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PARTICIPATION IN DIRECT LEGISLATION: EVIDENCE FROM THE  
VOTING BOOTH

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## Abstract

This study considers individual voting behavior on propositions. After controlling for voter and election specific attributes, we determine the effects of proposition attributes, such as proposition position and readability on roll-off and voter fatigue. If proposition attributes affect voting behavior and if their attributes can be influenced by supporters, including interest groups, then any such potential advantages should be ameliorated in the interest of “equal” political representation. As an example, advantages of ballot position can be minimized by modifying the linkage between the qualification sequence and the ballot sequence.

Using individual level ballot data taken from Los Angeles county, we find that the proposition position is negatively related to the probability of voting on a proposition and the probability of voting “Yes” on bonds and initiatives. We also find that reading ease is positively related to the probability of voting on a proposition and the probability of voting “Yes” on bonds and initiatives.

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# Participation in Direct Legislation: Evidence from the Voting Booth

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## 1 Introduction

Studies of direct legislation have converged around the issues of representation and political “fairness”. The issues range from the prospect of “buying” a proposition to considering which population segments are impacted negatively in the voting process (Bowler, Donovan and Happ (1992), Darcy and Schneider (1989), Magleby (1984), Owens and Wade (1986), and Zisk (1987)). Although representation is sometimes measured in terms of the relative numbers of voters that cast ballots from minority groups and majority groups, these measures do not capture the representativeness of particular outcomes. A voter is arguably not fully represented by direct legislation until she casts a ballot on the proposition.

In this study we analyze individual level ballot data to discern the actual distribution of votes cast. The examination of actual ballots reveals new insights on voter behavior. For instance, we are able to ascertain the percentage of voters who cast valid votes on all the propositions. We are also able to determine how many voters vote only on specific propositions. We find that the majority of voters cast valid votes on all, or all except one, propositions on the ballot. In addition, we find that the distribution of votes cast appears relatively uniform for those voters casting less than a full ballot. Finally, our analysis supports the hypothesis that voters “roll-off” the ballot and that the effect of ballot position on the propensity to vote affirmatively differs by proposition form (bond, initiative, or legislative proposal).<sup>1</sup>

The possibility that voting at all on a proposition or that voting in a particular way on a proposition may be influenced by its placement on the ballot is reminiscent of the rather extensive literature on question and response order effects in individual-level surveys (Schuman and Presser, 1981). As is the case of individual surveys, where respondents are posed questions not in isolation but as part of a continuous flow of

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<sup>1</sup>A third measure of voter participation is “drop-off”, where the percentage of voters participating in propositions races is compared to the percentage of voters casting ballots on candidate races. Although drop-off may be important, our analysis is limited to studying roll-off and voter fatigue.

questioning, voters march through a ballot typically in a linear fashion. Based on results from survey research it is reasonable to question whether the context in which a ballot item appears or its position in a sequence of items influences the outcome.

The importance of sequencing has, of course, not gone unnoticed by the California legislature since its rules require that candidate positions be rotated across the electorate in candidate elections. Additionally, the rules for California elections mandate that bond issues precede legislative proposals, which in turn precede initiatives on the ballot, with all proposition items following the candidate elections. Presumably this ordering is purposeful. If the sequence of propositions influences the outcomes, even within major groupings of items, then further randomization of items should be considered as a matter of public policy. The current practice of first to qualify, first to appear instead leaves substantial room for interest groups and others to influence outcomes.

Our analysis focuses on a voter's decisions while in the voting booth.<sup>2</sup> Voters decide whether to cast a vote for each contest, and which position on that contest is the most beneficial. We analyze two distinct behaviors that are possible in the voting booth. First, voters may roll-off, i.e., stop voting mid-way through the ballot because at some point they determine it is not worth their time and effort to continue voting. If roll-off exists then a proposition's ballot position may impact the number of people casting votes and the ultimate outcome. Another possibility is that "ballot fatigue" occurs when voters tire of making decisions and vote for the *status quo* on the remainder of the ballot.<sup>3</sup>

To test these theories, we employ data from three recent general elections in California, 1988, 1990, and 1992, where voters faced complex ballots containing 29, 28, and 13 propositions, respectively. Our data represent the actual votes from two to three million ballots cast in Los Angeles county for each election studied. Since prior studies focus on either surveys or aggregate data, one contribution of this analysis is to study voting behavior using individual level ballot data. We match demographic data and ballot characteristics to the individual ballots to control for these factors while isolating the effects due to ballot position, length, and readability.<sup>4</sup>

Our results reveal the impact of ballot position, readability, and ballot length on proposition voting behavior in Los Angeles county.<sup>5</sup> We show that several factors influence participation rates in direct legislation and therefore the representativeness and ultimate outcomes of specific contests. Some of these factors can be influenced by knowl-

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<sup>2</sup>On a broader level a voter's decisions include registration and turnout. For additional information on those decisions, see Dubin and Kalsow (1997).

<sup>3</sup>See Bowler, Donovan, and Happ (1992) and Robson and Walsh (1974) for additional information on voters tiring in the middle of the ballot.

<sup>4</sup>Prior studies employ aggregate election results and use ballot and election characteristics as their explanatory factors (e.g., see Bowler, Donovan, and Happ (1992), Darcy and Schneider (1989), and Zisk (1987)). Other studies look primarily at voter attributes (see Clubb and Traugott (1972) and Magleby (1984)). This study uses a combination of demographics and ballot characteristics to explore proposition voting behavior.

<sup>5</sup>Since Los Angeles county is racially and ethnically heterogeneous, the results should apply to other locations facing increasing cultural diversity.

edgeable groups, such as industry-sponsored interest groups. These include the proposition's ballot position and the readability of the associated text.

Section 2 of this paper summarizes previous finding on proposition participation, ballot roll-off, and voter fatigue. Section 3 introduces our discrete-choice model of proposition voting while section 4 presents information on the data sources used in our estimation. Hypotheses regarding the affect of ballot position and other factors are given in Section 5. Section 6 contains the results of the analysis, and Section 7 concludes and discusses the implications of the results.

## 2 Previous Findings on Proposition Participation

In this section we summarize the literature on proposition voting and direct legislation as it pertains to the issues of participation, roll-off, and voter fatigue. We begin with several studies of proposition voting which employed aggregate data and analyzed voting behavior over time.

Owens and Wade (1986) studied California proposition voting from 1924 to 1984 in relation to campaign spending, and found that success rates are stable over time, as are inflation adjusted costs.<sup>6</sup> Wolfinger and Greenstein (1968) analyzed the repeal of the Fair Housing Act in California and found that outcomes were independent of any mistakes resulting from the complexity of the ballot. Zisk (1987) found a five to fifteen percentage decrease in participation on propositions, as compared to the top candidate races.<sup>7</sup> However, she found that a voters decision to cast a vote, vote negatively, or abstain is not related to proposition position. Zisk also found support for increased levels of voting on citizen initiated propositions over legislative proposals and that differences in campaign intensity and issue salience matter.

Several studies of ballot roll-off and voter fatigue are similar to our analysis. Two of the earliest articles on voter fatigue were those by Burnham (1965) and Mueller (1965). Burnham determines that "roll-off" within candidate races increased from 1907 to 1962, as did voter drop-off in non-Presidential year elections.<sup>8</sup> Mueller attributes roll-off to differences in campaign spending and the voting behavior on surrounding propositions.<sup>9</sup>

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<sup>6</sup>Owens and Wade use aggregate election returns for 102 initiatives. They regress the winner's share on the winner's expenditures and the loser's expenditures.

<sup>7</sup>Zisk's study is based on aggregate election results and survey data from Massachusetts, Michigan, Oregon, and California for the period 1976 to 1980.

<sup>8</sup>Burnham reports a statistic he terms "roll-off" as the number of people casting votes for a lower office, divided by the number of people casting votes for the most prestigious office on the ballot.

<sup>9</sup>Mueller's study of roll-off on California propositions is based on a sample composed of 1085 absentee ballots and 209 precinct ballots from the 1964 general election in Los Angeles county. His use of absentee ballots as the majority of his sample, however, greatly reduces the ability to generalize from his results. The completion rate for absentee voters on propositions in Los Angeles county is approximately 5 percent below that for precinct voters in the 1988 through 1992 elections. The absentee sub precinct ballot completion rates are 80.7, 84.3, 84.7, 84.3, 85.4, and 84.9 percent for the 1988 Primary, 1988 General,

Mueller also presented an analysis of proposition voting from 1918 to 1968 in which he determined that the number of negative votes increases with the proposition's ballot position. Clubb and Traugott (1972) confirm that white, educated, higher income, higher social class individuals who read the newspaper and are more interested in politics vote more often on referenda.<sup>10</sup> However, they note that lower social class individuals participate on a more consistent basis if the issue is salient or if the race is close.

More recently, Magleby (1984) reported the "drop-off" percentages for California propositions from 1970 to 1982.<sup>11</sup> He observed that drop-off on propositions was not greater in presidential election years, contradicting previous theory on the surge and decline of voting behavior. He also found evidence that longer ballots affect drop-off.<sup>12</sup> Magleby also studied the impact of demographic characteristics on the probability of voting on a proposition. He found that nonwhite voters vote on fewer issues, as do older voters, blue collar voters, and low income voters. In addition, he found that higher levels of education are positively correlated with completing more of the ballot and that proposition readability affects the participation level in proposition voting.<sup>13</sup>

Vanderleeuw and Engstrom (1987) report that African-Americans roll-off at faster rates than whites, even when controlling for age and education.<sup>14</sup> Darcy and Schneider (1988) find that more confusing ballots, i.e., those with more page turns and complex formats, lead to more roll-off.<sup>15</sup> They also find that African-Americans roll-off more frequently than do whites.<sup>16</sup> Bowler, Donovan, and Happ (1992) demonstrate that proposition voting is related to the total campaign spending, type of proposition, source of proposition, length, and turnout.<sup>17</sup>

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1990 Primary, 1990 General, 1992 Primary, and 1992 General Elections, respectively. These compare with voting sub precinct ballot completion percentages of 87.3, 87.9, 88.5, 89.4, 88.6, and 89.6 percent for the respective elections (California Secretary of State, *Election Results Rental File*).

<sup>10</sup>Clubb and Traugott study post election survey results from the NES. Their methodology involves computing a turnout percentage for referenda as well as a turnout figure based on the number of ballots cast for a major office.

<sup>11</sup>Magleby's definition of drop-off was based on the number of votes cast in a particular contest divided by the total number of ballots cast in the election.

<sup>12</sup>Magleby (1984) computes the drop-off percentage for the 1976 general and the 1978 primary elections in California. Using aggregate vote percentages from the Statement of Vote, he finds that there are differences in drop-off rates between proposition forms, and that in general, drop-off increases with proposition number.

<sup>13</sup>Magleby surmises that voters have limited attention spans and this accounts for abstaining on as much as 20 to 25% of the ballot.

<sup>14</sup>Vanderleeuw and Engstrom (1987) use data from an October 22, 1983 election in New Orleans, Louisiana. The ballot begins with the gubernatorial contest and concludes with three local referendum. They use precinct level data, where 97 of the 464 precincts are more than ninety percent African-American, and 122 precincts are more than ninety percent white.

<sup>15</sup>Darcy and Schneider (1988) use data from a 1986 general election in Oklahoma. Their roll-off numbers are based on aggregate data from 74 counties using paper ballots and three counties employing optical ballots.

<sup>16</sup>Darcy and Schneider regress the roll-off percentages for various offices and state questions against age and race variables. They find that African-Americans roll-off consistently more than whites.

<sup>17</sup>Bowler, Donovan, and Happ (1992) analyze aggregate election results for California propositions from 1974 to 1988. They define drop-off as the difference between ballots cast and votes on the proposition,

In sum, prior studies have mostly found support for the hypothesis that voters roll-off the ballot. The empirical models employed in these studies have either controlled for socioeconomic, ballot, or proposition characteristics, but only rarely a combination of such factors. Other studies have considered whether voters tire as they proceed down the ballot and vote “No” or abstain more often. The evidence for voter fatigue is less apparent.

### 3 A Discrete-Choice Model of Proposition Voting

There are two decisions required of a voter in the voting booth – whether to cast a vote in a particular contest and the position to take on that contest. Figure 1 displays the nested decisions involved in simultaneously determining an issue position and the decision to vote or not to vote on a specific issue.<sup>18</sup> This nesting suggests that an individual’s position on a proposition or the proposition’s salience can influence the decision to vote or not to vote on that proposition.

[Place Figure 1 Here]

The first stage in this model exhibits the voter roll-off phenomena. Here the number of voters deciding to vote versus the number abstaining defines the relevant measure. Similarly, the second stage of this model exhibits the fatigued voter syndrome. The voter casts a “Yes” when the issue is important, but either votes “No” or abstains on low-salience issues. If a voter is fatigued they will vote “Yes” less often, all other things equal, as they progress down the ballot.

Since the voter faces a series of nested decisions, a nested logit approach to estimation is suggested. This requires estimating the expected maximum utility, or inclusive value, from the second stage and including this value as a determinant of voting in the first stage. Specific to this case, the inclusive value measures the expected maximum utility from choosing a position and depends on the difference in the alternatives (“Yes” and “No”) as perceived by the voter. Since our study relies on aggregate demographic and socioeconomic data, we are unable to measure any differences directly related to an individual’s issue position.

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divided by the number of ballots cast. Bowler, Donovan, and Happ find that negative campaign spending and proposition position significantly influence the drop-off percentage.

<sup>18</sup>We consider two alternative models. In the first alternative model the voter first decides whether or not to support an issue, and if not, then whether to vote “No” on the issue or abstain. Here voting “No” represents either an issue position, or similar to abstaining, i.e., a vote for the *status quo*. The second alternative model is a three-choice single stage model where the voter’s decision between voting “Yes”, voting “No”, and abstaining is viewed as a single choice. We used the Akaike Information Criterion to compare the three models. The model depicted in Figure 1 was chosen as a result of this test.

Although the calculation of an inclusive value is not possible in this situation, there are factors related to the propositions that may be useful as proxies for the expected maximum utility derived from voting. The first factor is a measure of a proposition's level of controversy. The level of controversy is typically positively correlated with the likelihood that polls taken immediately prior to the election include that proposition. The associated increase in publicity and voter awareness for controversial propositions may increase the probability of voting on the proposition. In addition, if the proposition is considered "close", i.e., the outcome cannot reasonably be determined prior to the election, then the probability a voter casts a vote on that proposition may also increase. Hence, we rely on poll coverage information and a measure of closeness as proxies for the expected maximum utility derived from the second stage vote decision. These factors are discussed in greater detail in the next section. We estimate our model of proposition voting behavior using a binary logit specification for the probabilities of voting at each stage of the decision tree.<sup>19</sup> Estimation is performed within the *Statistical Software Tools* econometric package (Dubin and Rivers (1988)).

## 4 Data

The two primary data sources for this analysis are the ballot image files prepared by the California Secretary of State and the 1990 Census of Population and Housing, Summary Tape File 3 (STF3A), from the Bureau of the Census. Two additional sources of data are the Statement of the Vote (SOV) and the Precinct Information File (PIF), both available from the California Secretary of State.<sup>20</sup> Their primary function is to aid matching the electoral data on the ballot image files with the socio-demographic data available from the census.

### 4.1 Ballot Images

The primary dataset consists of images from the actual ballots cast in Los Angeles county in the 1988, 1990, and 1992 general elections.<sup>21</sup> Los Angeles county tabulates and records votes using a punch-card style ballot. The voter physically perforates her card in a specified box to indicate her vote. The evening of the election the cards are collected by precinct and transported to a central location where a machine reads the cards. As a by-product of tabulating the votes, a binary image of each ballot is written to a set

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<sup>19</sup>Our econometric approach treats the choices by an individual across propositions as independent selections. This may be too simplistic since the majority of the voters tend to complete all or almost all propositions. See Dubin and Gerber (1992) for an approach to relaxing the independence assumption across propositions for a given individual.

<sup>20</sup>Refer to Dubin and Kalsow (1997) for additional information on the census, SOV, and PIF data sources.

<sup>21</sup>The actual ballot counts were 2,733,229, 1,925,811, and 2,831,077 for the respective elections.

of magnetic tapes. These tapes, after extensive manipulation, provide the data for this analysis.<sup>22</sup>

We followed the decoding process for the ballot image files suggested by Dubin and Gerber (1992). Part of this decoding process was to match a “correction” tape to the original precinct ballot images, and compare vote counts to the official Statement of Vote (SOV). The completeness and accuracy of this correction tape, and hence the match rate to the SOV, varies somewhat by election but was nevertheless excellent for econometric analysis.<sup>23</sup>

## 4.2 Merging Electoral and Demographic Data

The ballot image file contains an identifier for the voter’s precinct within Los Angeles county. The process of matching this precinct with the census data requires two additional data sources, the SOV and PIF tapes. The SOV contains the current precinct numbers and census tract codes in effect at the time of the election. Therefore the 1988 and 1990 SOVs contain 1980 census tract codes and the 1992 SOV contains a 1990 census tract code.

The PIF contains every district and division related to an established precinct, ranging from U.S. congressional districts to school districts. The PIF associates 1990 census tracts with each precinct. It also provides the linkage between precinct codes in different elections.<sup>24</sup>

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<sup>22</sup>There are several factors which complicate decoding ballots from the ballot image tape. The first is that the tape is not used for official purposes so its creation is often an ad hoc procedure. For example, if some ballots within a group are misfed into the reader, the entire group may be re-read. Our procedures were designed to identify and eliminate such duplications. Another complication comes from the use of ballot groups. Every unique combination of contests and rotation sequences constitutes a ballot group. (There were 388, 369, and 235 ballot groups in the 1988, 1990, and 1992 general elections, respectively.) Each ballot group locates a particular contest in a different punch position, depending on both the number of previous contests and on the number of candidates in the previous contests. An additional complication is that up to four card readers can be processing ballots simultaneously but ballot images from different precincts may be written to the same tape. Therefore the ballot images on the tape must be “unshuffled” into distinct precincts prior to processing. See Dubin and Gerber (1992) for additional information on decoding ballot images.

<sup>23</sup>Dubin and Gerber (1992) performed the match for the 1990 election. They matched 96.0% of the precincts exactly when comparing the total votes cast on the SOV to those counted from the ballot image tapes. In 1988, only 58.5% of the precincts were matched exactly but 89.0% were matched within four votes. The match rate in 1988 is lower due to the fact that the county failed to replace the tape after it filled up during the correction process. Therefore, some of the ballot corrections for that election are lost forever. In 1992 the county was extremely careful in tracking errors and processing the corrections. In that election 99.5% of the precincts matched exactly.

<sup>24</sup>The process of merging electoral and demographic data does result in some mismatches. The Secretary of State’s office manually codes census tract and sub-tract codes for each precinct. One tract coded by the Secretary of State is incorrect in the 1988 and 1990 data. Ballots from that tract were dropped from our analysis. Refer to Dubin and Kalsow (1997) for additional information.

### 4.3 Identification of Proposition Form from Proposition Position

In California, propositions are listed by “form” and then in the order in which they qualify. Under normal conditions bonds appear first, then legislative proposals, and last, initiatives. In this case indicator variables identifying the proposition form are indistinguishable from indicator variables which identify the beginning, middle, and last sections of the ballot. Therefore, analysis of a single election cannot separate the effects of ballot position and proposition form. To circumvent this problem we have made use of a natural experiment which occurred in the 1990 election. As mentioned above, under normal circumstances bonds are given a position prior to legislative proposals and initiatives. In 1990 the California legislature failed to pass the bond bill in a timely enough fashion and the bond issues ultimately appeared following the legislative proposals and initiatives. By pooling data across elections we are able to distinguish proposition form from proposition position.

### 4.4 Sampling from the Data

Since each election has from two to three million ballots, we selected a sample from each election for statistical analysis. A 0.1 percent random sample of the valid ballots was drawn from every precinct within an election, and combined into an election-wide sample of ballots. A total of 137,513 observations were included in our sample, the result of pooling 1,820 ballots from the 1988 general election, 1,826 from the 1990 general election, and 2,585 from the 1992 general election.<sup>25</sup> The sample and actual Los Angeles county voting percentages were 88.4% and 88.1%, respectively. The frequency of voting “Yes” on a proposition in the sample was 46.2% and was 45.8% in the entirety of Los Angeles county.<sup>26</sup>

### 4.5 Explanatory Factors

The explanatory factors used in our empirical models are of two types: election or proposition-specific characteristics and voter-specific socio-demographic characteristics. First we discuss election and proposition specific attributes. These are summarized in Table 1.

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<sup>25</sup>This process results in a sample of 1824 ballots from the 1988 general election, 1827 from the 1990 general election, and 2970 from the 1992 general election. Of the ballots selected, a few were eliminated because of invalid census tract data. The total number of observations is  $1,820 * 29 + 1,826 * 28 + 2,585 * 13 = 137,513$ .

<sup>26</sup>A chi-squared statistic was computed to test for differences between the frequencies of voting and voting “yes” in the sample and Los Angeles county as a whole. For voting, the value of the chi-squared statistic is 65.7 with 70 degrees of freedom. For voting “Yes”, the value was 69.5, also with 70 degrees of freedom. Therefore no significant difference between actual and sampled frequencies were found at the 95% level.

[Place Table 1 Here]

Election-specific indicator variables capture the election’s relative attractiveness compared to an arbitrarily selected base period. Although it is desirable to measure how ballot length, and election timing affect participation, the impact of such variables cannot be distinguished from election-specific indicators. Therefore, including election-specific indicators, in our analysis, precludes using other election-specific variables such as ballot length or a presidential versus mid-term dummy variable.

Proposition-specific attributes are the relative position of the proposition, dollar value for bonds, reading ease score and word count, and variables identifying the author, poll coverage, and race “closeness”. To measure reading ease, we use the Flesch score, as described in Magleby (1984). The reading ease score is a proxy for the voter’s ability to comprehend the proposition while the number of English words is a proxy for the patience and time required by the voter to muddle through the legalese. The proposition form is represented by indicators for bonds and initiatives with legislative proposals used as the comparison group. Poll inclusion refers to California Field Polls conducted in the last weeks of October prior to the election. Closeness is an indicator for situations in which the “no opinion” voters could have determined the outcome when the number of “Yes” and “No” voters was close. Finally, we group the propositions into six major content areas. We define groups of propositions as those affecting state government, the environment, health, taxes, government benefits, humanitarian goals, or those affecting other issues.

The demographic explanatory variables, we use, consist of race and ethnicity, socioeconomic, and social connectedness (Teixeira (1992)) factors. The socioeconomic factors include age, income, average education, homeownership, and residential mobility. In addition, we control for employment in each of four occupational groups.<sup>27</sup> The social connectedness explanatory factors include the presence of a spouse or children and the linguistic isolation of the household.<sup>28</sup>

## 5 Hypotheses

The overall characteristics of the ballot are important in making comparisons of participation across elections. The 1988 and 1992 elections, for example, are presidential elections and as such experience higher turnout than the 1990 election. Such effects can be controlled for in the analysis using treatment indicators for two of the elections. Other proposition attributes which potentially influence participation include the proposition

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<sup>27</sup>See Dubin and Kalsow (1997) for details on the construction of these variables.

<sup>28</sup>The linguistic isolation variable is the percentage of households where no one over the age of 14 speaks only English and no one over 14 who speaks a language other than English speaks English “very well” (U.S. Department of Commerce (1991)).

form and content, the readability and length of the proposition, the ballot position, and the dollar value of the issue.

Proposition form, classified as either the California Legislature or the “people”, can influence a voter’s decision. Initiatives placed on the ballot via petitions signed by a significant number of registered voters already have pre-election visibility.<sup>29</sup> Additionally, the legislature places two types of propositions on the ballot. The first are issues the legislature determines should be decided by the voters themselves, either because they are controversial, or because a legislator may not wish to express an opinion on the matter. The other type of issue legislatures add to the ballot are those that they are bound to put before the electorate. This includes constitutional amendments and bond issues.

In this analysis, we partition propositions into three groups: constitutional amendments and statutes placed on the ballot by the legislature, constitutional amendments and statues placed on the ballot by the people, and bonds placed on the ballot by the legislature. The form of the proposition is printed as part of the official description so it is available to the voter at the time they cast their vote. If voters view bonds as “costing” taxpayers money, they may vote on bonds more often than legislative proposals. In addition, if initiatives are viewed as “citizen” issues, then they should be voted on more often than legislative proposals. Since many legislative proposals appear on the ballot because they are controversial, voters may vote “Yes” less frequently as a way of maintaining the *status quo*.

The readability of the official text of a proposition should be correlated with the ability of the voter to understand the proposition. It measures the difficulty of the task while the length of the proposition measures the magnitude of the task. Prior studies find that less than one third of California voters actually read ballot pamphlets sent to the home.<sup>30</sup> An unknown percentage of those people read and comprehend the official jargon. In addition, many voters determine their position on propositions in the voting booth.<sup>31</sup> Presumably most voters do not carry their sample ballot into the booth so the only information available is the official description printed on the ballot. Our expectation is that the more difficult it is to comprehend a proposition the less often voters will vote “Yes”. An increase in the measured reading ease score should increase the number of voters participating by increasing the chance they understand the proposition.<sup>32</sup> This increase in comprehension may further increase the number “Yes” votes if “No” votes are the result of favoring the *status quo* over the unknown.

The length of each proposition, measured by the number of words in the English version of the text, measures the magnitude of the effort required to simply read the

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<sup>29</sup>See Fitzgerald (1980) for information on qualifying a proposition for the ballot in California.

<sup>30</sup>See Magleby (1984), page 136.

<sup>31</sup>See Magleby (1984), page 124.

<sup>32</sup>The Flesch formula rates samples on a scale from 0 to 100 with 0 being the most difficult. The reading ease is estimated as:  $206.835 - -0.846 \cdot \text{number of syllables per 100 words} - -1.015 \cdot \text{average number of words per sentence}$ .

proposition. On the one hand, it is reasonable to anticipate a negative relationship between text length and voting due to sheer effort. On the other hand, the length of the text may be a cue to the proposition's importance. In this case, length would be positively correlated with participation. A longer length could also indicate a careful explanation of the proposition which may cause less confusion. A lower level of confusion may result in more affirmative votes provided that some portion of the negative votes result from the desire to preserve the *status quo*.

If a proposition has sufficient visibility, due to either the campaign or the salience of the issue, then it is usually included in the California Field Poll immediately prior to the election. Therefore, poll coverage should be positively correlated with the probability of voting. Similarly, if an increase in the level of controversy implies a higher level of opposition then poll coverage should not be positively related to voting "Yes". In addition, if the results of the poll indicate that a race is indeterminate then the communication of those results may increase voter participation on that particular proposition and decrease voter fatigue.<sup>33</sup>

A proposition's content should be a very important determinant of voter participation and voter position. The 1988, 1990, and 1992 general election propositions cover a diverse set of topics, ranging from education and taxes, to environmental concerns such as forestry, the use of pesticides, and communicable disease testing. Verba and Nie (1972) find that people in lower socioeconomic strata vote less often on global issues, and more often on issues affecting their everyday lives. If Verba and Nie's results hold then issues such as alcohol taxes and education should have higher levels of participation than do issues of state government. If spending tax dollars is a concern then items with high perceived costs such as government benefits and education may receive more negative votes.

The final ballot characteristic, we consider, is the position of the proposition. As ballots differ in length, we convert the ballot position into a relative position. If roll-off exists, and if abstention on a proposition is not attributable to any of the other factors considered, then the coefficient for the proposition number (i.e., its relative position on the ballot) should be negative. Similarly, as voter fatigue is represented by fewer affirmative votes, *ceteris paribus*, we should see a decrease in affirmative voting occur with an increase in proposition position provided that voter fatigue is present.

## 6 Results

Several results emerge by simple inspection of the proposition-specific participation results. The first result comes from Tables 2, 3, and 4, which provide state-wide participation rates by proposition. Contrary to prior findings, the Los Angeles county ballot data

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<sup>33</sup>Visibility and poll coverage are likely to be correlated with the levels of campaign expenditures, media exposure, and popular support.

do not support the hypothesis that there are a large number of fatigued voters skipping propositions in the middle. If that were the case, we should find a higher percentage of voters voting on the first and last proposition groups than for those in the middle group. If significant numbers of voters skipped more than one or two propositions in the middle we should see large numbers of votes among fewer propositions. Similarly, if voters were skipping the middle third of the ballot then the frequency of voting on two-thirds of the ballot should be relatively high. This hypothesis is not supported by the data. This can be verified by inspection of the distribution of the number of votes cast by voters, which we present in Table 5.

Inspection of Table 5 dispels two other hypothesis. The first is that there are a large number of voters who vote on almost every contest and a smaller number of voters who abstain on almost every contest. This situation would lead to significant variation in the number of propositions on which voters cast votes. For example, the situation could be that 85% of the voters vote on all propositions and 15% vote on almost no propositions. The other possibility is that there are large numbers of voters abstaining on a few contests each but in sufficiently different patterns that the aggregate percentages remain relatively constant. This could occur, for example, if most voters cast ballots in 85% of the contests. Table 5 demonstrates that neither hypotheses is supported. The vast majority of voters cast a valid vote on all, or almost all, propositions on the ballot in the elections studied.<sup>34</sup>

[Place Tables 2, 3, 4, and 5 Here]

## 6.1 Effects of Proposition Characteristics

In Table 6 we present our logit model for proposition voting. The estimation allows the effects of race, socioeconomic, and social connectedness factors to be separated from the effects of election or proposition-specific attributes.<sup>35</sup> Our results on proposition ballot position and readability are generally consistent with those of Magleby (1984). We find that the probability that a voter casts a valid vote on a proposition is negatively related to the proposition's ballot position. Our findings on ballot position therefore contradict Zisk's (1987) finding of no relationship between voting and ballot position.

Increasing the reading ease score, i.e., making the proposition easier to read, increases the probability that an individual votes on a proposition. This result is consistent with

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<sup>34</sup>It is important to note that this result can only be obtained with individual level ballot data. The aggregate statistics do not reveal which voters skip which propositions. For example, it is impossible to distinguish between two extreme situations wherein the aggregate vote count reflects 88% participation. The first is where 88% of the voters vote on all propositions and 12% abstain on all propositions. The second situation, indistinguishable with aggregate statistics from the first, is where 100% of the voters vote on 88% of the propositions.

<sup>35</sup>The detailed results for the socio-demographic control factors have been omitted for brevity but are available from the authors upon request.

that found by Magleby (1984). If the reading ease score reflects the intensity of effort required to comprehend a proposition then the length reflects the duration of that effort. The effects of proposition length differ, however, by proposition type. The longer is a legislative proposal the more people vote on it. The same is true, but to a lesser degree, for initiatives. On the other hand, proposition length does not appear to influence voter participation on bond issues.

[Place Table 6 Here]

Similar to the results of Magleby (1984) and Zisk (1987), we find increased participation rates for citizen initiatives over legislative proposals. Unlike Bowler, Donovan, and Happ (1992), we find that bonds and initiatives attract more voters than do legislative proposals. We also find that bond dollars are negatively correlated with voter participation, *ceteris paribus*. As anticipated, an increase in the level of controversy, reflected by poll coverage, is positively related to voting. The impact on voter participation of a prior poll showing a close race is negative for legislative proposals and bond issues but essentially zero for initiatives.

Influencing proposition content is not easily accomplished beyond recasting the proposition in a different light. However, content does appear to impact the participation level. People tend to cast votes on environmental, health, tax, government benefit, and humanitarian issues. In contrast, the same voters ignore issues on running state government. This is consistent with Matsusaka's (1992) results where he finds a lower voting percentage on efficiency issues compared with distributional issues.

Our analysis of affirmative voting is presented in Table 7. We find that affirmative voting and proposition position are positively related for legislative proposals, but negatively related for bonds and initiatives. Thus, the further down a voter is on the ballot the more likely they are to cast either a "No" vote or abstain, *ceteris paribus*. This contradicts Zisk's finding of no relationship between negative voting and ballot position. We find that the easier the proposition text is to read, the more likely the voter is to vote "Yes" on bonds and initiatives. However, the easier the legislative proposal is to read, the less likely voters are to vote "Yes". This supports the hypothesis that voters prefer the *status quo* when they are either unable to understand the consequences of a "Yes" vote or when they are confused.

[Place Table 7 Here]

The empirical evidence suggests that other unspecified proposition and election-specific characteristics may be affecting the probability that a voter casts a positive

vote on a proposition.<sup>36</sup> In 1988 and 1990 voters cast more “Yes” votes on propositions relative to 1992, *ceteris paribus*. However, voters supported initiatives in 1988 and 1990 less than in 1992. This same pattern was found for bond issues in 1990.

As anticipated, an increase in bond dollars decreases the probability of voting “Yes”. An increase in the level of controversy decreases the frequency of “Yes” votes. Hence if voters believe that the contest is close then they generally vote “Yes” less often. Finally, proposition content affects the “Yes” votes, as expected, with those “costing” money such as state government, the environment, taxes, and health issues, receiving fewer “Yes” votes, and those issues “benefiting” an individual, such as the level of government benefits and educational expenses, receiving more “Yes” votes.

## 7 Discussion and Conclusion

Our results show very clear patterns for roll-off and voter fatigue: voters roll-off and tire with longer ballots. Since voters are either rolling off or experiencing fatigue with longer ballots, a modification in the proposition number assignment process may be in order. Proposition numbers are currently assigned based on the order that the petitions are filed within each type (bonds, legislative proposals, and initiatives). A petitioner could potentially affect the outcome of a specific race by simply filing earlier in the process and thus receiving a better ballot position. One possible remedy would be to rotate propositions on ballots in a manner similar to that already employed in candidate elections.

In addition to the proposition position effects, there are very clear effects resulting from the proposition text itself. The easier the text is to read the more likely people are to cast votes. Also, the easier the text is to read the more likely people are to vote affirmatively. This should provide an incentive for authors of propositions to write their text as clearly as possible.<sup>37</sup>

The payoff to an interest group for filing a petition early or ensuring that wording is understandable is high. Twenty percent of the propositions in the elections studied were won or lost by less than five percent of the ballots cast. Of those, three were initiatives

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<sup>36</sup>Some of the data required to measure these characteristics is simply unavailable, while other data is available but not at a sufficiently low level of detail to be useful in the empirical analysis. The unavailable data includes the level of campaign spending and related measures of media exposure. While the number of rallies and demonstrations may be measurable, it would be impossible to determine which voters were exposed to such events. Therefore this data could never be accurately matched to voters or precincts. The distribution of campaign literature is another measure which may be measurable but is not available at a level of detail that could be matched to voting precincts.

<sup>37</sup>A clever author could write text that receives a higher reading ease score but is still incomprehensible. For example, the use of double negatives may disguise the difficulty of understanding the issue while not affecting the reading ease score. A complicated proposition description could involve only short words, but contain more negatives than the average person is able to comprehend, thereby obscuring the meaning or impact of the proposition to many voters. Such instances are hopefully special cases.

whose outcomes were decided with a difference of less than two percent of the ballots cast. If established interest groups or other citizen groups were to optimize their proposition's ballot characteristics, they could potentially affect the outcome. An interest group's proposition may qualify for the ballot at an earlier date than other propositions. This fact alone places it earlier on the ballot in California. Interest groups may also be sly in their wording of propositions (e.g., Proposition 188 in the 1994 general election) and may have an increased awareness of the impact of text length and readability on individual voting behavior.

The advantage gained by awareness of these factors can be significant. For example, if the reading ease is increased by 1%, from 29.0 to 29.3, then the estimated voter participation increase is extremely small, from 90.0% to only 90.003%. Similarly, a 1% increase in the number of English words for an initiative, from 64.0 to 64.6, will decrease the estimated voter participation from 90.0% to only 89.99%. But more significantly, if an initiative moves up one percent in relative position on the ballot, voter participation increases from 90.0% to 90.287%. However, in a real situation, the impact would be far greater. If there are twenty-five propositions on the ballot then increasing one position, i.e., qualifying one earlier in the sequence, is equivalent to four percent change in position and therefore could be sufficient to make or break a close race.

# Tables

Table 1: BALLOT/PROPOSITION ATTRIBUTES

VARIABLE	DEFINITION
<u>Proposition Form</u>	
Bond	Indicator for Proposition Form.
Initiative	Indicator for Proposition Form.
<u>Ballot Attractiveness</u>	
Dummy 88	Indicator for the 1988 General Election.
Dummy 90	Indicator for the 1990 General Election.
<u>Proposition Characteristics</u>	
Bond Dollars	Dollars, in millions, as stated in the ballot.
Reading Ease	Flesch index score for the proposition's official ballot description.
English Words	Word count of the English version of the proposition's official ballot description.
Poll Coverage	Set to one if the proposition appeared in California Field Polls prior to the election.
Closeness	Set to one if the last poll prior to the election predicted a race that could be swung by those holding "no opinion".
Proposition Position	Percentage of propositions appearing prior to and including this proposition.
<u>Proposition Content</u>	
State Government	Propositions which affected state government, such as new offices.
Environment	Propositions which include environmental issues, such as pesticide usage and forestry policy.
Health	Propositions based on issues which affect an individual's health or health insurance, or are based on the status of one's health, such as AIDS testing and Physician-Assisted Death.
Tax	Taxes and other financial obligations which directly affect consumers, such as Tobacco and Alcohol taxes, food taxes, and insurance premiums.
Government Benefits	Propositions which may alter one's benefits, either directly or indirectly, including term limits and welfare.
Humanitarian	Propositions related to funding education, libraries, housing for the homeless, and California parks.

Table 2: 1988 GENERAL ELECTION PROPOSITIONS

PROP NUMBER	AUTHOR	TOPIC	PERCENT VOTING	PERCENT YES
78	Bond	Education	91.1	57.7
79	Bond	Education	90.5	61.2
80	Bond	Prison	89.8	61.1
81	Bond	Water	90.6	71.7
82	Bond	Water	88.1	62.4
83	Bond	Water	89.1	64.4
84	Bond	Homeless	91.5	58.2
85	Bond	Library	89.6	52.7
86	Bond	Prison	88.0	54.8
87	Legislature	Taxes	84.4	67.9
88	Legislature	Public Money	85.4	74.8
89	Legislature	Parole	87.9	55.0
90	Legislature	Property Tax	86.3	69.1
91	Legislature	Courts	82.8	70.7
92	Legislature	Judicial Performance	82.7	74.2
93	Legislature	Veterans	86.9	70.8
94	Legislature	Judicial Employment	86.2	65.1
95	Initiative	Homeless	88.8	45.2
96	Initiative	Disease	90.5	62.4
97	Initiative	Work Safety	87.2	53.7
98	Initiative	Education	89.6	50.7
99	Initiative	Alcohol and Tobacco Tax	94.6	58.2
100	Initiative	Insurance	92.3	40.9
101	Initiative	Insurance	90.7	13.3
102	Initiative	Disease	91.5	34.4
103	Initiative	Insurance	92.9	51.1
104	Initiative	Insurance	92.3	25.4
105	Initiative	Consumers	87.2	54.5
106	Initiative	Attorney Fees	89.7	46.9

Table 3: 1990 GENERAL ELECTION PROPOSITIONS

PROP NUMBER	AUTHOR	TOPIC	PERCENT VOTING	PERCENT YES
124	Legislature	Hospitals	89.1	45.8
125	Legislature	Rail Transit	89.7	45.6
126	Legislature	Alcohol Tax	92.8	40.9
127	Legislature	Property Tax	90.9	61.7
128	Initiative	Environment	93.6	35.6
129	Initiative	Drugs	90.7	27.6
130	Initiative	Forestry	93.3	47.9
131	Initiative	Term Limits	91.3	37.8
132	Initiative	Marine Resources	89.9	55.8
133	Initiative	Drugs	90.6	31.9
134	Initiative	Alcohol Tax	93.3	31.0
135	Initiative	Pesticide	91.2	30.4
136	Initiative	Taxes	91.0	47.9
137	Initiative	Initiative and Referendum Process	88.8	45.0
138	Initiative	Forestry	92.6	28.8
139	Initiative	Prison Labor	90.6	54.0
140	Initiative	Term Limits	90.9	52.2
141	Initiative	Toxic Chemicals	87.0	48.5
142	Bond	Veterans	89.1	59.0
143	Bond	Education	89.5	48.8
144	Bond	Prison	90.0	40.4
145	Bond	Housing	89.1	44.5
146	Bond	Education	89.9	51.8
147	Bond	Prison	87.4	37.3
148	Bond	Water	87.5	43.8
149	Bond	Parks and Recreation	89.6	47.1
150	Bond	Courts	87.8	26.4
151	Bond	Child Care	89.6	47.5

Table 4: 1992 GENERAL ELECTION PROPOSITIONS

PROP NUMBER	AUTHOR	TOPIC	PERCENT VOTING	PERCENT YES
155	Bond	Education	92.3	51.8
156	Bond	Rail Transit	89.7	48.1
157	Legislature	Toll Roads & Highways	89.0	28.2
158	Legislature	Office:California Analyst	86.0	39.9
159	Legislature	Office:Auditor General	85.1	41.0
160	Legislature	Property Tax	90.1	51.6
161	Initiative	Physician-Assisted Death	93.2	45.9
162	Initiative	Public Employees' Retirement	87.3	51.0
163	Initiative	Tax on Certain Food Products	92.0	66.6
164	Initiative	Term Limits	91.0	63.6
165	Initiative	Budget Process	91.8	46.6
166	Initiative	Basic Health Care	92.9	30.8
167	Initiative	State Income Taxes	92.7	44.6

Table 5: DISTRIBUTION OF PROPOSITION VOTES IN L. A. COUNTY

TOTAL NUMBER OF VOTES CAST	CUMULATIVE PERCENTAGE OF VOTERS CASTING "N" VOTES		
	1988	1990	1992
0	1.10	1.75	1.90
1	1.70	2.35	2.64
2	2.30	3.01	3.96
3	3.12	3.83	4.85
4	3.89	4.54	5.97
5	4.60	5.09	6.94
6	5.26	5.69	8.26
7	6.25	6.29	9.85
8	7.40	6.73	11.24
9	8.33	7.11	13.06
10	8.60	7.88	15.54
11	9.15	8.65	19.06
12	9.75	9.14	31.05
13	10.19	9.91	100.00
14	10.79	10.68	
15	11.23	11.06	
16	12.05	11.88	
17	12.65	12.10	
18	13.31	12.81	
19	14.02	13.85	
20	14.95	15.05	
21	16.16	15.71	
22	17.26	16.64	
23	17.86	18.12	
24	19.23	19.71	
25	20.77	21.79	
26	23.84	25.18	
27	28.77	35.80	
28	41.27	100.00	
29	100.00		

Table 6: VOTING ON PROPOSITIONS IN L. A. COUNTY†

VARIABLE	COEFFICIENT	T-STATISTIC
Constant	0.190	0.38
<u>Proposition Form</u>		
Bond	0.269 **	2.41
Initiative	0.178 *	1.74
<u>Ballot Attractiveness</u>		
Dummy, 1988 Election	-0.218 ***	-6.44
Dummy, 1990 Election	-0.181 ***	-5.90
<u>Proposition Characteristics</u>		
Bond Dollars (millions)	-0.0002 ***	-3.49
Reading Ease Score	0.001 **	2.16
English Words	0.004 ***	4.17
English Words * Bond	-0.004 ***	-3.94
English Words * Initiative	-0.003 ***	-3.46
Poll Coverage	0.096 **	2.28
Poll Closeness	-0.387 ***	-3.47
Poll Closeness * Bond	0.223 *	1.79
Poll Closeness * Initiative	0.384 ***	3.43
Proposition Position	-0.261 ***	-5.14
<u>Proposition Content</u>		
State Government	-0.215 ***	-4.30
Environment	0.287 ***	5.28
Health	0.379 ***	7.54
Tax	0.454 ***	10.83
Government Benefits	0.225 ***	4.35
Humanitarian	0.151 ***	4.71
Number of Observations	137513	
Percent Correctly Predicted	88.475	

† The dependent variable is whether or not an individual votes on a specific ballot proposition.

Note: \*p=.10, \*\*p=.05, \*\*\*p=.01

Table 7: VOTING YES ON PROPOSITIONS IN L. A. COUNTY†

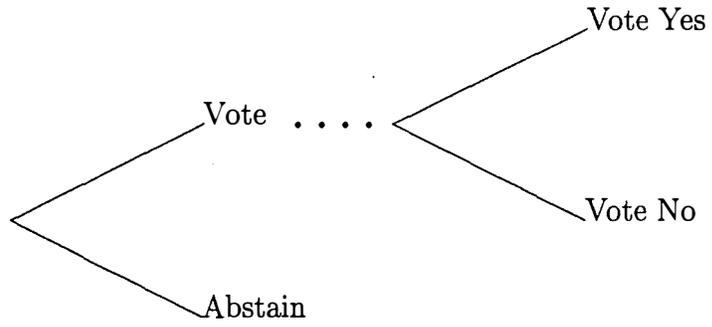
VARIABLE	COEFFICIENT		T-STATISTIC
Constant	-0.663	*	-1.79
<u>Proposition Form</u>			
Bond	1.473	***	7.15
Dummy, 1988 * Bond	0.060		0.78
Dummy, 1990 * Bond	-1.209	***	-8.51
Initiative	2.720	***	14.79
Dummy, 1988 * Initiative	-0.786	***	-13.75
Dummy, 1990 * Initiative	-1.845	***	-25.42
<u>Ballot Attractiveness</u>			
Dummy, 1988 Election	0.723	***	14.46
Dummy, 1990 Election	1.306	***	20.37
<u>Proposition Characteristics</u>			
Bond Dollars (millions)	-0.0001	**	-2.38
Reading Ease Score	-0.013	***	-12.35
Reading Ease * Bond	0.023	***	16.74
Reading Ease * Initiative	0.018	***	14.17
English Words	0.003	***	3.26
English Words * Bond	0.001		0.93
English Words * Initiative	-0.005	***	-5.51
Poll Coverages	-0.314	***	-9.38
Poll Closeness	-0.221	***	-2.89
Poll Closeness * Bond	-0.030		-0.34
Poll Closeness * Initiative	0.255	***	3.38
Proposition Position	3.526	***	19.66
Prop. Position * Bond	-4.003	***	-15.69
Prop. Position * Initiative	-4.550	***	-23.53
<u>Proposition Content</u>			
State Government	-0.024		-0.50
Environment	-0.210	***	-6.07
Health	-0.475	***	-14.08
Tax	-0.107	***	-3.65
Government Benefits	0.008		0.24
Humanitarian	0.0007		0.03
Number of Observations	121664		
Percent Correctly Predicted	59.771		

† The dependent variable is whether an individual votes YES versus voting NO or abstaining on a specific proposition.

Note: \*p=.10, \*\*p=.05, \*\*\*p=.01

# Figure

Figure 1: VOTING MODEL



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