Ballot Order Effects in Referendum Elections

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Are propositions listed at the top of the ballot more likely to pass than propositions listed at the bottom of the ballot? A large body of research has investigated the effect of ballot position in candidate elections, but there is little research on order effects in referendum elections. This paper offers evidence from California during 1958-2014 and Texas during 1986-2013 using research designs that address common challenges to causal inference. The main finding is that being listed at the top of the ballot has essentially no effect, positive or negative, on the approval rate. Approval rates are lower when there are more propositions on the ballot. The paper develops a formal model of decision fatigue illustrating how certain issues might fare better at the top and others at the bottom of the ballot – leading to no systematic order effects on average – and offers partial evidence consistent with this idea.

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1. Introduction

In the summer of 2012, allies of California Governor Jerry Brown persuaded the legislature to amend the state’s elections code so that the governor’s tax-raising initiative would be listed first among 11 propositions on the ballot. Although the change was officially motivated by a desire to ensure that voters were able to “carefully weigh the consequences of [the] important measures” on the ballot, it was widely believed that the real purpose was to increase the initiative’s chance of passing.¹ Opponents of the initiative argued that the governor’s allies had cynically manipulated the elections code to secure the most favorable position for the governor’s proposal.

The implicit assumption in the debate was that ballot position matters for referendum elections, and in particular, that the first position confers an advantage. Yet this assumption is not self-evident, and as discussed below there is almost no scholarly evidence in its support. There is a healthy literature on ballot order effects in candidate elections, but the explanations offered for order effects in candidate elections do not extend naturally to referendum elections. In candidate elections, voters might be more inclined to select a name at the top of the list, perhaps because they lose interest or stop moving down a list once they find an acceptable option, but this line of reasoning applied to propositions would imply roll-off (abstention) moving down the ballot, not a proclivity to vote “no” on propositions at the bottom of the ballot. Despite the dearth of evidence for order effects in referendum elections, some political practitioners believe that the first position has an advantage, so it is possible that the academic literature has failed to detect an underlying relation that those on the ground have observed. This is not implausible because causal inference has been a challenge in this area; in most cases ballot positions are not assigned randomly, and there is no counterfactual to gauge how a proposition would have fared had it not appeared in the position that it did.

This main contribution of this paper is to offer a variety of new evidence on ballot order effects in referendum elections that addresses common challenges to causal inference. First, since 1986 Texas has placed its propositions on the ballot by random draw, producing randomized experimental data. The mean observed approval rates can be compared across ballot positions to provide direct estimates of

¹ The findings and declarations in the new law (AB 1499) stated: “bond measures and constitutional amendments should have priority on the ballot because of the profound and lasting impact these measures can have on our state. . . . In recognition of their significance, bond measures and constitutional amendments should be placed at the top of the ballot to ensure that the voters can carefully weigh the consequences of these important measures.”
ballot order effects. Election data for the 233 Texas propositions during 1986-2013 show no connection between ballot position and approval rates. A similar finding appears in an opinion survey of California voters in 1994 that employed random question ordering.

Second, the Field Poll routinely surveys likely California voters about their voting intentions on select ballot propositions in a way that is not closely linked to the order in which the propositions will appear in the ballot. One can argue that the Field Poll captures voter preferences about a proposition independent of the proposition's position on the ballot. Ballot position effects can then be inferred by comparing each proposition's approval rate when “treated” with its actual ballot position to its expressed pre-election Field Poll approval rate (the “control”). Examination of all 242 California propositions from 1958 to 2014 for which Field Poll data are available fails to reveal a robust effect of ballot position on approval rates after controlling for pre-election opinion.2

Both Texas and California data thus imply that that appearing at the top of the ballot is not an advantage for a proposition. The Texas elections typically take place in odd-numbered years in which there are no major candidate races on the ballot and feature somewhat technical amendments to the constitution proposed by the legislature, while the California data focus on controversial voter initiatives that often attract significant public attention and occur concurrent with high profile candidate elections. One could argue that ballot order effects are more likely to occur in low turnout, low information elections (Texas) or in high turnout, high information elections (California); the finding of no effects in either case reinforces the negative conclusion regarding order effects. Although there is no evidence for order effects, I do uncover evidence that ballot structure matters in another way: approval rates are lower when the number of propositions on the ballot increases.

After establishing the main conclusion, the paper pushes the analysis one level deeper by formally examining the logical foundation of order effects. I develop a simple model that shows that one of the more common explanations for order effects – ballot fatigue – in fact does not necessarily imply that voters favor the top of the ballot over the bottom. The model shows that certain propositions (those initially favored by a majority) perform better at the top of the ballot, while other propositions (those initially opposed by a majority) perform better at the bottom of the ballot. It is thus possible that the absence of observable order effects on average is due to offsetting effects: some propositions are doing better at the top and others at the bottom of the ballot. I provide some partial evidence suggesting that this might in fact be occurring. Using pre-election data to gauge initial voter inclinations,

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2 I document in passing that support drops by an average of 6.0 percent from the final pre-election survey to the election outcome. This pattern has been noted by many, but apparently has not been quantified previously.
I divide the California sample into propositions that initially were supported by a majority of voters, and propositions that initially were opposed by a majority of voters, and find that initially-supported propositions do better at the top of the ballot and initially-opposed propositions do better at the bottom of the ballot. The estimates suggest that each position farther down the ballot reduces support by about 0.2 to 0.3 percent for initially-supported propositions and increases support by 0.2 to 0.3 percent for initially-opposed propositions.

At a broad level, the paper hopes to shed light on the practice of direct democracy in general by partially filling in a large hole in the literature concerning the effect of ballot design. Ballot propositions continue to play a central role in the policy process in many American states and cities, and appear to be driving the national agenda on some issues such as same-sex marriage and marijuana legalization. Because the use of direct legislation is motivated by the belief that laws passed directly by the voters are more likely to reflect their preferences than laws passed by legislatures, it would be of concern if inessential factors such as ballot design had a big effect on outcomes. The evidence in this paper suggests that on average, ballot position is unlikely to have a large effect on election outcomes, allaying the concern to some extent. But at the same time, the evidence hints that positional effects may arise in certain circumstances, and that it may be wise evaluate ballot design in light of this possibility.

2. Institutional Context

As a simple correlation, propositions listed at the top of the ballot do better than propositions listed at the bottom of the ballot. Figure 1 plots the approval rate \( \frac{\text{yes votes}}{\text{yes votes + no votes}} \) on each California ballot proposition during the period 1958-2014 against the proposition’s ballot position, where #1 indicates that the measure was listed first. The solid line, from a linear regression, shows that there is indeed a negative relation between votes in favor and ballot position; approval falls approximately 0.5 percent with each additional position.\(^3\) Activists may be aware of this basic correlation, which could be the basis for their belief that appearing at the top of the ballot increases the chance of success.

Of course, while Figure 1 shows that historical approval rates decline moving down the ballot, it does not tell us that ballot position causes the declining approval rates. It could be that more popular measures are more likely to be placed at the top of the ballot. The recent California episode illustrates how this could happen. Before it was modified in June 2012, the state elections code read:\(^4\)

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\(^3\) Data are from the Initiative and Referendum Institute. For an extensive description of voting patterns on California propositions, see Matsusaka (2013).

\(^4\) California Elections Code 13115, enacted by Stats. 1994, Ch. 920, Sec. 2, SB 1547.
The order in which all state measures that are to be submitted to the voters shall appear upon the ballot is as follows:

(a) Bond measures in the order in which they qualify.

(b) Constitutional amendments in the order in which they qualify.

(c) Other Legislative measures in the order in which they are approved by the Legislature.

(d) Initiative measures in the order in which they qualify.

(e) Referendum measures, in the order in which they qualify.

To define terms, (a) a bond measure is a proposal to authorize the state to issue bonds; (b) a constitutional amendment is a proposal to amend the state constitution; (c) “other legislative measures” are proposals to modify previously approved initiative statutes; (d) an initiative is a new law – bond measures, constitutional amendment, or statute – that is proposed by citizens and qualifies for the ballot by petition; and (e) a referendum is a proposal, qualified by petition, to repeal a law recently passed by the legislature. As can be seen, the original code placed legislative proposals (bond issues, constitutional amendments, statutes) first followed by citizen proposals (initiatives and referendums). Within each category, propositions were ordered by the date at which they qualified for the ballot.

After it was modified in June 2012, the election code became:

The order in which all state measures that are to be submitted to the voters shall appear upon the ballot is as follows:

(a) Bond measures, including those proposed by initiative, in the order in which they qualify.

(b) Constitutional amendments, including those proposed by initiative, in the order in which they qualify.

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5 Ballot proposition terminology varies by state and country. In the California election code, a “referendum” is a proposal to veto a law passed by the legislature; elsewhere it refers more generally to any popular vote on a law, as in the title of this paper.

6 The pre-2012 code is actually somewhat ambiguous. One could read the law to say that a bond measure proposed by initiative is to be included in subdivision (a) and a constitutional amendment proposed by initiative is to be included in subdivision (b). Under such an interpretation, subdivision (d) would seem to apply only to non-bond, non-amendment initiatives. The text describes how the law was implemented in practice.

7 An underline is new text; a strikethrough is deleted text. The code was modified by Stats. 2012, Ch. 30, Sec. 2.
(c) Other Legislative measures, other than those described in subdivision (a) or (b), in the order in which they are approved by the Legislature.

(d) Initiative measures, other than those described in subdivision (a) or (b), in the order in which they qualify.

(e) Referendum measures, in the order in which they qualify.

The new code blurs the distinction between legislative and citizen-initiated proposals. Now bond measures are listed first, regardless of whether they originate from the legislature or citizen petition, followed by constitutional amendments, regardless of whether they originate from the legislature or petition. For non-bond statutory proposals, the ordering stays the same: legislative proposals followed by citizen initiatives. Referendums remain at the bottom of the ballot.8

The California elections code introduces several potential selection effects. First, prior to 2012, it placed proposals from the legislature ahead of citizen proposals. Because legislative proposals must garner support in both houses – supermajority support in the case of constitutional amendments – they are likely to have broad appeal.9 Initiatives and referendums, on the other hand, require only signatures of a small percentage of the electorate.10 Historically, legislative measures have a much higher rate of passage than citizen measures; during the period 1958-2014, 72 percent of legislative proposals were approved compared to 37 percent of citizen-initiated proposals. Second, bond proposals have to pass a different screening process than constitutional amendments (see footnote 10), which could cause voters to view them differently. Also, voters may be more hesitant to amend the constitution than to approve a bond measure. Historically, during the period 1958-2014, voters approved 78 percent of legislative bond measures, 69 percent of legislative constitutional amendments, and 76 percent of legislative statutes. Third, measures that qualify at an earlier date appear toward the top of the ballot. Proposal

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8 Governor Brown’s Proposition 30 was an initiative that proposed to amend the constitution. As an initiative, it was originally included in subdivision (d), and because it qualified later in the cycle than other initiatives, it was slated to appear near the bottom of the ballot. By giving precedence to constitutional amendments, whatever the source, the revised code moved the governor’s proposal to the top of the ballot; there were no bond propositions in that election and Proposition 30 was the only constitutional amendment.

9 To reach the ballot, a bond proposal requires a majority vote in both the Senate and General Assembly and signature of the governor; a constitutional amendment requires a two-thirds vote in both houses but does not require the governor’s signature; and a statute that amends an initiative requires a majority vote in both houses and signature of the governor.

10 The signature requirement, expressed as a percent of the votes cast for governor in the previous election, is 8 percent for initiative constitutional amendments and 5 percent for initiative statutes (since 1966) and referendums.
that are inherently more popular may qualify earlier because it is easier to achieve a legislative consensus on them and easier to collect enough signatures.

3. Existing Literature

The literature on ballot position effects in candidate elections is extensive. In a well-known survey, Miller and Krosnick (1998) observe that while much of this literature concludes that candidates benefit from being listed first, the estimated effects are often small and the research designs often do not offer convincing identification of causal effects. The more recent literature that employs stronger research designs does not always find meaningful or consistent position effects (see Alvarez et al. (2006) and Ho and Imai (2008), or in contrast Meredith and Yuval (2013)). Such ballot order effects as do exist are typically attributed to voters losing interest or ceasing to seek favorable information about candidates as they move down the ballot (satisficing).

When considering the evidence from candidate elections, it is important to recognize that selecting one candidate from a list is a fundamentally different problem than deciding whether to vote yes or no on a series of propositions. In a candidate election, voters face a problem like the following:

Choose one:
- T. Butler
- A. Iommi
- J. Osborne
- W. Ward

Voters can select one and only one name from the list. If voters satisfice – stopping once they find a “good enough” option – or become tired moving down a list, then appearing at the top of the ballot in a candidate election would confer an advantage.

The problem facing voters in a referendum election is different:

Proposition 1 Choose one: Yes No
Proposition 2 Choose one: Yes No
Proposition 3 Choose one: Yes No
Proposition 4 Choose one: Yes No
If voters become fatigued when moving down the list of propositions, we might expect to see more abstention moving down the ballot, but it is less obvious why voters would be more inclined to check the “No” box as they move down the ballot. Evidence of order effects from candidate elections, then, does not extend naturally to referendum elections; to understand whether position matters in referendum elections, we need to evaluate evidence from referendum elections.

The existing literature on order effects using data from referendum elections is meager. The earliest statistical evidence appears to have been compiled and published by the California Secretary of State (1981). That study, entirely descriptive, reports the mean percentage of votes in favor by ballot position for all California propositions during the period 1884-1980. The data show an irregular pattern, with approval rates not obviously dropping when moving down the ballot.

Bowler et al. (1992) examine a subset of these data, 190 California propositions during 1974-1988, in a more systematic way. The study reports regressions of the percentage of votes against a proposition on its ballot position and several control variables, including type of measure (initiative, bond measure, constitutional amendment), type of election (presidential, general, primary), number of words in a proposition, and campaign spending (see their Table 1; reproduced as Table 5 in Bowler and Donovan (1998)). The regression includes first and second order terms for ballot position, and the coefficient estimates imply a U-shaped relation that bottoms out at position #8. That is, votes against a proposition decline over the first eight ballot positions, and then increase over the subsequent ballot positions. There is no theoretical reason to expect ballot order effects to reverse at position #8, so the pattern may be spurious.

Matsusaka (2013) examines 637 California propositions during 1960-2010. The study documents an overall negative relation between approval rates and ballot position, but shows that this relation is mainly due to the fact that voter initiatives, the least popular type of proposition, typically appear at the bottom of the ballot. When initiatives, bond measures, and legislative constitutional amendments are considered as separate groups, the correlation between approval and ballot position vanishes, except in the group of bond proposals. The study also reports non-California evidence on ballot position from all 1,058 state-level propositions that appeared in the other states during the period 2003-2012. A negative relation between approval and ballot position appears in this sample as well, but again, appears to be

\[ \frac{2 \times 12}{2 \times 0.13} = 8.2. \]

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\(^{11}\) For overviews of the literature on initiatives, referendums, and other ballot propositions, see Gerber (1999), Lupia and Matsusaka (2004), and Matsusaka (2004).

\(^{12}\) The data are reported in an unnumbered table with the heading, “Success Rate of Each Ballot Position.”

\(^{13}\) The coefficient on ballot-position is -2.12 and the coefficient on ballot-position-squared is 0.13, so the turning point is \[ \frac{2 \times 12}{2 \times 0.13} = 8.2. \]
due to legal rules that place inherently unpopular propositions at the bottom of the ballot. The study does not offer evidence that can support strong causal inference.

The one existing study that employs plausibly random assignment to identify effects is Augenblick and Nicholson (2012). That study, which uses precinct-level voting data from San Diego County during 1992-1996, exploits the fact that a typical ballot includes a set of state and local candidate races that are listed before the state propositions, and the set of state and local candidate races varies by precinct. Because of variation in the number of state and local candidate races, voters in different precincts may find the ballot propositions preceded by a different number of races. For example, if voters in one precinct face a state senate race while voters in another precinct do not face such a race, the propositions will appear one position farther down the ballot in the first precinct than the second precinct. Using this variation, the study finds that proposition approval rates are lower when they are listed farther down the ballot; specifically each position farther down the ballot results in 0.11 percent fewer votes in favor. The Augenblick and Nicholson study is an important step forward in estimating the effect of ballot position, and offers the clearest evidence to date on order effects. However, the variation exploited by the study – moving the entire block of propositions lower on the ballot – is different from the exercise of moving one proposition to another position within the block, which is the situation of concern in recent debates.

Finally, Binder and Kousser (2014) present experimental evidence from a survey. They ask a sample of Florida voters in 2012 their opinion on three Florida propositions appearing on the 2012 ballot, as well as two hypothetical propositions related to contemporary California propositions, varying the order in which questions are asked. The findings are mixed; some propositions do better when asked about first while others do better when asked about last. A limitation is that the study does not examine actual election data.

### 4. Methods and Data

#### A. Texas

In 1986, Texas revised its election code to provide for random ordering of all propositions.\(^{14}\) Texas does not allow initiatives or referendums, and the legislature does not place statutes on the ballot; therefore, all propositions are constitutional amendments proposed by the legislature. Because the propositions

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\(^{14}\) Texas Election Code, Title 16, Chapter 274, Subchapter A, Section 274.002. The relevant text is: “If more than one proposed constitutional amendment is to be submitted in an election, the order of the propositions submitting the amendments shall be determined by a drawing . . .”
appear on the ballot in a random order, there is no reason to expect the underlying popularity of a measure to be related to its ballot proposition. For these data then, I simply investigate whether propositions at the top of the ballot attract more favorable votes than those at the bottom of the ballot. The data are drawn of official election results published by the Texas Secretary of State. Summary information on the 233 Texas propositions that appeared during 1986-2013 are reported in Panel A of Table 1.

### B. California

A different research strategy that exploits pre-election opinion surveys is used for California. Votes in favor of a proposition are assumed to be generated according to:

$$V_i^{ELECT} = V_i^* + \sum_{j=1}^{N} \alpha_j 1_{j}^{n_i} + \beta Z_i + e_i,$$

where $V_i^{ELECT}$ is the percentage of votes in favor of proposition $i$ in an election; $N$ is the number of propositions on the ballot; $V_i^*$ is the “true” preferences of the voters in the hypothetical situation where voting is uninfluenced by ballot position; $n_i \in \{1,2,3, ..., N\}$ is the ballot position of proposition $i$; $1_{j}^{n_i}$ is an indicator variable with $1_{j}^{n_i} = 1$ if $n_i = j$, and $1_{j}^{n_i} = 0$ if $n_i \neq j$; $Z_i$ is other factors that might influence voting behavior such as ballot length and other races on the ballot; $e_i$ is an error term; and $\alpha_1, ..., \alpha_N$ and $\beta$ are parameters to be estimated. The parameters $\alpha_1, ..., \alpha_N$ capture the effect of ballot position, for example, $\alpha_1$ is the additional votes associated with being listed first. We are interested in the hypotheses $\alpha_j = 0$. The challenge arises when we cannot observe $V_i^*$ because then it becomes incorporated into the error term, and it may be correlated with ballot position.

I address this issue by using data from pre-election surveys to proxy for $V_i^*$. As discussed below, ballot position is unlikely to be a factor in the Field Poll survey. If the survey responses do not depend on ballot position, then we can assume them to be generated according to:

$$V_i^{SURVEY} = V_i^* + u_i,$$

where $V_i^{SURVEY}$ is the percentage of respondents who express support for proposition $i$ in the survey, and $u_i$ is an error term capturing sampling error, bias in survey phrasing, and so on. It is possible that
The basic empirical strategy is examine the difference between election returns and pre-election survey results, denoted $\Delta$. Equations (1) and (2) imply that:

\[
\Delta_i = V_i^{ELECT} - V_i^{SURVEY} = \sum_j^N \alpha_j n_i + \beta Z_i + e_i - u_i.
\]

Assuming that $u_i$ is uncorrelated with $n_i$, we can regress $\Delta$ on ballot position to recover the position effects without needing to know the electorate’s underlying preferences. The parameter estimates of $\alpha_j$ will be unbiased even if ballot position is determined by underlying preferences rather than being randomly assigned.

A less formal way to think about this empirical strategy is that it uses pre-election survey information to reveal the “untreated” preferences on a proposition. This expressed preference is compared to the actual election outcome that has been “treated” with the position effect, and the difference is used to infer the treatment effect. A potential limitation of using pre-election data as a control is the possibility that preferences change between the time of the poll and the election, or that voters express different preferences in an opinion survey than they truly believe. However, to the extent that there are systematic biases in the survey, $E[u_i] \neq 0$, they will be absorbed into the intercept term, and will not confound inferences as long as they are not correlated with ballot position.

The core data consist of election returns, taken from Statement of Vote, published by the California Secretary of State, and pre-election survey data taken from the Field Poll, available at www.field.com, and the Field Research Data at UC-Berkeley at ucdatal.berkeley.edu/data.php. If the Field Poll conducted multiple surveys on a particular proposition, I use the data from the final survey, that is, the survey that was closest to the election. The Field Poll runs from 1958 to 2014. Of the 676 propositions that went before the voters during that time, Field Poll data are available for 242 of them.

The main variable of interest is the approval rate, or “%yes”, defined to be

\[
\%Yes = 100 \times \frac{\text{yes votes}}{\text{yes votes} + \text{no votes}}.
\]

This is the empirical implementation of $V_i^{ELECT}$ when using election data, and $V_i^{SURVEY}$ when using Field Poll data. Abstainers or, in the case of a survey, individuals who decline to state or otherwise fail to give an opinion in favor or against are ignored. The gap between the election outcome and pre-election survey is defined as
Summary statistics for California propositions are reported in Panel B of Table 1. The propositions in the sample are not representative of all propositions that appeared on the ballot because the Field Poll tends to focus on high profile or controversial propositions. Field Poll propositions are less popular than other propositions, with a mean vote in favor of 48.5 percent compared to 53.8 percent for all propositions that reach the ballot. Field Poll propositions are much more likely than the full set of propositions to be initiatives (70 percent versus 33 percent), and much less likely to be legislative proposals (27 percent versus 65 percent). This suggests that one should be careful about generalizing from the California results to low-profile non-controversial propositions. One might expect fatigue to be more important for low-profile than high-profile propositions.

Table 1 shows that the final Field Poll before the election overstates the percentage of votes in favor by 6.0 percent on average. This indicates a systematic bias in the Field Poll, or more plausibly, a consistent deterioration in support for a proposition leading up to the election. Many election observers have noted that support for propositions tends to deteriorate over time; Table 1 provides what I believe is the first quantification of the effect. The deterioration probably happens because proponents are usually the first to mobilize – they have to secure legislative approval or collect signatures – and their arguments are the first to reach the voters. As the campaign progresses, the opponents become active and some initial support deteriorates in the face of counterarguments. This deterioration in support between the last survey and the election is not a problem for the identification exercise as long as deterioration is uncorrelated with ballot position.

The empirical analysis assumes Field Poll responses are not influenced by ballot position. This assumption would be questionable if the Field Poll asked voters about all propositions on the ballot in the exact same order that the propositions appeared on the ballot. That is not the case. As noted above, the Field Poll only asked about 36 percent of the propositions that appeared on the ballot. Furthermore, only 14 percent of the surveys included all of the questions, and in 37 percent of the surveys the questions were not asked in the order in which they appeared on the ballot. For example, the 2002 general election featured seven ballot measures; the Field Poll asked about four of them in the order

\[ \Delta = \%Yes_{election} - \%Yes_{Field\ poll}. \]
Proposition 47 – 50 – 49 – 52. The order on the ballot was 46-47-48-49-50-51-52. The survey contains omissions as well as reorderings and does not simply reproduce the order on the ballot.

5. Findings
A. Evidence from Texas

Figure 2 plots the approval rate for Texas propositions against their ballot position. The solid line is a regression of approval on position. The regression line is almost completely flat, indicating that there is essentially no connection between ballot position and approval rates. Because ballot positions were assigned at random for these 233 propositions, Figure 2 offers reasonably strong evidence against the hypothesis that position has an important effect on approval.

Table 2 extends the investigation into the Texas propositions by reporting regressions of the approval rate on ballot position. Each column in the table reports results from a regression. In addition to ballot position, each regression includes a variable equal to the number of propositions on the ballot. Previous research suggests that voters are more likely to vote against a proposition when it appears on a ballot with many other propositions (Bowler et al., 1992); see Iyengar and Kamenica (2010) for a general discussion of how the size of the choice set affects decision making. The coefficient on ballot length is always negative in Table 2, and always different from zero at conventional levels of significance, reinforcing the view from previous studies that support is lower for all propositions on longer ballots.

Turning to the coefficient of interest concerning ballot position, column (1) of Table 2 reports the regression representing the solid line in Figure 2. Taken at face value the coefficient of 0.21 on ballot position indicates that each position further down the ballot is associated with 0.21 percent more votes in favor; however, this coefficient cannot be distinguished from zero at conventional levels of statistical significance. Regression (2) is the same as regression (1) except that extreme values of the dependent variable are Winsorized at the 99th percentile. This regression mitigates the influence of extreme observations. As can be seen, the coefficient is essentially the same in regression (2) as in regression (1). Regression (3) explores sensitivity to a different outlier concern by establishing a maximum ballot position of #16. As Figure 2 shows, the number of propositions with positions greater than #15 is rare, so the column (3) specification mitigates the chance that these extreme positions are driving the result. The coefficient of interest remains essentially the same as in regressions (1) and (2), although it is now

15 The Field (California) Poll: Codebook 02-05, questions Q19 to Q26.
statistically different from zero at the 10 percent level, suggesting an advantage to appearing near the bottom of the ballot. Regression (4) includes election specific fixed effects, with essential similar results.

B. Evidence from California

Figure 3 provides a rough characterization of the California data by plotting the mean gap by position, with 95 percent confidence intervals indicated. Positions greater than #15 are collapsed into a single group because of the scarcity of observations. The means do not show a consistent downward (or upward) pattern. As will be seen, the parametric evidence points in the same direction.

Table 3 reports statistical evidence from the California data: each column reports a regression of the gap, $\Delta$, on ballot position, following equation (3). The coefficient on ballot position in regression (1) is -0.07 (meaning that each position down the ballot reduces turnout by 0.07 percent), quite small and far from statistical significance. The same pattern appears for the Winsorized specification in regression (2) and the capped position specification in regression (3). The California data, like the Texas data, thus give no support to the hypothesis that propositions benefit from being listed first.

The California data also confirm the pattern in the Texas data that propositions on longer ballots receive fewer votes in favor, independent of the proposition’s own ballot position. In column (1), each additional proposition on the ballot reduces the approval rate by 0.30 percent on average, a relation that is statistically significant at the 1 percent level, and similar in magnitude to what appeared in the Texas sample. The coefficient on ballot length is negative and statistically different from zero in all regressions in Table 3. Another control variable is a dummy equal to one if the proposition was an initiative, as opposed to a proposal from the legislature or a referendum. Initiatives might be expected to attract more attention before the election, and therefore show less of a gap between election approval and pre-election approval. This turns out not to be the case: the coefficient on the initiative dummy suggests a larger gap for initiatives, although the coefficient is not distinguishable from zero at conventional levels of significance in any of the regressions. The final control variable is also related to information conditions, a dummy equal to one for presidential election years. One could argue that voters pay more attention to politics in presidential election years, and thus are more informed, or conversely, that a presidential election draws voters to the polls who are uninformed about ballot propositions. The data show that a significantly higher gap in presidential election years, indicating that the election approval rates are 2.3 to 2.4 percent higher than indicated by opinion surveys in presidential election years.
I also estimated but do not report regressions under a variety of alternative specifications in order to assess the robustness of the findings. Alternatives included: allowing for a separate effect for the first position and for the last position; including time dummies; including dummies for general as opposed to primary elections; including dummy variables for bond propositions and for referendums; including controls for the fraction of undecided voters; and alternative Winsorization cutoffs. For all of these alternatives, it continued to be the case that there was no significant relation between approval rates and ballot position.

The main message from Tables 2 and 3 is the absence of a robust relation between approval rates and ballot position. After controlling for ballot length, votes are essentially unconnected to ballot position. It follows that the negative relation that appears in raw correlations such as Figure 1 is probably spurious. While ballot position has no measurable effect on approval rates, ballot length has a consistent and statistically significant negative effect on approval rates.

C. Evidence from Randomized Ordering in the 1994 Field Poll

The Field Poll conducted a randomized controlled experiment in its survey for the June 7, 1994 primary election. Four bond propositions were on the ballot, Propositions 1A, 1B, 1C, and 180. Each proposition authorized a bond issue for a different purpose (seismic retrofit, K-12 schools, higher education, or parklands). The Field Poll asked respondents if they expected to vote for or against each proposition. Half of the respondents were asked the questions in a random order, and half were asked the questions in the order they were to appear on the ballot (1A-1B-1C-180). This experiment presents an interesting opportunity to check for order effects because of the availability of a clear “order-free” benchmark; its main limitation is that it does not involve actual election votes and cognitive processes might be different when speaking to a pollster than when in the voting booth.\footnote{Although this study is not new, I am not aware of it having been discussed anywhere in the scholarly literature. I report it here to bring it to the attention of researchers in the area. The Field Poll exercise is similar to the experiment reported in Binder and Kousser (2014).}

Table 4 summarizes the responses. In the randomized sample, column (1), the highest pre-election approval rate was 72.9 percent for Proposition 1A and the lowest was 59.3 percent for Proposition 180. Column (2) reports the responses when the questions were asked in the order they were to appear in the ballot. If the top of the ballot is a favored position, the gap (\(\Delta\)) between the approval rate with the actual order and the approval rate with the randomized order should decline moving down the ballot. There is no evidence for such a pattern. Column (3) reports the approval rates
in the actual election. As is common, overall support eroded substantially between the survey date (early April) and the actual election (early June). The $\Delta$ between the approval rates in the election and the randomized order survey does not show a convincing pattern of declining moving down the ballot. This evidence is hardly conclusive, but it reinforces the finding in the previous section of a lack of evidence for order effects.

6. A Model and Test of Order Effects with Decision Fatigue

The evidence presented above is broad in the sense that it is not based on a single experiment or episode – it comes from low information and high information elections, covers high profile and low profile issues, spans decades, and utilizes multiple research methods. The absence of support for order effects thus builds a somewhat robust case against their existence. However, the analysis – like the existing literature – has been guided by loose intuitions about the sources of order effects. While intuitive, these may not be the most appropriate tests of the underlying behavioral hypothesis. To illustrate, this section presents a formal model of perhaps the most common behavioral explanation for order effects – decision fatigue – and shows that the model does not in fact predict unconditional order effects. Rather it predicts that certain issues will fare better at the top of the ballot while others will fare better at the bottom of the ballot. I then report some limited evidence consistent with this implication.

A. Model

The main purpose of the model is to illustrate that even a simple formulation of decision fatigue yields more nuanced implications about order effects that have been recognized in the empirical literature. With this goal in mind, the model is stripped down to bare bones.

The voter faces a list of propositions with ballot positions indexed $n = 1, \ldots, N$, each of which can be approved or rejected. If a proposition is approved then a new law takes effect, giving the voter a payoff $x_{NEW}$; if the proposition is rejected then the status quo prevails, giving the voter a payoff $x_{SQ}$. Payoffs are uncertain and depend on the state of the world $s \in \{1, 2\}$ according to:

---

17 I focus on the role of decision fatigue because that has been a popular motivation for empirical work. For example, it has been suggested that fatigue may cause rejection because voters stop seeking information that would justify a vote in favor (Miller and Krosnick, 1998), or because they become more risk averse and therefore less inclined to embrace the risky new proposal (Bowler and Donovan, 1998; Levav et al., 2010).

18 The literature appears to be entirely devoid of formal models of order effects. An early version of Augenblick and Nicholson (2012) contained what appears to have been the first formal model, but the authors have retired the model in the latest version.
\[
\text{Payoff} = \begin{cases} 
  x_{\text{NEW}} = B, & x_{\text{SQ}} = 0, \quad \text{if } s = 1; \\
  x_{\text{NEW}} = 0, & x_{\text{SQ}} = B, \quad \text{if } s = 2;
\end{cases}
\]

where \( B > 0 \) is the “stakes” of the election. Each voter casts his or her vote for the option that provides the largest expected payoff, which means that the decision depends on which state the voter believes is most likely to be true. Before acquiring any information, each voter has “agnostic” beliefs that the two states are equally likely. During the course of the campaign, voters acquire information that updates their agnostic beliefs: a fraction \( \alpha \in [0,1] \) of the voters receive information that \( \Pr(s = 1) = p > .5 \) (becoming “initial supporters”), and the other \( 1 - \alpha \) voters acquire information that \( \Pr(s = 2) = p \) (becoming “initial opponents”).\(^\text{19}\) Information is acquired during the campaign as a result of advertisements, endorsements, research into the issues, casual discussions, reflection, and so forth.

To bring decision fatigue into the problem, assume that once in the voting booth the voter must make an effort to recall the information that he or she acquired during the campaign, and effort becomes more costly with each successive decision. The voter recalls the information on a given proposition with probability \( q \), which is a choice variable. The cost of recalling information with probability \( q \) is \( c(q) = .5nq^2 \). The cost is assumed to be increasing in \( n \); moving down the ballot, the voter finds it increasingly costly to recall information. The precise functional form is not important; the material assumption is that the decision cost increases with \( n \).

A voter chooses how much effort to make in recalling information by weighing the benefits and costs. Information recall is valuable if it increases the voter’s chance of making the right decision. Without recall, the voter reverts to agnostic beliefs, and votes yes or no with equal probability.\(^\text{20}\) Successful recall of information then increases the probability of making the right choice by \( p - .5 \). For each issue, the voter chooses the \( q \) to solve

\[
\max\{q(p - .5)B - .5nq^2\}.
\]

\(^{19}\) The essential feature of this formulation is that voters face some uncertainty about the consequences of a proposed law. The assumption that the probability is \( p \) for both types of voters economizes on notation but is not essential; the results would go through with separate probabilities \( p_1 > .5 \) and \( p_2 > .5 \). Similarly, the symmetry in payoffs with respect to \( B \) is for expositional convenience and not essential.

\(^{20}\) The assumption that the voter reverts back to agnostic beliefs if recall fails simplifies matters but is stronger than necessary; what is required is that with less information, the voter’s choice becomes less predictable.
The solution is $q^* = (p - .5)B/n$. The voter is more likely to recall information when information is accurate (large $p$), when the stakes $B$ are high, and critically, when the proposition’s position $n$ is higher up the ballot.

An initial supporter votes yes with probability one if information recall is successful and votes yes with probability $.5$ if information recall is not successful; therefore the probability of voting yes is $q + .5(1 - q)$. An initial opponent votes yes with probability $.5$ if recall is unsuccessful, and otherwise votes no. Overall, then, the expected fraction of votes in favor is

$$\text{Approval Rate} = \alpha(q + .5(1 - q)) + .5(1 - \alpha)(1 - q).$$

The effect of ballot position on the approval rate is $d\text{Approval Rate} / dn = (\alpha - .5) dq / dn$. Because $dq / dn < 0$, observe that $d\text{Approval Rate} / dn > 0$ if $\alpha < .5$, and $d\text{Approval Rate} / dn < 0$ if $\alpha > .5$. In words, support declines moving down the ballot when initial opinion is in favor of a proposal, but increases moving down the ballot when initial opinion is against the proposal. The first relation – declining support – is the commonly conjectured situation. The second relation – increasing support moving down the ballot – is somewhat surprising. The intuition behind this result is that failure to recall information causes voters to lose confidence in their beliefs and revert back to their uninformed priors. By eroding support for a voter’s informed position, fatigue causes some initial supporters to vote no and causes some initial opponents to vote yes. Which effect predominates depends on the prevalence of the two types of voters in the population. Figure 4 provides a graphical depiction of the relation.

The relation depicted in Figure 4 differs from theoretical predictions in the existing literature in its emphasis on the conditional and bidirectional nature of order effects. For example, the idea that fatigue makes voters more conservative and inclined to support the status quo predicts that support declines moving down the ballot regardless of the level of initial support. Similarly, a theory that fatigue makes voters less inclined to recall affirmative information would also predict declining support moving down the ballot, independent of the level of initial support.

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21 It may be worth noting that the model embeds an unspoken assumption that voters decide propositions in the order they appear on the ballot. In practice, voters can and sometimes do jump around the ballot and decide propositions in a different order than they appear. In terms of the model in this paper, it would be rational for voters not to decide issues in the order they are listed: voters should anticipate that they will become fatigued, and decide the most important issues or the issues where recall is most important first.

22 I suspect it is possible to design models in which fatigue increases support for initially favored propositions and decreases support for initially opposed propositions (i.e. the reverse of the model above). What seems likely to be robust across different models is the implication that order effects can run in both directions and are conditional.
D. Evidence on Bidirectional Effects

Table 5 reports some initial evidence from California to assess the idea that order effects might run in opposite directions depending on the initial level of support. Each column reports a gap regression that includes two position variables, one for propositions for which the pre-election Field Poll indicated a majority in support and one for propositions with a pre-election majority in opposition.23 If there are bidirectional effects, the position coefficients should be of opposite signs; and if the effects work as in the illustrative model above, the sign will be negative on the initially supported coefficient and positive on the initially opposed coefficient.

The regressions in columns (1) and (2) of Table 5 classify propositions according to their support on the first pre-election survey. Regression (1) indicates that approval rates decline by 0.22 percent per position moving down the ballot for propositions with a pre-election majority in support, and approval rates increase by 0.29 percent per position moving down the ballot for propositions with a pre-election majority in opposition. The F-test rejects the hypothesis that the coefficients are equal at the 1 percent level.

Because the Field Poll systematically overstates a proposition’s support by 6 percent compared to the final election outcome, one could argue that propositions with 50 percent support in the Field Poll are actually likely to fail. To allow for this possibility, regression (2) in Table 5 divides propositions according to whether their pre-election support was greater or less than 56 percent. This classification alters the magnitude of the coefficients of interest, but the basic pattern remains the same, both coefficients remain significant at the 10 percent level or better, and the F-test continues to reject the hypothesis of equality at the 1 percent level.

The regressions in columns (3) and (4) of Table 5 classify propositions according to their support on the final pre-election survey. Regression (3) uses 50 percent as the dividing line between initial support and opposition, while regression (4) uses 56 percent. The signs of the coefficient remain consistent with the previous regressions, although the coefficient on pre-election opposition shrinks in magnitude and cannot be distinguished from zero at conventional levels of significance. The F-test for both regressions rejects equality of the position coefficients at the 1 percent level.24

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23 A similar exercise cannot be performed with Texas data because of the absence of pre-election survey data.
24 The basic findings are robust to Winsorizing the gap variable, capping the position at 16, including time dummies, and estimating regressions separately on pre- and post-1994 samples.
The main message from this section is that ballot position effects may operate in opposite directions for propositions that start out ahead and propositions that start out behind. While not always estimated with precision, the point estimates generally suggest that approval rates decline moving down the ballot for propositions that start out ahead and increase moving down the ballot for propositions that start out behind. While these patterns are broadly consistent with the formal model developed above, my intention is less to argue for the validity of that extremely simple model, but to suggest that it might be more appropriate to search for conditional, or bidirectional effects, rather than assuming that the top of the ballot is always better.

7. Discussion and Conclusion

State and local governments in the United States (and increasingly abroad) continue to rely on ballot propositions to resolve many important public policy issues. More than 1,800 state-level propositions have come before the voters in the 21st century alone, addressing such high profile and high impact issues as same-sex marriage, marijuana legalization, taxes, and spending. The number of issues appearing in counties, cities, and towns is at least an order of magnitude larger, and equally diverse. With citizen lawmaking playing a central role in American democracy, it is important to assess the process by which these decisions are made, and identify mechanisms that might lead to distortions in the decisions. One potential distortion – the order in which issues are presented to the voters – has received healthy attention from researchers in the context of candidate elections, but is largely unexplored in the context of referendum elections.

This paper attempts to advance our understanding of the issue both empirically and theoretically. Empirically, the main contribution is to show that propositions are no more likely to be approved at the top than at bottom of the ballot, contrary to the views of some political professionals and some intuitions based on psychology research. I provide a variety of evidence that leads to this conclusion, each piece of which employs a different approach to overcoming the common problems to causal inference. Not only do the methods differ, but the evidence also comes from two widely different information environments: low profile measures in Texas in off-year elections versus high profile issues in California. While it is always difficult to prove a negative, the most natural conclusion from the dearth of evidence for order effects across the different environments is that such effects do not exist.

Theoretically, the paper advances the argument that perhaps we should not expect to see unidirectional order effects in proposition elections. I develop a simple formal model of decision fatigue that illustrates how bidirectional effects (some types of propositions fare better at the top and others at
the bottom of the ballot) can easily emerge. I then provide some initial evidence from California suggesting that bidirectional effects might be present in the data. Specifically, I find that propositions with majority support in pre-election surveys tend to lose support moving down the ballot, while propositions with pre-election majority opposition tend to gain support moving down the ballot. These patterns mirror the behavior in the formal model.

The policy implications of these findings are somewhat nuanced. In terms of providing a level playing field, it appears one should not be overly concerned with ballot manipulation because the top of the ballot is not any better than the bottom of the ballot (unconditionally). Even so, randomization of position might be attractive if only to remove any doubt. However, leveling the playing field might not be the right way to think about this. From the perspective of the quality of public decisions, one would like voters to cast their ballot when informed. If so, it might be best to put the “complicated” issues at the top of the ballot, before decision fatigue sets in, and put the “easy” issues at the bottom of the ballot. This is speculative, and raises a number of practical questions regarding implementation, but the general point that randomization may not be the best approach from a decision quality point of view seems worth further consideration.
References


Figure 1. Percent in Favor by Ballot Position, California Propositions 1958-2014

Note. The figure plots all 676 propositions that appeared on the California ballot during 1958-2014. The data source is the Initiative and Referendum Institute at USC.
Figure 2. Percent in Favor by Ballot Position, Texas Propositions 1986-2013

Note. The figure plots all 233 propositions that appeared on the Texas ballot during 1986-2013. Ballot positions in a given election were assigned randomly by election officials. Data were collected from official election reports by the Texas Secretary of State.
Figure 3. Mean Gap ($\Delta$) by Ballot Position, California Propositions 1958-2014

Note. The figure plots the mean difference between the election approval rate and the pre-election Field Poll approval rate, by position. The bars indicate plus and minus two standard error. The sample includes 242 California proposition during the period 1958-2014.
Figure 4. Effect of Ballot Position on Approval Rate, Conditional on Initial Support

- Majority in support initially
- Majority opposed initially

Ballot Position

%Yes
### Table 1. Summary Statistics for Texas and California Propositions

#### Panel A. Texas Propositions, 1986-2013

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>%yes, election</td>
<td>63.4</td>
<td>12.4</td>
<td>30.2</td>
<td>93.8</td>
</tr>
<tr>
<td>Position</td>
<td>8.7</td>
<td>5.9</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Number of propositions on ballot</td>
<td>16.3</td>
<td>6.3</td>
<td>1</td>
<td>27</td>
</tr>
</tbody>
</table>

#### Panel B. California Propositions, 1958-2014

<table>
<thead>
<tr>
<th>Variable</th>
<th>Field Poll sample ($N = 242$)</th>
<th>All props ($N = 676$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%yes, election</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>%yes, election</td>
<td>48.6</td>
<td>12.5</td>
</tr>
<tr>
<td>%yes, Field Poll</td>
<td>54.5</td>
<td>13.5</td>
</tr>
<tr>
<td>%yes (election) - %yes (FP)</td>
<td>-6.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Position</td>
<td>8.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Number of propositions on ballot</td>
<td>14.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Type = legislative bond measure</td>
<td>0.23</td>
<td>0.42</td>
</tr>
<tr>
<td>Type = initiative</td>
<td>0.70</td>
<td>0.46</td>
</tr>
<tr>
<td>Dummy = 1 presidential election year</td>
<td>0.51</td>
<td>0.50</td>
</tr>
</tbody>
</table>

*Note.* This table reports summary statistics for the Texas (Panel A) and California (Panel B) data. The Texas data include 233 propositions. All Texas propositions were constitutional amendments placed on the ballot by the legislature. The California data include 676 propositions, 242 of which were surveyed in the Field Poll. Panel B reports the mean approval rate for the Field Poll propositions and for all propositions (those included and excluded from Field Poll) during the period.
Table 2. Regressions of Approval Rate on Ballot Position, Texas Propositions 1986-2013

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>Approval</th>
<th>Position Capped at #16</th>
<th>Election Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Winsorized 1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>0.21</td>
<td>0.20</td>
<td>0.34*</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.19)</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Number of propositions on ballot</td>
<td>-0.30**</td>
<td>-0.29*</td>
<td>-0.33**</td>
<td>-0.93**</td>
</tr>
<tr>
<td></td>
<td>(0.15)</td>
<td>(0.15)</td>
<td>(0.15)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>Intercept</td>
<td>66.49***</td>
<td>66.39***</td>
<td>66.03***</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td>(2.26)</td>
<td>(2.23)</td>
<td>(2.27)</td>
<td>...</td>
</tr>
<tr>
<td>R²</td>
<td>.012</td>
<td>.016</td>
<td>.024</td>
<td>.237</td>
</tr>
</tbody>
</table>

**Notes.** Each column reports estimates from a regression in which the dependent variable is the percentage of votes in favor of a proposition. In column (2), the dependent variable is Winsorized at the 99th percentile. In column (3), ballot positions above 16 are restated as 16. The regression in column (4) includes election-specific fixed effects. The data include all 233 Texas ballot propositions during 1986-2013.
Table 3. Regressions of Gap Between Actual and Survey Approval Rates, California Propositions 1958-2014

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>Δ Winsorized (2)</th>
<th>Position Capped at #16 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>-0.07</td>
<td>-0.06</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.11)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>Number of props on ballot</td>
<td>-0.30***</td>
<td>-0.30***</td>
<td>-0.31***</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Dummy = 1 if initiative</td>
<td>1.43</td>
<td>1.30</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td>(1.20)</td>
<td>(1.15)</td>
<td>(1.21)</td>
</tr>
<tr>
<td>Dummy = 1 if presidential election year</td>
<td>2.43**</td>
<td>2.31**</td>
<td>2.42**</td>
</tr>
<tr>
<td></td>
<td>(1.01)</td>
<td>(0.97)</td>
<td>(1.01)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-3.39**</td>
<td>-3.30**</td>
<td>-3.28**</td>
</tr>
<tr>
<td></td>
<td>(1.38)</td>
<td>(1.32)</td>
<td>(1.37)</td>
</tr>
<tr>
<td>R²</td>
<td>.097</td>
<td>.102</td>
<td>.097</td>
</tr>
</tbody>
</table>

Note. Each column reports a regression in which the dependent variable is Δ (or some variant thereof as indicated at the top of each column), where \( \Delta \equiv \%\text{Yes}_{\text{election}} - \%\text{Yes}_{\text{Field Poll}} \). In column (2), the dependent variable is Winsorized at the 95th percentile; in column (3), ballot positions above 16 are restated at position 16. The data include 242 California propositions during 1958-2014. Significance levels are indicated: * = 10 percent, ** = 5 percent, *** = 1 percent.
Table 4. Approval Rates from Field Poll with Randomized Question Order, California 1994

<table>
<thead>
<tr>
<th>Proposition</th>
<th>Ballot Position</th>
<th>Question Order = Randomized (1)</th>
<th>Question Order = 1A-1B-1C-180 (2)</th>
<th>Election Results (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A (retrofit bonds)</td>
<td>#1</td>
<td>72.9</td>
<td>72.7 (Δ = -0.2)</td>
<td>45.7 (Δ = -27.2)</td>
</tr>
<tr>
<td>1B (K-12 bonds)</td>
<td>#2</td>
<td>68.0</td>
<td>69.8 (Δ = 1.8)</td>
<td>49.6 (Δ = -18.4)</td>
</tr>
<tr>
<td>1C (higher education bonds)</td>
<td>#3</td>
<td>60.5</td>
<td>58.8 (Δ = -1.7)</td>
<td>47.4 (Δ = -13.1)</td>
</tr>
<tr>
<td>180 (parkland bonds)</td>
<td>#9</td>
<td>59.3</td>
<td>64.2 (Δ = 4.8)</td>
<td>43.3 (Δ = -16.0)</td>
</tr>
<tr>
<td>Respondents/Voters</td>
<td></td>
<td>416</td>
<td>416</td>
<td>4,966,827</td>
</tr>
</tbody>
</table>

Note. The election took place June 7, 1994. Field Poll data are taken from *The Field Institute/The California Poll – 9403*, administered April 1 to April 9, 1994. Columns (1)-(3) report approval rates, defined as votes in favor as a percentage of votes in favor plus votes against. Δ in column (2) is the column (2) approval rate minus the column (1) approval rate; Δ in column (3) is the column (3) approval rate minus the column (1) approval rate.
Table 5. Regressions of Gap Conditional on a Proposition’s Pre-election Support, California Propositions

<table>
<thead>
<tr>
<th></th>
<th>Pre-election opinion based on first pre-election survey</th>
<th>Pre-election opinion based on final pre-election survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Position, pre-election support &gt; 50%</td>
<td>-0.22*</td>
<td>-0.30**</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Position, pre-election support &lt; 50%</td>
<td>0.29**</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Position, pre-election support &gt; 56%</td>
<td>...</td>
<td>-0.29**</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Position, pre-election support &lt; 56%</td>
<td>...</td>
<td>0.22*</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Number of props on ballot</td>
<td>-0.25***</td>
<td>-0.21**</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Dummy = 1 if initiative</td>
<td>1.28</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>(1.14)</td>
<td>(1.14)</td>
</tr>
<tr>
<td>Dummy = 1 if presidential election year</td>
<td>1.97**</td>
<td>1.73*</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(0.97)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-3.51***</td>
<td>-3.87***</td>
</tr>
<tr>
<td></td>
<td>(1.32)</td>
<td>(1.31)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.172</td>
<td>.187</td>
</tr>
<tr>
<td>F-test for hypothesis that position</td>
<td>21.1***</td>
<td>25.8***</td>
</tr>
<tr>
<td>coefficients are equal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Each column reports a regression of the gap (Δ) on ballot position and other control variables. The gap is defined as $Δ \equiv \%Yes_{election} - \%Yes_{Field Poll}$. All regressions have 242 observations. Significance levels are indicated: * = 10 percent, ** = 5 percent, *** = 1 percent.