January 29, 2024

Honorable Shirley N. Weber, PhD
Secretary of State
1500 11th Street
Sacramento, CA 95814

Alternate Ballot Order: Los Angeles County Pilot Program Report

Dear Secretary Weber:

I am writing to submit the final report on the Los Angeles County Alternate Ballot Order Pilot, which has been in effect since the March 2020 Presidential Primary Election. This pilot was conducted following California Senate Bill 25 (2017-2018) and chaptered in sections 13109.7, 13109.8, and 13109.9 of the California Elections Code.

This report studies the effect of using the alternate ballot order and includes an analysis of costs, turnout, overvotes, undervotes, ballot drop-off rates, and legislative recommendations. The County contracted with Mindy Romero and the Center for Inclusive Democracy to conduct an independent analysis of the data to study the impact of the alternate ballot order on voter participation. This analysis utilized modern statistical methods and considers the diversity of the Los Angeles County electorate.

Los Angeles County will continue to use the alternate ballot order based on the analysis of the pilot and the implementation. The alternate ballot order resulted in increased participation in local contests traditionally located on the bottom of the ballot. This increase outweighed a slight reduction to participation in the presidential contest, and the implementation costs were minimal based on various factors.

The alternate ballot order is still a relatively new concept in election administration, and my office will continue to study the impact. I look forward to continuing the dialogue and further evaluating the effect of the alternate ballot order.

If you have any questions or need additional information, please contact me at (562) 462-2716 or email dlogan@rrcc.lacounty.gov. Your staff may also contact Adrian Avelar, Executive Assistant at aavelar@rrcc.lacounty.gov.

Respectfully,

DEAN C. LOGAN
Registrar-Recorder/County Clerk

DCL:JG:AA:cc

Attachments

c: Secretary of the Senate
        Chief Clerk of the Assembly
        Legislative Counsel

January 29, 2024

LOS ANGELES COUNTY ALTERNATE BALLOT ORDER PILOT REPORT

Introduction

This report provides a comprehensive overview and analysis of the Alternate Ballot Order Pilot conducted in Los Angeles County. The report includes an overview of the implementation of the pilot in Los Angeles County, a data analysis of the impact on turnout, overvotes, undervotes, ballot drop-off rates, and an analysis of the implementation costs. This pilot was conducted according to the requirements in sections 13109.7, 13109.8, and 13109.9 of the California Elections Code.

Background

California Senate Bill 25 (2017-2018) was signed into law by the Governor on September 29, 2018. This law required the Los Angeles County Registrar-Recorder/County Clerk's Office (RR/CC) to conduct a three-year, alternate ballot order pilot study, commencing with the implementation of the Voting Solutions for All People (VSAP) voting modernization program, which was underway at the time. The VSAP solution and the alternate ballot order pilot were implemented during the March 2020 Presidential Primary Election.

Under this pilot, the RR/CC laid out ballots according to the ballot order as follows:

Under the heading, CITY/LOCAL:
1) Mayor. 2) Member, City Council. 3) Unified School District Board Members. 4) High School District Board Members. 5) Elementary School District Board Members. 6) College District Governing Board Members. 7) Other offices in alphabetical order by the title of the office. 8) Candidates or nominees to the State Senate. 9) Candidates or nominees to the State Assembly. 10) Candidates or nominees to the House of Representatives of the United States. 11) City local initiatives and ballot measures. 12) Local school district initiatives and ballot measures.

Under the heading, DISTRICT:
1) Directors or trustees for each district in alphabetical order according to the name of the district. 2) District initiatives and ballot measures.

Under the heading, COUNTY:

1) County Supervisor. 2) Sheriff. 3) Assessor. 4) County Superintendent of Schools. 5) County Board of Education. 6) Other offices in alphabetical order by the title of the office. 7) Judge of the Superior Court. 8) County Marshall. 9) Members of the County Central Committee. 10) County initiatives and ballot measures.

Under the heading, STATE:

1) Governor. 2) Lieutenant Governor. 3) Secretary of State. 4) Controller. 5) Treasurer. 6) Attorney General. 7) Insurance Commissioner. 8) Member, State Board of Equalization. 9) Superintendent of Public Instruction. 10) Statewide initiatives and ballot measures.

Under the heading, STATE JUDICIAL:

1) Chief Justice of California. 2) Associate Justice of the Supreme Court. 3) Presiding Judge, Court of Appeal. 4) Associate Justice, Court of Appeal.

Under the heading, NATIONAL ELECTION:

Under the subheading, PRESIDENT and VICE PRESIDENT:

1) Nominees of the qualified political parties and independent nominees for President and Vice President. 2) Names of the presidential candidates to whom the delegates are pledged. 3) Names of the chairperson of unpledged delegations. 4) Candidates or nominees to the United States Senate.

The bill also required the RR/CC to prepare and submit a report regarding the effects of the alternate ballot order. This report considers the costs of implementation and the turnout of voters. For contests impacted by the alternate ballot order, the report analyzes contest turnout (participation), overvotes, undervotes, and drop-off rates.

Los Angeles County is the only jurisdiction in the country utilizing a publicly owned voting system. This voting system was developed through the VSAP project, an unprecedented undertaking to design and implement a voting system that could meet the unique needs of Los Angeles County's diverse electorate. The RR/CC adopted a human-centered design approach that put the needs of voters first to create a user-friendly and accessible voter experience. The VSAP system was certified for use by the California Secretary of State and was implemented during the March 2020 Presidential Primary Election.

Implementation

Implementing the Alternate Ballot Order Pilot Program for the March 2020 Presidential Primary Election required a multi-level approach. To successfully implement the pilot, there were four core priority areas: Ballot Layout Systems, Voter Education and Outreach, Communication with Impacted Jurisdictions, and Costs.

Ballot Layout Systems

The Election Contest and Ballot Management System (ECBMS) is an in-house system developed by the RR/CC. The ECBMS was designed to address evolving departmental needs and incorporates enhancements to the ballot layout, specifically tailored to

support the Voting Solutions for All People (VSAP) program introduced in 2020. The primary function of the ECBMS is to facilitate candidate filing and generate the logic for ballot layout. The ECBMS is used to create a file encompassing a comprehensive ballot definition, providing details on contests, candidates, and measures for each ballot group in an election. This includes the sequence of every contest, including candidate rotation.

Database entries were incorporated into ECBMS to reflect the updated order of contests to meet the SB-25 requirements. A new set of Ballot Divisions was updated with a revised sequence in the Office table. Using two sets of Ballot Divisions allows all new contests to inherit the new values while legacy elections maintain their original data. Notably, the original order is preserved through a data snapshot, allowing us to revert to the initial sequence, which is still utilized by all other counties.

The data file created by the ECBMS is imported into the VSAP Ballot Layout (VBL) system. This system takes the election data and generates ballots and data for Vote by Mail (VBM) ballots and Ballot Marking Device (BMD) interfaces. Ballots are dynamically generated based on the ballot style and contest order. The alternate ballot order defined by ECBMS has no negative impact on the process of creating VBM ballots and BMD interfaces, nor on the VBL software. The alternate ballot order only affects the location of the contests on the ballot.
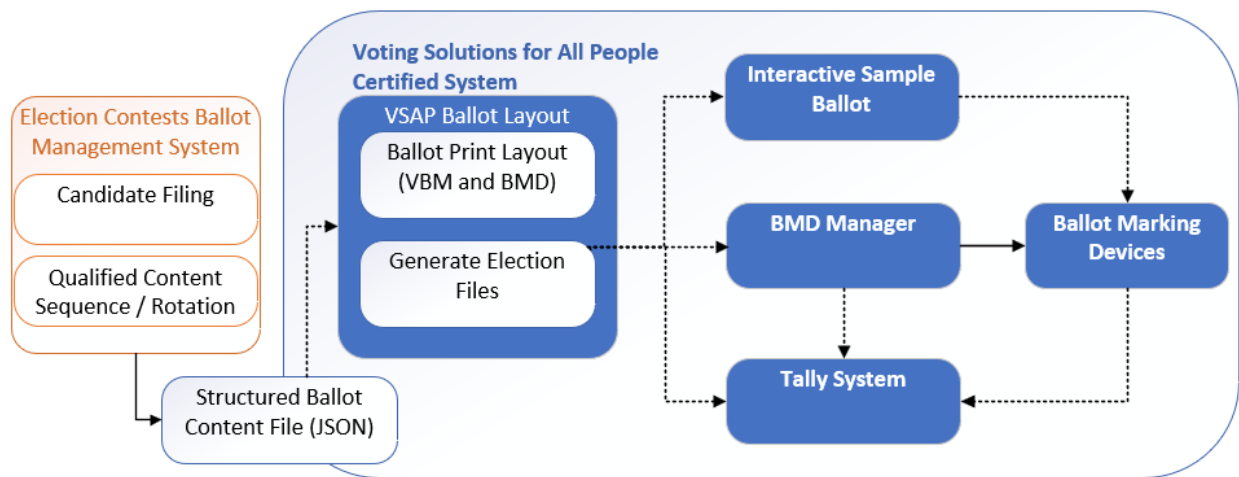
All ballots, including VBM and BMD, are centrally tabulated at the RR/CC Tally facility using the state-approved VSAP Tally System. The initial ballot scanning process employs commercial off-the-shelf document scanners, with cast vote records for tabulation extrapolated from the ballot images. The order of selection within the Cast Vote Records (CVR) has no impact on performance.

Voter Education and Outreach

For every major countywide election, the RR/CC prepares and executes a voter education and outreach campaign focused on getting critical election information to registered voters. The alternate ballot order was one of the priorities included in our

campaign, and information was made available to voters through various channels. A sample ballot booklet is mailed to all registered voters and contains critical election information. Information on the alternate ballot order was included in the sample ballot booklet, and voters were informed that the ballot would begin with city and local offices and end with the presidential contest.

The RR/CC leveraged existing partnerships with the community, stakeholders, and the general public to communicate the alternate ballot order pilot. The Community and Voter Outreach Committee (CVOC) is a partnership between the RR/CC and citizen, community and advocacy organizations. Through the CVOC, the RR/CC was able to inform stakeholders of a critical change in election administration. Participants in the CVOC were then able to amplify this messaging through their own networks.

Social media was utilized to communicate the alternate ballot order to voters. Social media posts were timed to coincide with when voters would receive their Vote by Mail ballots for the first time. In addition, our communications team monitored social media to ensure any voter questions or concerns were addressed promptly with the correct information. Phone calls and emails were received from voters seeking assistance finding the presidential contest. These issues were resolved quickly with instructions on the contest's location.

Communication with Impacted Jurisdictions

The alternate ballot order impacted local jurisdictions, such as cities and districts. Communication with these partners was crucial to successfully implementing the Alternate Ballot Order Pilot Program. Many of the 88 cities in Los Angeles County were in the process of consolidating their elections to the even-year cycle and were grappling with the tradeoffs presented by consolidation. The alternate ballot order alleviated some city officials' concerns about their contest being further down the ballot and possibly going overlooked. Consolidating cities onto the County's ballot has been largely successful, with 84 of 88 cities now conducting their municipal elections on the County's even-year cycle.

Implementation Costs

The alternate ballot order pilot was conducted concurrently with the launch of the Los Angeles County VSAP system, allowing for systems like the VBL, VBM, and BMDs to be leveraged for implementation. The ECBMS system, which facilitates candidate filing and generates the logic for ballot layout, is the only system that required modifications and incurred implementation costs. Implementing the alternate ballot order required modifications to the contest sequence within ECBMS. A Senior Application Developer successfully introduced a new table with the alternate contest order to accommodate this change. All unique ballot styles are processed during the ballot layout process, which includes a step called logical layout. Based on rotation, qualified measures, contests, and candidates, this process generates a data representation of the ballot that physical layout systems can use. Importantly, these adjustments had a low impact and

required minimal changes to the existing code. The estimated total effort for analysis, updates, testing, and validation amounted to 40 hours. The estimated cost for staff time dedicated to the development work was **$9,745**.

A significant feature of the new VSAP program was the redesign of our vote-by-mail ballot. This new full-face ballot was created to accommodate numerous ballot iterations in multiple languages across multiple cards. Because the layout system generates ballots dynamically for each unique ballot, the order of the contests doesn't result in any additional costs. Voters receive a vote-by-mail (VBM) ballot tailored to their unique ballot, and the County only pays for the number of cards printed and mailed. This approach contrasts significantly with the previous Inkavote+ System, where every unique ballot page was reused. Contests voted on by the entire county remained consistent, and as the page styles increased, each page introduced more contest variations, resulting in higher costs when using the Inkavote+ System.

The use of ECBMS, VBM, and BMD systems are all unique to Los Angeles County. The scope of this report on the fiscal impact of the alternate ballot order pilot is specific to Los Angeles County and the development and functionality of those systems. It is not the intent of this report to extrapolate the costs of implementation to other election jurisdictions. Additional research on voting systems is required to understand the fiscal impact of implementing an alternate ballot order in other jurisdictions.

Data Analysis

The Center for Inclusive Democracy at the University of Southern California conducted an independent analysis of the data. This effort focused on studying the impact of the alternate ballot order on voter participation in Los Angeles County. Mindy Romero, Executive Director of the Center for Inclusive Democracy, was the lead researcher for this effort. The Los Angeles County Chief Executive Office Center for Strategic Partnerships and Southern California Grantmakers facilitated this partnership. This comprehensive data analysis utilized modern statistical methods and considered the diversity of the Los Angeles County electorate. A copy of the complete data analysis is attached to this report.

The order of contests on a ballot has long been of interest to election stakeholders. The impact of contest order on essential topics such as the outcome of an election, voter participation, and vote drop off is subject for debate by political analysts and policymakers. This data analysis adds to that debate and helps us better understand and evaluate the impact of the alternate ballot order pilot in Los Angeles County. The data analysis paid particular attention to the topics outlined in the bill, which include overall turnout, contest level turnout, overvotes, undervotes, and drop off rates. The key findings of the report are as follows:

Turnout

The data analysis suggests that the alternate ballot order has had a lesser effect on overall turnout. Turnout declined by a sixth of a percent in Los Angeles County and by

eight-tenths of a percent in precincts with a large proportion of voters of color. This turnout impact cannot be solely attributed to the alternate ballot order pilot as other significant changes in the administration of elections in Los Angeles County occurred concurrently. These changes included the transition to the California Voter's Choice Act and a significant shift from voting in-person to by mail, which was influenced by the response to the COVID-19 pandemic.

On a contest level, the alternate ballot order produced a smaller negative effect on turnout than the traditional ballot order. For each additional contest on the ballot, turnout declined by a tenth of a percent under the alternate ballot order. For comparison, under the traditional ballot order, turnout declined by a third of a percent.

Drop Off

For this analysis, drop off is defined as the point at which a voter stops making selections on a ballot. The research found that contests lower on the ballot are more likely not to have a choice made. Moving a contest one spot lower on the ballot leads to a one-fifth of a percent decline in whether a selection is made in that contest under both the traditional and alternate ballot order.

Local Contests

The alternate ballot order moved local contests that were traditionally lower on the ballot to the top of the ballot. These local contests saw a significant increase in the number of votes cast. Contests traditionally at the top of the ballot, such as president and governor, were moved to the bottom and saw only a minimal decline in participation. The increased participation in local contests was greater than the decreased participation in contests traditionally located at the top of the ballot. Contests such as mayor and city council saw an 11.6% and 16.8% increase respectively in participation under the alternate ballot order. For comparison, the presidential contest saw a decline in participation of 2.5%. This finding supports the intent of the alternate ballot order pilot to reduce vote drop off in local contests.

The analysis concluded that voters are looking for high-profile contests and will find them even if they are located at the bottom of the ballot. In addition, moving local contests to the top of the ballot creates a slightly increased chance that voters will likely participate in those contests. Concerns that the alternate ballot order would decrease turnout were not primarily supported or were inconclusive.

Next Steps

Los Angeles County will tentatively continue using the alternate ballot order described in and authorized under Section 13908.8 of the California Elections Code. This decision is based on our experience implementing the alternate ballot order pilot, stakeholder feedback, and independent data analysis.

The increased participation in local contests is a positive result and aligned with the pilot's intent. Participation in contests traditionally at the top of the ballot is equally important, and the RR/CC will continue to monitor participation in these contests. The impact of changes in election administration takes time to reach desired effect. As voters adjust their behavior and get more familiar and comfortable with the alternate ballot order, we expect the gap in participation in down-ballot contests to further decrease.

Voter education and outreach efforts remain a priority for the RR/CC as we continue with the alternate ballot order. Comments around the unique order of contests on Los Angeles County ballots can be misused for misinformation or disinformation. Proactive, accurate, and timely messaging will be critical in preventing and counteracting any misleading information around this topic. In addition, our messaging will help voters find the contests they are looking for regardless of the location on the ballot.

Implementation costs were kept minimal by various factors unique to Los Angeles County and the VSAP program design. The RR/CC does not anticipate any significant additional implementation costs. Any further development to the VSAP program will retain the system agility and dynamic ballot layout capabilities that made the alternate ballot order possible.

The RR/CC will work with the California Secretary of State's Office and the California Legislature to continue studying the alternate ballot order. Now that the pilot is concluded, there is an opportunity to evaluate the future of this effort. The implementation is still in its early stages, and the upcoming 2024 Presidential Election will produce new data to support further review.

Alternative Ballot Order Pilot Program
Research Report

This research report was commissioned by the Los Angeles County Registrar-Recorder/County Clerk's office and was independently conducted by the Center for Inclusive Democracy.

About the Center for Inclusive Democracy (CID)

CID's mission is to improve the social and economic quality of life in U.S. communities by producing non-partisan research that informs policy and on-the-ground organizing efforts through education and outreach for a more engaged, transparent, and representative democracy. CID conducts pioneering research that explores voting behavior, civic engagement, as well as electoral and economic issues at the intersection of social justice and democracy.

Research Team

Eric McGhee, Ph.D.
Mindy Romero, Ph.D.

About Eric McGhee, Ph.D.

Eric McGhee is a senior fellow at PPIC, where he focuses on elections, legislative behavior, political reform, and surveys and polling. His research on elections and electoral reform has appeared in numerous academic journals and has been profiled in national media outlets. He is the creator of the "efficiency gap"—a widely used measure of gerrymandering— and coauthor of a legal test based on the measure that has been presented before the US Supreme Court in recent high-profile litigation. Before joining PPIC, he was assistant professor of political science at the University of Oregon and served as a congressional fellow through the American Political Science Association. He holds a PhD in political science from the University of California, Berkeley.

About Mindy Romero, Ph.D.

Mindy Romero is the founder and director of the Center for Inclusive Democracy (CID), formerly known as the California Civic Engagement Project. Romero is a political sociologist and holds a Ph.D. in Sociology from the University of California, Davis. Her research focuses on political behavior and race/ethnicity, and seeks to explain patterns of voting and political underrepresentation, particularly among youth and communities of color in California and the U.S. Romero has been invited to speak about civic engagement and political rights in numerous venues, testifying before the National Commission on Voting Rights and the California Legislature, among others. Her research has been cited in major news outlets, including The New York Times, Washington Post, Los Angeles Times, Sacramento Bee, Politico and the Huffington Post. She has also been a frequent guest on National Public Radio, Capital Public Radio, and several other NPR-affiliated stations in California. In 2018, the McClatchy News named Romero a "California Influencer", one of a group of sixty thought leaders in the state.

Acknowledgments

For more information about this report, contact Dr. Romero at msromero@usc.edu.

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Executive Summary

The order in which contests and candidates appear on the ballot varies across election jurisdictions. Political analysts and policymakers frequently debate whether the order in which voters see contests and candidates on a ballot has an impact of the outcome of races, voter turnout, and the rate at which voters undervote (not voting for all contests on a ballot). To further examine these questions, Senate Bill 25 (SB-25) was signed into law in 2018 requiring the Los Angeles County Registrar to conduct a three-year, alternate ballot order pilot study commencing in the 2020 Primary Election. The pilot study would test an alternate rank order ballot, which moves high-profile contests like President and Governor from the very top of the ballot to or near the bottom.

The Center for Inclusive Democracy (CID) was commissioned to independently conduct the study required by SB-25 analyzing the impact of the alternate ballot order pilot on Los Angeles County elections.

Contests lower on the ballot are skipped more often under both the alternate ballot order and traditional ballot order.

Under the traditional ballot order, moving a contest one spot lower on the ballot leads to roughly one fifth of a percent decline in the number of votes cast for that contest. In precincts with high shares of people of color, the effect of ballot order on votes cast for the contest is generally smaller, declining about a seventh of a percent in both the alternate and traditional orders.

Contests moving further down ballot under the alternate order see the most vote loss.

The number of voters who cast votes on contests declines as a contest moves further down the ballot and increases as it moves up the ballot. Contests that are traditionally closer to the bottom of the ballot but were moved closer to the top on the alternate ballot, such as mayor and city council, saw large increases in the votes cast, while races that are traditionally high on the ballot but were moved to closer to the bottom on the alternate order ballot, such as president and governor, saw declines in votes. However, the decreases in the higher-profile contests were generally smaller than the increases in the lower-profile contests.

Alternate ballot order had small turnout effects.

The number of local contests on the ballot has a smaller effect on turnout under the alternative ballot order than under the traditional ballot order. On average, each additional local contest on the ballot leads to a tenth of a percent decline in turnout under the alternate order, but a third of a percent decline under the traditional order.

Conclusion and Future Work

Overall, these results are consistent with the idea that voters are searching for high-profile contests and will find them on the ballot regardless where they are placed. Moreover, if lower- profile local contests come first, there is a slightly elevated chance that they will cast votes for those contests as well. And the evidence that the alternate ballot order itself discourages voter turnout is inconsistent at best.

Introduction to California Senate Bill 25

In California, existing law specifies that the order of contests on a ballot begins with nominees for President and Vice President and ends with directors or trustees for each local district. Measures appear on the ballot after district directors or trustees. County elections officials are allowed to vary the order for certain offices and measures on a ballot if needed to provide the most efficient use of space on the ballot.

Political analysts and policymakers frequently debate whether the order in which voters see contests and candidates on a ballot has an impact on the outcome. Some academic research has found that being listed first on the ballot does result in a greater likelihood of winning an election, although other studies have found little or no evidence of this relationship.[1] However, the connection between ballot ranking and other electoral impacts has been little explored by scholars. Specifically, whether the ballot ranking of a candidate could affect the voter turnout in an election, or influence the rate at which voters undervote or stop voting for races on the ballot has received limited attention.

In 2018, California Senate Bill 25 (SB-25)[2] was signed into law requiring the Los Angeles County Registrar to conduct a three-year, alternate ballot order pilot study commencing with the implementation of the Voting Solutions for All People (VSAP) voting modernization project in the March 2020 Presidential Primary Election. The VSAP is a voting system that is unique in California in design and user experience.

Table 1 presents the categories of electoral races, with both the standard and the alternate rank orders for each. The alternate rank order is significantly different in many cases in the Los Angeles County pilot. It moves high-profile contests like President, U.S. Senator, or Governor from the very top of the ballot to or near the bottom, while moving many local races like Mayor, City Councilmember, or School Board Member from the bottom to the top. Nonetheless, the ballot location of some contests in the pilot was not changed much at all, including races for U.S. Representative, State Assembly, and State Senate, and some countywide races like Marshall, Judge of the Superior Court, and county ballot measures. Moreover, the U.S. Senate race in 2022 was exempted from this order change, and was placed at the top of the ticket despite its nominal placement at the bottom according to SB-25.

Table 1. The alternate rank order moved many high-profile races lower on the ballot		
Contest	Traditional Ballot Order	Alternate Ballot Order
President	1	39
Governor	2	25
Lieutenant Governor	3	26
Secretary of State	4	27
Controller	5	28
Treasurer	6	29
Attorney General	7	30
Insurance Commissioner	8	31
Board of Equalization	9	32
US Senator*	10	40
US Representative	11	10
State Senate	12	8
State Assembly	13	9
Party committee	14	23
Chief Justice	15	35
Associate Justice of the Supreme Court	16	36
Presiding Justice, Court of Appeal	17	37
Associate Justice, Court of Appeal	18	38
Judge of the Superior Court	19	21
Marshal	20	22
Superintendent of Public Instruction	21	33
County Superintendent of Schools	22	18
County Board of Education	23	19
Assessor	24	17
Other county offices	25	20
Sheriff	26	16
County Supervisor	27	15
Statewide measures	28	34
County measures	29	24
College District Governing Board	30	6
School measures	31	12
Unified District Governing Board	32	3
High School District Governing Board	33	4
Elementary District Governing Board	34	5
Mayor	35	1
City Council	36	2
Other city offices	37	7
City measures	38	11
Special district directors or trustees	39	13
Special district measures	40	14

Data Source: County Campaign Finance Disclosure Portals, CA Secretary of State

*The US Senate race in 2022 was exempted from the new ballot order and placed at the top of the ticket, but we report its official ballot placement for consistency in the table.

In July of 2023, the Los Angeles County Registrar-Recorder/County Clerk's office commissioned the Center for Inclusive Democracy to independently conduct the study required by SB-25 and to produce a corresponding report. Pursuant to the provisions of SB-25, this study provides an analysis of the impact of the alternate ballot order pilot on Los Angeles County elections, including the following outcomes:

- The cost of transitioning to the alternate ballot order
- The number of overvotes and undervotes for each contest
- Overall voter turnout under the alternate ballot order

For the total turnout and the undervotes, we also analyze differential impact by the racial and ethnic composition of each community in Los Angeles County. The report concludes with a set of recommendations and considerations for the California Legislature that are derived from the study's findings.

Administrative Costs of Senate Bill 25

For the 2020 Presidential Primary Election, the SB-25 Alternate Ballot Order pilot project was implemented concurrently with the launch of Los Angeles County's Voting Solutions for All People (VSAP). A major component of the new voting system was the redesigned vote-by-mail ballot implemented in 2018. This new full-face ballot was created to accommodate numerous iterations of the ballot in multiple languages, across multiple cards. Because the layout system generates ballots dynamically for each unique ballot, the order of the contests doesn't result in any additional costs. Voters receive a vote-by-mail (VBM) ballot tailored to their unique ballot, and the county is charged solely based on the number of cards printed and mailed. This approach contrasts significantly with the previous Inkavote System, where every unique ballot page was reused. This was due to the fact that contests voted on by the entire county remained consistent, and as the page styles increased, each page introduced more contest variations, resulting in higher costs.

The implementation of the new ballot order necessitated a modification to the contest sequence within the Election Candidate Filing System. To accommodate this change, a senior application developer successfully introduced a new table with the alternate contest order. In the course of the ballot layout process, which includes a step called logical layout, all unique ballot styles are processed. Based on rotation, qualified measures, contests, and candidates, this process generates a data representation of the ballot that can be used by physical layout systems. Importantly, these adjustments had a low impact and required minimal changes to the existing code. The estimated total effort for analysis, updates, testing, and validation amounted to 40 hours.

This information about implementation cost was provided to us by the Los Angeles County Registrar-Recorder/County Clerk, and we have reproduced it here with minimal modification and no analysis. We are not in an informed position to assess or defend the costs as described, and we direct interested parties to the Registrar-Recorder/County Clerk with any additional questions.

Initial
VSAP Ballot Layout and Election Contest Ballot Management System Development*
40 hours of Senior App Dev for Ballot Contests Order - $9,744.79
Ongoing
VSAP Ballot Layout Ongoing Maintenance**
Per Election
No Costs – Unless changes made to ballot contest order
VBM Costs are determined by the number of voters (vbm packets) and ballot card count

*The SB 25 pilot takes advantage of already planned code and functionality. No cost can be attributed to the pilot. This is a unique circumstance to LA County, we are unaware of the situation or potential impact in other jurisdictions.
** The SB 25 pilot takes advantage of already planned code and functionality. The ongoing maintenance of those systems is already taking place to support the larger VSAP system. No cost can be attributed to the pilot. This is a unique circumstance to LA County, we are unaware of the situation or potential impact in other jurisdictions based on other voting systems and functionality.

Research Center Background

The Center for Inclusive Democracy (CID) is a leading research center of the University of Southern California's Sol Price School of Public Policy. Founded and led by political sociologist Mindy Romero, PhD, CID is a driving force behind national and multi-state research initiatives that harness big data to effect change. Its studies have been widely used to inform public policy at all levels of government, as well as empower local communities seeking to eliminate disparities in social and economic well-being of the electorate. Dr. Mindy Romero and Dr. Eric McGhee are leading academic researchers in the fields of election science and voter behavior.

Methodology

Senate Bill 25 required the research report on the ballot order to "wherever possible, compare an election conducted… using the alternate ballot order to similar elections conducted using the [traditional] ballot order" (California Elections Code 13109.7(c)). This is also best analytical practice for identifying the effect of a policy change. Accordingly, we strive to provide a comparison case for every change we examine.

The Los Angeles County Registrar-Recorder/County Clerk (hereafter "the Registrar") also requested that we explore the impact of the ballot order change in the context of Los Angeles County's diversity. We made every effort to match our data to census statistics on race and ethnicity and to report variation in our findings based on the county's diverse population.

The Registrar provided us with aggregated voter data for this study. Additionally, the California Statewide Database at UC Berkeley—the official repository of California's redistricting data—provided a range of essential data resources, including GIS shapefiles and precinct data for matching census data to precinct data, as well as precinct-level election returns of state-level contests for the entire state. Coupled with shapefiles from the Registrar, this enabled us to conduct the full complement of analysis for races within LA County. Outside LA County, we were not able to acquire shapefiles for any district-level offices other than those for state legislature and U.S. Congress. Thus, we could not perform any comparisons between LA County and areas outside LA County for any contests for county supervisor, city council, school

district board, community college district governing board, or special district director/trustee. In addition, we were not able to acquire the data necessary and relevant to include any odd- year or special elections in our analysis.

To conduct this analysis, we take the following approaches:

Comparison within LA County. For contests within LA County, we examine the effect of the change in rank order from before and after SB 25, using precinct-level data. Outcomes in types of contests moving down the ballot are compared to outcomes in types of contests moving up the ballot. In our statistical models we account for characteristics of the election that affect all contests equally, such as the difference in voter turnout between a primary and a fall general, and as much as possible we account for other sources of variation across geographic space that are unrelated to the ballot order.[3] We also run versions of this analysis that allow the effect of rank order to vary with the racial and ethnic composition of each precinct.

The distinct advantage of this analysis is that it includes all the types of contests affected by the change in rank order. However, this approach does a relatively poor job of accounting for the idiosyncrasies of the particular contests on the ballot in each election. It also cannot get outside of the LA County experience to provide a reference point unaffected by the ballot order change.

Comparison of LA County to the rest of the state. For certain contests we are able to identify the effect of the rank order change by comparing results in LA County to results outside LA County. We were able to conduct this analysis using precinct-level data for all statewide, state legislative, and congressional contests. We were also able to conduct this analysis for local at-large contests (assessor, mayor, sheriff, other city-wide and county-wide offices, and city, county, and school district ballot measures) using data aggregated to the level of individual contests.

The most important advantage of this approach is that it allows us to examine the findings for LA County in the context of parts of the state that did not experience the ballot order change. Anything different about LA County that we did not otherwise consider in the within-LA analysis can be tackled with this approach.

As mentioned above, Los Angeles County made some significant changes to its election administration coincident with the new ballot order. First, it embarked on a major voting system modernization that resulted in the development and implementation of new Ballot Marking Devices for in-person voting throughout the county. Second, it implemented the Voter's Choice Act (VCA), moving from assigned in-person polling places to voter centers available to anyone in the county.[4] It was the intent of the legislature that both changes be implemented at the same time, in March 2020. This complicates our comparisons, because we can never be entirely sure whether one or both of these changes actually accounts for the patterns we see in the data. The voting system modernization is particularly challenging to account for because it directly alters the way that voters see their ballot choices, just as the alternate ballot order does. Our statewide comparison helps to place this change in perspective, and so partially addresses the issue. At key points in our within-LA analysis we also examine mail and in-person voters separately, since mail voters are not directly affected by the new Ballot Marking Devices.

We apply these methodologies to three different outcomes:

Overvotes: the number of ballots spoiled because multiple selections were made for a particular contest, calculated as a share of the number of ballots cast in that jurisdiction (i.e., turnout). Overvotes generally have more to do with ballot design than with the rank order of contests, but an effect is worth exploring. Because we only have overvotes at the level of individual contests, we correlate the overvote rate with the rank order as described in the text of SB 25. We also do not have overvote data from outside LA County, and we were not able to connect the overvote data to census data. Thus, we identify only the overall effect of the alternate order on overvotes within LA County.

Along with the overvotes, the Registrar also provided us with their own calculation of undervotes by contest. Undervotes as a share of all ballots cast should be the inverse of the choice rate, so we analyze the undervotes mostly to confirm our choice rate analysis.

Choices: the number of votes cast for a particular contest as a share of the number of ballots cast in that jurisdiction (i.e., the turnout). This gets at the concept of "undervoting" or "ballot dropoff," where voters cast a ballot but skip certain contests. The choice rate can vary from one contest to the next. In fact, this outcome is likely the most sensitive to the alternate order, as contests moving down the ballot become less visible and more likely to be skipped.

We explore the effect of the alternate order on choices in one of two ways. Within LA County we are able to calculate the "true" rank order: the order of the contests as they actually appeared on the ballot. The true rank order can also be thought of as the number of contests appearing ahead of the contest in question on the ballot. In precincts with few local contests, the high-profile races may not move far on the ballot even though the SB 25 change might be far more significant. We correlate this measure with the choice rate.

This relationship should be roughly the same under either official ballot order: what matters for individual contests is where on the ballot they tend to end up. If anything, however, the effect should be smaller under the new ballot order: voters might persist down ballot to find the higher profile races like president or governor, but also make more choices in local contests along the way, leading to a shrinking of the difference in the choice rate between the two types of contests. For comparisons outside LA County, we rely on the rank order as described in the text of SB 25, and correlate that measure with the choice rate instead.

Turnout: the number of ballots cast as a share of the registered voter population. By definition, turnout is the same for all races in a particular precinct, since it identifies how many people decided to vote in any contest even if they did not make a choice in every race or ballot measure. The alternate ballot order could possibly affect turnout if some decisions to vote were impacted by the placement of local contests at the top of the ballot.

Within LA County we can calculate the number of local contests on the ballot in each precinct. Thus, for our within-LA County analysis we correlate that measure with turnout. However, the number of local contests on the ballot should only affect turnout under the alternate ballot order, when those contests appear at the top of the ballot and push the higher-profile contests further down. In the traditional ballot order, the highest-profile contests always appeared at the top of the ballot, regardless of the number of local contests that might appear later. We look at the relationship between the number of local contests and turnout both before and after the ballot order change.

We are not able to calculate the number of local contests outside LA County, so when comparing the county to the rest of California we consider the effect of the alternate ballot order as a whole. We do not distinguish between precincts with higher or lower numbers of local contests.

Research Findings: Overvotes, Choices, and Turnout

For overvotes, the below figures capture the average change in the overvote rate for a single step increase in the rank identified in SB 25. A contest with a higher rank should receive less attention and so more overvotes, meaning the relationship could be positive. For turnout, our tables capture the average change for every additional local contest on the ballot. The median number of local contests was 15, with a minimum of 1 and a maximum of 43; half the precincts fell between 11 and 29 local races. For choices, the figures capture the average change for a single step increase in the true rank (i.e., for every additional contest ahead of that contest on the ballot). The median true rank was 9, with a minimum of 1 and a maximum of 30; half the contests fell between a rank of 6 and 15. Because higher rankings are lower on the ballot, the relationship between the ranking and the choice rate could be negative.

Table 2 contains our analysis of undervotes and overvotes. In both cases we show the effect of a single step down the ballot in the official SB 25 ranking. We use the official rank instead of the true rank since the data do not permit us to identify the other races that appeared on the ballot at the same time as each contest under examination.

Moving down the ballot should increase both overvotes and undervotes, so the relationships here should be positive. The results are consistent with this expectation in all cases. However, the effect is either very small or is actually somewhat larger before the ballot order change. A single step down the ballot elevates overvotes by two one-thousandths of a percent in the traditional order and seven one-thousandths of a percent in the alternate ballot order. Likewise, a single step down the ballot increases undervotes by about a third of a percent in the traditional ballot order and a quarter of a percent in the alternate ballot order.

Because we have less data available to us for the analysis in Table 2, we cannot be as confident in the results. The differences between the traditional and alternate ballot orders are within the margin of error for both overvotes and undervotes. In the case of overvotes, we cannot be confident that there is an effect at all, even under the traditional order.

Table 2. Contests lower on the ballot are skipped more often under both ballot orders

	Traditional Ballot Order	Alternate Ballot Order
Relationship with ballot placement for:		
Overvotes	0.002%	0.007%
Undervotes	0.339%	0.251%

Table 3 contains the same results for choice rate. There is less variation in the effects before and after the ballot order change. Under either the traditional or the alternate ballot order, moving a contest one spot lower on the ballot leads to roughly one fifth of a percent decline in the choice rate.

For mail voters, the relationship between ballot order and choice rate is smaller under the alternate order (-0.139% vs. -0.254%). These voters do not appear to be affected by the new Ballot Marking Devices, so their behavior is more directly a consequence of the ballot order itself. Overall, the choice rate increased slightly under the new ballot order (from 83.4% to 84.3%).

The effect of ballot order is generally smaller in high-POC precincts. We define a community of color as the share of the adult citizen population that identifies as Latino, Black, or Asian American.[5] In Table 2 we explore the results for precincts at the 25th (i.e., 39% people of color (POC)) and 75th (i.e., 90% POC) percentiles on this measure, or what we call "low" and "high" POC shares. In these precincts, a single step lower on the ballot leads to about a seventh of a percent decline in the choice rate under both the traditional and alternate ballot orders, while for low-POC precincts, the effect is roughly a quarter of a percent.

Table 3. Contests lower on the ballot are skipped more often under both ballot orders

	Traditional Ballot Order	Alternate Ballot Order
Relationship with ballot placement	-0.203%	-0.206%
Relationship for:		
Low share people of color	-0.278%	-0.266%
High share people of color	-0.137%	-0.152%

Table 4 looks at the choice rate by the type of contest. Because we are no longer looking at all races at the same time, we are no longer comparing changes in rank orders against each other in a single statistical model. Instead, we look at the effect of the entire ballot order change for each of these contests, and then sort the results according to how much their official SB 25 ballot rank changed under the new order. We account statistically for the possibility that some elections will have especially low or high choice rates, to make the before and after comparison as accurate as possible.

Here the results are broadly consistent with the expectation that the choice rate declines as a contest moves farther down the ballot and increases as it moves up the ballot. There has been a large increase in choice rate for mayor and city council, and declines for some statewide races like president and governor. However, consistent with our broader analysis of choices, the decline among the traditional "top of the ticket" races (e.g., president or governor) has been smaller than many of the increases among lower-profile contests.

It is important to emphasize the role of personalities and campaign dynamics in these results. For example, the U.S. Senate race in 2022 featured a race between a Democrat and a Republican, while the previous two Senate contests featured same-party contests between Democrats that likely depressed the choice rate among those uninterested in voting for a member of that party. That same U.S. Senate race was also exempted from the new ballot order and was placed at the top of the ticket. Likewise, the 2022 election featured an LA city mayoral race, and the previous mayoral race was in the 2017 election, which is not our data set. In short, while the broader patterns are instructive, care should be taken before concluding too much about the ballot order from individual contests.

Finally, Table 5 contains the results for turnout. The number of local contests on the ballot has a smaller effect on turnout under the alternate ballot order than under the traditional ballot order. On average, each additional local contest on the ballot leads to a tenth of a percent decline in turnout under the alternate order, but a third of a percent decline under the traditional order. The pattern in Table 5 is even stronger for mail voters. And it runs the opposite direction for in-person voters (i.e., there is no relationship under the old ballot order, but a strongly negative relationship under the new ballot order).

Turnout also varies by the size of a precinct's community of color. Under both the traditional and the alternate ballot orders, high POC precinct turnout is more negatively related to the number of local contests on the ballot than is low POC precinct turnout. In fact, under the alternate ballot order, turnout in low-POC precincts actually rises as the number of local contests increases. Nonetheless, it is worth noting that turnout in high-POC precincts has declined overall under the new ballot order, regardless of the number of local contests on the ballot.

Table 4. Contests moving further down ballot under alternate order see the most vote loss

	Change Under	Share of Corporate/Union/PAC Contributions	Share of Vote	Share of Vote
President	-2.522%	1	39	-38
US Senator*	5.324%	10	40	-30
Attorney General	-2.822%	7	30	-23
Controller	-3.705%	5	28	-23
Governor	-2.555%	2	25	-23
Insurance Commissioner	-0.824%	8	31	-23
Lieutenant Governor	4.985%	3	26	-23
Secretary of State	-4.182%	4	27	-23
BoE	-11.053%	9	32	-23
Treasurer	-3.993%	6	29	-23
Associate Justice, Court of Appeal	-1.772%	18	38	-20
Associate Justice of the Supreme Court	-2.135%	16	36	-20
Presiding Justice, Court of Appeal	-0.739%	17	37	-20
Superintendent of Public Instruction	2.926%	21	33	-12
Statewide measures	1.788%	28	34	-6
Judge of the Superior Court	2.972%	19	21	-2
US Representative	4.754%	11	10	1
State Senate	-6.559%	12	8	4
State Assembly	-3.102%	13	9	4
County Board of Education	7.571%	23	19	4
Other county offices	21.293%	25	20	5
County measures	-2.49%	29	24	5
Assessor	3.323%	24	17	7
Sheriff	9.357%	26	16	10
County Supervisor	6.629%	27	15	12
School measures	-1.351%	31	12	19
College District Governing Board	7.637%	30	6	24
Special district directors or trustees	1.721%	39	13	26
Special district measures	8.252%	40	14	26
City measures	0.438%	38	11	27
High School District Governing Board	5.178%	33	4	29
Elementary District Governing Board	9.723%	34	5	29
Unified District Governing Board	-5.904%	32	3	29
Other city offices	6.315%	37	7	30
City Council	16.778%	36	2	34
Mayor	11.589%	35	1	34

*The US Senate race in 2022 was exempted from the new ballot order and placed at the top of the ticket, but we report its official ballot placement for consistency in the table.

Table 5. Alternative ballot order produces smaller turnout effects

	Traditional Ballot Order	Alternate Ballot Order
Relationship with number of local contests on the ballot	-0.342%	-0.101%
Relationship for:		
Low share people of color	-0.017%	0.204%
High share people of color	-0.318%	-0.157%

Statewide Comparison

The comparison within LA County is helpful, but it is always possible that the new ballot order in that county was adopted coincident with broader changes in elections that affected all contests throughout the state (or even the country). To account for such a possibility—and to respond to SB-25's mandate to find comparison cases without the ballot order change—in this section we place the results in LA County into the context of the entire state.

We can repeat something much closer to the approach we took within LA County when analyzing the choice rate. Specifically, we can look at how the effect of the rank changes with the advent of the new ballot order. For state-level contests (i.e., all statewide offices plus state legislative and U.S. congressional races), we have precinct-level data from the Statewide Database. For lower-level at-large races, we have official election returns from the California Elections Data Archive (CEDA) (we do not have data on district-level local elections for the entire state). The precinct data from the Statewide Database has over 650 times as many individual records as the CEDA data, allowing for much more statistical confidence in the results. Accordingly, we analyze the two data sets separately.

Table 6. Choices: Comparisons of LA County to the rest of the state also suggest small effects

	State Level		Local Level	
	Traditional Ballot Order	**Alternate Ballot Order**	**Traditional Ballot Order**	**Alternate Ballot Order**
Relationship with ballot placement	-0.034%	0.036%	-0.615%	0.051%
Relationship for:				
Low share people of color	-0.033%	0.049%	-0.680%	-0.183%
High share people of color	-0.057%	0.026%	0.382%	0.040%

Table 6 shows the results of this statewide comparison. Among state-level races, there is a very small negative effect of being farther down ballot under the old ballot order (-0.034%) but a very small positive effect in LA under the new ballot order (0.036%) —meaning voters made choices slightly more often in races lower on the ballot. This pattern is largely replicated in both high- and low-POC precincts.

There is a similar pattern among local races. Under the traditional ballot order, an additional step down the ballot lost these local contests about six tenths of a percent in vote choice, while the alternate ballot order produced if anything a very slight increase (0.051%). For low-POC precincts, there is also a larger negative relationship under the traditional (-0.680%) compared to the alternate (-0.183%) ballot order, while high-POC precincts actually have a slightly positive relationship under the traditional order (0.382%) that becomes smaller under the alternate (0.040%). However, because of the smaller sample size for this data set, we do not have statistical confidence about any of these differences.[6]

Table 7 compares turnout in LA County under the alternate ballot order to turnout everywhere else. We do not have statewide information about the number of local contests on each precinct's ballot, so we cannot examine the change in that relationship under the alternate order. Instead, we look at the overall change under the new ballot order in its entirety, without distinguishing the changes by precinct.

Overall, LA County's turnout has fallen by about a sixth of a percent under the new ballot order. Looking at the changes by race/ethnicity, it appears the turnout declined about eight tenths of a percent in LA in high-POC precincts, but actually climbed one percent in low-POC precincts.

Because so many other things changed in LA County at the same time as the ballot order, we cannot say for certain that the ballot order has been responsible for these turnout changes. But it could be part or all of the explanation.

Table 7. Turnout: Comparisons of LA County to the rest of the state also suggest small effects

	Estimated change
Change in turnout under new ballot order	-0.158%
Change in turnout for:	
Low share people of color	1.032%
High share people of color	-0.801%

Conclusions and Considerations for the Legislature

Our analysis suggests the alternate ballot order has had a negligible effect on the outcomes for LA County specified in Senate Bill 25: choices, overvotes, and turnout. Nor have we found evidence that the new ballot order leads voters to skip significantly more contests than before. The rate at which voters make a choice in each contest has risen slightly within LA County, and the gap in the choice rate between the highest-ranked and lowest- ranked contests is about the same. In the case of our statewide comparison using state-level contests, the effect actually flipped direction: being further down the ballot has elevated the choice rate under the new ballot order.

Placing local contests in front of higher-profile contests like president and governor does not appear to discourage turnout; on the contrary, the importance of this factor for turnout declined under the new ballot order. The overall turnout in LA County has been very slightly lower under the new ballot order when compared with the rest of the state, but it is not clear how much of that can be ascribed to the ballot order change by itself.

There are differences in areas with large communities of color, but these differences do not appear to be related to the ballot order change. Turnout in communities of color appears more sensitive to the number of local contests on the ballot, but it is less sensitive to this factor under the new ballot order. Communities of color actually appear less responsive to the rank order on the ballot, and this tendency has not changed under the new system.

Overall, these results are consistent with the idea that voters are searching for high-profile contests and will find them on the ballot regardless where they are placed. Moreover, if lower- profile local contests come first, there is a slightly elevated chance that they will cast votes for those contests as well. And evidence that the alternate ballot order itself discourages voter turnout is inconsistent at best.

There are a number of questions and additional analyses that remain. It would be important to replicate the within-LA County analysis for the rest of the state, or at least for the neighboring counties. That would require GIS shapefiles of the voting precincts for the other 57 counties, as well as detailed precinct data that could be overlaid with that information. This is an important issue of transparency more generally: the availability of information about local elections is far too limited given their importance in our democracy.

Preliminary Policy Recommendations

Based on these research findings it appears that the ballot order change has been largely benign for the outcomes we examine in LA County. The data suggest that the pilot program may even have encouraged some voters to make choices in lower-profile contests, though the evidence for this conclusion is not as strong. The current findings suggest that there is not a clear and compelling data-driven reason to either support the ballot order change or avoid it at a county level. Of course, there may be other reasons and definitions of success, beyond the data analyzed by this study, that the California State Legislature, will want to examine when considering whether or not to expand a similar alternative ballot approach to other counties or statewide. We should also note, again, that the alternative ballot order order pilot commenced with the implementation of LA County's Voting Solutions for All People (VSAP), a voting system unique in design and user experience in California. Thus, some of the evidence from LA County may not reflect what other jurisdications would experience if they made the same ballot order change but did not adopt LA's in-person voting machines.

Appendix

Table A1. Model results for turnout

	Model 1	Model 2
Intercept	0.6622***	0.7924***
	(0.0077)	(0.0075)
Number of local contests	-0.0034***	0.0021***
	(0.0005)	(0.0005)
Alternate ballot order in place	-0.4027***	-0.2984***
	(0.0148)	(0.0143)
People of color share of CVAP	--	-0.2354***
		(0.0035)
Local contests X alternate order	0.0024***	0.0027***
	(0.0006)	(0.0007)
Local contests X POC CVAP	--	-0.0059***
		(0.0003)
Alternate order X POC CVAP	--	-0.049***
		(0.0043)
Local contests X alternate order X POC CVAP	--	-0.0012**
		(0.0004)
Congress X Assembly X State Senate district fixed effects	X	X
Election fixed effects	X	X
RMSE	0.088	0.0819
N	34513	33830

Notes

1. See: Alvarez, R. Michael, Besty Sinclair, Richard L. Hasen. "How Much Is Enough? The 'Ballot Order Effect' and the Use of Social Science Research in Election Law Disputes." Election Law Journal. Vol. 5, no. 1 (2006): 40-56. Ho, Daniel E. and Kosuke Imai. "The Impact of Partisan Electoral Regulation: Ballot Effects from the California Alphabet Lottery, 1978-2002." Princeton Law & Public Affairs Paper No. 04- 001: Harvard Public Law Working Paper No. 89. 2004.Ho, Daniel E. and Kosuke Imai. "Estimating Causal Effects of Ballot Order From a Randomized Natural Experiment: The California Alphabet Lottery." Public Opinion Quarterly. Vol. 72, no. 2 (2008): 216-240.

2. See the full text of California Senate Bill 25 here: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB25

3. For turnout, which does not vary within a precinct by individual contests but can be powerfully affected by the historical voting behavior of a local community, our models include fixed effects for the intersection of Assembly, State Senate, and Congressional districts where a specific precinct is located. This intersection is not as time- invariant as we would like—it changes with redistricting—but it is the most consistent geographic control available to us within LA County. For the choice rate in a particular contest—where the variation is much more strongly driven by the type of contest— we include fixed effects for the contest as defined by SB 25. We also include election fixed effects in all our models, to account for any variation between elections that would affect all locations and contests.

4. The Voter's Choice Act (Senate Bill 450) ordinarily involves sending every voter a vote-by-mail ballot as well, but LA County received an exception in the VCA, postponing that step for the 2020 election cycle, except in state legislative and congressional districts shared with Orange County. LA County used this approach for the March 2020 Primary. After that, the coronavirus pandemic and Governor Newsom's Executive Order (N-64-20), resulted in the county sending every voter a vote-by-mail ballot, leading to de facto full VCA implementation in the 2020 General Election.

5. To identify the racial and ethnic composition of voting communities, we matched our precinct data to Census data using conversion files from the Statewide Database. For the statewide comparisons with state-level contests, the matching has already been done by the Statewide Database. For the statewide comparisons with school districts, we overlaid the precinct shapefiles from the Statewide Database with school district shapefiles from the U.S. Department of (Education https://nces.ed.gov/programs/edge/Geographic/DistrictBoundaries), and then merged those with census blocks using the Statewide Database conversion files. For the statewide comparisons with cities and counties, we relied directly on the conversion files from the Statewide Database. Finally, for the analysis within

6. Using the data from the Statewide Database, we are also able to compare the parts of state legislative and congressional districts shared with LA County neighbors who did not adopt the new rank order with the parts within LA County in the same state legislative and congressional districts. This is an excellent approach for identifying the effect of the policy change on the choice rate, because it holds constant all other characteristics of the election— both broader characteristics and ones specific to that particular contest. It is less effective at identifying turnout effects because we have no information about the local contests in the neighboring counties that might drive or suppress turnout on that side. Moreover, all the effects of an analysis of this kind are identified in the context of those state legislative and congressional districts alone. They do not allow us to explore the effects for other types of races or the same types of races in other locations. Since state legislative and congressional races had some of the smallest rank order changes in SB 25, this is a significant limitation for the analysis. However, we conducted the analysis and we report the results in Tables A8 and A9 of the appendix. This approach finds 5.1% higher turnout in LA County under the ballot order. It also finds choice rate declines of 2.35% for Assembly and 1.65% for Congress, and a 0.97% increase for State Senate.

Table A2. Model results for choice rate

	Model 1	Model 2
Intercept	0.78589***	0.75233***
	(0.00062)	(0.00066)
True rank order	-0.00203***	-0.00387***
	(0.00003)	(0.00005)
Alternate ballot order in place	0.04176***	0.02665***
	(0.00038)	(0.0005)
People of color share of CVAP	--	0.05109***
		(0.0003)
True rank X ballot order	-0.00003	0.00033***
	(0.00004)	(0.00006)
True rank X POC CVAP	--	0.00278***
		(0.00005)
Alternate order X POC CVAP	--	0.02144***
		(0.00049)
True rank X alternate order X POC CVAP	--	-0.00054***
		(0.00008)
Type of contest fixed effects	X	X
Election fixed effects	X	X
RMSE	0.0650	0.0664
N	1085620	1059908

Table A3. Model results for overvotes and undervotes

	Overvotes	Undervotes
Intercept	0.0185	17.7699**
	(0.1955)	(5.6553)
Official SB 25 rank order	0.0025	0.3394***
	(0.0017)	(0.0479)
Alternate ballot order in place	-0.0170	-3.5581**
	(0.0408)	(1.1794)
Rank X ballot order	0.0048	-0.0883
	(0.0030)	(0.0865)
Type of contest fixed effects	X	X
Election fixed effects	X	X
RMSE	0.3335	9.6466
N	1875	1875

Table A4. Model results for by-race analysis

	Corporate, Union, and PAC Monetary Contributions 2014 Board of Supervisor Election San Francisco County					San Francisco County	
	Intercept	Intercept SE	Alternate ballot order	Alternate ballot order SE	Election fixed effects	RMSE	N
President	0.9658	0.0003	-0.0252	0.0005	X	0.0245	17674
US Senator	0.8774	0.0007	0.0532	0.0011	X	0.0496	27657
Attorney General	0.9577	0.0005	-0.0282	0.0008	X	0.0361	16899
BoE	0.9152	0.0008	-0.1105	0.0014	X	0.0610	16922
Controller	0.9541	0.0005	-0.037	0.0008	X	0.0338	16865
Governor	0.9714	0.0004	-0.0256	0.0006	X	0.0289	16913
Insurance Commissioner	0.9119	0.0007	-0.0082	0.0012	X	0.0524	16934
Lieutenant Governor	0.8670	0.0007	0.0499	0.0011	X	0.0512	16860
Secretary of State	0.9584	0.0005	-0.0418	0.0007	X	0.0332	16867
Treasurer	0.9513	0.0006	-0.0399	0.0009	X	0.0396	16866
Associate Justice of the Supreme Court	0.7619	0.0008	-0.0213	0.0011	X	0.0806	20873
Associate Justice, Court of Appeal	0.7178	0.0003	-0.0177	0.0006	X	0.0868	98479
Presiding Justice, Court of Appeal	0.7188	0.0006	-0.0074	0.001	X	0.0856	31094
Superintendent of Public Instruction	0.8363	0.0009	0.0293	0.0014	X	0.0609	16854
Statewide measures	0.9030	0.0001	0.0179	0.0007	X	0.0378	250582
Judge of the Superior Court	0.7692	0.0005	0.0297	0.0006	X	0.0717	234648
US Representative	0.8842	0.0008	0.0475	0.0013	X	0.0585	34768
County Board of Education	0.7024	0.0087	0.0757	0.0153	X	0.0869	611
State Assembly	0.8719	0.0013	-0.031	0.0021	X	0.0960	34570
State Senate	0.8824	0.0017	-0.0656	0.0026	X	0.0839	17174
County measures	0.8940	0.0004	-0.0249	0.0008	X	0.0418	24994
Other county offices	0.6518	0.0008	0.2129	0.0013	X	0.0615	12168
Assessor	0.8042	0.0008	0.0332	0.0013	X	0.0586	13302
Sheriff	0.8285	0.0007	0.0936	0.0011	X	0.0507	16858
County Supervisor	0.7970	0.0014	0.0663	0.0025	X	0.0711	12396
School measures	0.8632	0.0008	-0.0135	0.0053	X	0.0516	13075
College District Governing Board	0.7727	0.0074	0.0764	0.0132	X	0.0962	1777
Special district directors or trustees	0.7538	0.0016	0.0172	0.002	X	0.0834	18993
Special district measures	0.8383	0.0054	0.0825	0.0068	X	0.0561	6809
City measures	0.8400	0.0005	0.0044	0.0015	X	0.0484	23227
Elementary District Governing Board	0.7855	0.017	0.0972	0.0281	X	0.0742	103
High School District Governing Board	0.7518	0.005	0.0518	0.0067	X	0.1125	1385
Unified District Governing Board	0.8875	0.0117	-0.059	0.012	X	0.0714	3289
Other city offices	0.7822	0.0026	0.0631	0.0029	X	0.0646	6517
City Council	0.7061	0.0041	0.1678	0.0048	X	0.0731	3574
Mayor	0.8478	0.0031	0.1159	0.0034	X	0.0447	3497

Table A5. Model results for turnout: Statewide comparison

	Model 1	Model 2
Intercept	0.7869***	0.8894***
	(0.0010)	(0.0009)
Alternate ballot order in place	-0.0016	0.0243***
	(0.0018)	(0.0029)
Los Angeles County	-0.1007***	-0.0414***
	(0.0011)	(0.0010)
People of color share of CVAP	--	-0.2602***
		(0.0010)
Alternate order X POC CVAP	--	-0.0359***
		(0.0038)
Election fixed effects	X	X
RMSE	0.1342	0.1088
N	153660	151972

Table A6. Model results for choices: Statewide comparison using statewide races

	Model 1	Model 2
Intercept	0.93056***	0.92881***
	(0.00027)	(0.00027)
Official SB 25 rank order	-0.00034***	-0.00014***
	(0.00002)	(0.00002)
Alternate ballot order in place	-0.00684***	-0.02022***
	(0.00024)	(0.0005)
Los Angeles County	-0.02374***	0.00377***
	(0.00011)	(0.00013)
People of color share of CVAP	--	-0.02437***
		(0.00011)
Rank order X Alternate ballot order	0.00071***	0.0008***
	(0.00002)	(0.00004)
Rank order X POC CVAP		-0.00048***
		(0.00001)
Alternate ballot order X POC CVAP		0.02018***
		(0.00067)
Rank order X Alternate ballot order X POC CVAP		0.00003***
		(0.00005)
Type of contest fixed effects	X	X
Election fixed effects	X	X
RMSE	0.0547	0.0537
N	2346034	2320522

Table A7. Model results for choices: Statewide comparison using local races

	Model 1	Model 2
Intercept	0.7225***	0.6665***
	(0.0318)	(0.0305)
Official SB 25 rank order	-0.0061#	-0.0149***
	(0.0036)	(0.0035)
Alternate ballot order in place	0.0170	0.0255
	(0.0539)	(0.1903)
Los Angeles County	0.0457***	0.0007
	(0.0126)	(0.0122)
People of color share of CVAP	--	0.1454***
		(0.0118)
Rank order X Alternate ballot order	0.0067	0.0114
	(0.0047)	(0.0098)
Rank order X POC CVAP	--	0.0208***
		(0.0023)
Alternate ballot order X POC CVAP	--	-0.0249
		(0.2695)
Rank order X Alternate ballot order X POC CVAP	--	-0.0165
		(0.0125)
Type of contest fixed effects	X	X
Election fixed effects	X	X
RMSE	0.1444	0.1374
N	3516	3516

Table A8. Model results for split districts: Turnout

Intercept	0.2388*
	0.1147
Alternate ballot order in place	0.0509***
	0.0058
Los Angeles County	-0.0668***
	0.0047
Congress X Assembly X State Senate district fixed effects	X
Election fixed effects	X
RMSE	0.1342
N	153660

Table A9. Model results for split districts: Choices

	Assembly	State Senate	US Congress
Intercept	0.8660***	0.4407***	0.9768***
	(0.0756)	(0.0578)	(0.0443)
Alternate ballot order in place	-0.0235***	0.0097*	-0.0165***
	(0.0039)	(0.0044)	(0.0023)
Los Angeles County	-0.0141***	-0.0257***	-0.0086***
	(0.0031)	(0.0033)	(0.0018)
Congress X Assembly X State Senate district fixed effects	X	X	X
Election fixed effects	X	X	X
RMSE	0.0756	0.0578	0.0443
N	153282	75370	153563