DEMOCRACY REFORM PRIMER SERIES

Ranked-Choice Voting

A Practical Research Guide

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2024 Edition
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About the Democracy Reform Primer Series

Narrowing the gap between research and public dialogue, the University of Chicago Center for Effective Government’s Democracy Reform Primers responsibly advance conversations and strategy about proposed changes to our political institutions. Each Primer focuses on a particular reform, clarifies its intended purposes, and critically evaluates what the best available research has to say about it. The Primers do not serve as a platform for either authors or the Center to advance their own independent views about the reform; to the contrary, they serve as an objective and authoritative guide about what we actually know—and what we still don’t know—about the likely effects of adopting prominent reforms to our political institutions.

In some instances, the available evidence may clearly support the claims of a reform’s advocates. In other instances, it may cut against them. And in still others, the scholarly literature may be mixed, indeterminate, or altogether silent. Without partisan judgment or ideological pretense, and grounded in objective scholarship, these Primers set the record straight by clarifying what can be said about democracy reforms with confidence and what requires further study.
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Promise of the Reform

Replacing current methods of electing officials in the US with ranked-choice voting (RCV) would make it more likely that broadly popular candidates would be elected. It would also give voters more choice, allow voters to express their preferences more fully and honestly, produce less polarized and negative political competition, and encourage the election of women and minority candidates.
Key Takeaways from the Research

- The theoretical comparison of RCV with existing electoral systems depends on various assumptions about who is running, how voters decide to vote, and how political actors strategically react to the system.

- RCV should be better than the plurality system (the system used for most elections in the US) at electing candidates who have broad support but are not a popular first choice. Such candidates are typically political moderates.

- In most circumstances, this should encourage more moderate candidates to run and incentivize existing candidates to adopt more moderate platforms. In some circumstances, however, RCV could have the opposite effect, producing more polarized politics than plurality.

- RCV and the two-round runoff system (used in many cities and some states in the U.S.) should produce similar results in most circumstances. The most consequential difference between RCV and the runoff system in the US is that RCV elections happen in a single day while the runoff system often requires two separate elections, one of which is typically “off-cycle” and has low turnout.

- Consistent with the theory, empirical research on RCV shows small effects of RCV adoption in US cities in which the runoff system was previously used. Given the similarity between runoff and RCV, and the limited empirical research comparing RCV to plurality, the most informative research about the likely effect of broader adoption of RCV comes from research in Italy and Brazil showing that the runoff system induces more candidates to run, reduces strategic voting, and produces more moderate platforms and outcomes compared to plurality.

- Survey research shows, however, that US voters are more comfortable with plurality and runoff elections than with RCV, raising questions about public acceptance of a broader reform.
• Would the effect of replacing plurality with RCV for US legislative elections be similar to effects found in mayoral elections in Brazil and Italy?

• To the extent that adopting RCV has been shown to affect political outcomes in US cities, is it because RCV elections tend to be “on-cycle” (and thus have larger, more representative electorates), or because of other differences between RCV and the alternatives?

• To what extent would US voters become more favorable to RCV if they were more familiar with it?
“RCV advocates claim that RCV is better than existing systems at choosing a broadly popular winner and encouraging political moderation.”

In the US, “ranked choice voting” (RCV) refers to an electoral system in which voters rank the candidates and the winner is chosen through a process of sequential elimination and vote transfers. If any candidate has a majority of top rankings, that’s the winner. If not, the candidate with the fewest top rankings is eliminated from all ballots (so that voters who ranked that candidate first now rank another candidate first) and the process is repeated until one candidate does have a majority of top rankings. This is the RCV winner.

RCV goes by many other names, including instant-runoff voting (IRV), the alternative vote (AV), and preferential voting. “RCV” is also sometimes used to refer to a system used to elect multiple candidates through a similar elimination-and-transfer process (also known as the “single transferable vote” or STV), but we will not discuss this variant.

RCV was independently developed in the 19th century by Carl Andræ in Denmark and Thomas Hare in the UK. It was adopted for legislative elections in Australia in 1918 and remains in wide use there (including for state legislatures). It is also used to elect parliaments in Papua New Guinea and Fiji, as well as the mayor of London.

In the last two decades, RCV has become a popular reform proposal in the US. It has been adopted for municipal elections in many US cities including San Francisco, Minneapolis, and New York City, and for congressional elections in Maine and Alaska.

Advocates of RCV have made many claims in its favor. RCV advocates claim that RCV is better than existing systems at choosing a broadly popular winner and encouraging political moderation. Advocates also claim that RCV gives voters more choices, allows voters to express their preferences more fully and less strategically, and encourages the election of women and minority candidates.

This policy brief evaluates these claims, with a particular focus on how the broader adoption of RCV could change US politics. Although our focus is on the US, some of the arguments and evidence draw from international experience, and many of the conclusions could be useful in evaluating RCV for non-US settings.
This section explores how election outcomes and campaigns may differ between RCV and other electoral systems, both to explain the logic behind advocates’ claims and to highlight less favorable possible effects of RCV.

RCV vs. Plurality: Choosing a Winner

Consider an election with three candidates, Rachel (a Republican), Dan (a Democrat), and Gus (a Green candidate). The election is held under plurality rule: voters vote for one candidate, and the candidate who wins the most votes is elected. Polls indicate that Dan and Rachel are the frontrunners. Almost all of Gus’s supporters favor Dan over Rachel, and almost all of Rachel’s supporters favor Dan over Gus. Dan urges Gus’s supporters not to throw away their votes by voting for Gus and asks them to vote for him instead to keep Rachel from winning. In the end, Rachel wins with 48% of the vote, Dan receives 47%, and Gus gets 5%. Dan’s supporters call Gus a spoiler, claiming that Dan would have won the election (a result preferred by Gus’s supporters) if Gus hadn’t run.

What would have happened if the election had been held under RCV?

To start, we’ll assume that everything other than the electoral system stays the same - the same candidates run, making the same appeals to voters, and voters’ votes are as similar to their votes in plurality as possible.

If we switch to RCV and assume that everyone who voted for a given candidate in the plurality scenario would rank that candidate first in RCV (so that Rachel wins 48% of top rankings, Dan wins 47% of top rankings, and Gus wins 5% of top rankings), then no one wins a majority of top rankings and Gus is eliminated. Assuming all of Gus’s supporters rank Dan second, Dan would then defeat Rachel 52%-48%. To RCV supporters, this is a better outcome than the plurality result: a majority of voters prefer Dan to Rachel (and Dan to Gus), so Dan should be elected. The first and arguably most important claim of RCV advocates is that, with three or more candidates, RCV reduces the “spoiler effect” and is therefore more likely to elect a candidate who has majority support relative to each other candidate (i.e. the Condorcet winner.)

RCV particularly favors moderate candidates, because these candidates tend to be the second choice or compromise candidate of other candidates’ supporters. Consider a different situation where three candidates (Layla the left-winger, Carmen the centrist, and Reginald the right-winger) have roughly equal numbers of supporters and so are equally likely to win in plurality. In RCV, Carmen would be the second choice of Layla and Reginald’s supporters; this means that if Layla or Reginald is eliminated, Carmen gains the support of their voters and wins easily against the remaining candidate. The only way Carmen loses is if she finishes last in top rankings. Thus moderates are not guaranteed to win in RCV, but moderates have an advantage because they tend to earn the lower rankings of other candidates’ supporters.

“We with three or more candidates, RCV is more likely to elect a candidate who has majority support relative to each other candidate.”
Theoretical Research on Ranked-Choice Voting

RCV vs. Plurality: Who Runs and How Voters Vote

By reducing the spoiler effect found in plurality elections, RCV encourages candidates to enter and voters to vote more sincerely. Voters who had strategically decided not to vote for Gus under plurality may feel free to rank Gus first in RCV. This may make these voters feel more satisfied with the election even if Gus loses.

Candidates who had hesitated to enter the race for fear of being a spoiler (like Gus in the first example above) may feel freer to enter the race in RCV, which could encourage the representation of overlooked perspectives in the campaign. Both changes could make it easier to replace ineffective or corrupt incumbents. In plurality, voters of a particular ideological persuasion may stick with a disliked candidate because if only some of them shift to a replacement on their side they could end up allowing the other side’s candidate to win. In RCV (where vote-splitting is less of a concern) they are freer to shift to a better alternative.\(^4\)

RCV advocates also claim that RCV causes candidates to take more moderate positions and campaign less negatively. They argue that, because being ranked second or lower on the ballots of other candidates’ supporters can help a candidate win, candidates will take a more moderate and conciliatory approach to seek out these lower rankings.\(^5\)

To see how RCV could have this effect in theory, consider again the first scenario above. In plurality, Dan’s biggest problem is that Gus may attract Dan’s left-leaning supporters and thereby cause Rachel to win. To encourage Gus’s potential supporters to vote for him instead, Dan may demonize Rachel (and/or Gus) to highlight the risks of voting for Gus. He may also move to the left and adopt some of Gus’s positions, contributing to polarization between Democrats and Republicans. In RCV, Dan’s chances of winning aren’t hurt if a relatively small group of voters rank Gus first and Dan second. This could mean that Dan doesn’t need to go negative on Rachel or Gus, and it could mean that instead of adopting Green positions to win over Gus’s voters (who likely will rank him second anyway) he adopts moderate positions to win over some of Rachel’s supporters.

“RCV advocates also claim that RCV causes candidates to take more moderate positions and campaign less negatively (even without changing who runs).”
But with small changes to the scenario, the reverse could also be true. Suppose that the minor candidate was not Gus (a left-wing candidate) but Cleo (a center-left candidate). Then in plurality Dan should adopt moderate positions to appeal to Cleo’s supporters and encourage them to vote for him instead. In RCV Dan faces less pressure to do so, and can instead adopt a more extreme position to appeal to left-wing voters who might otherwise not turn out. Thus whether RCV causes candidates to make broader, more moderate appeals depends on assumptions about who is running, who is voting, and what candidates can do to win the support (both top rankings and lower rankings) of key groups of voters.7

RCV advocates also claim that RCV favors the election of more women and minorities. One reason for this (already discussed) is that RCV could attract a more diverse set of candidates. Another is that under-represented groups may be especially likely to benefit from RCV’s ability to resolve coordination problems. If supporters of women and minority candidates are the majority but tend to split their vote among many candidates, while other voters are coordinated on one candidate, RCV could help ensure that women and minority candidates are elected. Of course, if the coordination problem is more acute among voters who support white and male candidates, then RCV may have the opposite effect. Historically, coordination problems were thought to be more acute among white voters, which is why Jesse Jackson and others opposed runoff elections in the US South.8

Finally, RCV advocates claim that RCV could increase turnout, in part because they claim that marginal voters would welcome the chance to express their preferences more fully. RCV could also increase turnout through some of the channels already discussed: for example, voters may be more inclined to vote if campaigns are more civil. On the other hand, if RCV succeeds in moderating candidate positions and giving a boost to centrists, some voters may feel that their vote is less urgently needed.

“RCV advocates also claim that RCV favors the election of more women and minorities.”
RCV vs. Runoffs

So far we have compared RCV to the plurality system, which is used at the primary and general election stage in most US congressional elections. But in congressional elections in California, Washington, Louisiana, and Georgia, and in many US state and local elections, some version of the majority runoff system is used instead. In a typical runoff system, the election is conducted in two rounds. If a candidate receives a majority of the votes in the first round, that candidate is the winner and no second round is held. Otherwise, the winner is determined by a second election between the top two candidates from the first round.

From a theoretical perspective, RCV and the runoff system are very similar. (This explains why RCV is often called “instant-runoff voting” or IRV.) In fact, every claim made above about how RCV differs from plurality also applies to a majority runoff system. For example, in the initial scenario above, both RCV and a conventional runoff system would lead to Gus being eliminated and Dan winning, assuming the same voters vote the same way in the two systems. Likewise, if RCV makes Dan take a more moderate position by reducing the threat from Gus, then the same should be true in runoff. Both systems favor centrists, because all voters’ preferences over the final two candidates matter: in RCV these preferences are recorded through voters’ rankings on a single ballot, while in a runoff system these preferences are expressed through voting in the second round.

One important difference between a runoff system and RCV is that voters vote just once in RCV, but they may have to return for a second election in the runoff system. This means that RCV could cost less time and money than runoffs.9 The second round of a runoff election also gives voters more time to scrutinize the frontrunners, which could be helpful in contexts with many candidates and low information.10 Another important implication is that only one of the two rounds of the runoff can be held concurrent with a general election.11 Because on-cycle elections tend to have larger and more representative electorates,12 RCV could produce better election outcomes than runoff simply due to election timing.
Until recently, the empirical study of RCV was limited to studies of preferential voting in Australia and Fiji. While it is helpful to observe RCV in action in these countries, it is difficult to assess the role of RCV in explaining the observed outcomes. For example, Australians’ relatively high level of satisfaction with democracy has been attributed in part to the use of RCV, but other factors (such as compulsory voting or political culture) clearly could be responsible.

To learn more about the likely effects of RCV in the US, we examine three types of empirical evidence:

1. Comparisons of RCV to plurality elections, mostly based on survey experiments asking voters to evaluate hypothetical election results.

2. Comparisons of RCV to runoff elections, mostly based on observational studies of outcomes in US cities.

3. Comparisons of runoff elections to plurality elections, mainly based on observational studies of outcomes in Italian and Brazilian cities.

The schematic below represents our understanding of how these pieces of the literature fit together. Compared to plurality, both RCV and runoff are better at resolving coordination problems among voters, so we place them both further to the right on the horizontal axis; other differences among the three systems (e.g. election timing and ballot format), as combined and summarized on the vertical axis, are smaller. Direct evidence on the RCV-plurality comparison is scarce and is mainly based on survey and laboratory experiments, while a larger set of studies on US cities provides observational evidence of small differences between RCV and runoff. Finally, a set of high-quality studies on Brazilian and Italian cities provide credible evidence of differences between runoff and plurality. No single strand is definitive, but the whole body of research yields a good idea of the likely effects of broader RCV adoption in the US.
Empirical Research on Ranked-Choice Voting

Evidence Comparing RCV and Plurality Elections

Consistent with the theory, a recent survey experiment indicates that US voters are more willing to support minor candidates in RCV than in plurality. Researchers asked survey respondents to vote in a hypothetical version of the 2020 US presidential election between Joe Biden (Democrat), Donald Trump (Republican), Howie Hawkins (Green), and Jo Jorgensen (Libertarian). Among respondents randomly assigned to vote under plurality rules, 3.75% voted for Hawkins or Jorgensen; among respondents randomly assigned to vote under RCV, 7% ranked Hawkins or Jorgensen first.

Some recent experimental evidence also indicates that US voters do not find RCV to be more or less fair than plurality, though they may be more willing to accept the result when their side loses. Researchers asked groups of 22 participants to make a group decision (with monetary rewards decided by the experimenters) using RCV or plurality. Participants did not report feeling more or less satisfied with RCV election outcomes than plurality outcomes on average, nor did they view RCV outcomes as more or less fair. Encouragingly for RCV advocates, the researchers found that participants’ assessments of the fairness of the outcome was less dependent on their own payout in RCV than plurality, which may indicate that RCV fosters acceptance of election outcomes by losers.

Less encouragingly for RCV advocates, another study found evidence that US voters doubt the legitimacy of the RCV election outcome when it conflicts with the plurality result. Voters were asked to evaluate hypothetical election scenarios conducted under different electoral rules. In one of the scenarios, RCV elects the Condorcet winner but plurality does not (as was the case in the first scenario we introduced above, where Rachel was supported by 48% of voters while Dan and Gus split the left-of-center vote). In this circumstance, US survey respondents are significantly more comfortable on average with the plurality outcome. Consistent with this, US cities that adopted RCV were likely to replace it soon after an election in which the plurality winner did not ultimately win the election. Thus American voters who are unfamiliar with RCV don’t appear to see much of a problem with a situation that RCV advocates typically use to highlight the inadequacy of plurality.

“Experimental evidence indicates that US voters do not find RCV to be more or less fair than plurality, though they may be more willing to accept the result when their side loses.”

Another recent survey experiment suggests that US voters prefer voting for a single candidate rather than ranking candidates. Researchers asked a representative sample of US voters to cast four different kinds of votes on the 2020 Democratic primary candidates, including a single vote (as in plurality) and a ranked vote (as in RCV). On average, respondents strongly preferred casting a single vote to filling out a ranked ballot, though the preference was weaker among respondents with some experience of ranked ballots, suggesting that ranking candidates can be an acquired taste.
Empirical Research on Ranked-Choice Voting

Evidence Comparing RCV and Runoff Elections

Over the past two decades many studies of RCV in American cities have emerged. Although much of this literature is framed as a comparison of RCV to plurality, most RCV-adopting cities previously used a runoff system, and most of the cities to which RCV cities are typically compared also use runoff. We therefore view this literature as primarily informative about the comparison of RCV to runoff elections, which helps explain why these papers tend to find small effects of RCV.

“Replacing runoffs with RCV tends to increase turnout by synchronizing local elections with elections to other offices.”

Analysis of US municipal elections indicates that replacing runoffs with RCV tends to increase turnout by synchronizing local elections with elections to other offices, though there is little evidence that RCV itself increases turnout (and some evidence that it does the opposite). One paper showed that the adoption of RCV is associated with a slight (and not statistically significant) increase in turnout compared to similar cities that did not adopt RCV, including after adjusting for city demographics. After adjusting for election timing, however, adoption of RCV is associated with a 3-5 percentage point drop in turnout. This suggests that turnout should be higher in a November RCV election than in a January runoff, but that difference is due to timing rather than voters’ preference for RCV.

Another paper found evidence that RCV adoption increases the representation of women and racial minorities in California cities. The authors show that the proportion of minority candidates increased more in cities that adopted RCV than in similar cities that did not adopt RCV over the same time period. They also find an increase in the proportion of minority women who won office. Because all of the RCV-adopting cities in the study were previously using a runoff system, these findings could be seen as evidence that minority candidates were more willing to run, and minority women more likely to win, in a single high-turnout RCV election than in a two-round, partially off-cycle runoff contest, though more study is necessary to establish a causal relationship.

In another study, researchers asked voters in three RCV cities and seven similar non-RCV cities (six of which used runoffs) to assess the negativity and civility of local election campaigns. Respondents in RCV cities were more satisfied with the conduct of campaigns, saying that the candidates used more positive messages. This paper provides the main evidence for advocates’ claims that RCV reduces campaign negativity, though other differences between the RCV and non-RCV cities in the sample could explain the findings.

A recent working paper estimated the effect of RCV adoption in 16 US cities on fiscal policy and ideological orientation of city councils (both elected members and candidates). It found no significant effects on any outcome. Because more than half of the RCV-adopting cities in the study previously used runoffs, small effects could be explained partly by the similarity between RCV and runoff elections.
Empirical Research on Ranked-Choice Voting

Runoff vs. Plurality Elections

Given the similarity between runoff and RCV, the literature comparing runoff elections to plurality elections offers another way to learn about how RCV could affect US politics.

The most convincing research in this literature focuses on cities in Brazil and Italy. Although some extrapolation is necessary to apply the results to the US, this literature provides credible evidence suggesting that the broad adoption of RCV could have a substantial impact on the American political system.

The studies set in Brazil and Italy all exploit the fact that, in both countries, cities below a certain population threshold are required to use plurality to elect their mayors while cities above that threshold must use runoff. Cities near the population threshold should be similar in other respects while differing in their electoral system, so we can infer the effects of the electoral system by simply comparing cities above and below the threshold.

A study in Italy uncovered two intertwined results, in line with the theoretical discussion above. First, there are significantly more candidates for mayor in cities using runoff. Second, tax rates vary less in these cities (both over time and across cities), suggesting less political polarization. The mechanism underlying these results is essentially the one we examined for RCV in the first section of this policy brief: in plurality cities the large moderate parties tend to adopt more extreme positions to avoid losing votes to extreme parties, while in runoff cities they adopt more moderate positions with the knowledge that the extremists will be eliminated in the first round of the runoff.

“Policy volatility, which is a symptom of political polarization, is substantially lower in cities using runoff.”

A study in Brazil focused on the effect of using runoff on voting behavior and the number of candidates. It found that voters are less likely to desert minor candidates in runoff elections, which makes sense given that they will later have a chance to weigh in on their preferred frontrunner, and that more candidates ran.

Another paper in Brazil focused on the impact of runoff elections on public spending. It found that candidates in runoff municipalities spread spending more broadly across local schools, presumably in an attempt to be more competitive in the second round. Distributing spending more widely can be seen as similar to adopting a more moderate political platform, so in that sense the findings suggest that runoff (and by extension RCV) should reduce polarization. The paper also suggests that the effect is driven by changes in the behavior of candidates in runoff municipalities, instead of changes in the profiles of candidates in the running in those cities.
Supporters of RCV have been disappointed by the small effects on electoral and policy outcomes documented in recent empirical research on RCV in US cities. But it would be a mistake to give up on RCV because of these findings. As discussed above, most of the research on US cities compares RCV to runoff systems, which have similar properties, so small effects are expected. The literature comparing runoff elections to plurality elections suggests that replacing plurality elections with RCV in the US could have a more transformative effect, leading to more candidates, less polarization, and less incentive to vote strategically. More research is needed, however, to determine the relevance of findings from Brazilian and Italian cities to US politics.

This raises the first open question: Would the effect of replacing plurality with RCV for US legislative elections be similar to effects found in mayoral elections in Brazil and Italy?

The same empirical literature on RCV adoption in US cities provides some encouraging results for advocates in terms of perceived civility of campaigns and the election of women and minorities. Given that these studies mainly compare RCV to runoff elections, and the two systems share many features, it remains unclear what aspect of RCV explains these effects.

Hence the second open question: To the extent that adopting RCV has been shown to affect political outcomes in US cities, is it because RCV elections tend to be “on-cycle” (and thus have larger, more representative electorates), or because of other differences between RCV and the runoff system?

Questions also remain about perceptions of the fairness of RCV compared to other approaches. As noted above, when presented with a vignette where plurality and RCV produce different election results, many US voters appear to prefer the plurality result to the RCV result. Moreover, voters seem to view the same election result as more legitimate on average if achieved through a runoff than if achieved through the RCV elimination process.

This raises a final question for future research efforts: To what extent would US voters become more favorable to RCV if they were more familiar with it?

“There is reason to think that replacing plurality elections with RCV in the US could have a more transformative effect, leading to more candidates, less polarization, and less incentive to vote strategically.”
Endnotes


18 Cerrone and McClintock, Voter satisfaction, 2023


21 John, Smith and Zack, Alternative Vote, 2018

22 Donovan, Tolbert and Gracey, Campaign Civility, 2016

23 Vishwanath, Arjun, “The Effects of Ranked Choice Voting on Substantive Representation,” (2023) Available at SSRN 3802566


