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Election Science

TRANSFORMING THE VOTE:

How Voting Reforms Can Improve Equity for Minorities (& When They Can't)

Meta-Analysis Research Report

THE CENTER FOR ELECTION SCIENCE RESEARCH HUB

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Whitney Hua, Ph.D.

Director of Applied Data & Research
whitney@electionscience.org

José Javier Alcocer, M.P.P.

Computational Social Scientist
jose@electionscience.org

Nina Taylor, M.A.

Chief Executive Officer
nina@electionscience.org

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OVERVIEW

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Overview

Ranked Choice Voting (RCV) is frequently promoted as an alternative to Plurality Voting, with the goal of enhancing democratic representation.[1] As its gained traction across various jurisdictions—ranging from states like Alaska and Maine to cities like New York and San Francisco—the impact of RCV on minority communities has become a critical area of research and debate.

While the adoption and awareness of RCV continue to expand, scholars have increasingly raised concerns about its effectiveness in fulfilling its promises of improved representation and equity. Some of the literature has shown that RCV often falls short in addressing these goals, particularly for underrepresented minority groups.[2] As such, there is a growing need to critically assess RCV's limitations and explore alternative voting methods that may more effectively promote fair representation.

One such alternative is Approval Voting, which presents a promising approach to overcoming the shortcomings of RCV.[3]

Approval Voting could offer a more equitable solution, especially in terms of its impact on minority voters.

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1. Ranked-Choice Voting is a voting system where voters rank candidates in order of preference. If no candidates get a majority (over 50%) first-choice votes, the lowest-ranked candidate is eliminated, and their votes are redistributed until a candidate achieves a majority of votes.

2. See McCarty (2024).

3. See Durand, Macé, and Nuñez (2024); Hamlin and Hua (2022).

Impact of RCV from Research

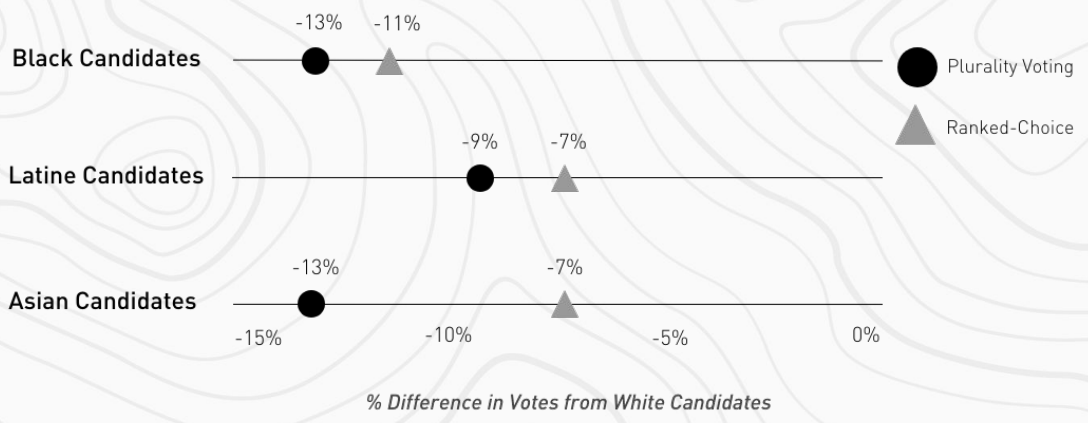
IMPACT OF RCV ON RACIAL MINORITIES

Electing Candidates of Color

Research finds no difference between RCV & plurality voting.

Data from recent research indicates that biases against candidates of color persist in RCV elections, with only marginal differences in voter behavior compared to plurality.[1]

No Difference Between RCV vs. Plurality on Electing Candidates of Color



Note: Confident intervals not shown for simplicity of the plot. None of the candidate group comparisons showed statistically significant differences.
Source: Crowder-Meyer, Gadarian, and Trounstine (2020).

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1. See Crowder-Meyer, Gadarian, and Trounstine (2020)

IMPACT OF RCV ON RACIAL MINORITIES

Electing Candidates of Color

Research finds no difference between RCV & plurality voting.

When using RCV, voters are shown to similarly penalize candidates of color as they do with plurality (choose-1) systems—particularly in low-information environments where voter racial biases are often more pronounced.

These findings demonstrate that:

- Racial biases amongst voters still negatively affect underrepresented candidates and their campaigns; and

- The adoption of RCV as a reform does not reliably improve the likelihood of candidates of color winning compared to the current plurality voting system.

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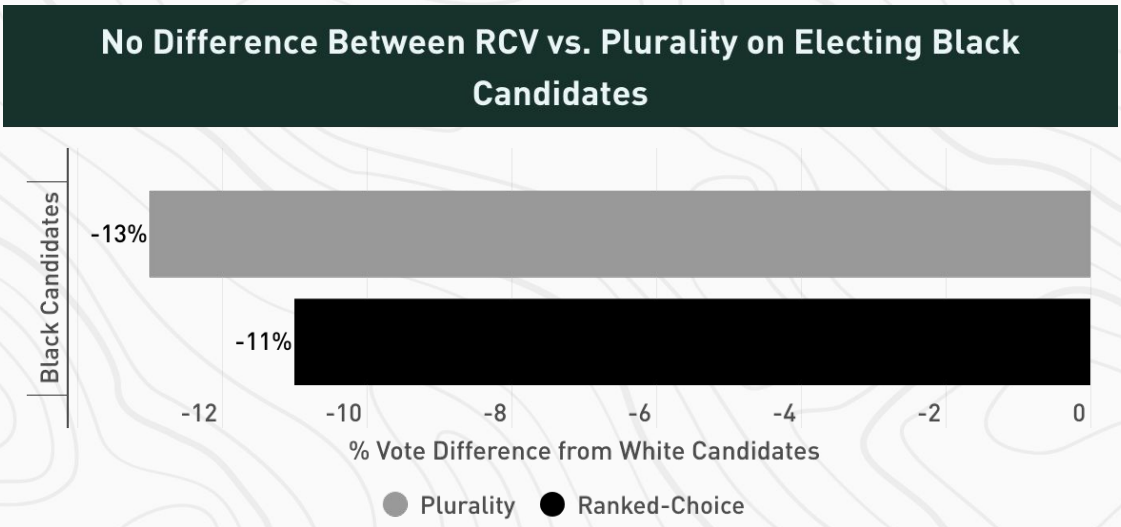
1. See Crowder-Meyer, Gadarian, and Trounstine (2020)

IMPACT OF RCV ON RACIAL MINORITIES

Electing Black Candidates

Research finds no difference between RCV & plurality voting.



Note: Candidate group comparisons showed no statistically significant differences.

Source: Crowder-Meyer, Gadarian, and Trounstine (2020).

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In RCV elections, Black candidates are ranked first about 11 percentage points less often than White candidates.

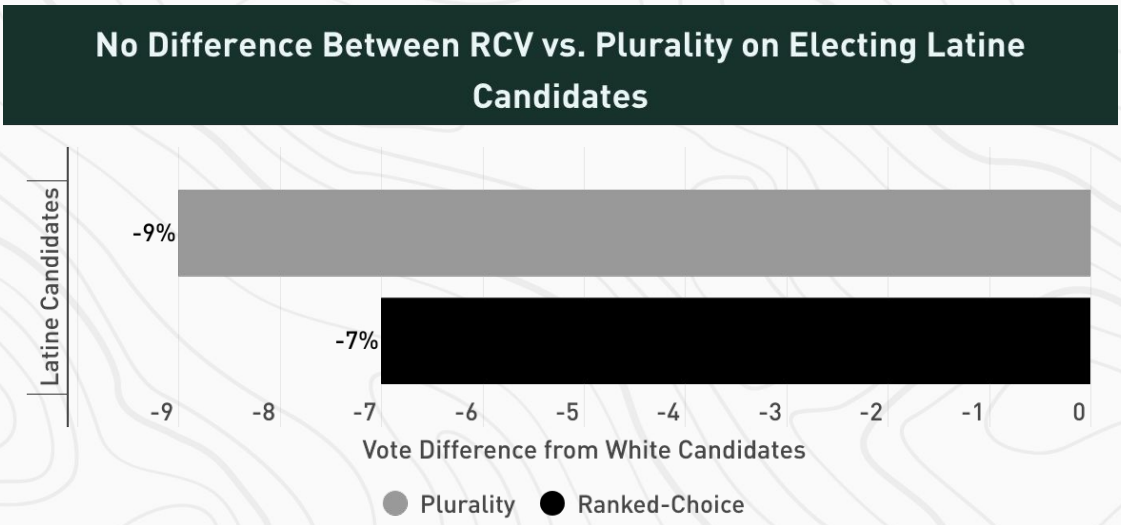
In plurality elections, Black candidates are chosen approximately 13 percentage points less often than White candidates.

1. See Crowder-Meyer, Gadarian, and Trounstine (2020)

IMPACT OF RCV ON RACIAL MINORITIES

Electing Latine Candidates

Research finds no difference between RCV & plurality voting.



Note: Candidate group comparisons showed no statistically significant differences.

Source: Crowder-Meyer, Gadarian, and Trounstine (2020).

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In RCV elections, Latine candidates are ranked first about 7 percentage points less often than White candidates.

In plurality elections, Latine candidates are chosen approximately 9 percentage points less often than White candidates.

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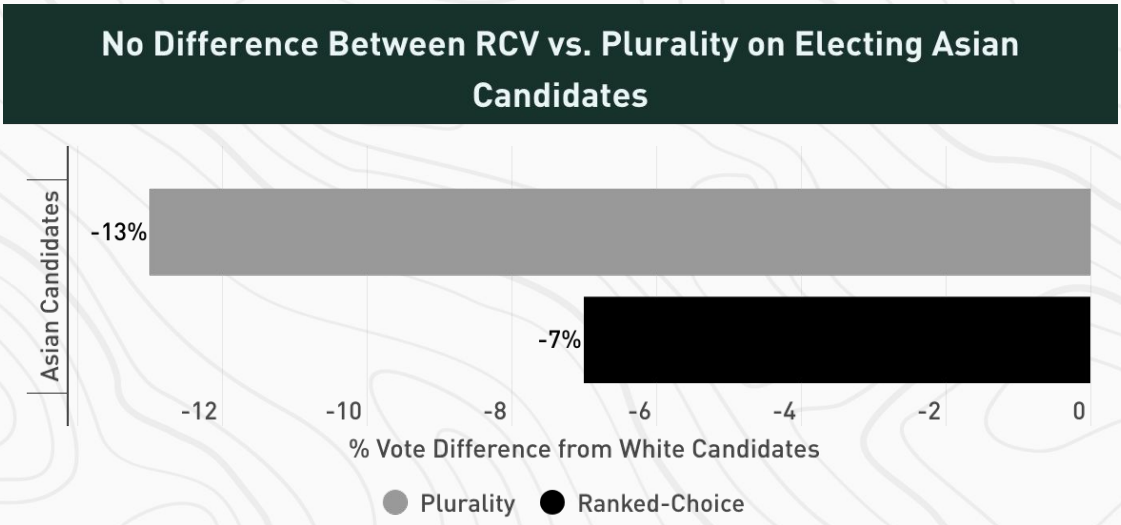
1. See Crowder-Meyer, Gadarian, and Trounstine (2020)

IMPACT OF RCV ON RACIAL MINORITIES

Electing Asian Candidates

Research finds no difference between RCV & plurality voting.



Note: Candidate group comparisons showed no statistically significant differences.

Source: Crowder-Meyer, Gadarian, and Trounstine (2020).

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In RCV elections, Asian candidates are ranked first about 7 percentage points less often than White candidates.

In plurality elections, Asian candidates are chosen approximately 13 percentage points less often than White candidates.

1. See Crowder-Meyer, Gadarian, and Trounstine (2020)

IMPACT OF RCV ON RACIAL MINORITIES

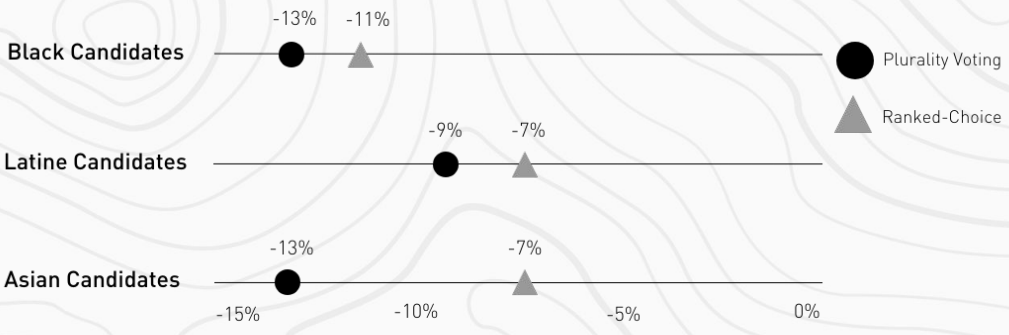
Electing Candidates of Color

Research finds no difference between RCV & plurality voting.

These findings demonstrate that:

- Racial biases amongst voters still negatively affect underrepresented candidates and their campaigns; and
- The adoption of RCV as a reform does not reliably improve the likelihood of candidates of color winning compared to the current plurality voting system.

No Difference Between RCV vs. Plurality on Electing Candidates of Color



Note: Confident intervals not shown for simplicity of the plot. None of the candidate group comparisons showed statistically significant differences.
Source: Crowder-Meyer, Gadarian, and Trounstine (2020).

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Racial Polarization

Research finds more polarized voting between white and racial minority voters when switching to RCV.

RCV has also been found to increase racially polarized voting.

Definition

Racially polarized voting occurs when voters from one racial group overwhelmingly support one candidate, whereas voters from another racial group overwhelmingly support another

Racial Polarization

Research finds more polarized voting between white and racial minority voters when switching to RCV.

Even when accounting for demographic characteristics (e.g., race, education, and income levels), the implementation of RCV in both Oakland and San Francisco led to higher levels of voting polarization between White and Black voters, White and Latine voters, and White and Asian voters.[1]

Some experimental research has shown that providing more information—specifically, candidate party affiliation information—to voters may combat racial biases.[3]

This is, however, contingent on availability of voter education resources, and whether party affiliation information is available and/or consequential (e.g. closed partisan primary races would mean all candidates share the same party affiliation).

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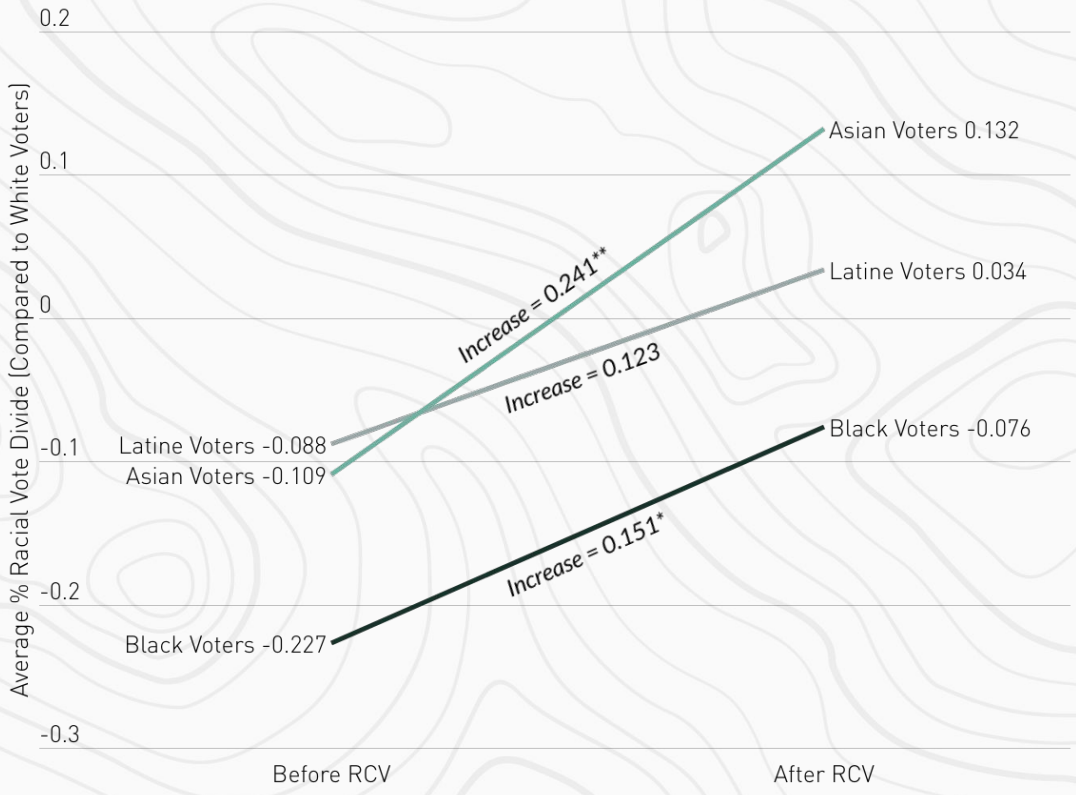
1. See McDaniel (2018). Estimated effects were statistically significant only for White-Black and White-Asian voter groups.

2. See Adida et al. (2017)

Racial Polarization

Increase in Polarized Voting Between White and Minority Voters When Cities Switch to RCV



Note: Asterisks denote statistically significant differences (* p<0.05 ** p<0.001). Estimates based on baseline diff-in-diff (DID) model calculating the average effects of RCV implementation in Oakland and San Francisco.

Source: Racial group voting estimates from mayoral elections in Oakland, San Francisco, and 29 non-RCV cities serving as controls for DID (McDaniel 2018).

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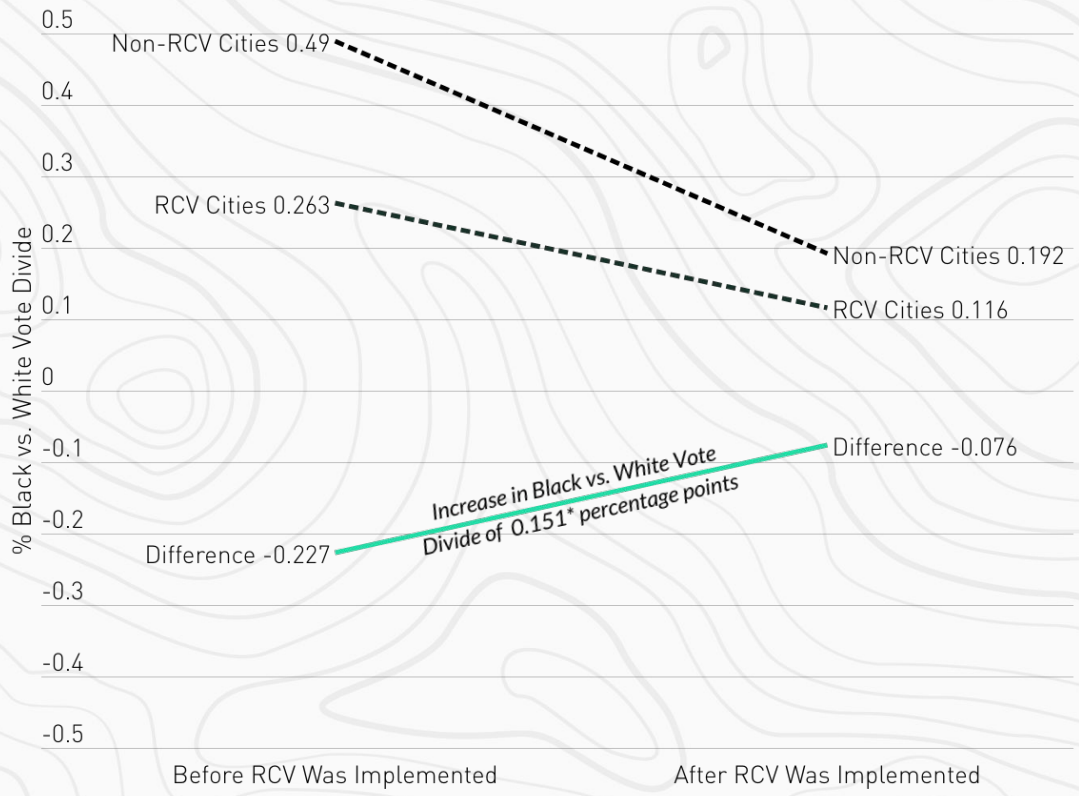
Racial Polarization

Cities that switched to RCV led to a 0.151 percentage point increase in the vote divide between White and Black voters.

Increase in Polarized Voting Between White and Black Voters When Switching to RCV



Note: Asterisks denote statistically significant differences (* p<0.05 ** p<0.001). Estimates based on baseline diff-in-diff (DID) model calculating the average effects of RCV implementation in Oakland and San Francisco.

Source: Racial group voting estimates from mayoral elections in Oakland, San Francisco, and 29 non-RCV cities serving as controls for DID (McDaniel 2018).

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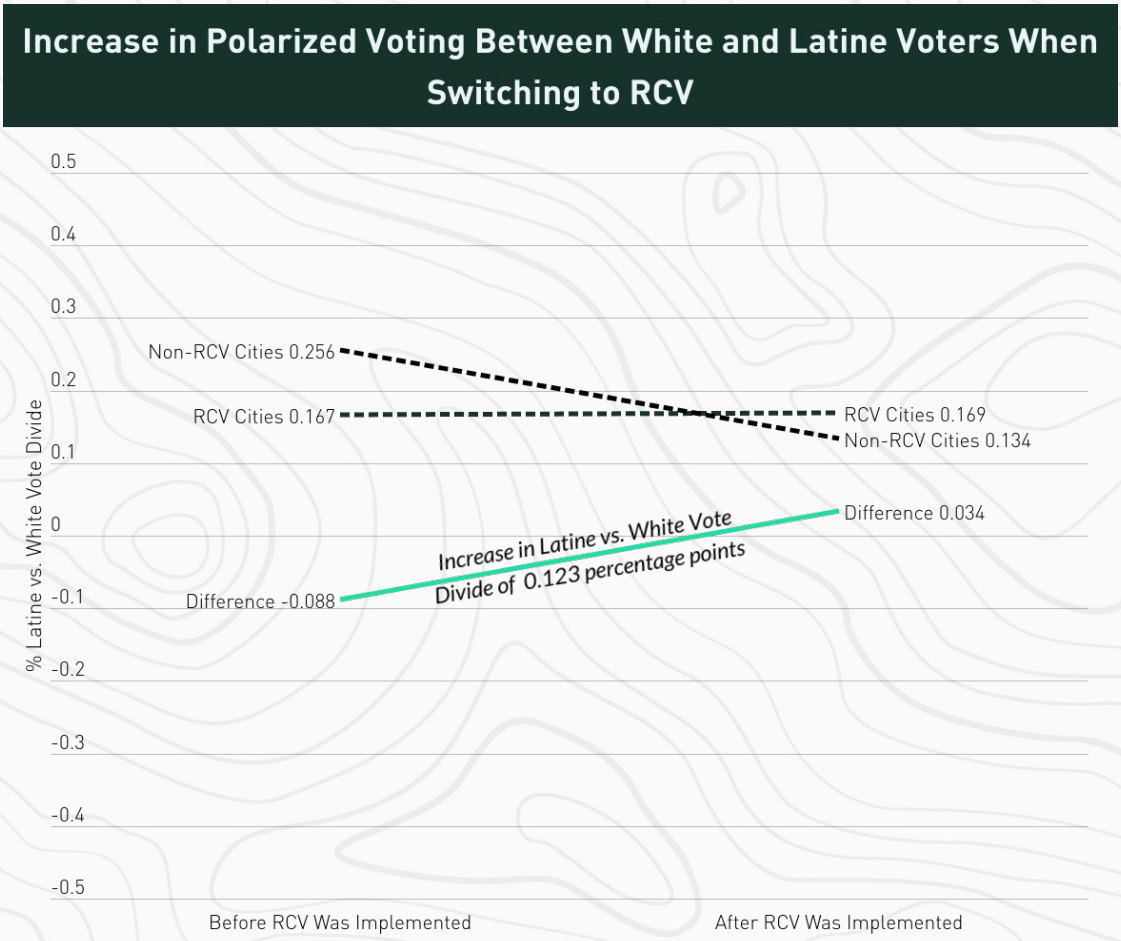
Racial Polarization

Cities that switched to RCV led to a 0.123 percentage point increase in the vote divide between White and Latine voters.



Note: Asterisks denote statistically significant differences (* p<0.05 ** p<0.001). Estimates based on baseline diff-in-diff (DID) model calculating the average effects of RCV implementation in Oakland and San Francisco.

Source: Racial group voting estimates from mayoral elections in Oakland, San Francisco, and 29 non-RCV cities serving as controls for DID (McDaniel 2018).

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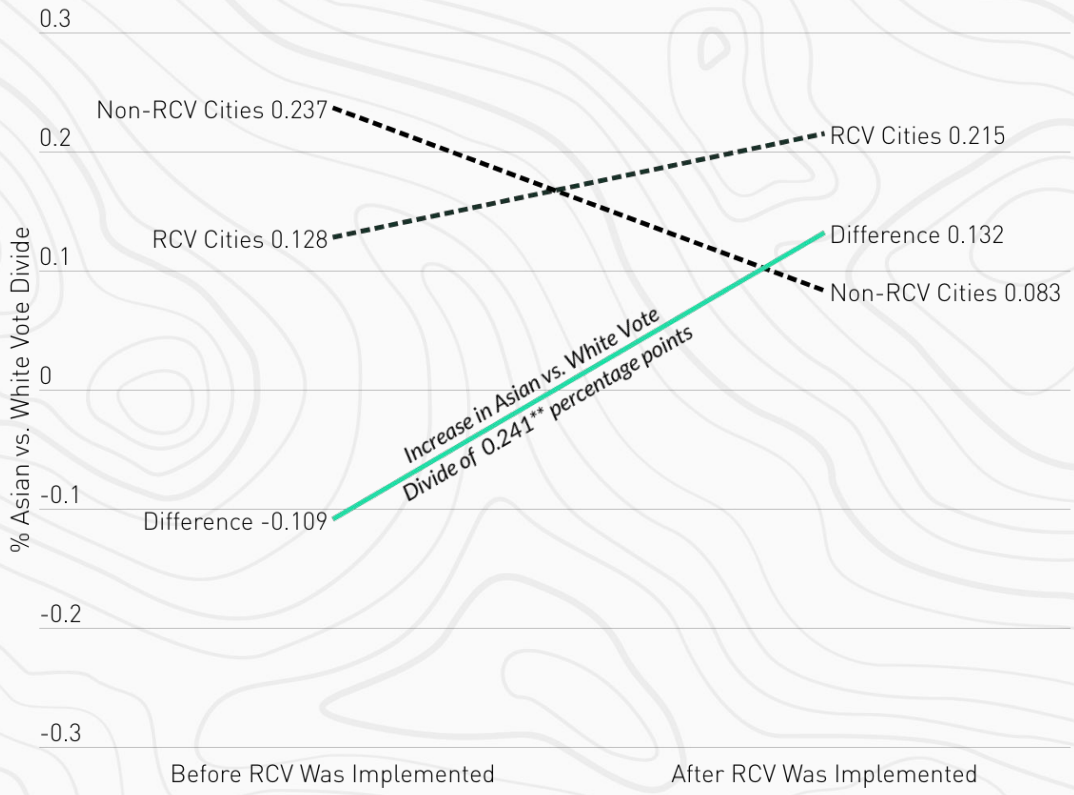
Racial Polarization

Cities that switched to RCV led to a 0.241 percentage point increase in the vote divide between White and Asian voters.

Increase in Polarized Voting Between White and Asian Voters When Switching to RCV



Note: Asterisks denote statistically significant differences (* p<0.05 ** p<0.001). Estimates based on baseline diff-in-diff (DID) model calculating the average effects of RCV implementation in Oakland and San Francisco.

Source: Racial group voting estimates from mayoral elections in Oakland, San Francisco, and 29 non-RCV cities serving as controls for DID (McDaniel 2018).

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Voter Turnout & Participation

Research finds **decreased voter turnout & participation** when switching to RCV.

Research indicates that RCV does not necessarily increase voter turnout.

Studies analyzing RCV adoption across several RCV cities found that turnout in mayoral elections actually decreased, even when controlling for factors like election type and timing.[1] Additionally, turnout was further reduced in open-seat elections.2

These findings suggest that the complexity of the ranked-choice system, particularly in diverse cities, may deter voter participation. To counteract these challenges, implementing targeted voter education campaigns that simplify the RCV process and build familiarity—especially among minority communities—could help improve engagement.3

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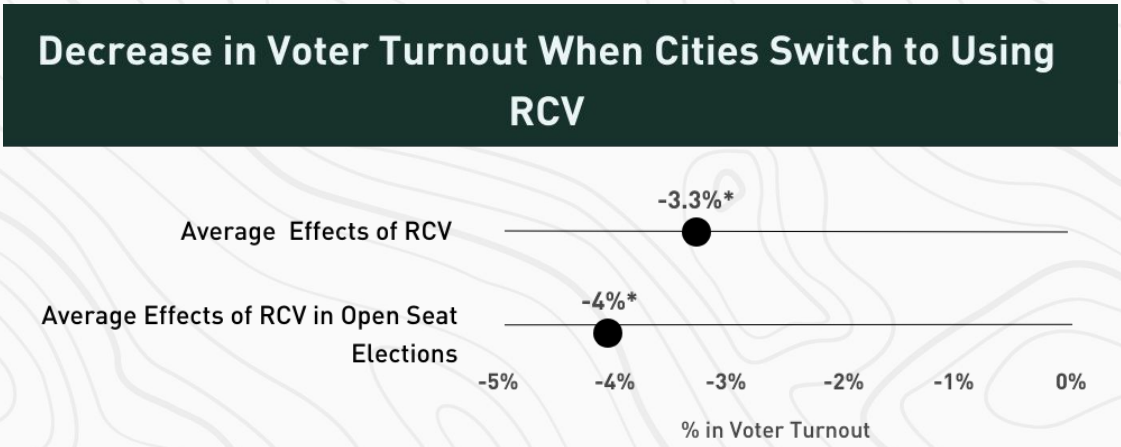
1. These cities consisted of Berkeley, Minneapolis, Oakland, Saint Paul, San Francisco, San Leandro, and Santa Fe
2. See McDaniel (2019)
3. See Cormack (2023)

Voter Turnout & Participation

Research finds **decreased voter turnout & participation** when switching to RCV.



Note: Confident intervals not shown for simplicity of the plot. Difference-in-difference (DID) estimates calculated from linear fixed-effects regression models with fixed-effects for city and election year plus different sets of covariates: 1) city population demographics, 2) electoral context (incumbency, competitiveness, number of candidates), and 3) electoral institutions (timing, type, non-partisan). Asterisks denote statistically significant differences (* $p<0.05$).

Data Source: Panel data on voter turnout for 7 RCV cities (Berkeley, Minneapolis, Oakland, San Francisco, San Leandro, Santa Fe, and St. Paul) and 204 non-RCV cities (McDaniel 2019).

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Election & Ballot Security

The Case of NYC and RCV

Ballot Secrecy is a cornerstone of democratic elections, essential for ensuring voter trust. However, the implementation of RCV can introduce vulnerabilities that threaten this principle, as seen in the 2021 New York City Mayoral primary.

Researchers from the Stevens Institute of Technology and Princeton University's Electoral Innovation Lab uncovered that the New York City Board of Elections inadvertently exposed the voting preferences of 378 individuals, including prominent voters like Dante de Blasio. By cross-referencing publicly available voter files with RCV cast-votes, researchers were able to match specific voters to their rankings, thus breaching ballot secrecy.[1]

This breach occurred due to mandated reporting formats that made it possible to de-anonymize votes in precincts with very few voters. While some organizations, such as Common Cause/New York, have downplayed the scope of this issue, the incident underscores a significant vulnerability within RCV systems.

Without adequate safeguards, RCV can inadvertently compromise voter privacy, potentially undermining trust in the electoral process. Ensuring robust protections for ballot secrecy is crucial for maintaining voter confidence and the integrity of of any voting system.

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1. See Fitzsimmons (2021)

Election & Ballot Security

Research on Electoral Malfeasance

RCV introduced vulnerabilities that can be exploited for electoral malfeasance.

Unlike simpler methods, RCV ballots cannot be counted at individual precincts and must be transported to a central location for tabulation, requiring special machines and trained election officials. This centralized process not only prolongs the vote-counting period but also increases the risk of tampering during transportation and handling.[1]

This Moreover, experimental findings have identified a security glaw in RCV elections: the unique ranking sequences on ballots could allow vote buyers to verify that purchased votes are cast as instructed, compromising the secrecy of the ballot. This risk is particularly concerning in elections with many candidates and detailed result reporting, where patterns in ranking could be more easily tracked.[2] While there is currently no evidence of such schemes being implemented, the potential for abuse underscores the need for enhanced safeguards and voter education

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1. See Anthony et al. (2021); Bryer (2021); McDaniel (2019)

2. See Williams, Baltz, and Stewart (2024)

Impact of RCV in Competitive Elections

RCV is often promoted as a way to prevent vote splitting and encourage candidates to appeal to a broader electorate. However in practice, RCV can present challenges, especially in districts where multiple candidates share similar demographics or policy positions.

Definition

Vote Splitting is an electoral phenomenon found in plurality voting systems, often triggered by races with more than two candidates. It occurs when votes are divided among multiple candidates.

While RCV allows voters to rank candidates, it does not always eliminate vote splitting among those who attract the same voter base. In cases where candidates share similar demographics/ideologies, RCV was shown to fragment support rather than consolidate it. In multi-candidate races, the dynamics of RCV do not necessarily incentivize candidates to adopt inclusive, broad-based campaign strategies. Instead, candidates focus narrowly on securing first-choice votes that are critical for advancing through the first rounds of vote transfers.[1]

1. See Atsusuka, Valeva, and Vallejo (2024)

Impact of RCV in Competitive Elections

In addition, studies on electoral competitiveness under RCV show that while the system can lead to more candidates entering the race, this does not always result in more representative outcomes.

As the number of candidates increases, the electorate can become fragmented, sometimes leading to a candidate winning through the redistribution of lower-preference votes rather than through broad appeal and majority support.[1]

1. See Buisseret and Prato (2023)

A Solution That Works

Approval Voting

In From persistent racial biases and lower voter turnout to concerns about ballot secrecy and electoral security, complexities and unintended consequences highlight the need for a better approach.

Approval Voting (AV) emerges as a promising solution that directly addresses these shortcomings.

By allowing voters to select (approve of) as many candidates as they wish without ranking them, AV simplifies the voting process, reduces strategic voting, and enhances fair representation, making it a superior alternative to RCV.

Approval Voting in Practice

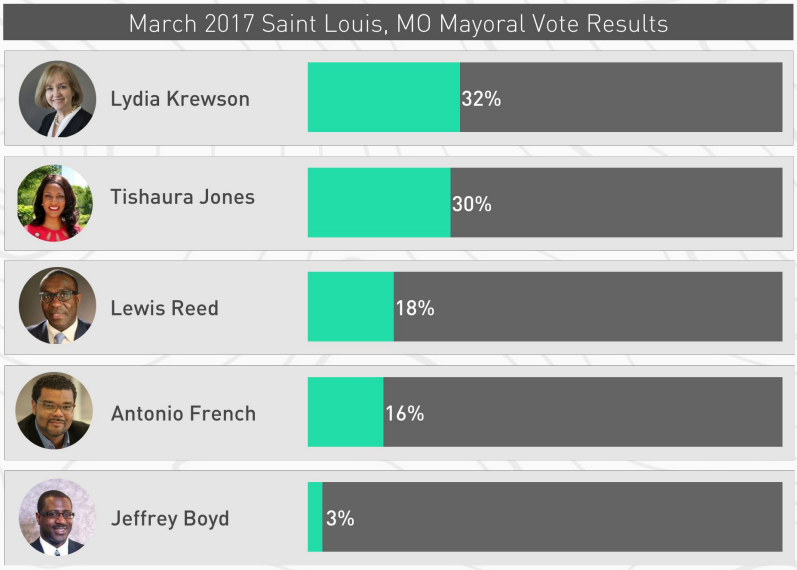
The Case of St. Louis, MO

The 2021 St. Louis Mayoral primary illustrates how AV can effectively address issues often encountered with RCV.

Historically, St. Louis elections have suffered from vote splitting, where multiple candidates from similar political or demographic backgrounds divide the vote.

This often resulted in candidates winning without majority support, as votes for similar candidates canceled each other out under the traditional plurality voting system.

Example of this is the 2017 elections.



Data source: Ballotpedia

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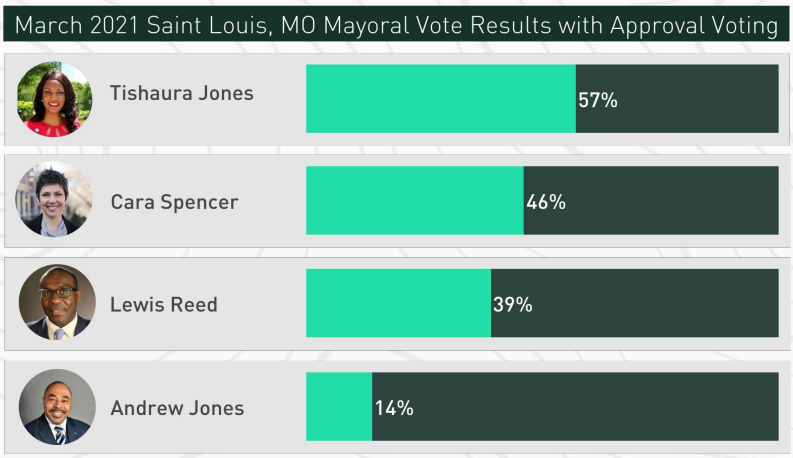
Approval Voting in Practice

The Case of St. Louis, MO

In the 2021 primary, St. Louis implemented Approval Voting, allowing voters to approve of as many candidates as they found acceptable rather than being restricted to choosing just one.

This shift in the voting system produced significant changes in the election dynamics. With AV, the top two candidates who advanced to the general election were Tishaura Jones and Cara Spencer–both considered the most progressive candidates in the race.



Data source: Ballotpedia

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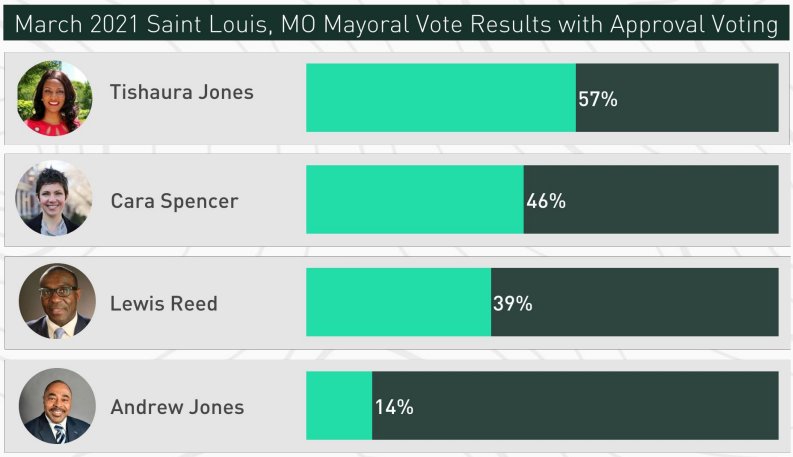
Approval Voting in Practice

The Case of St. Louis, MO

Under a plurality system, these two candidates likely would have split the progressive vote, potentially leading to neither advancing. However, AV enabled voters to express support for both without fear of “wasting” their vote or inadvertently aiding a less favorable candidate.

The result was not only a clear representation of voter preferences but also historic: Tishaura Jones went on to become the first Black woman elected as mayor of St. Louis. This outcome demonstrated how AV can empower voters to support their genuine preferences and reduce strategic voting dilemmas, such as choosing the “lesser of two evils.”



Data source: Ballotpedia

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Potential of Approval Voting

The Case of 2024 CA Senate Primary Elections

The 2024 U.S. Senate primary in California provides a compelling example of how AV can better capture voter preferences compared to RCV or the existing plurality system.

In a study conducted by The Center for Election Science (CES) in collaboration with SurveyUSA, registered voters in California were surveyed on their approval of each candidate running in the high-profile Senate race.

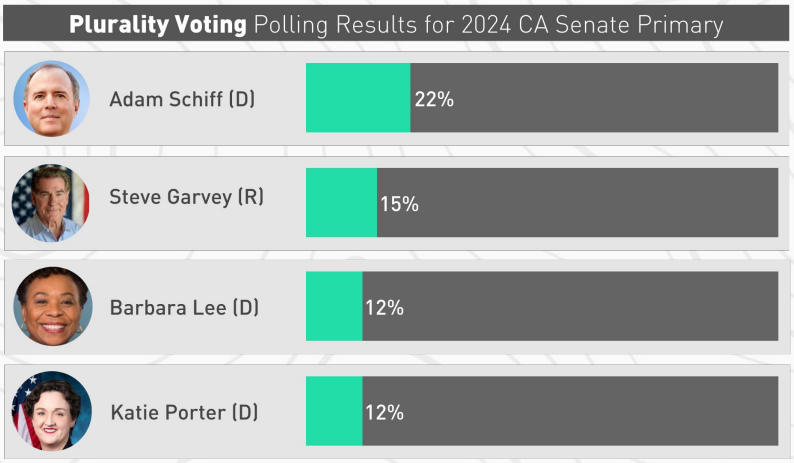
California's current plurality system allows voters to select only one candidate, which often results in vote splitting, especially when multiple candidates with similar platforms and ideologies are competing.

Potential of Approval Voting

The Case of 2024 CA Senate Primary Elections

This dynamic was evident in the polling results: Democratic candidates Katie Porter and Barbara Lee each garnered 12% under the plurality system, effectively splitting the vote.

This vote split allowed Republican candidate Steve Garvey, with just 15% of the vote, to advance to the general election alongside Democrat Adam Schiff, who led with 22%.



Data source: The Center for Election Science conducted this study with SurveyUSA from 12/07/23 - 02/10/24.

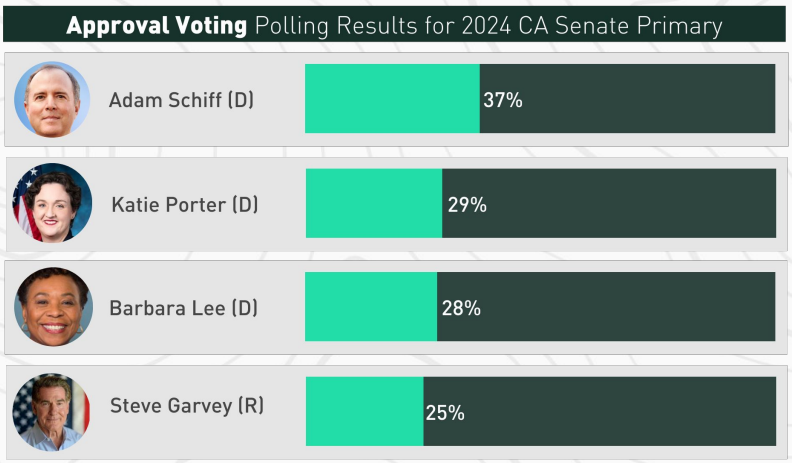
Potential of Approval Voting

The Case of 2024 CA Senate Primary Elections

However, under the AV method–where voters could approve of all the candidates they found acceptable–the results shifted significantly.

While Adam Schiff remained in the lead, both Katie Porter and Barbara Lee, who had previously split the progressive vote, saw substantial gains in support, receiving 29% and 28% approval, respectively.

In contrast, Steve Garvey, who had initially benefited from the vote split, fell to last place with 25%.



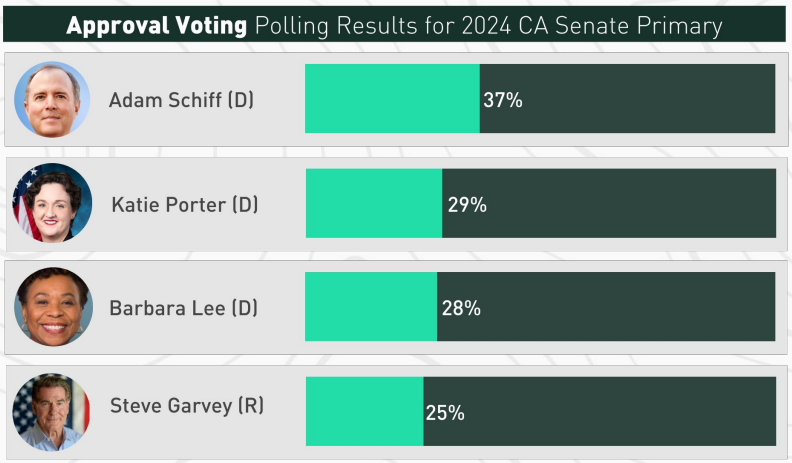
Data source: The Center for Election Science conducted this study with SurveyUSA from 12/07/23 - 02/10/24.

Potential of Approval Voting

The Case of 2024 CA Senate Primary Elections

This example demonstrates how AV allows for a clearer picture of voter support, especially in a diverse field.

With AV, candidates like Porter and Lee, who share a similar vote base, can both be supported with the risk of “wasting” votes or unintentionally aiding an opposing candidate.



Data source: The Center for Election Science conducted this study with SurveyUSA from 12/07/23 - 02/10/24.

Takeaways

RCV does not live up to its promises

While RCV is often promoted as an innovative alternative to plurality voting, its impact on improving minority representation is minimal.

RCV does not significantly increase the changes of candidates of color winning elections, nor does it reduce racial biases among voters. Moreover, RCV can exacerbate vote splitting among candidates from similar backgrounds and introduce complexities that discourage voter turnout, particularly in diverse constituencies.

Additionally, concerns around election security and ballot secrecy under RCV further undermine its effectiveness as a comprehensive solution for electoral reform.

Takeaways

Approval Voting as the alternative

Approval Voting presents a compelling alternative to RCV by addressing many of its key shortcomings.

The 2021 St. Louis Mayoral Primary and the 2024 California U.S. Senate Primary poll are prime examples of how Approval Voting can better capture voter preferences, reduce vote splitting, and produce more representative outcomes.

Unlike RCV, Approval Voting simplifies the voting process, allows voters to support all candidates they approve of, and ensures that the most broadly supported candidates advance.

This approach not only enhances representation but also blisters voter trust and engagement by providing a clearer and fairer reflection of voter intent.

The Center for Election Science

ABOUT US

As a research-based organization, The Center for Election Science advocates the focus on electoral reforms that are supported by empirical evidence and grounded in the real-world experiences of diverse communities. Approval Voting, with its ability to enhance representation and minimize vote splitting, stands out as a promising alternative. A shift towards such systems could provide a more effective path to achieving a fairer and more inclusive democracy.

References

Adida, Claire, Jessica Gottlieb, Eric Kramon, and Gwyneth McClendon. 2017. “Reducing or Reinforcing In-Group Preferences? An Experiment on Information and Ethnic Voting.” Quarterly Journal of Political Science 12(4): 437-77. https://doi.org/10.1561/100.00017018.

Anthony, Joseph, Amy Fried, Robert Glover, and David C. Kimball. 2021. "Ranked Choice Voting in Maine from the Perspective of Local Election Officials." *Election Law Journal: Rules, Politics, and Policy* 20(3): 254-271. https://doi.org/10.1089/elj.2020.0650.

Atsusaka, Yuki, Silviya Valeva, and Agustin Vallejo. 2024. “The Margin of Victory in Ranked-choice Voting.” OSF Preprints. July 18. doi:10.31219/osf.io/f6ta4.

Bryer, Brandon. 2021. "One Vote, Two Votes, Three Votes, Four: How Ranked Choice Voting Burdens Voting Rights and More." *University of Cincinnati Law Review* 90(2). Available at: https://scholarship.law.uc.edu/uclr/vol90/iss2/10.

Buisseret, Peter, and Carlo Prato. 2023. “Electoral Competition, Turnout, and Ranked Choice Voting.” SocArXiv. March 31. doi:10.31235/osf.io/ukras.

Cormack, Lindsey. 2024. "More Choices, More Problems? Ranked Choice Voting Errors in New York City." *American Politics Research* 52(3): 306–19. https://doi.org/10.1177/1532673X231220640.

Crowder-Meyer, Melody, Shana Kushner Gadarian, and Jessica Trounstine. 2023. "Ranking Candidates in Local Elections: Neither Panacea nor Catastrophe for Candidates of Color." *Journal of Experimental Political Science*: 1–18. https://doi.org/10.1017/XPS.202.

Durand, François, Antonin Macé, and Matías Núñez. 2024. "Voter Coordination in Elections: A Case for Approval Voting." *Games and Economic Behavior* 146: 1-34. https://doi.org/10.1016/j.geb.2024.04.007.

Fitzsimmons, Emma G. 2021. "Why These Voters Turned Against Dante de Blasio." *The New York Times*, September 20. https://www.nytimes.com/2021/09/20/nyregion/voters-dante-deblasio.html.

Hamlin, Alan, and Whitney Hua. 2023. "The Case for Approval Voting." *Constitutional Political Economy* 34: 335–345. https://doi.org/10.1007/s10602-022-09381-x.

McCarty, Nolan. 2024. "Minority Electorates and Ranked Choice Voting." *School of Public and International Affairs, Princeton University*. Available at: https://electionconfidence.org/wp-content/uploads/2024/01/FINAL-RCV-study-1-10-24.pdf.

McDaniel, Jason A. 2016. "Writing the Rules to Rank the Candidates: Examining the Impact of Instant-Runoff Voting on Racial Group Turnout in San Francisco Mayoral Elections." *Journal of Urban Affairs* 38(3): 387–408. https://doi.org/10.1111/juaf.12209.

McDaniel, Jason. 2018. "Does More Choice Lead to Reduced Racially Polarized Voting? Assessing the Impact of Ranked-Choice Voting in Mayoral Elections." *California Journal of Politics and Policy* 10(2). http://dx.doi.org/10.5070/P2cjpp10241252.

McDaniel, Jason A. 2019. "Electoral Rules and Voter Turnout in Mayoral Elections: An Analysis of Ranked-Choice Voting." Working paper presented at the 2019 ESRA Conference.

Vishwanath, Arjun. 2024. "The Effects of Ranked Choice Voting on Substantive Representation." *SSRN Scholarly Paper*. Available at SSRN: https://ssrn.com/abstract=3802566 or http://dx.doi.org/10.2139/ssrn.3802566.

Williams, Jack R., Samuel Baltz, and Charles Stewart. 2024. “Votes Can Be Confidently Bought in Some Ranked Ballot Elections and What to Do about It.” *Political Analysis:* 1-13. doi: 10.1017/pan/2024.4.