

Self-Reported Understanding of Ranked-Choice Voting

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Objectives. Ranked-choice voting (RCV) is relatively complex compared to plurality voting. We test if some voters find it more challenging. *Methods.* We conducted surveys in RCV cities and plurality cities to assess how voters reported understanding voting instructions, and how they reported understanding election systems. *Results.* Fewer voters reported instructions were easy to understand in RCV cities. Within RCV cities, we found little evidence of race/ethnic differences in reported understanding, but older voters reported less understanding of instructions in RCV cities and less understanding of RCV elections. Across all cities, Asians and women reported less understanding of elections generally, and education correlated with greater reported understanding. *Conclusions.* Our evidence is not consistent with concerns about a racial/ethnic bias specific to RCV, but suggests a need for additional voter education.

Complexity of Preferential Voting

Some cities in the United States have replaced simple plurality elections with ranked-choice voting (RCV). By providing opportunities for voters to cast multiple preferences, the act of voting may be more complex under RCV than compared to demands associated with the single vote required in a plurality system. If this complexity challenges some voters more than others, adoption of RCV may add to existing biases in political participation and representation.

One concern with having voters rank preferences is that confusion may cause overvoting, undervoting, and uninformed ballot order effects (Orr, 2002). Some voters may cope with the demands of RCV by not ranking. Burnett and Kogan (2015) reported that voters' failure to rank sufficient candidates was associated with high rates of ballots being exhausted before the final count. Neely and McDaniel (2015) report that overvotes were more common under San Francisco's RCV elections in minority precincts, and attributed this to demands placed on minority voters. McDaniel (2016) also attributed demographic differences in aggregate turnout patterns to the complexity of RCV, and Neely and Cook (2008) also found racial differences in aggregate overvote patterns. In contrast, Kimball and Anthony (2016) reported RCV had little to do with ballot completion.

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Where survey data have been available, studies document that voters appeared rather capable of navigating newly adopted preferential systems in New Mexico (Cole, Taebel, and Engstrom, 1990), New York (Kimball and Kropf, 2016), South Dakota (Engstrom and Barrilleaux, 1991), and Texas (Brischetto and Engstrom, 1997). Upwards of 90 percent of respondents reported they understood the system they voted in, with very similar levels of understanding reported by white voters and minority voters (Brischetto and Engstrom, 1997:978). High levels of reported understanding were found among voters participating in San Francisco's 2004 RCV election, yet African Americans and Latinos were less likely to say they understood RCV (Neely, Blash, and Cook, 2005). However, the racial disparity in understanding RCV found in 2004 was not evident in San Francisco in 2005 (Neely, Cook, and Blash, 2006).

Demographic Differences in Understanding

One concern about replacing plurality systems with RCV is that RCV may accentuate racial/ethnic biases in voting (e.g., McDaniel, 2016). This would be problematic if voters who find preferential voting overly complex were not similarly disadvantaged by the plurality system that preferential voting was replacing. Related concerns are that disparities in understanding will affect turnout, and completed ballots, and that this may give disproportionate weight to votes cast by whites.

One difficulty here in assessing how voters respond to RCV is that socioeconomic biases in political participation are widespread and well documented (e.g., Schlozman, Verba, and Brady, 2012). We might find biases in understanding associated with *any* system. Another challenge is that assumptions about biased understanding of RCV are generally inferred from precinct data, and/or from studies that rely on data from a single jurisdiction.

Research Design, Data, Methods

We examine reported understanding of voting instructions and reported understanding of electoral systems in jurisdictions that used RCV for local elections, and compare this to reported understanding of voting instructions and election systems in similar jurisdictions using plurality voting. We isolate exposure to electoral system with an immediate post-election survey of voters in four California jurisdictions that used RCV for contested local elections in November 2014, while simultaneously surveying voters in similar California jurisdictions using plurality local elections. Three RCV jurisdictions (Oakland, Berkeley, and San Leandro) had previously used RCV twice, and San Francisco used it since 2004. Case selection was constrained by the small number of RCV places that had contested races. Demographically similar plurality cases were identified from a limited number of California cities that also had contested races at the same time. Jurisdictions surveyed are listed in Online Appendix Table 1. See John, Smith, and Zack (2018) for additional applications of this design. This matching method allows us to minimize (but not eliminate) nonelectoral system differences across the cases being compared.

A random digit dial survey targeting registered voters was contacted via land lines and cellphones, with interviews conducted in English and Spanish. Surveys of voters were conducted by the Eagleton Poll at Rutgers University. A series of questions screened self-reported voters from nonvoters (see the Online Appendix). The sample includes 2,189

voters, with a subsample of 1,220 from places using RCV, and a subsample of 969 from plurality voting cities. Respondents confirmed their city of residence. The survey, and details on survey administration and response rates, is in the Online Appendix. Each city was sampled independently with subjects drawn from each city (not a pool of cities). The two subsamples are similar in terms of median age, percent with high school education, percent married, and percent white/nonwhite. Given these local races were held in conjunction with a statewide general election, voters also cast preferences in plurality-winner contests for statewide offices and for U.S. Congress.

All voters were first asked how well they understood voting instructions (see the Online Appendix for survey). We asked: "When you voted in the election Tuesday, how easy was it to understand the voting instructions?" Second, people were asked about understanding their local electoral system, with the name of the system stated. Respondents in RCV cities were asked: "How well do you think you understand ranked-choice voting?" Respondents in plurality cities were asked: "How well do you think you understand plurality voting?" After this, all respondents were informed that California recently adopted a top-two primary system, and were asked: "How well do you understand the top-two primary system?" Following this, all respondents were asked: "How well do you understand winner-take-all voting rules?"

We do not expect that respondents had nuanced understandings of election systems when they were asked about them by name. Rather, we examine if there were election-system-specific race/ethnic differences in reported levels of understanding voting instructions, and in reported understanding of electoral systems. We assess if race/ethnic differences in reported understanding of instructions and elections were specific to RCV cities, or if such differences were found generally.

Hypotheses

This discussion suggests a primary hypothesis: people may find preferential voting instructions more difficult to understand than plurality voting instructions. In the cities using RCV examined here, the RCV ballots, and instructions on the ballot, required some attention from voters. RCV ballots had all candidates for an office listed in three separate, parallel columns. In addition to standard information about using a black or blue pen (not pencil), and on how to properly mark a choice, instructions on RCV ballots also informed voters they could rank up to three choices and to "vote across in each race." The ballot instructed them to mark their first choice in Column 1, mark a second choice "different from your first choice" in Column 2, and to mark a third choice that "must be different from your first and second choices" in Column 3. Ballots in plurality cities were standard office-block style with instructions about how to mark a choice, and the statement "Vote for One" for each office.

There may also be reasons to expect that understanding voting instructions, if not the act of voting itself, is more demanding for certain people, even with simple plurality voting. Sinclair and Alvarez (2004:19) hypothesize that errors in voting punch-card ballots were related to how well people were connected to the political system, and operationalized this with aggregated measures of race/ethnicity, education, and other demographics. This suggests a second hypothesis: variation in reported understanding of elections in general is explained by race/ethnicity and education. Specifically, members of minority groups, and those with less education, are expected to be less likely to report a firm understanding of voting instructions.

TABLE 1
 Voters' Reported Ease of Understanding Voting Instructions (Percent)

By Electoral System				
	All	Plurality City		RCV City
Very difficult	2.6	2.2		3.0
Somewhat difficult	7.3	4.7		9.4
Somewhat easy	23.7	20.2		26.6
Very easy	66.3	73.0		61.0
Number of cases	2,177	966		1,211
$\chi^2 = 38.8, p = 0.01$				
By Electoral System, and by Race/Ethnicity				
	Plurality City		RCV City	
	Nonwhite	White	Nonwhite	White
Very difficult	2.7	1.7	2.9	3.0
Somewhat difficult	6.6	3.1	11.1	8.3
Somewhat easy	25.6	25.6	25.9	27.0
Very easy	65.2	79.6	60.1	61.6
Number of cases	$\chi^2 = 25.9, p = 0.00$ 966		$\chi^2 = 2.5, p = 0.47$ 1,211	

Neely and McDaniel (2015), furthermore, infer from aggregate patterns of RCV voting errors (overvotes) in San Francisco that there may be the potential for political inequality given that RCV may demand more of Latino/a, African-American, and elderly voters. Neeley and Cook (2008) also found RCV overvotes disproportionately in San Francisco precincts with more African-American voters. However, Kimball and Kropf (2005) and others (Bullock and Hood, 2002) have documented that overvoting is generally more common among African Americans in standard plurality election systems. This is attributed to the qualities of elections and voting equipment—not to qualities of African-American voters. Nonetheless, this suggests a third hypothesis: racial/ethnic and age differences in how people report understanding voting instructions would be particularly pronounced under RCV, with RCV instructions being understood less well by minority voters and the elderly.

Next, we examine if voters' reported understanding of voting instructions, and their reported understanding of electoral systems, were structured by race/ethnicity, age, and education. Further, we examine if residence in an RCV city was associated with heightened race/ethnic or age differences in how voters reported understanding voting instructions. We present bivariate results initially, and then report predicted probabilities of reporting high understanding estimated from multivariate ordered logistic regression models.

Results: Understanding of Voting Instructions

Our measure of understanding voting instructions was a question that asked: "When you voted in the election last Tuesday, how easy it was to understand the voting instructions?" The top panel of Table 1 illustrates that more people in plurality cities (73 percent) said it was "very easy" to understand voting instructions than in RCV cities (61 percent). However,

TABLE 2

Predicted Probability of Saying Voting Instructions Were “Very Easy” to Understand

All Respondents		Plurality Cities	RCV Cities
Plurality city	0.76 (0.02)		
RCV city	0.63 (0.02)		
White	0.76 (0.02)	0.79 (0.02)	0.61 (0.02)
African American	0.73 (0.03)	0.67 (0.05)*	0.60 (0.04)
Latinx	0.69 (0.03)*	0.69 (0.04)*	0.60 (0.05)
Asian	0.67 (0.04)*	0.60 (0.06)*	0.60 (0.06)
Age (75)	0.75 (0.02)	0.81 (0.02)	0.57 (0.02)*
Education (highest)	0.78 (0.02)	0.83 (0.02)*	0.61 (0.03)

*at $p < 0.05$ in multivariate models. Reference category for race/ethnicity is whites. Age and education set to mean values, gender set as female, interest in the local election set as interested. Post-estimation simulations from ordered logit models reported in Online Appendix Table 3.

regardless of whether a respondent was voting in a city that used RCV or simple plurality, large majorities in both groups claimed their instructions were “somewhat easy” or “very easy” to understand, with slightly higher proportions saying this in plurality cities (93 percent) than in RCV cities (88 percent). The bivariate difference is statistically significant ($\chi^2 = 38.8, p = 0.01$).

This difference remains significant in our multivariate estimates (see Table 2, and Online Appendix Table 3) that control for race/ethnicity, age, gender, education, and interest in the election. This does not establish that respondents in RCV places had more difficulty when they actually voted, but it is consistent with the idea that RCV may be more demanding. The bottom panel of Table 1 illustrates bivariate race/ethnic differences in reported understanding in plurality cities; this is not evident in RCV cities.

Table 2 reports the post-estimation predicted probability a respondent said voting instructions were very easy to understand (with *SEs* in parentheses). Models used to generate predictions in Table 2 (Online Appendix Table 3) were estimated using ordered logistic regression, with *SEs* clustered by city. A binary variable distinguishes between people who voted in an RCV city or plurality city. We also estimate models for respondents voting in plurality and RCV jurisdictions, respectively. Models include dichotomous measures representing, respectively, African-American, Latinx, and Asian respondents, and those who identified as “other” or mixed race. Non-Hispanic whites are the reference category. Age, gender, education (measured in seven categories), and a dichotomous measure of the respondent’s report of how interesting the race are also included. The latter item serves as a proxy for voter interest in elections.

The first column in Table 2 confirms that the difference in reporting that instructions were “very easy” to understand between plurality respondents (prob. = 0.76, *SE* = 0.02) and RCV respondents (0.63, *SE* = 0.02) remains in multivariate analysis. As for differences across racial and ethnic groups, Latinx (prob. = 0.69, *SE* = 0.03) and Asian respondents (0.67, *SE* = 0.04) were less likely than whites (0.76, *SE* = 0.02) to report instructions were very easy to understand across all respondents. However, results from respondents in RCV (Column 3, Table 2) are inconsistent with the idea that RCV voting instructions have demands that disproportionately affect people of color. There was no difference in the predicted probability of white (prob. = 0.61, *SE* = 0.02), black (0.60, *SE* = 0.04), Latinx (0.60, *SE* = 0.05), or Asian voters (0.60, *SE* = 0.06) reporting that voting instructions were very easy to understand. Female respondents (included in our reference group in Table 2),

TABLE 3

Voters' Reported Understanding Named Election Systems (Percent)

	Winner-Take-All	Top-Two	Plurality*	RCV*
Not at all well	9.8	11.2	14.1	12.9
Somewhat well	30.6	40.1	22.9	32.9
Very well	29.9	28.6	44.8	32.1
Extremely well	29.6	20.1	18.1	22.0
Number of cases	2,084	2,129	871	1,213

*Only asked of voters in jurisdictions using the electoral system.

NOTE: Respondents were asked "how well do you think you understand" each system.

and older respondents were significantly less likely to say voting instructions were easy to understand in RCV places. Those who reported their local election was interesting were more likely to see RCV voting instructions as easy to understand (see Online Appendix Table 3).

We also predict a significantly higher probability of white respondents (0.79, SE 0.02) in plurality cities reporting their voting instructions were very easy to understand, compared to African-American (0.67, $SE = 0.05$), Latinx (0.69, $SE = 0.04$), and Asian respondents (0.60, $SE = 0.06$). Race/ethnic differences in reported understanding of instructions are evident among voters in these plurality cities, but not in cities using RCV.

Results: Reported Understanding of Different Electoral Systems

Our survey also included items that gauged voters' reported understanding of various election systems. We use these to assess if there was a systematic difference between voters in RCV places and voters in plurality places in terms of how they responded to questions about understanding elections. Voters in plurality cities were asked how well they understood "plurality voting," while voters in RCV cities were asked how well they understood "ranked-choice voting." We also asked all respondents how well they understood "winner-take-all voting rules," and the state's "top-two primary." The point was not to assess how well people navigated voting under these systems, but, first, to assess if self-reported understanding was generally lower among people we sampled in RCV places. If not, we can have more confidence that differences reported in the top panel of Table 1 were associated with RCV, rather than with the people we sampled in RCV cities being less likely to say they understood things about elections generally. Second, examining the patterns of responses to these items allows us to assess if racial/ethnic, education level, and age differences in how people report understanding elections is particular to RCV elections, or common to how they report understanding elections generally.

Table 3 reports responses to these questions. Few voters said "not at all well" when describing how much they understood winner-take-all elections (9.8 percent), the top-two primary (11.2 percent), plurality voting (14.1 percent), and ranked-choice voting (12.9 percent). As for the issue of whether or not respondents from RCV jurisdictions may have been less prone to self-report they understood voting and elections generally, chi-square tests comparing responses in Table 3 across the subsamples demonstrate that there was no significant difference in how people in RCV versus plurality places reported understanding the top-two primary (chi-square $p = 0.19$) or winner-take-all voting ($p = 0.64$). This

TABLE 4
Voters' Reported Understanding Named Election Systems (Percent)

	Winner-Take-All		Top-Two	
	White	Nonwhite	White	Nonwhite
Not at all well	8.9	11.0	11.1	11.2
Somewhat well	25.6	37.2	35.3	46.7
Very well	32.6	27.1	30.1	26.6
Extremely well	33.2	24.7	23.5	15.5
	$N = 2,084, \chi^2 = 41.6 (p < 0.00)$		$N = 2,129, \chi^2 = 35.8 (p < 0.00)$	
	Plurality		RCV	
	White	Nonwhite	White	Nonwhite
Not at all well	14.6	13.6	11.3	15.3
Somewhat well	19.8	26.5	32.2	34.1
Very well	44.6	45.0	33.3	30.3
Extremely well	21.1	14.8	23.1	20.3
	$N = 871, \chi^2 = 9.1 (p < 0.03)$		$N = 1213, \chi^2 = 5.7 (p = 0.12)$	

By race/ethnicity.

suggests that lower levels of reported understanding of voting instructions among people in RCV places (Table 1) may be something associated with the demands of RCV, rather than with people in RCV places having lower propensities of reporting they understand elections. That is, since people from RCV places were not less likely than people from plurality places to claim to understand various other elections, we can be more confident that modest differences between these places in reported levels of understanding voting instructions could be associated with the complexity of RCV. These results are consistent with our hypothesis about preferential voting being more demanding.

But what of our other hypothesis? Does race/ethnicity or age structure differences in who reports understanding these elections, and are minorities more likely to say they do not understand RCV? In Table 4 we cross-tabulated responses for questions about electoral systems to compare responses from non-Hispanic whites to racial/ethnic minorities. When asked about three of the four electoral systems, nonwhite respondents were significantly less likely to report understanding it, and the results are unchanged (not reported here) regardless of how we categorize race/ethnicity. Again, we find no apparent effects of race/ethnicity that are specific to self-reported understanding of RCV.

We used ordered logit models (Online Appendix Table 4) to estimate responses to the four questions about electoral systems. Those models generated the predicted probability a respondent said he or she understood these four election systems "very well." These are reported in Table 5 (with *SEs* in parentheses). Regardless of the election asked about, education corresponded with greater reported understanding, and those who found their local election interesting were generally more likely to say they understood elections (see the Online Appendix). Conversely, Asian respondents (on all four items), women (on three of the four items, see the Online Appendix), and African Americans (on two) were less likely to say they understood a named election system. These patterns appear to reflect something general to self-reported understanding of elections, not something specific about RCV. There is, however, one demographic result that seems unique to RCV places. Age had no association with reported understanding of elections, apart from RCV. Older voters

TABLE 5

Predicted Probability of Reporting Understanding Election System “Extremely Well”

	Winner-Take-All	Top-Two Primary	Plurality	RCV
White	0.28 (0.02)	0.19 (0.01)	0.19 (0.02)	0.22 (0.02)
African American	0.24 (0.02)	0.14 (0.01)*	0.14 (0.02)*	0.19 (0.02)
Latinx	0.22 (0.02)*	0.19 (0.02)	0.21 (0.04)	0.27 (0.04)
Asian	0.15 (0.02)*	0.12 (0.02)*	0.13 (0.03)*	0.16 (0.03)*
Age (75)	0.28 (0.02)	0.20 (0.01)	0.20 (0.03)	0.19 (0.02)*
Education (highest)	0.34 (0.02)*	0.23 (0.01)*	0.25 (0.02)*	0.25 (0.02)*

$p < 0.05$ in multivariate models. Reference category for race/ethnicity is whites. Age and education set to mean values, gender set as female, interest in the local election set as interested. Post-estimation simulations from ordered logit models reported in Online Appendix Table 4.

in RCV cities were significantly less likely to report understanding voting instructions very well, and RCV was the only election type that older voters were significantly less likely to report understanding very well (Table 5).

Discussion

This article documents reasons to expect that preferential voting systems may be more confusing to voters than simple plurality, particularly for race/ethnic minorities. We build on previous literature by using survey (rather aggregate) data, survey data from several jurisdictions that adopted RCV, and comparable survey data from jurisdictions that did not use RCV. Our results suggest widespread self-reported understanding of voting instructions in these cities, with high proportions of voters reporting voting instructions were very easy to understand. We do find lower levels reporting this in cities using RCV elections. However, when people in RCV cities were asked how well they understood “ranked-choice voting” only 13 percent said “not at all”—a level similar to what voters reported when asked about other election systems.

Previous studies found patterns that raised concerns about a potential racial/ethnic bias in who understands RCV. Our evidence is not consistent with this. We found no differences within RCV cities between whites and people of color in reports of understanding voting instructions. Furthermore, we found no differences in RCV cities in how whites, African Americans, and Latinx respondents reported understanding RCV. We did find women and Asians in RCV cities less likely to report they understood RCV elections, but we also found women and Asians less likely to report they understood a range of different elections (Online Appendix Table 2 contains discussion of a potential language bias problem in interviews of Asians). It is difficult, then, to conclude that results for women and Asians reflect something particular to understanding RCV voting instructions or RCV elections. However, we do find one sign of potential bias associated with RCV. Older people in RCV cities were less likely to report understanding voting instructions, and less likely to report understanding RCV elections.

The adoption of new, relatively complex voting systems presents the risk of confusion that may lead to increased voting errors. Our results speak mainly to how voters recalled ballot instructions a day or so after voting, and should not be read as dismissing concerns that information demands associated with RCV may cause some people to fail to cast valid ballots, or express a full range of preferences. Scholars of elections must continue to

search for evidence of bias—particularly racial/ethnic bias—associated with such systems. Our models suggest reported understanding of voting instructions and election systems is, not surprisingly, associated with education. This suggests that voter education campaigns might play a role in increasing understanding of RCV and reducing potential voting errors.

It must be recognized that our method of measuring reported understanding is limited by the inability to observe actual voted ballots and to link those to actual voters. It may very well be that some of our survey respondents cast invalid RCV ballots, but then reported having a good understanding of voting instructions and of RCV. If the propensity to commit a voting error (perhaps unknowingly), and subsequently offer a survey response that reported understanding that act of voting is concentrated among racial/ethnic minorities, we could underestimate the scale of possible racial/ethnic bias in understanding RCV. We await future research—potentially experimental—that might sort those forces.

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