielding a total sample of 10,000 responses from registered voters nationally). These interviews were done by YouGov/Polimetrix, using matched random samples of registered voters in each of the fifty American states. Weights were developed so that on a number of demographic characteristics the samples matched the national demographic profile of registered voters. With these weights used, the external validity of the online survey results was quite strong: the state-by-state correlation between the Obama vote estimated by the online survey was strongly correlated with the actual state vote (0.94). A telephone survey was also undertaken, with a sample of 200 registered voters in ten states, and these interviews were conducted using computer-assisted random digit dialing techniques. The telephone survey was conducted to provide an assessment of the online sample and survey response, and comparative analysis of the two methods produced a conclusion that

[2] Complete details of this survey are available in the survey report; Alvarez, Ansolabehere, Berinksy, Lenz, Stewart and Hall, "2008 Survey of the Performance of American Elections", http://vote.caltech.edu/drupal/files/report/Final%20Report20090218.pdf.

overall both methods produce results that are largely consonant with each other.[3] Our analysis makes use only of the responses of the large, national, online sample.

Our analysis of convenience voting in the 2008 presidential elections uses responses from a question that was asked to only those who said that they voted in the election. Voters were asked if they voted in person on Election Day at a polling place, in person before Election Day, or if they voted by mail. In our work below, we refer to these different means of casting a ballot as *in person Election Day voting*, *in person early voting*, and *voting by mail*.

The research design of our study is straightforward. We begin by examining data from the various states regarding how permissive their policies in the 2008 presidential election were for each mode of voting, concentrating on how easy it was for voters to cast an in person early voting ballot or to vote by mail (as those are the modes of voting that vary greatly in their convenience across the states). We then look to our survey data, to ascertain across the states what fraction of the electorate might have used each mode of voting in each state. Then, we look at how the choice of voting mode varies by important covariates, and finally we use a Bayesian hierarchical model to estimate parameters of a model where the choice of voting mode is the dependent variable. As we discuss below,

[3] The survey report summarized the results from this analysis by noting that there were observed differences between the online and telephone survey results, and that: "These differences between Internet and phone respondents offer reassurance and suggest cautions in using the data from the survey. Overall, the samples in both surveys are similar to the population as a whole and to each other in terms of demographics and political attitudes and behaviors" (Ibid, page 8).

this method is appropriate for addressing both the discrete nature of the voting mode choice, as well as the fact that we have a dataset constructed from individual state samples. The latter point is important to keep in mind, as there is likely much systematic heterogeneity in choices about how to vote across the states, and controlling for this heterogeneity is essential to obtain meaningful estimates for our covariates of interest.

An Initial Look at Convenience Voting in 2008

We begin our study of convenience voting in the 2008 presidential election by examining the permissiveness of state laws regarding voting by mail, and in person early voting. We use data on methods of voting across the states that was originally collected by the Early Voting Information Center at Reed College, presented in Table 1.[4] There we see that in 2008 there was substantial variation across the nation in what types of convenience voting methods were allowed.

Table 1 Goes Here

[4] http://www.earlyvoting.net/states/abslaws.php. These regulations are not those for eligible voters who are overseas or who fall under the provisions of the "Uniformed and Overseas Citizens Absentee Voting Act" (UOCAVA) and it's revisions in HAVA. UOCAVA voters, typically members of the Armed Forces and their dependents, as well as American citizens who reside overseas, have the ability to request and obtain election materials by mail or electronically that are distinct from the rights of non-UOCAVA voters. See Alvarez, Hall and Roberts (2007).

Beginning with voting by mail, Table 1 documents that there were four states (California, Colorado, Montana and Washington) that allowed voters to register as a permanent by mail voters—these voters receive all of their election materials by mail. Twenty-eight of the states allowed for no-excuse provision of ballots by mail (including Oregon, where all voters receive their ballots by mail). And twenty-two of the states required some form of a voter excuse or reason for requesting a ballot by mail.

When we turn to the second set of columns in Table 1, where we provide information on the permissiveness of the states with regards to early voting, we see that four states did not allow early voting in 2008: Maryland, Oregon (which instead provides all voters with election materials by mail), Rhode Island, and Washington (which also has widespread use of by-mail voting). Thirty-two of the states allowed no-excuse in person early voting, while 14 of the states allowed for in person early voting, if the voter provided some excuse or rationale for voting before Election Day.

Correspondingly we provide in Table 2 data from our survey that documents the percentage and number from each state sample of respondents who reported using each mode of voting. The data in Table 2 show that across the nation, voting in person on Election Day was the most prevalent method of participation in the 2008 presidential election, as 64% of voters in our samples said that they voted on Election Day. This of course implies that 36% voted before the election, with equal percentages saying they voted before the election in person (18%) or by mail (18%).

Table 2 Goes Here

These data indicate that there are some states where voting in person on Election Day was the primary method of voting in 2008: in sixteen states at least 80% of voters

said that they voted in person on Election Day. However, in four states more than 50% of voters said that they voted by mail: Oregon (97%), Washington (86%), Colorado (61%) and Arizona (54%). In another ten states more than 20% of ballots were cast by mail. And finally, another five states had voters report that more than 50% voted in person before the election: Tennessee (63%), Texas (62%), Nevada (62%), North Carolina (53%), and New Mexico (52%). Another twelve states had more than 20% of voters report voting in person before the election.

But given the previous literature, it is surprising that Hispanic and African American voters were more likely to choose in person early voting than White or Asian respondents, although not out of line with our last hypothesis. Note the ten-percentage point difference between White and Hispanic respondents in particular. Furthermore, Hispanic voters are the least likely to vote in-person on Election Day.

The data on mode choice, by the other demographic characteristics, are consistent with previous research. Disabled people are more likely to vote by mail rather than in person early, although they are still more likely to choose to vote in a traditional polling place than to take advantage of the "convenience" alternatives. There are virtually no differences by gender, also as we would expect, and also little evidence on the surface of anything particularly unusual about homeowners or longtime residents. Furthermore, also exactly as expected, increasing levels of education correspond with decreasing probability of voting in person on Election Day; however, the differentiation between education levels and their mode preferences will have to wait until the multivariate analysis as little difference is immediately evident from this bivariate table (see Table 4).

Table 3 Goes here

Table 3 also provides an introductory analysis of the relationship between voting mode and political attitudes. As we move along the ideological scale from "very liberal" to "very conservative", respondents are more likely to vote in person on Election Day, and the opposite is seen for both early and by-mail voting. Turning to partisanship, the proportion of those who vote in person on Election Day is larger for Independent and Republicans, and Democrats are substantively more likely to vote early. However, the proportion of by-mail voters does not vary by party identification. Finally, while strong Democrats tend to vote early at larger rates compared to other Democrats, strong Republicans tend to vote early at lower rates relative to other Republicans.

In the remainder of this paper we examine these patterns across states and voters, and study which factors appear to determine how voters in the 2008 presidential election decided to cast their ballots. We are most interested in testing hypotheses regarding individual-level voter attributes, and we use a Bayesian estimation method that we describe in the next section. This method lets us obtain estimates about the different potential individual-level determinants of the choice of voting method, while controlling for state-level differences in the extent to which different modes of voting were available to the voters in the state.

Multivariate Methodology

In our multivariate analysis, we model how individuals select voting mode from a choice set containing three alternatives: Election Day voting, in person early voting and voting by mail. Therefore, in contrast to much of the previous literature, we do not assume that convenience voting modes are perfect substitutes, but instead we allow for different factors to explain early and by-mail voting. Further, since the large-scale

national survey is composed of state-by-state samples, we are not only interested in computing average national estimates, but also in measuring the heterogeneity of effects across states. Therefore, we use a multilevel approach that allows us to improve upon previous studies in terms of sample-size and generalizability, as well as consider differences in the electoral context and electoral law across states.

In modeling choice of voting mode, we assume that the utility perceived from the different mode-of-voting alternatives is a function of individual socio-demographic variables, political attitudes, and electoral law in the respondent's state of residence. Thus, since we explain voter behavior as a function of a diverse set of individual-level characteristics, our analysis is not subject to the aggregation bias that potentially compromises the results of previous ecological studies. More formally, we estimate a Bayesian hierarchical multinomial logit model, assuming voters perceive utility U_{ij} from each mode-of-voting alternative, and define the following random utility model:

(1) $U_{ij} = X_i^{'}\mathrm{B}_{j(i)} + \varepsilon_{ij}$

where X_i is a vector of individual characteristics, $\mathrm{B}_{j(i)}$ is a vector of coefficients corresponding to alternative *j* and state of residence of individual *i*, and ε_{ij} is a disturbance term following an extreme value distribution. We assume the individual chooses alternative *j* over alternative *k* if $U_{ij} > U_{ik}$, which holds whenever:

(2) $\varepsilon_{ij} - \varepsilon_{ik} > X_i^{'}\mathrm{B}_{k(i)} - X_i^{'}\mathrm{B}_{j(i)}$

Since error terms follow an extreme value distribution, the difference $\varepsilon_{ij} - \varepsilon_{ik}$ follows a logistic distribution, and the probability of choosing alternative *j* can be written as:

$$(3)\quad P(Y=j)=\frac{e^{X_i'\mathrm{B}_{j(i)}}}{\sum_{\forall j} e^{X_i'\mathrm{B}_{j(i)}}}$$

The classical regression approach assumes that coefficients do not vary across individuals or units (i.e., that $\mathrm{B}_{j(i)} = \mathrm{B}_j$). However, this assumption is not appropriate for modeling the choice of voting mode, because preferences may vary by state depending of the procedural permissiveness of the different alternatives. For instance, absentee or early voting may be easier and relatively more appealing in states with "no-excuse" absentee and/or early voting. Similarly, early voting may attract more voters in states with a longer early voting period, or with a larger number of early voting polling locations. Therefore, we specify a model with varying coefficients across states, allowing us to capture heterogeneity caused by differences in electoral law or other idiosyncratic factors. Specifically, we model state-level coefficients using a multivariate regression approach:

$$(4)\quad \mathrm{B}_{j(i)} = Z_i'\Delta_j + V_{j(i)}$$

Where Z_i' is a vector of state characteristics—such as whether no-excuse absentee or early voting is allowed, Δ_j is a vector of alternative-specific coefficients—the common component of the random effect distribution, and $V_{j(i)}$ is a disturbance term.

The first level of our model examines the individual choice of voting mode (voting on election day, voting in person before the election, or voting by mail). We use voting by mail as our baseline or comparison category in our choice model, so the initial results that we will present in the next section must be interpreted in that light. As covariates in the individual-level model, we examine a number of demographic factors to study differences across those who vote using each mode; these factors include race,

gender educational attainment and age. Furthermore, we also have covariates for whether the voter is disabled, a homeowner and how long they have lived in their current residence. We have covariates that measure the voter's strength of partisanship, their partisan affiliation, and their ideological identification. Finally, we have a covariate that measures whether or not the voter is a first-time participant in the electoral process. The second level of our model examines how first-level parameters vary as a function of the electoral law in effect within the different states. As covariates in the state-level model we include indicators of excuse required for voting early, excuse required for voting by mail, and whether permanent absentee voting is allowed in the state.

Multivariate Results

In our multivariate analysis we focus on the 46 states that allow all three voting modes— in person on Election Day, in-person early, or by-mail voting. Our model was estimated three times with different starting values, resulting in three MCMC chains of parameters estimates. Each chain ran for 100,000 iterations, and we saved 1 every 50 draws. We evaluated convergence by computing Gelman and Rubin's (1992) univariate potential scale reduction factors (PSRF) for all 1,472 state level coefficients—32 for each of the 46 states under consideration. All PSRF's fell below 1.15 by the last iteration. This suggests that the variability of the estimated posterior distribution would not be reduced by using a larger number of draws, and it indicates that the parameters converged to their stable posterior distribution. We used the second part of each MCMC chain to summarize the posterior distribution of average first-level estimates (see figure 1).

Figure 1 Goes Here

Among respondents included in our multivariate analysis, 65.7% voted in person on election day, 19.6% voted early and 14.7% voted by mail, and similar proportions are found if we use model estimates to compute median voting mode probabilities, suggesting our model does a good job at predicting overall behavior. Further, if we use estimated individual probabilities to predict choice of voting mode for each respondent, then our model correctly classifies 74% of the respondents.[5] Table 4 gives 90% posterior intervals for the change in the probability of choosing each voting mode, at the national level.[6] We present the results in table 4 using first differences because these are easier to interpret than the average estimates in figure 1.

Table 4 Goes Here

The factors explaining the choice of Election Day precinct voting in our analysis are consistent with what we expected to find based on past research. In particular,

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[5] Our model predicts individual behavior better than a model that assumes all voting modes are chosen with equal probability (33% correct classification), an only-constant model predicting all voters vote in precinct on Election Day (66% correct classification), and an alternative Bayesian hierarchical model with only a random constant by state (70% correct classification rate).

[6]Entries in table 4 were computed based on a hypothetical voter with the following median characteristics: a moderate and Independent 52-year old white female, who is a homeowner but has resided in the same residence for less than a year, who has at least some college education, is not disabled, and is not a first time voter. This hypothetical voter has a 71% probability of voting in person on Election Day, 17% probability of voting early, and 11% probability of voting by mail.

increasing the level of education from "college" to "post-grad", living in the same residence for more than a year and homeownership significantly decrease the probability that a voter chooses the Election Day precinct as the mode of voting. Also, as Stein's analysis implies, and line with our third hypothesis, changing a voter's partisanship from "not strong" to "strong" correspondingly decreases the probability that such a person would vote on Election Day. In addition, female voters, the elderly and disabled are less likely to make this mode choice. The most surprising results are the negative and significant 3 percentage point change from switching Independent to Democrat and the negative and significant 5 percentage point change from switching moderate to liberal. So we find the reverse of conventional wisdom: a voter identifying as more liberal or as a Democrat is actually less likely to choose voting in person on Election Day than a conservative or Republican. For each saved draw of model coefficients, national effects are computed as a weighted average of state-level effects.

The determinants of in-person early voting are quite different from those affecting Election Day precinct voting or by-mail voting. Specifically, the probability of early voting is larger among liberal, well-educated, older, male, strong partisan voters. This fits much of the theory on convenience voters, in the sense that we generally think of at least older people, strong partisans, and the well-educated as 'likely voters.' These voters are willing to pay the cost of learning to use a new type of voting system and will take time before the election to go and vote. The result for ideology or partisanship is the exact opposite of the expectation created through the conventional wisdom and some of the early literature that either we would find no effect or a Republican advantage in convenience voting. Switching partisanship from Independent to Democrat or ideology

from moderate to liberal increases the probability of voting early by 2 and 4 percentage points, respectively. Conversely, switching partisanship from Independent to Republican or ideology from moderate to conservative reduces the probability of voting early by 3 or 1 percentage point, respectively.

The supposed Republican advantage that is commonly asserted to exist with by-mail voting is not in evidence in our results. In fact, switching ideology from moderate to liberal slightly increases the probability of voting by mail by 1 percentage point, although this effect is not significant at conventional confidence levels, while switching ideology from moderate to conservative has a positive but less significant effect. We find the expected signs and significance on age and disability. These results clearly support the hypothesis that it is much easier for disabled or elderly people to vote at home by-mail than to get to a polling place to vote in person. On the other hand, the other variables the literature would have us expect to find—education, race and party identification–all turn out to be insignificant. We do not even find a significant result for strong partisanship.

As a consequence, we reject the hypothesis that demographic variables and political attitudes have the same effect on by-mail voting as on early voting, reject the hypothesis that Republicans are more likely to make use of convenience voting opportunities, and fail to reject the hypothesis that strength of partisanship has a positive effect on early voting. We observe the strongest difference between Election Day and early voting, although by-mail is a popular choice for the disabled or elderly. We find some support for Stein's results–attitudinal differences separate election day and early voters–for early voting although it is not generalizeable to by-mail voting. The most surprising result is the reversal of the conventional wisdom and the discovery that at the

national level Republicans or conservatives are more likely to choose Election Day voting than early voting, although it is quite possible that this result may vary by state.

To study how results vary at the state level as a function of electoral law and systematic differences across states, we replicated Table 4 for California, Florida, Illinois, New Mexico and Minnesota.[7] Not surprisingly, the baseline probability of voting in person on Election Day is highest in Minnesota (99%), which requires excuse for both early and by-mail voting. There, the probability of voting by-mail increases significantly with schooling and male gender. Most interesting, differently to the national pattern, the probability of voting by mail in Minnesota increases slightly when partisanship is changed from moderate to Republican and when ideology is changed from moderate to conservative, although the former effect is not significant at conventional confidence levels. Still, the probability of voting early increases significantly when partisanship changes from Independent to Democrat.

Also as expected, the baseline probabilities of voting in person on Election Day or early are large in Illinois (59% and 41%, respectively), which requires an excuse for voting absentee but does not require an excuse for voting early. In this case, no covariate had a statistically significant estimate for explaining changes in by-mail voting. In addition, attitudinal effects in Illinois differ from the average pattern, as well from the Minnesota case. Specifically, switching partisanship from Independent to Democrat or ideology from moderate to liberal has no significant effect on early voting. Nevertheless, switching partisanship from Independent to Republican has a negative and significant effect on early voting. Thus, the direction of the partisan effect is similar to the one we

[7] The replication of Table 4 for selected states is available in the supplementary file.

observe at the national level. In particular, we observe no evidence of a Republican advantage in the use of no-excuse early voting

In Florida and New Mexico, which do not require excuse for either absentee or early voting, baseline probabilities of voting by mail are larger than in Minnesota and Illinois (23% in both states), and probabilities of voting early are also large (42% and 50%, respectively). In these states, partisanship is not significant for explaining either early or by-mail voting. The only attitudinal changes with a substantial effect on convenience voting are: switching ideology from moderate to liberal (increases the probability of voting early by 18 percentage points in Florida), and switching ideology from moderate to conservative (decreases the probability of voting early by 18 percentage points in New Mexico). Thus, the impact of ideology is similar in sign to the one observed at the national level.

In contrast to other states, California does not only allow no-excuse early and by-mail voting, but also allows permanent absentee voting. In this state, the baseline probability of voting by mail (46%) is substantively higher than in any of the states considered before. In addition, the baseline probability of voting early is very low (2%). In California, most covariates have no significant effect on early voting, except for political attitudes, where switching partisanship from Independent to Republican slightly decreases the probability of voting early, although this effect is not significant at the 90% level. Moving to by-mail voting, homeowners, disabled and white voters exhibit higher choice probabilities, although some of these effects are not significantly different from zero. Also, different to the national pattern, switching ideology from moderate to conservative has a large and significant effect on by-mail voting.

Overall, local effects are often larger in magnitude and usually more volatile than national effects. This is expected because national effects are computed as a weighted average of state-level results. The comparison of local and national results illustrates the advantages and disadvantages of focusing on pooled estimates: while the interpretation is simpler, average results can be misleading. For instance, we found that baseline probabilities vary substantively across states with different degree of permissiveness for alternative convenience voting modes. Also, while the effect of attitudinal variables was mostly consistent with the national pattern, we found exceptions in Minnesota and California, and it is likely we would have found additional exceptions had we examined the remaining 41 states.

Finally, we test the hypothesis that non-white voters were more likely to vote early, relative to other voters. At the national level, we found that non-whites are significantly more likely to vote early (by 2 percentage points). In addition, our multilevel specification allowed us to measure to what extent the effect of belonging to a non-white racial group varied across states. Figure 2 shows the change in the baseline probabilities of choosing different voting modes, when race is switched from white to non-white, for each state. In California a non-white hypothetical voter has a much larger probability of voting on Election Day, the same probability of voting early and much lower probability of voting by-mail, compared to a white hypothetical voter. Differently, in South Carolina, non-white race reduces the probability of Election Day voting, and increases the probability of early and by-mail voting. In Nebraska, Tennessee and West Virginia, non-white race also reduces the probability of Election Day voting and increases the probability of early voting, but has no significant effect on by-mail voting.

Finally, in North Carolina, a non-white hypothetical voter is less likely to vote in person on Election Day, more likely to vote early, but less likely to vote by-mail. In the remaining states we found that non-white race has no effect on voting mode at conventional levels of significance (>90%). Therefore, even though national results show overall support for the hypothesis that non-white race had a positive effect on early voting, we also found substantive heterogeneity of effects across states.

Figure 2 Goes Here

Conclusion

In just the past decade, convenience voting methods have gone from being a novelty in the United States to being virtually ubiquitous. Oregon conducts elections exclusively by mail, and in neighboring Washington the overwhelming bulk of ballots in recent elections have been cast by mail. In many other states, voters have taken the opportunity provided by election officials to cast ballots before elections by mail, and increasingly to cast ballots before election in person. Voters are "voting for convenience" when given the opportunity, a trend that election officials throughout the nation appear to encourage and facilitate (Alvarez and Hall 2007).

With the dramatic growth in convenience voting has come academic focus on the choice of voting method. As we discussed in detail earlier, the literature on convenience voting has suffered from a variety of methodological problems. Many of the studies have been limited in geographic focus; for example, much of the literature on voting by mail has been limited to studies of Oregon's recent experiences. It is not clear whether the results from those studies can be generalized to other states. Other studies have used very limited types of data, or have made very restrictive methodological assumptions about

voting behavior, also limiting the ability of scholars and policymakers to draw clear inferences from that body of research.

Our study takes a variety of new methodological steps, in an attempt to move beyond the problems that we see plaguing the previous research literature. We use a large-scale national survey—the survey is constructed of state-by-state samples, thus insuring that we have widespread coverage of the different voting methods used across the United States. The fact that we use individual-level survey data also means that we are not restricted to ecological analysis, and our survey provides a rich array of social and political covariates. Finally, we use a Bayesian hierarchical choice model, which allows for flexible estimation of our well-specified individual- and state-level model of voting mode choice.

With our analysis, we provide a number of insights into some of the important debates about convenience voting. First and most importantly, we find little support for the hypothesis that convenience voting methods have partisan implications, holding a variety of covariates constant. The conventional wisdom has long been that convenience voting favors the Republican party, here we find no support for that bit of conventional wisdom. But we do find other voter attributes that lead to the choice of some form of convenience voting; for example, elderly voters or those with disabilities are more likely, ceteris paribus, to vote by mail. Results like these have important implications for future moves towards convenience voting, and for how policymakers might develop new outreach campaigns to make additional eligible voters aware of their choices about how to cast their ballots.

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Tables and Figures

Table 1: Procedural Permissiveness by State

	By Mail			Early Voting		
	Allows permanent	No Excuse	Require excuse	No Excuse	Require excuse	Does not allow
Alabama			1		1	
Alaska		1		1		
Arizona		1		1		
Arkansas		1		1		
California	1	1		1		
Colorado	1	1		1		
Connecticut			1		1	
Delaware			1		1	
Florida		1		1		
Georgia		1		1		
Hawaii		1		1		
Idaho		1		1		
Illinois			1	1		
Indiana			1	1		
Iowa		1		1		
Kansas		1		1		
Kentucky			1		1	
Louisiana			1	1		
Maine		1		1		
Maryland			1			1
Massachusetts			1		1	
Michigan			1		1	
Minnesota			1		1	
Mississippi			1		1	
Missouri			1		1	
Montana	1	1		1		
Nebraska		1		1		
Nevada		1		1		
New Hampshire			1		1	
New Jersey		1		1		
New Mexico		1		1		
New York			1		1	
North Carolina		1		1		
North Dakota		1		1		
Ohio		1		1		
Oklahoma		1		1		
Oregon		1				1
Pennsylvania			1		1	
Rhode Island			1			1
South Carolina			1		1	
South Dakota		1		1		
Tennessee			1	1		
Texas			1	1		
Utah		1		1		
Vermont		1		1		
Virginia			1		1	
Washington	1	1				1
West Virginia			1	1		
Wisconsin		1		1		
Wyoming		1		1		
TOTAL	**4**	**28**	**22**	**32**	**14**	**4**

Table 2: Voting Mode by State

	Election Day		Early Voting		By Mail	
Alabama	94	(355)	1	(3)	5	(19)
Alaska	68	(126)	24	(45)	8	(14)
Arizona	40	(153)	6	(22)	54	(205)
Arkansas	52	(92)	46	(83)	2	(4)
California	52	(195)	3	(13)	45	(170)
Colorado	18	(33)	21	(39)	61	(115)
Connecticut	94	(178)	0	(1)	6	(11)
Delaware	96	(183)	1	(3)	3	(5)
Florida	41	(156)	39	(151)	20	(78)
Georgia	45	(173)	47	(178)	8	(31)
Hawaii	53	(93)	22	(39)	26	(45)
Idaho	68	(124)	14	(26)	18	(34)
Illinois	72	(273)	25	(94)	3	(11)
Indiana	74	(143)	21	(41)	5	(9)
Iowa	62	(117)	16	(30)	22	(42)
Kansas	59	(110)	25	(46)	16	(30)
Kentucky	93	(172)	3	(6)	4	(7)
Louisiana	77	(140)	21	(38)	2	(4)
Maine	68	(125)	15	(27)	18	(33)
Maryland	92	(177)	1	(1)	7	(14)
Massachusetts	91	(176)	3	(5)	6	(12)
Michigan	73	(133)	2	(3)	25	(46)
Minnesota	90	(174)	2	(3)	8	(16)
Mississippi	94	(363)	3	(12)	3	(12)
Missouri	87	(160)	5	(10)	8	(14)
Montana	53	(100)	12	(23)	35	(67)
Nebraska	69	(129)	10	(20)	21	(40)
Nevada	26	(49)	62	(116)	12	(23)
New Hampshire	92	(175)	1	(2)	7	(13)
New Jersey	90	(165)	1	(3)	8	(15)
New Mexico	24	(47)	52	(101)	24	(47)
New York	92	(341)	3	(10)	5	(19)
North Carolina	38	(68)	53	(94)	9	(15)
North Dakota	54	(98)	19	(35)	27	(49)
Ohio	62	(118)	16	(31)	22	(42)
Oklahoma	81	(148)	11	(20)	8	(14)
Oregon	2	(4)	1	(2)	97	(184)
Pennsylvania	95	(178)	2	(3)	3	(7)
Rhode Island	93	(175)	2	(3)	5	(10)
South Carolina	72	(132)	12	(23)	16	(29)
South Dakota	76	(140)	16	(30)	8	(15)
Tennessee	35	(63)	63	(114)	2	(4)
Texas	33	(119)	62	(221)	5	(18)
Utah	55	(102)	34	(62)	12	(21)
Vermont	73	(137)	12	(23)	15	(29)
Virginia	84	(160)	8	(16)	7	(14)
Washington	13	(50)	1	(5)	86	(330)
West Virginia	67	(119)	31	(54)	2	(4)
Wisconsin	77	(147)	13	(26)	10	(19)
Wyoming	68	(134)	17	(34)	15	(29)
TOTAL	64	(7,222)	18	(1,986)	18	(2,034)

Note: Figures computed using sample weights.

Table 3: Bivariate Tables

		Election Day	Early Voting	By Mail
Survey mode	phone	58	18	23
	web	65	18	17
Race	White	64	17	19
	Black	66	24	10
	Hispanic	57	27	16
	Asian	63	13	24
Gender	male	63	19	18
	female	65	17	18
Age group	18-34 years old	68	16	16
	35-54 years old	68	17	15
	older than 55	58	19	22
Disability	not disabled	65	18	17
	disabled	60	17	23
Time in residency	at most 1 year	65	17	18
	more than 1 year	59	21	20
Home Owner	home owner	64	18	19
	not home owner	64	18	18
Education	no high school	70	15	16
	high school graduate	69	16	15
	some college	61	18	20
	2-year college	64	17	19
	4-year college	63	18	19
	post-grad	56	22	21
Ideology	very liberal	58	21	21
	liberal	60	21	19
	moderate	64	17	18
	conservative	66	16	18
	very conservative	67	16	18
3-point party ID	Democrat	61	21	18
	Republican	66	15	18
	Independent	65	16	18
7-point party ID	strong Democrat	60	22	18
	not very strong Democrat	65	17	18
	lean Democrat	62	17	21
	Independent	67	15	18
	lean Republican	68	17	15
	not very strong Republican	65	16	19
	strong Republican	67	15	18
First time voter	not first time	64	18	18
	first time	67	19	14

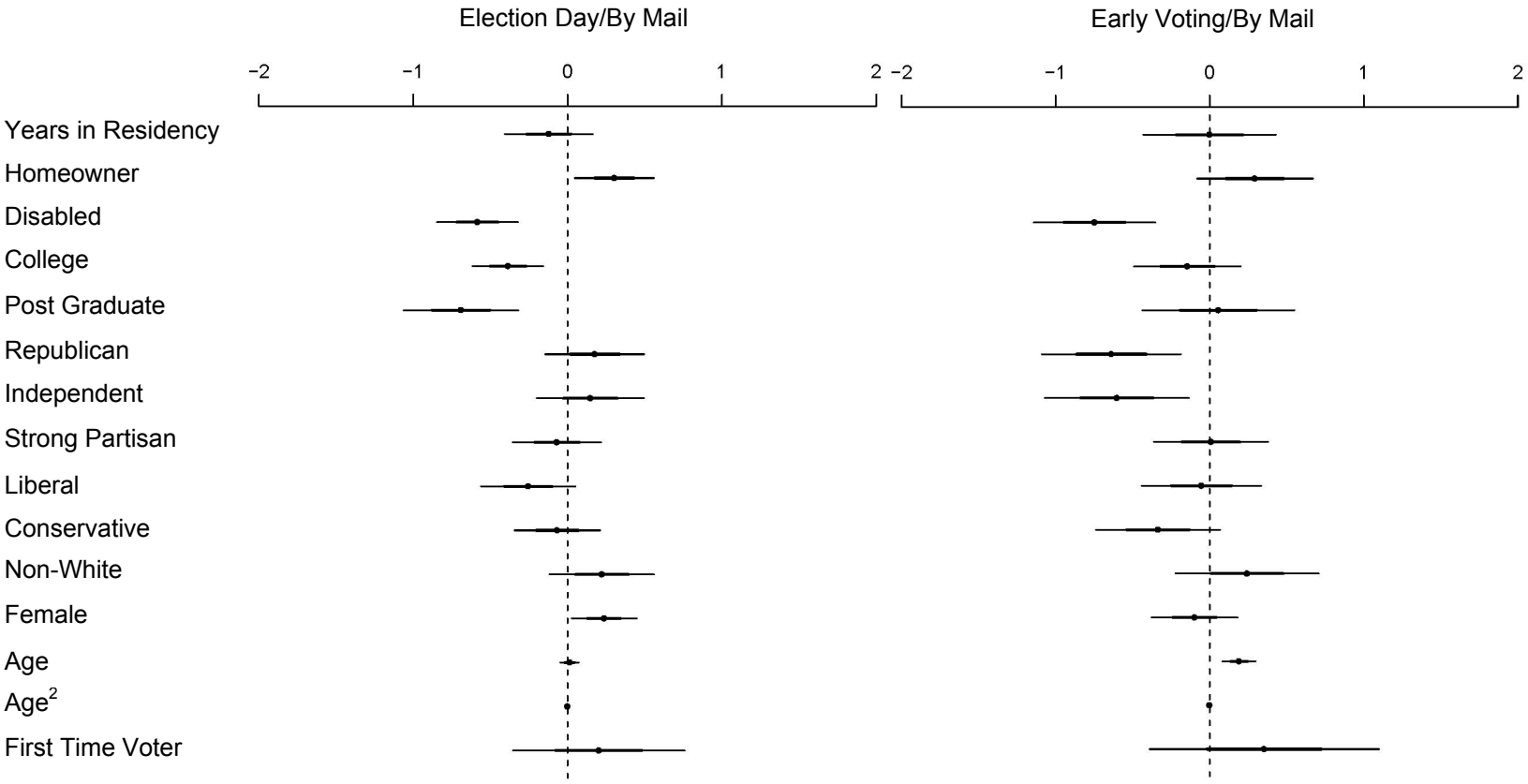
Note: Figures computed using sample weights.

Table 4: Marginal Effects

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		69	71	73	15	17	19	10	11	13
Years in residency	at most 1 to more than 1	-6	-4	-1	1	3	5	-1	1	2
Home owner	yes to no	-4	-2	0	-2	0	2	0	2	4
Disabled	no to yes	-6	-3	-1	-3	-2	0	3	5	7
Schooling	college to post-grad	-11	-8	-5	4	7	9	-1	1	3
Party ID	independent to democrat	-6	-3	0	0	2	5	-1	1	3
	independent to republican	-1	2	4	-5	-3	0	-1	1	3
Strength of partisanship	not-strong to strong	-5	-3	-1	1	3	5	-2	0	2
Ideology	moderate to liberal	-7	-5	-3	2	4	6	0	1	3
	moderate to conservative	-1	1	3	-3	-1	0	-1	0	2
Race	white to non-white	-5	-3	0	0	2	5	-2	0	2
Gender	female to male	-4	-2	0	1	2	4	-1	0	1
Age	53 (median) to 62 (3rd quartile)	-5	-4	-3	1	1	2	2	3	4
First time vote	no to yes	-7	-3	2	-1	2	6	-3	0	4

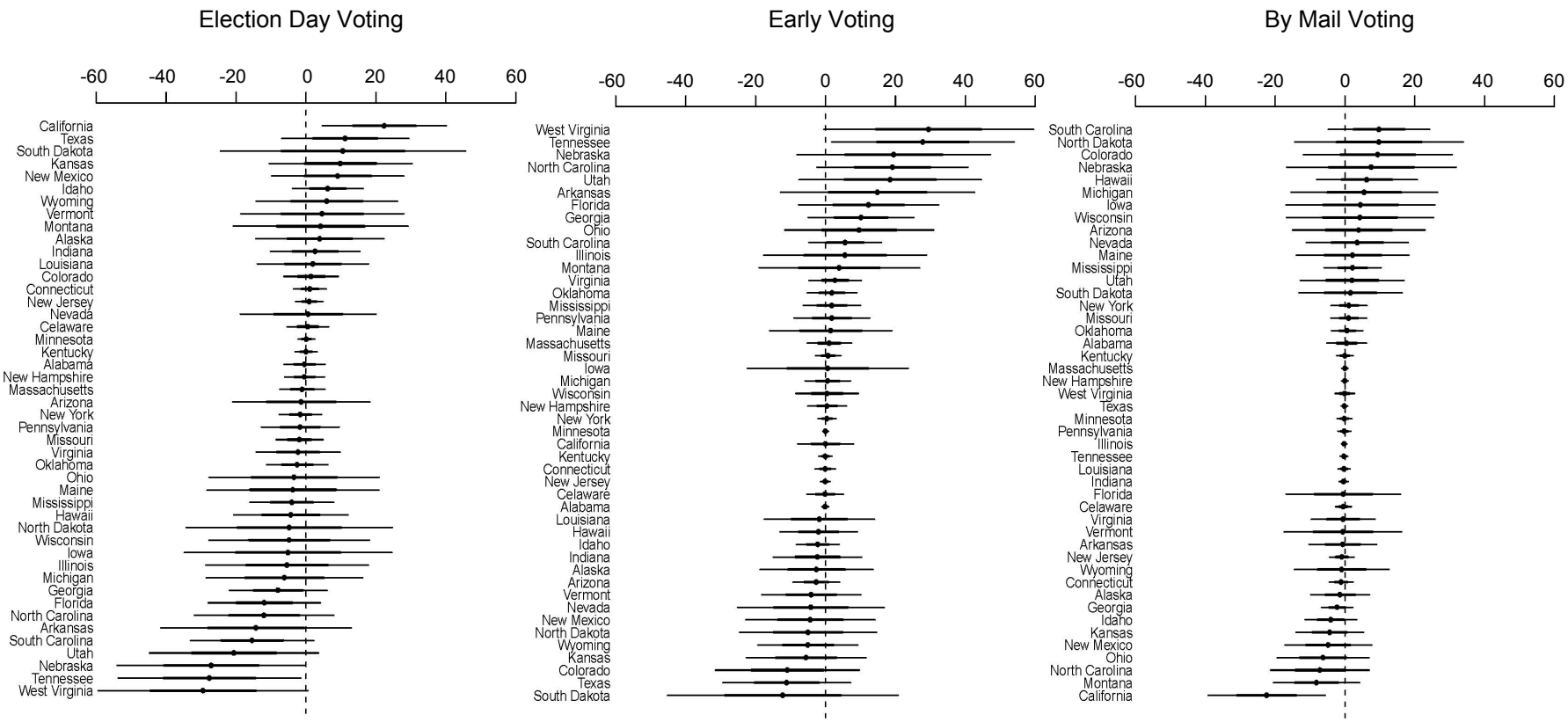
Note: For each iteration national effects are computed as a weighted average of state-by-state effects.

Figure 1: Coefficients for Average State



Note: Coefficients for the average state are computed as a weighted average of state level coefficients.

Figure 2: Effects of Non-White Race



Note: Dots indicate mean effects; thick lines indicate 50% confidence intervals (-/+ 1 standard deviation) and thin lines indicate 95% confidence intervals (-/+ 2 standard deviations).

Making Voting Easier: Convenience Voting in the 2008 Presidential Election

Supplementary Materials

I. Methodological Note

In the frequentist literature it is common to model heterogeneity using a fixed-effects approach, equivalent to estimating a separate model for each state. Alternatively, scholars sometimes use a random-effects approach and estimate all equations simultaneously, specifying a distribution of coefficients across units. This second procedure has the advantage of being more efficient, although it may be prone to specification error. In addition, Rossi et al. (2005) point out that the usual random-effects approach is limited because there is no interest in unit level effects—some software packages only reporting common parameters—and because most specifications usually include random intercepts but fixed slopes when there is no reason to expect heterogeneity to only affect model intercepts.

Instead, Rossi et al. (2005) suggest a Bayesian hierarchical approach that is ideally suited for estimating sequences of conditional distributions and for application to multi-dimensional parameter spaces—which is the case when all parameters vary by state conditional on some probability distribution. In addition, even though Bayesian estimation carries with it the cost of specifying prior likelihoods and distributions, it has the advantage of providing exact sample results without relying on asymptotic approximation (Koop 1994; McCulloch and Rossi 1994), and recent advances in technology and simulation methods have considerably reduced computational costs (Jackman 2000, 2004). The Bayesian analogue to the fixed-effects approach is to assume that state-level coefficients are independently distributed, while a random-effects analogue is to specify a joint prior for the model parameters. In this paper we use a Bayesian

hierarchical approach and assume parameters are jointly distributed across units, but independently distributed conditional on state-specific covariates and intercepts.[1]

A common procedure is to assume that the components of Δ_j and $V_{j(i)}$ (see equation 4) are a-priori normally distributed, with common mean and variance, and that the variance-covariance matrix of B follows an inverse Wishart distribution. Still, a problem with using normal priors is that estimates are shrunk towards the center of the data. A more flexible approach is to assume the components of $V_{j(i)}$ follow "mixture of normals" distribution. The advantage of using mixtures of normals, relative to normal prior distributions, is that they can approximate almost any multivariate parameter distribution—including ones with multiple modes or fat tails (Rossi et al. 2005). In this paper, we use Markov Chain Monte Carlo (MCMC) simulation to estimate a Bayesian hierarchical model based on the latter approach. More precisely, we carry out the estimation using a Gibbs Sampling algorithm developed by Rossi and implemented through R's bayesm package.

[1] As explained by Rossi et al. (2005, 133), "a hierarchical model assumes that each unit is drawn from a 'superpopulation' or that the units are exchangeable (conditional, perhaps, on some vector of covariates". This means that if we want to make a prediction regarding a new unit we can regard this new unit as drawn from the same population."

II. Marginal Effects for Selected States

Table 4.A: California (No-excuse early voting + No-excuse absentee voting + No-excuse permanent absentee)

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		33	50	69	0	2	12	28	46	64
Years in residency	at most 1 to more than 1	-21	-5	11	-5	0	6	-11	5	22
Home owner	yes to no	-5	11	27	-3	1	11	-28	-13	1
Disabled	no to yes	-31	-13	5	-8	-1	2	-4	15	33
Schooling	college to post-grad	-25	-8	10	-3	2	20	-14	3	21
Party ID	independent to democrat	-33	-14	7	-6	0	7	-6	14	33
	independent to republican	-7	14	34	-10	-2	0	-32	-12	10
Strength of partisanship	not-strong to strong	-23	-4	14	-3	1	18	-17	1	19
Ideology	moderate to liberal	-9	8	24	-6	0	4	-23	-7	10
	moderate to conservative	-38	-21	-5	-7	-1	3	6	23	39
Race	white to non-white	8	23	37	-5	0	6	-36	-23	-9
Gender	female to male	-6	7	21	-4	0	6	-20	-7	5
Age	53 (median) to 62 (3rd quartile)	-13	-5	2	-5	0	2	-1	6	14
First time vote	no to yes	-10	26	49	-7	-1	17	-47	-27	3

Table 4.B: Florida (No-excuse early voting + No-excuse absentee voting)

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		18	33	53	24	42	61	11	23	40
Years in residency	at most 1 to more than 1	-7	10	29	-24	-7	12	-17	-5	9
Home owner	yes to no	-14	0	16	-26	-13	1	-1	12	29
Disabled	no to yes	-14	0	16	-19	-4	11	-9	3	18
Schooling	college to post-grad	-27	-11	9	-18	2	22	-7	7	27
Party ID	independent to democrat	-17	2	21	-16	4	24	-19	-6	7
	independent to republican	-24	-6	12	-9	10	31	-19	-4	10
Strength of partisanship	not-strong to strong	-4	10	26	-18	-2	13	-18	-8	2
Ideology	moderate to liberal	-37	-22	-10	0	18	36	-10	4	21
	moderate to conservative	-7	7	22	-24	-10	5	-10	2	16
Race	white to non-white	-25	-12	1	-4	12	29	-13	-1	14
Gender	female to male	-12	1	13	-13	0	14	-13	-1	9
Age	53 (median) to 62 (3rd quartile)	-10	-4	3	-11	-4	3	1	7	15
First time vote	no to yes	-27	-10	12	-13	11	35	-18	-3	19

Table 4.C: Illinois (No-excuse early voting + Excuse absentee voting)

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		39	59	76	24	41	61	0	0	1
Years in residency	at most 1 to more than 1	-3	14	32	-32	-14	3	0	0	2
Home owner	yes to no	-11	7	24	-24	-7	11	0	0	1
Disabled	no to yes	-27	-7	15	-15	6	27	0	0	2
Schooling	college to post-grad	-40	-20	2	-2	20	40	-1	0	1
Party ID	independent to democrat	-16	5	26	-26	-5	16	0	0	1
	independent to republican	4	23	41	-41	-23	-4	-1	0	0
Strength of partisanship	not-strong to strong	-23	-3	15	-15	3	23	0	0	1
Ideology	moderate to liberal	-11	5	20	-21	-5	11	0	0	2
	moderate to conservative	-15	5	23	-24	-6	14	0	0	3
Race	white to non-white	-25	-5	13	-13	5	25	-1	0	0
Gender	female to male	-12	2	16	-16	-2	12	0	0	1
Age	53 (median) to 62 (3rd quartile)	-11	-4	3	-3	5	12	-1	0	0
First time vote	no to yes	-31	-1	26	-26	1	31	-1	0	1

Table 4.D: New Mexico (No-excuse early voting + No-excuse absentee voting)

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		13	25	42	35	50	66	12	23	37
Years in residency	at most 1 to more than 1	-18	-5	11	-8	9	26	-15	-5	7
Home owner	yes to no	-16	-3	13	-17	-1	15	-8	3	17
Disabled	no to yes	-15	-2	15	-23	-8	9	-4	8	23
Schooling	college to post-grad	-32	-17	-5	2	20	37	-16	-3	13
Party ID	independent to democrat	-21	-6	10	-18	2	21	-11	3	20
	independent to republican	-12	6	27	-27	-6	14	-14	0	17
Strength of partisanship	not-strong to strong	-25	-13	-3	-5	11	26	-10	1	17
Ideology	moderate to liberal	-18	-4	12	-15	1	18	-9	2	16
	moderate to conservative	-4	11	27	-32	-18	-3	-6	6	21
Race	white to non-white	-5	9	26	-19	-5	11	-15	-5	6
Gender	female to male	-9	2	16	-11	2	14	-14	-5	5
Age	53 (median) to 62 (3rd quartile)	-13	-6	-2	1	6	12	-4	0	5
First time vote	no to yes	-22	-6	17	-27	-2	23	-12	6	30

Table 4.E: Minnesota (Excuse early voting + Excuse absentee voting)

Variable	Change with respect to hypothetical voter	Election Day			Early Voting			By Mail		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Probability of support		97	99	100	0	0	1	0	1	3
Years in residency	at most 1 to more than 1	-2	0	1	0	0	0	-1	0	2
Home owner	yes to no	-1	0	1	0	0	0	-1	0	1
Disabled	no to yes	-1	0	2	0	0	0	-1	0	1
Schooling	college to post-grad	-10	-2	0	0	0	1	0	2	9
Party ID	independent to democrat	-5	-1	1	0	1	4	-1	0	2
	independent to republican	-7	-1	0	0	0	2	0	1	6
Strength of partisanship	not-strong to strong	-4	0	0	0	0	1	0	0	4
Ideology	moderate to liberal	-4	-1	0	0	0	2	-1	0	3
	moderate to conservative	-5	-1	0	0	0	0	0	1	5
Race	white to non-white	-2	0	2	0	0	0	-1	0	1
Gender	female to male	-4	-1	0	0	0	1	0	1	4
Age	53 (median) to 62 (3rd quartile)	-1	0	0	0	0	0	0	0	1
First time vote	no to yes	-23	-2	0	0	0	14	-1	1	11