Early and Absentee Voting and Unrecorded Votes in the 2002 Midterm Election

By David Kimball
University of Missouri-St. Louis
Kimballd@umsl.edu

and

Martha Kropf
University of Missouri-Kansas City
Kropfm@umkc.edu

Paper prepared for Presentation at the 2004 Midwest Political Science Association, April 15-18, 2004, Chicago, IL

***The authors wish to give special thanks to Amanda Baker, Lindsay Battles and Susan Mason for their helpful research assistance.**

****This research was supported by a grant from the University of Missouri System Research Board.**

Abstract

We examine the growing use of early and absentee voting methods and their impact on unrecorded votes in the United States. While several studies assess the impact of early voting and mail-in voting on voter turnout, we are unaware of any published research on the impact of early voting on unrecorded votes. Further, while many studies consider the effects of voting equipment on unrecorded votes, the studies fail to differentiate between those occurring at the polling places, and those occurring during early or absentee voting. On the one hand, early voting may reduce unrecorded votes since voters may have more time to engage in the voting process on a day that is most convenient for them. In addition, if absentee voters tend to be higher in socio-economic status than Election Day voters, then unrecorded votes may be less common for early and absentee voters. On the other hand, many absentee and early voting methods do not include mechanisms that notify voters of ballot errors.

We create a dataset from six states in the 2002 general elections that considers factors of ballot design, voting technology and demographic factors. The unit of analysis for this study is the county, since voting technology and ballot-design decisions are made at the county level in almost all states. We calculate the unrecorded vote rate for early or absentee voters and Election Day voters in each county. Ballots from counties in six states are collected (Iowa, Kansas, Georgia, Florida, Tennessee and Illinois). Three of the states in our sample (Florida, Kansas and Tennessee) allow in-person early voting. We also code paper-based (including optical scan) and pencil ballots in terms of several graphic design elements.

The results presented here confirm what we know about voting technology and demographic factors and their effect on unrecorded votes. However, this paper takes a step further and examines the differences among early, absentee and precinct unrecorded votes. We find that there is very little average difference between precinct unrecorded votes and early/absentee unrecorded votes. Moreover, this paper confirms that many of the same factors that affect unrecorded votes at the precinct also affect early and absentee unrecorded votes. For example, "good" ballot features reduce the incidence of unrecorded votes for all three types of voting.

Our results suggest that states should not adopt early voting as an answer to the problems of unrecorded votes that we have experienced. It appears that the shift to early and absentee voting will not reduce unrecorded votes, and thus will not lessen the chances of another vote counting controversy. On the other hand, our results seem to suggest that election officials (and campaign staffs) should not worry that an increase in early voting will make the problem of unrecorded votes any worse than it has been in the past**.**

Introduction

In the United States, the longstanding practice of voting at a local polling place (such as a school, a library, or a courthouse) is gradually being replaced by other means of voting. There has been a significant increase in the number of individuals who vote before Election Day—an amount that "has doubled since 1980" (Hansen 2001: 1). According to Current Population Survey data, the percentage of early voters increased from nine percent in 1996 to 14 percent in 2000.

In the last twenty years, many states have expanded the ability to cast a ballot before Election Day. Increased access to absentee ballots is one way in which voting before Election Day has become more common. Typically, absentee ballots are mailed to qualified voters, who complete the ballots at home and then return the completed ballots (in person or by mail) to election officials before Election Day. Historically, absentee voting was reserved only for voters who could not make it to their polling place on Election Day (for example, due to disability, religious observance, or travel). More recently, however, many states have removed any restrictions on absentee voting. Currently, twenty-three states allow unrestricted "no-excuse" absentee voting (Election Reform Information Project 2004). In the late 1990s, Oregon went a step further and switched entirely to a vote-by-mail system, thus eliminating voting at polling places and sparing voters from having to request an absentee or mail-in ballot.

At the same time, several states have adopted procedures for early voting. Early voting was first introduced in Texas in the late 1980s and involves casting a ballot in person rather than by mail, as in most absentee voting. In participating states, early voting stations are usually located at local election offices or other designated sites (such as malls) up to a few weeks before Election Day. Voters simply show up at an early voting station, sign in, verify their registration,

and cast a ballot just as they would at a polling place on Election Day. Currently, twenty-six states have early voting procedures (Election Reform Information Project 2004). Overall, a majority of states now allow all registered voters some way of casting a ballot before Election Day.

The rise in early and absentee voting raises obvious questions about its impact on voting and elections. While several studies focus on the impact of early and absentee voting on turnout, this paper examines the impact on unrecorded votes (in which some voters cast ballots but do not record valid votes for a particular contest). Scholars studying unrecorded or residual votes have not (to our knowledge) considered whether early or absentee voters are more or less likely to cast unrecorded votes. Nevertheless, in the spirit of reform after the 2000 presidential election, several commissions recommended expanded absentee and early voting to increase convenience for voters and thus reduce confusion and voting errors (Election Center 2001; National Commission on Election Standards and Reform 2001; National Conference of State Legislatures 2003)

As part of a larger project, we examine unrecorded votes in governor's contests at the county level in six states during the 2002 general election. We compare rates of early and absentee unrecorded votes to those cast at the polls on Election Day. We also analyze the effects of equipment, ballot format and demographic factors on absentee/early unrecorded votes, again comparing them to unrecorded votes cast at the polling place. We find that early or absentee voting has increased dramatically in some of the states in our sample. We also find that unrecorded votes are slightly more common for early and absentee voters than for voters at polling places on Election Day. Finally, we find that the ballot features, voting technology, and demographic indicators associated with higher rates of unrecorded votes at polling places also

tend to be associated with unrecorded votes in early and absentee balloting. Thus, shifting more voters toward early and absentee voting will likely not reduce the frequency of unrecorded votes in the United States.

What Do We Know About Early and Absentee Voting?

Election reforms such as early voting and liberalized absentee voting are intended to help increase voter turnout by reducing the barriers to voting. Consequently, scholars have studied their effects on turnout (Richardson and Neeley 1996; Neeley and Richardson 2001; Stein 1998; Stein et al. 2003; Oliver 1996; Wolfinger and Hoffman 2001) and on election outcomes (Stein and Garcia-Monet 1997; Stein 1998).

In general, research suggests that early and unrestricted absentee voting do not dramatically increase voter turnout. In particular, early voting does not increase voter turnout (Stein and Garcia-Monet 1997; Stein 1998; Neeley and Richardson 2001), unless paired with mobilization efforts by political parties (Stein et al. 2004). Studies of unrestricted absentee voting (Wolfinger and Hoffman 2001: 92) and Oregon's vote-by-mail program (Berinsky, Burns, and Traugott 2001) find that they modestly increase voter turnout, while Oliver (1996) finds that voters in states with more liberal absentee rules are indeed more likely to vote, but only where party mobilization is more active.[1]

More importantly, studies indicate that early and absentee voting have not succeeded at mobilizing those who typically do not vote. Rather, early and absentee voting tends to make voting more convenient and raise turnout for voters who, because of their socio-economic status, are most likely to vote anyway (Stein 1998; Berinsky et al. 2001). In general, scholars argue that

[1] Patterson and Caldeira (1982) find that absentee voting is more common in states with stronger party mobilization efforts.

to vote early or absentee requires some calculation: one must be educated enough to realize that early voting is available or have "the resources to know to arrange to vote in advance" (Hansen 2001: 2). Evidence seems to bear out this proposition. Those who are more highly educated and older actually vote early at higher rates than on Election Day (Stein 1998; Hansen 2001; Kropf et al. 2003).[2] Hansen (2001) finds that "[t]he highest rates of absentee usage are among holders of graduate and professional degrees and among persons with the very highest family incomes" (3). He also finds that Anglos are also more likely to vote absentee than African Americans (Hansen 2001: 3; see also Dubin and Kalsow 1996[3]). As one might expect, absentee voting is also most common among those who are college aged and those who are elderly (Hansen 2001). In terms of attitudes, those who are strong partisans are more likely to vote early (Neeley and Richardson 2001; Stein 1998), as are those who are most interested in the campaign and feel most efficacious (Kropf et al. 2003). In sum, the evidence paints a portrait of an absentee or early voter who is likely to be more educated, more partisan, and more interested in politics than the typical Election Day voter.

Studying The Problem of Unrecorded Votes in the United States

Scholars have a variety of names for unrecorded votes including roll-off, residual votes, lost votes or voided votes. However, they are defined commonly by the difference between total turnout and the number of valid votes cast in a particular contest in a particular geographic area. Unrecorded votes occur as the result of undervotes (where voters intentionally or unintentionally record no selection) or overvotes (where voters select too many candidates, thus spoiling the ballot). Theories explaining the incidence of unrecorded votes can be separated into at least three

[2] Neeley and Richardson (2001) find very few other demographic differences between early voters and Election Day voters in Tennessee.

perspectives. First, scholars argue that some unrecorded votes are intentional for reasons such as voter fatigue, lack of a desirable choice or low information about a contest (e.g. Bullock and Dunn 1996; Knack and Kropf 2003; Kimball, Owens, and Keeney 2003; Wattenberg et al. 2000).

Second, some researchers argue that accidental undervotes and overvotes occur due to faulty equipment or confusing ballot design (e.g. Kimball and Kropf 2003; Knack and Kropf 2003; Kimball, Owens, and Keeney 2003; Niemi and Herrnson 2003; Darcy and Schneider 1989; Shocket *et al.* 1992; Nichols and Strizek 1995; Caltech/MIT, 2001; Jewett 2001). In response to problems identified by the 2000 election, several counties and states have replaced older voting technologies with optically scanned ballots or electronic voting machines (see Kimball 2003).

A final research perspective focuses on equal protection issues, analyzing the relationship between unrecorded votes and demographic variables such as ethnicity or age. For example, there is extensive evidence that unrecorded votes are more common in precincts and counties with large populations of racial and ethnic minorities, low-income residents, less-educated citizens, or elderly voters (Walker 1966; Vanderleeuw and Engstrom 1987; Darcy and Schneider 1989; Sheffield and Hadley 1984; Nichols and Strizek 1995; Herron and Sekhon 2003; Knack and Kropf 2003; Tomz and Van Houweling 2003). Furthermore, there appears to be an interaction between demographic variables and some voting methods and ballot features. The association between socioeconomic measures and unrecorded votes is weaker in places using equipment (such as error correction mechanisms) or ballot features (such as a straight-party option) that make it easier for voters to complete a valid ballot (Knack and Kropf 2003; Tomz and Van Houweling 2003; Kimball, Owens, and Keeney 2003). By the same token, the elevated rate of unrecorded votes associated with confusing ballots and voting technology tends to fall disproportionately on precincts and counties with high concentrations poor, elderly, or minority

[3] Dubin and Kalsow find that income does not predict absentee voting (1996: 384).

voters (Knack and Kropf 2003; Darcy and Schneider 1989; Nichols 1998; Kimball, Owens, and Keeney 2003; Herron and Sekhon 2003; Tomz and Van Houweling 2003).

While some studies acknowledge absentee and early ballots as a potential source of measurement error, few have separated the unrecorded votes that occurred at the polls from the unrecorded votes that occurred on absentee or early ballots. The only study we are aware of finds a weak inverse relationship between the frequency of absentee voting and the frequency of unrecorded votes, though it notes a few cases where unrecorded vote rates were higher among absentee ballots than polling place ballots (Caltech/MIT 2001: 40).[4]

Our first question is whether unrecorded votes should be more or less common among absentee and early ballots as compared to ballots cast at polling places on Election Day. Our review of the literature suggests there are competing hypotheses. On the one hand, we might expect fewer unrecorded votes among early and absentee voters because of their demographic profile (more educated, more partisan, more interested in politics than Election Day voters). Unrecorded votes seem to be more common among less educated voters, low income voters, and minority voters, all groups who are more likely to vote at polling places on Election Day.

On the other hand, there are reasons to expect higher rates of unrecorded votes among absentee voters. First, error-correction mechanisms that prevent overvoting and undervoting (and have been shown to reduce rates of unrecorded votes) are not generally available to absentee voters. For example, in counties using optical scan voting, precinct ballot counting machines (which detect voting errors) are not available to those who cast their votes via mail.

[4] Tomz and Van Houweling's (2003) study of a racial gap in voided votes in Louisiana and South Carolina is another exception. They note that precinct level studies may overestimate unrecorded votes because "an absentee voter is credited as having turned out in the precinct where she resides, but her votes are tabulated in a fictitious county-wide 'absentee precinct' that bears no relationship to the voter's precinct of origin" (50). Since unrecorded votes are often computed subtracting votes cast for an office from the total number of people who voted, that would tend to inflate the figures in proportion to the number of absentee votes. We avoid this problem by collecting vote totals separately for early, absentee and precinct voters.

Similarly, one cannot use DRE equipment or lever machines (which prevent overvotes) when one mails in a ballot. Second, even if the counting equipment is the same, the mechanics of voting are different for some voting methods. An example is punch card equipment, as highlight by CalTech/MIT (2001, 38). For those voting at home, the punch card is not inserted in a mechanical holder (used with a booklet to enable to voters to mark candidates), but is attached to a piece of Styrofoam. "Going back-and-forth between the booklet and the ballot introduces even more opportunities for mis-marked ballots than when punch cards are used in the precinct." Finally, there are usually no poll workers available to assist voters should they have question about how to complete the ballot or have spoiled their ballots in some way. Caltech/MIT (2001) indicates that the unrecorded vote rate in New York was much higher for absentee voters, than it was for in-precinct voting (using the lever machine). With the advent of the vote-by-mail program, the unrecorded vote rate went up statewide, but most of the increase was due to the counties that used punch card ballots (Caltech/MIT 2001, 40).

Methodology

We create a dataset of absentee, early, and polling place election returns from counties in six states from the 2002 midterm elections. The dataset includes voting technology and demographic factors such as race and education. Election administration is very decentralized in the United States. This produces quite a bit of variation in voting methods and ballots even within the same states. The unit of analysis for the study is the county, since voting technology and ballot-design decisions are typically made at the county level in all the states analyzed in this study. For the November 2002 election, we collected data from counties in six states (Iowa, Kansas, Florida, Georgia, Tennessee and Illinois[5]). These states were chosen because they use a variety of voting methods and ballots, they have different laws regarding early voting and absentee voting, and each state featured a competitive race for governor in 2002.

We mailed surveys to each county or election district official in the states for information including the number of ballots cast in the county, the number of votes cast for each candidate (Republican, Democratic and other), and the number of overvotes and undervotes.[6] The survey also ascertained the type of voting equipment used for Election Day vote tabulating, as well as for early (in-person) voting and voting absentee by mail.[7] Non-respondent counties were

[5] Missouri is included in our larger study but is excluded from this analysis because Missouri had no governor's contest in 2002. One might argue that using data from only six states limits the generalizability of this study. However, based on 2000 census figures, our sample is quite similar to the rest of the country in terms of the percentage of African American residents (13.4% in our sample versus 12.6% in the rest of the country), the percentage of Hispanic residents (10.4% versus 12.9%), the percentage of citizens over the age of 65 (14.4% versus 12.0%), the percentage of adults with a college degree (19.0% versus 10.6%), and median household income ($37,126 versus $39,699).

[6] Depending the type of races they had (Governor or Senate) and whether they had implemented early voting, each state received a slightly different survey. Some counties did not keep track of the number of undervotes and overvotes, so most of our analysis focuses on residual votes in this paper. Copies of surveys and coding sheets are available from the authors. Special thanks to Valley Renshaw, UMKC student, for his work in designing the election official surveys.

[7] We also asked each county to report the number of hours of training required for poll workers before each election. In subsequent analysis, hours of training was not correlated with unrecorded votes.

contacted via telephone, but some missing data were filled in with state reports (for Tennessee and Florida).[8]

Finally, we requested a copy of the 2002 general election ballot from each county.[9] As Palm Beach County, Florida's "butterfly ballot" in the 2000 presidential election demonstrated, ballot design features sometimes create confusion for voters (see also Wand et al. 2001; Niemi and Herrnson 2003; Kimball and Kropf 2003). We coded the paper-based ballots (including optical scan and hand-counted paper ballots) for several graphic design elements (the location, readability, and content of voting instructions, as well as the layout of candidates and offices) that our previous work found to be associated with unrecorded votes (Kimball and Kropf 2003). We have a complete data set of 474 counties with information on demographic characteristics and ballot features, as well as separate election totals for polling place and early or absentee voters.

A couple of things are evident when we examine the frequency of early and absentee voting, and its legal status, for each state in our sample (see Table 1). First, there has been a dramatic increase in early or absentee voting in the last few years in the states that allow them. (comparing the rates in 2002 versus 1998). Five of the states in our sample allow either early voting or unrestricted absentee voting. The percentage of ballots cast before Election Day almost doubled from 1998 to 2002 in the four states (Florida, Iowa, Kansas, and Tennessee) that allow either full early voting or unrestricted absentee voting. The only state that did not allow early voting or unrestricted absentee voting (Illinois) had the lowest percentage of ballots cast

[8] See Florida Division of Elections, *Analysis and Report of Overvotes and Undervotes for the 2002 General Election*, Available at http://election.dos.state.fl.us/reports/pdf/03OverUnderVotes.pdf. See also http://www.state.tn.us/sos/election.htm.

[9] We requested that election officials submit one ballot to us that was most representative of the county or was from the largest precinct.

before Election Day.[10] Overall, 18% of the ballots in our sample were cast before Election Day in the 2002 midterm.

[Table 1 about here]

Second, early and unrestricted absentee voting have grown in popularity the longer they have been in place. For example, early voting is more common in Tennessee, which instituted the practice in 1994, than in Kansas or Florida, which implemented early voting more recently and with fewer early voting stations. In Florida and Kansas, ballots cast before Election Day are a mix of absentee votes and early votes cast in polling stations (with more cast absentee than at in-person locations). In Georgia, Illinois, and Iowa, all ballots cast before Election Day are absentee ballots.[11] In Tennessee, the vast majority of ballots cast before Election Day (roughly 95%) are made at early voting sites.

In order to measure the frequency of unrecorded votes cast for an office, we calculate the difference between the total number of ballots cast and the number of votes cast for that office (as a percentage of total ballots cast). For each county where it was possible, we calculated a separate rate for absentee, early and precinct voters.[12] The distribution of unrecorded votes across counties is somewhat skewed, with outliers at the high end. Overall, in our sample,

[10] Early and absentee voting rates are relatively low in Georgia (which allows early voting) probably because early voting is only permitted at a county registrar's office on an absentee ballot one week before an election.
[11] In Iowa, Democrats have gained an advantage in recent elections through vigorous absentee voter mobilization drives. In response, Republicans in the state legislature have proposed curtailing absentee voting (Pitt 2003).
[12] First, it should be noted that not all counties in our sample separate early, absentee and precinct ballots when they are counted or recorded (for example, almost all Illinois counties mix absentee and precinct ballots together and thus do not have separate vote tallies). Such counties were dropped from our sample. Further, some counties in states that have both early and absentee balloting do not separate the ballots for each. Kansas and Florida are good examples, where most counties tabulate the early votes (most likely cast at satellite polling places) together with the absentee votes (some of which were probably by mail). In such cases, since the majority of people who may have formerly voted absentee now vote early, early and absentee voters are grouped.

unrecorded vote percentages for gubernatorial contests range from 0.2% to 7.5%, with a median of 1.1%, a mean of 1.2%, and a standard deviation of 0.8%. Table 2 indicates the rates for each state for the three different kinds of voting methods.

[Table 2 about here]

While the overall theme of Table 2 is that there are no basic differences in unrecorded vote rates among early, absentee and precinct voters, there are some notable, if mixed, findings. First, Table 2 indicates that Florida had a much lower unrecorded vote rate when voters voted early in person than with either absentee or precinct voting. However, in Tennessee, the early voting rate was much higher than the precinct unrecorded vote rate. In Tennessee, election officials take the ballots to nursing homes and hospitals. These votes are calculated along with early votes, which may explain part of the discrepancy. Another difference is that Florida has upgraded to touch-screen voting machines or precinct-count optical scan balloting for early voting in all counties. In contrast, few counties in Tennessee use new voting technologies. On the other hand, in Illinois, in the two counties where the votes are actually separated, polling place unrecorded votes are higher in the gubernatorial contest.

Results of Multivariate Models

There may be many factors that affect the unrecorded vote rates in the various states and counties. Thus, to assess the determinants of unrecorded votes for early, absentee, and polling place ballots, we estimate a model of unrecorded votes in the 2002 gubernatorial elections for the

counties in our sample. The model includes voting technology, ballot features, and demographic measures as explanatory variables.

First, we examine several ballot features as explanatory variables. Based on previous work (Kimball and Kropf 2003), we create an index of seven features on paper-based ballots that may influence a voter's ability to read and comprehend the ballot. Each ballot feature is originally measured as a dummy or three-category variable indicating whether the feature is on the ballot. Three features are associated with the voting instructions. One measure is based on the Flesch-Kincaid Grade Level score for the voting instructions on each ballot. We recode the continuous measure of the grade level of ballot instructions to a three-category measure of low (0), medium (1), and high (2) reading levels to incorporate it into the summary index. Instructions requiring higher reading ability should be associated with higher levels of unrecorded votes. Second, we include a measure indicating whether or not the ballot contains instructions about correcting spoiled ballots (as required by HAVA). Third, we include a measure indicating whether the instructions are located at the top left corner of the ballot, the spot where most voters will train their eyes first. We expect the latter two instruction variables to be associated with lower levels of unrecorded votes.

The index is also based on features dealing with the layout of candidate choices. First, we include a dichotomous variable indicating whether or not the candidate choices are cluttered with other information, text, or graphics. A second variable indicates whether circles or squares are located on both sides of candidate names, which may confuse voters about which one to mark for their chosen candidate. We expect higher levels of unrecorded votes with cluttered ballots and ballots with marking options on both sides of candidate names. A third measure indicates whether shading is used to guide the voter to each office or groups of similar offices. A

fourth measure indicates whether boldfaced text is used to differentiate candidate names from the office for which they are competing. According to questionnaire design principles, we expect fewer unrecorded votes where shading and boldfaced text are used in these ways.

In creating the summary index, we sum features hypothesized to simplify the voting process and subtract features hypothesized to making voting more difficult. None of the ballots in our sample was perfect on all indicators (which would be a score of +5 on the summary index), and none of the ballots in our sample failed on all of the features (which would be a summary score of –4). The ballot index values in our data range from –3 to +4, with a mean of 0.6 and a standard deviation of 1.3. We expect the summary index to be negatively correlated with unrecorded votes. Of the counties in our sample, 206 used paper or optical scan ballots that we coded for the features described above. Counties that did not use paper-based ballots were coded as 0 on the ballot index.

Another ballot feature is a dummy variable identifying ballots with a straight-party option (Iowa only). We expect fewer unrecorded votes in counties where the ballot has a straight-party mechanism. We also control for ballot fatigue by including a measure counting the number of contests that appear before the governor's race (which ranges from 0 to 2). We expect more unrecorded votes the farther the governor's contest appears down the ballot.

Just about every type of voting technology is used by one of the counties in our sample. We include dummy variables for each voting method (punch cards, lever machines, hand-counted paper ballots, optically scanned ballots, and electronic voting machines). We make finer distinctions for the electronic machines and optical scan systems. First, we include a dummy variable for counties using precinct-count optical scan systems, since they have an error-correction feature that allows voters to detect and correct mistakes at the polling place.

Centrally-counted optical scan systems do not have this error-correction mechanism. Thus, the precinct-count procedure should reduce unrecorded votes. Similarly, we divide direct electronic voting machines (DREs) into older and newer varieties. Older DREs (such as the Shouptronic 1242, which was designed to mimic lever machines) present the entire full-faced ballot at once and typically use a push-button interface (Caltech/MIT Voting Project 2001a). The newer generation of DREs (such as the E-Slate and Accuvote-TS machines) typically use a touch-screen interface and allow voters to scroll through the offices and issues on the ballot (as in Votomatic punch card ballots). Previous research indicates that unrecorded votes are substantially less common with the newer touch-screen machines. The regression coefficients in our analysis compare the performance of each voting method to the central-count optical scan system (the omitted category).

Finally, the regression model includes four demographic variables that are often correlated with unrecorded votes. These control variables include the percentage of a county's residents who are African-American, the percentage over the age of 65, the percentage of adults with a high school degree, and the natural log of the county's population.[13] Based on previous studies, we expect unrecorded votes to be positively correlated with the size of the African-American and elderly populations, while unrecorded votes should be negatively correlated with the percentage of high school graduates and the population measure (i.e., higher residual vote rates in smaller counties).

The dependent variable is the percentage of total ballots cast in each county that fail to record a valid vote for governor. We estimate a regression model to calculate the impact of each explanatory variable on unrecorded votes in governor contests. We estimate separate regression

[13] We obtained demographic data from the U.S. Census Bureau's American FactFinder web site (http://factfinder.census.gov/servlet/BasicFactsServlet).

equations for absentee, early, and polling place ballots. Since the number of voters in each county varies dramatically, we weight each county by the number of ballots cast. In addition, we estimate robust standard errors to correct for heteroskedasticity likely in data with a skewed dependent variable (White 1980).

The results of our regression analysis are presented in Table 3. The first column provides the results of a regression model of unrecorded votes at polling places on Election Day. The second column examines absentee ballots, and the third column examines early voting. In general, our analyses suggest that several ballot design features affect the rate of unrecorded votes in the way we hypothesize for all three types of voting. The goodness-of-fit measures improve substantially when the ballot features and voting technology indicators are included as independent variables.

[Table 3 about here]

The regression coefficients for the ballot features are all in the hypothesized direction, and most are statistically significant. First, our index of ballot features has a significant effect on unrecorded votes for early, absentee, and polling place voting, although the effect seems to be strongest for early voting. Having more simplifying features on a ballot is associated with fewer unrecorded votes. The substantive effect of these ballot features is fairly large. Increasing three points on the ballot feature index reduces unrecorded votes at polling places by .57%, roughly equivalent to the effect of new touch-screen machines or precinct-count optical scan equipment.

Two other ballot features appear to be important. The results indicate that unrecorded votes are less common in states with a straight-party option on the ballot.[14] In addition, there is evidence of ballot fatigue, even for contests that appear near the top of the ballot. Unrecorded votes are more common on polling place ballots and absentee ballots in states where other races appear before the governor's contest.

Voting technology seems to have the strongest effect on unrecorded vote rates for people who vote at polling places on Election Day. Residual votes are much more frequent in counties using punch cards or lever machines at polling places. Residual vote rates are also significantly higher on absentee ballots cast on punch cards.[15] As expected, unrecorded vote rates at polling places are substantially lower in counties using precinct-count optical scan systems, which have an error correction mechanism.

The results are consistent with previous studies (Kimball 2003) in suggesting that all electronic voting machines are not created equal. Touch-screen DREs perform well in the 2002 gubernatorial elections while full-face DREs perform the substantially worse. Touch-screen DREs reduce the expected number of unrecorded votes at polling places by .67% when compared to central-count optical scan systems. Unrecorded votes in early balloting are also less common among touch-screen voting machines than other methods. However, older full-face DREs actually perform worse than central-count optical scan systems in polling place voting. The newer generation of electronic voting machines clearly produces lower levels of unrecorded votes than older electronic voting machines.

[14] The straight-party measure was dropped from the analysis of early voting because Iowa has no early voting, so there was no variation in the measure. The straight-party option was dropped from the analysis of absentee voting because it was almost perfectly correlated with the ballot fatigue measure.

[15] Absentee votes were only cast on punch cards or paper-based ballots, so our model of absentee voting does not include other voting technology indicators as independent variables.

Finally, the controls for demographics tend to perform as expected for early and absentee voting as well as polling place voting. Unrecorded votes are more common in counties with large concentrations of African-American and elderly voters, while unrecorded votes are less common in highly populated counties and counties with high education levels. When considering ballot features and demographics, the predictors of unrecorded votes for early and absentee voters are similar to those for polling place voters. Ballot design features are key determinants of unrecorded votes.

Conclusion

The results presented here confirm what we know about voting technology and demographic factors and their effect on unrecorded votes. However, this paper takes a step further and examines whether early, absentee and precinct unrecorded vote rates differ. We find that there is very little average difference between precinct unrecorded vote rates and early/absentee unrecorded vote rates. Moreover, this paper confirms that many of the same factors that affect unrecorded votes at the precinct also affect early and absentee unrecorded votes. For example, "good" ballot features reduce the incidence of unrecorded votes for all three types of voting. Voting equipment also matters, though the effects are stronger for most variables in the precinct; touch-screen DRE's reduce unrecorded votes, whether they are cast at the precinct or some time early. Punch card technology is associated with increases in unrecorded votes for both precinct and absentee ballots, but not for ballots cast early. Demographics matter for precinct and absentee voting. For example, level of education in the county matters, (reducing unrecorded votes). Also, the percentage of African Americans in a county increases the unrecorded vote rate. This is not true for early voting (which shows no effect of these

variables), but not entirely unexpected, because those who vote early are usually the most educated and those with the highest income—in other words, those with the most resources to know how to vote. They are not the average county voter.

There are several implications to these findings. First, states should not adopt early voting as an answer to the problems of unrecorded votes that we experienced, particularly in the 2000 election. It appears that the shift to early and absentee voting will not reduce unrecorded votes, and thus will not lessen the chances of another vote counting controversy. On the other hand, our results seem to suggest that election officials (and campaign staffs) should not worry that an increase in early voting will make the problem of unrecorded votes any worse than it has been in the past. In that sense, this research is definitely not a condemnation of early and unrestricted absentee voting, but it is not an endorsement either.

Finally, those scholars who do research in the area of unrecorded votes should take some comfort from these results. As mentioned earlier, most scholars do not separate early, absentee and precinct unrecorded vote rates when conducting such analysis. Our results indicate that the effects of doing so are at this point, minimal. Since the similar factors affect unrecorded votes at all three levels, we should be reasonably confident about the policy conclusions made by these scholars.

All in all, we expect that an understanding of not just equipment, but also ballots and early voting play an important role in the discussion surrounding the implementation of the "Help America Vote Act" which Congress passed in 2002. Scholars should continue studies in this area.

Sources Cited

Berinsky, Adam J., Nancy Burns, and Michael W. Traugott. 2001. "Who Votes by Mail?" *Public Opinion Quarterly* 65:178-198.

Bullock, Charles S., III, and Richard E. Dunn. 1996. "Election Roll-off: A Test of Three Explanations." *Urban Affairs Review* 32:71-86.

Bullock, Charles S., III and M. V. Hood, III. 2002. "One Person – No Vote; One Vote; Two Votes: Voting Methods, Ballot Types, and Undervote Frequency in the 2000 Presidential Election." *Social Science Quarterly* 83:981-993.

Darcy, R., and Anne Schneider. 1989. "Confusing Ballots, Roll-Off, and The Black Vote." *Western Political Quarterly* 42:347-364.

Dubin, Jeffrey A. and Gretchen A. Kalsow. 1996. "Comparing Absentee and Precinct Voters: A View Over Time." *Political Behavior* 18(4): 369-392.

Election Center's National Task Force on Election Reform. 2001. *Election 2000: Review and Recommendations by The Nation's Elections Administrators.* (accessed July, 2001: http://www.electioncenter.org/).

Election Reform Information Project and the Constitution Project. 2004. "Election Reform 2004: What's Changed, What Hasn't and Why." http://electionline.org/site/docs/pdf/ERIP_AR2004.pdf (retrieved January 22, 2004)

Hansen, John Mark. 2001. "Early Voting, Unrestricted Absentee Voting, and Voting by Mail," in *To Assure Pride and Confidence in the Electoral Process, Report of the Task Force to Accompany the National Commission on Election Reform*. Unpublished manuscript, Miller Center for Public Affairs, University of Viriginia. Available at http://www.millercenter.virginia.edu.

Herron, Michael C., and Jasjeet S. Sekhon. 2003. "Overvoting and Representation: An Examination of Overvoted Presidential Ballots in Broward and Miami-Dade Counties." *Electoral Studies* 22: 21-47. 2003.

Jewett, Aubrey. 2001. "Explaining Variation in Ballot Invalidation Among Florida Counties in the 2000 Election." Presented at the annual meeting of the American Political Science Association, San Francisco, August, 2001.

Kimball, David C. 2003. "Voting Methods Two Years After Florida." Presented at the annual meeting of the Midwest Political Science Association, Chicago, April 3, 2003.

Kimball, David C., Chris T. Owens, and Katherine McAndrew Keeney. Forthcoming, 2004. "Unrecorded Votes and Political Representation." In *Counting Votes: Lessons from the 2000 Presidential Election in Florida*, Robert P. Watson, ed. Gainesville: University Press of Florida.

Kimball, David C., Chris T. Owens, and Katherine M. Keeney. 2003. "Unrecorded Votes and Election Reform." *Spectrum: The Journal of State Government* 76(1):34-37.

Knack, Stephen and Martha Kropf. 2003. "Invalidated Ballots in the 1996 Presidential Election: A County-Level Analysis." *Journal of Politics*. 65(3): 881-897.

Knack, Stephen and Martha Kropf. 2002. "Who Uses Inferior Voting Technology?" *PS: Political Science and Politics*. September: 541-548.

Kropf, Martha, Janine Parry, Jay Barth and E. Terrence Jones. 2003. "Pursuing the Early Voter: Which Bird Gets the Worm?" Paper Prepared for Presentation at the 2003 Northeastern Political Science Conference, Philadelphia, PA, November 6-8, 2003.

National Commission on Election Standards and Reform. 2001. *Report and Recommendations to Improve America's Election System.* (May, 2001: http://www.secstate.wa.gov/elections/pdf/NACOreport.pdf).

National Conference of State Legislatures. 2003. *Voting in America: Final Report of the National Conference of State Legislatures Elections Reform Task Force*. Available at http://www.ncsl.org/programs/press/2001/electref0801.htm, accessed 10 September 10, 2003.

Neeley, Grant W. and Lilliard Richardson. 2001. "Who is Early Voting? An Individual Level Examination." *Social Science Journal* 38: 381-392.

Niemi, Richard G. and Paul S. Herrnson. 2003. "Beyond the Butterfly: The Complexity of U.S. Ballots." *Perspectives on Politics* 1(2): 317-326.

Nichols, Stephen M., and Gregory A. Strizek. 1995. "Electronic Voting Machines and Ballot Roll-Off." *American Politics Quarterly* 23:300-318.

Patterson, Samuel C. and Gregory Caldeira. 1985. "Mailing in the Vote: Correlates and Consequences of Absentee Voting." *American Journal of Political Science* 29: 766-788.

Pitt, David. 2003. "Bill Would Force Absentee Voters to Deliver Own Ballots." *Associated Press State & Local Wire*, January 29, 2003.

Richardson, Lilliard E. and Grant W. Neeley. 1996a. "The Impact of Early Voting on Turnout: The 1994 Elections in Tennessee." *State and Local Government Review* 28(3): 173-179.

Richardson, Lilliard E. and Grant W. Neeley. 1996b. "Implementation of Early Voting." *Spectrum: The Journal of State Government* 69(3): 16-23.

Sheffield, James F., Jr., and Charles D. Hadley. 1984. "Racial Voting in a Biracial City." *American Politics Quarterly* 12:449-464.

Shocket, Peter A., Neil R. Heighenberger, and Clyde Brown. 1992. "The Effect of Voting Technology on Voting Behavior in a Simulation Multi-Candidate City Council Election: A Political Experiment of Ballot Transparency." *Western Political Quarterly* 45:521-537.

Stein, Robert, Chris Owens and Jan Leighley. 2004. "The Role of Candidates and Parties in Linking Electoral Reforms with Voter Participation." Unpublished manuscript, Rice University.

Stein, Robert M. 1998. "Early Voting." *Public Opinion Quarterly* 62(1): 57-69.

Stein, Robert M. and Patricia Garcia-Monet. 1997. "Voting Early but Not Often." *Social Science Quarterly* 78(3): 657-671.

Tomz, Michael, and Robert P. Van Houweling. 2003. "How Does Voting Equipment Affect the Racial Gap in Voided Ballots?" *American Journal of Political Science*, 47:46-60.

Vanderleeuw, James M., and Richard Engstrom. 1987. "Race, Referendums, and Roll-Off." *Journal of Politics* 49:1081-1092.

Vanderleeuw, James M. and Glenn H. Utter. 1993. "Voter Roll-Off and the Electoral Context: A Test of Two Theses." *Social Science Quarterly* 74:664-673.

Walker, Jack L. 1966. "Ballot Forms and Voter Fatigue: An Analysis of the Office Block and Party Column Ballots." *Midwest Journal of Political Science* 10:448-464.

Wand, Jonathan N., Kenneth W. Shotts, Jasjeet S. Sekhon, Walter R. Mebane, Jr., Michael C. Herron, and Henry E. Brady. 2001. "The Butterfly Did it: The Aberrant Vote for Buchanan in Palm Beach County, Florida." *American Political Science Review* 95:793-810.

Wattenberg, Martin P., Ian McAllister, and Anthony Salvanto. 2000. "How Voting is Like Taking an SAT Test: An Analysis of American Voter Rolloff." *American Politics Quarterly*. 28:234-250.

White, Halbert. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48:817-830.

Wolfinger, Raymond E. and Jonathon Hoffman. 2001. "Registering and Voting with Motor Voter." *PS: Political Science and Politics* XXXIV(1): 85-92.

Table 1
Frequency of Early and Absentee Voting in Sample Counties (by State)

State	Ballots Cast Early or Absentee in 2002	Ballots Cast Early or Absentee in 1998	Allow Early Voting?	Unrestricted Absentee Voting?
Florida	16%	9%	Yes	Yes
Georgia	7%	NA	Yes	No
Illinois	4%	NA	No	No
Iowa	24%	15%	No	Yes
Kansas	17%	13%	Yes	Yes
Tennessee	36%	22%	Yes	No

Source: State election offices and authors.

Table 2
Unrecorded Votes Rates in 2002 Governor's Contest
for Early, Absentee, and Polling Place Voters (by State)

State	Polling Place	Absentee	Early	Total
Florida	0.9% (67 counties)	0.9%	0.2% (11 counties)	0.9%
Georgia	1.0% (159 counties)	1.1%	---	1.0%
Illinois	3.0% (2 counties)	1.6%		
Iowa	1.3% (89 counties)	1.7%	---	1.4%
Kansas	1.8% (78 counties)	---	1.9%	1.8%
Tennessee	2.0% (79 counties)	2.1% (22 counties)	2.6%	2.3%

Note: Percentages are weighted averages (counties are weighted by the number of ballots cast using each method) and thus provide the overall rate of unrecorded votes in each state.

Table 3
Multivariate Analyses of Unrecorded Votes in the 2002 Gubernatorial Elections

Explanatory Variable	Polling Place	Absentee	Early
Ballot Features			
Index of ballot features	-.19***	-.11**	-.55***
	(.05)	(.04)	(.16)
Straight-party option	-.27*		
	(.19)		
Number of contests before Governor on ballot	.44**	.47*	-.26
	(.18)	(.24)	(.49)
Voting Technology			
Punch card	1.88***	.65**	.22
	(.25)	(.13)	(.95)
Lever machine	2.54**		-.78
	(.38)		(.89)
Paper ballots	.40		-.64
	(.37)		(.67)
Touch-screen DRE	-.67***		-1.89***
	(.18)		(.44)
Full-face DRE	.61*		-.19
	(.27)		(.77)
Precinct Count Optical Scan	-.50***		.17
	(.15)		(.43)
Demographic Controls			
Percent Black	.015***	.006*	.006
	(.004)	(.004)	(.021)
Percent 65 or older	.031***	.006	.119**
	(.005)	(.010)	(.037)
Percent with a high school degree	-.025**	-.022***	-.022
	(.005)	(.007)	(.019)
Natural log of population	-.058*	-.203***	-.313**
	(.021)	(.043)	(.129)
Constant	3.27***	4.84***	6.57***
	(.44)	(1.01)	(1.42)
Number of Cases	474	339	168
R-Squared	.66	.20	.40
Root MSE	.49	.85	1.18

The dependent variable is the percentage of ballots cast that failed to record a valid vote for the governor. Cell entries are regression coefficients with robust standard errors in parentheses. Observations (counties) are weighted by the number of ballots cast in the 2002 election.
*** $p < .001$, ** $p < .01$, * $p < .1$, one-tailed