

Voter Participation with Ranked Choice Voting in the United States

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Abstract

As more jurisdictions in the United States consider adopting ranked choice voting (RCV) it is important to evaluate RCV alongside the plurality voting systems it typically replaces. This study examines the degree to which voters turn out and properly cast their votes, comparing ranked choice voting (RCV) to plurality voting in the United States. We use a difference-in-differences design, matching cities using RCV with demographically similar cities using plurality voting on the same date. We find that RCV helps reduce the substantial drop in voter participation that commonly occurs between primary and runoff elections. Otherwise RCV does not appear to have a strong impact on voter turnout and ballot completion. In a case study of Minneapolis we find similar levels of socioeconomic and racial disparities in voter participation in plurality and RCV elections.

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This study examines the degree to which voters turn out and participate in local elections, comparing ranked choice voting (RCV) to plurality voting in the United States. An increasing number of American local jurisdictions are adopting preferential voting systems, and RCV is the most common of the substitutes for single seat elections in the United States. RCV has now been adopted by at least ten cities in the United States, primarily for mayoral or city council elections. By allowing voters to rank candidates for the same office, RCV contrasts with the dominant plurality voting method used to elect government officials in the United States.

As more American jurisdictions consider adopting RCV there are many claims about the merits and demerits of RCV. To date, most of the published works on RCV are case studies that examine its performance in a small number of locations. In deciding whether RCV should replace plurality voting it is important to evaluate RCV alongside the plurality system it typically replaces in the United States. Our study does that by comparing voter participation in RCV and plurality elections in American cities. Using a difference-in-differences design we compare a matched sample of cities using RCV and plurality voting rules before and after the adoption of RCV. We find that RCV reduces the substantial drop in voter participation in local primary and runoff elections. Beyond that, however, RCV does not appear to have a strong impact on voter turnout and ballot completion in municipal elections. In a case study of Minneapolis elections before and after the adoption of RCV we find similar levels of socioeconomic and racial disparities in voter participation in plurality and RCV elections.

Voter Participation with Ranked Choice Voting

The vast majority of American elections are conducted under some version of plurality, or winner-take-all, rules. In elections for a single office, like mayor or a city council seat, voters can express a preference for just a single candidate, and that vote is not transferable to other candidates. However, over the past ten years several American cities have adopted ranked choice voting for single office elections. In contrast to plurality rules, RCV asks voters to rank candidates in order of preference, enabling voters to express preferences for multiple candidates in the same contest. Under RCV, votes can be transferred to other candidates, for example, if a voter's first choice is eliminated from contention.¹

There are competing arguments about how RCV might influence voter participation. Under the traditional calculus of voting, the decision to vote is influenced by the costs and benefits associated with voting, as well as the probability that one's vote will determine the outcome (Downs 1957: chapter 14). The benefits refer to the policy or representational benefits associated with a preferred candidate winning the election. The costs of voting include the effort needed to become informed about the voting rules and the contests on the ballot, as well as the effort needed to overcome administrative and other barriers to registering and casting a ballot.

¹ In most American cities with RCV rules voters indicate a preference for up to three candidates. A small number of cities allow voters to rank a larger number of candidates. With one exception, American cities using RCV transfer votes using the alternative vote method. That is, when a voter's most preferred candidate is eliminated then the voter's second choice vote is reallocated to one of the remaining candidates. The exception is Cambridge, Massachusetts, which uses a single transferrable vote system.

On the one hand, some argue that RVC will reinvigorate local elections by fostering more deliberative campaigns. RCV is theorized to alter the dynamics of campaigns and elections by: (1) encouraging collaboration and civility among competing candidates; (2) allowing voters to provide a more complete report of their candidate preferences on the ballot; (3) reducing voter concerns about “wasted votes” for weaker candidates; and (4) by providing incentives for more candidates to run for office (Horowitz 1985; Reilly 2001; Donovan, Tolbert, and Gracey 2016). Reducing or eliminating wasted vote concerns may reduce some of the perceived costs associated with voting. If RCV indeed attracts more candidates then the additional campaigns may mobilize more voters to overcome the typical costs associated with voting. Some argue that RCV encourages more cooperation and bargaining among rival political elites than the zero-sum context of plurality elections (Horowitz 1985, 1991; Reilly 1997; 2001). Thus, for example, RCV may help bridge racial and ethnic divisions (Guinier 1994; Reilly 1997, 2002). If some voters have been discouraged from participating in the negative campaigns common to plurality elections, then RCV may increase voter participation.

Some previous research offers reasons to be optimistic about the impact of RCV on voter participation. A cross-national study finds that voters in countries with a higher degree of preferential voting report more satisfaction with the fairness of election outcomes (Farrell and McAlister 2006). A recent study of RCV in the United States finds that voters in cities using RCV report less negative campaigning and more satisfaction with the local election than voters in cities using plurality voting (Donovan, Tolbert, and Gracey 2016). Candidates also note a more positive campaign experience in RCV cities (Donovan 2014). While there is no clear evidence that negative campaigning depresses turnout (Lau,

Sigelman, and Rovner 207), voters may be more willing to participate in elections when they are more satisfied with the electoral system.

Furthermore, in a study of local jurisdictions in the United States, Bowler and colleagues (2003) find that cumulative voting generates more vigorous voter outreach efforts, and thus boosts voter turnout in local elections. While cumulative voting provides candidates and campaigns a different mix of incentives for voter mobilization than RCV, both systems are variants of preferential voting and thus one might expect RCV to produce similar voter turnout improvements. Finally, exit polls in American communities using RCV tend to reveal high levels of understanding and satisfaction with the voting system (e.g., Neely et al. 2005; 2006; Mauter 2014).

On the other hand, some argue that the task of ranking candidates in RCV elections may be confusing for voters, particularly for American voters who have been socialized in plurality voting. New voting rules will impose costs on voters to understand and properly follow the new rules. Downs (1957) theorizes that voting costs disproportionately disenfranchise low-income voters and others lacking in resources. There is evidence in American elections that confusing voting equipment or ballot designs produce more voting errors, and the impact of poor design falls disproportionately on low income and minority voters (Herrnson et al. 2008; Kropf and Kimball 2012). Other recent election reforms in the United States, such as expanded early voting, may have worsened socioeconomic biases in turnout (Berinsky 2005). Some critics similarly argue that the novel and complex nature of RCV, including the way ballots are counted, may exacerbate socioeconomic disparities in

voter participation (Jacobs and Miller 2013, 2014). If voters have difficulty understanding how RCV works, they may be discouraged from participating in RCV elections.

There is some evidence that voter participation in RCV elections may not be as high as expected. One study finds a fair amount of “ballot exhaustion” in California elections using RCV (Burnett and Kogan 2015). That is, if some voters do not mark the full array of ranked preferences afforded by the ballot or if they only prefer relatively weak candidates, then their votes may not factor into the final determination of the winner. In the elections they analyze, the winning candidate typically did not receive a majority of all ballots cast in the election. McDaniel (2016) estimates that turnout among some racial groups in San Francisco declined after the adoption of RCV. In addition, age and education-related turnout disparities are more pronounced in San Francisco after the adoption of RCV (McDaniel 2016). Similarly, overvotes are more common in minority precincts in RCV elections in San Francisco (Neely and McDaniel 2015).

Against these competing hypotheses, there are reasons to expect minimal effects of RCV on voting participation. Turnout in local elections tends to be influenced by features that bear heavily on the cost/benefit calculus of voting, such as the election schedule, the level of competition in local campaigns, mobilization efforts, and other characteristics of the local political context (Anzia 2013; Oliver 2012; Hajnal 2010; Green and Gerber 2015). In contrast, many election reforms do not fundamentally alter the costs and benefits of voting. Prior reforms touted as turnout boosters, such as the motor voter law (Hanmer 2012), the Help America Vote Act (Kropf and Kimball 2012), voting by mail (Kousser and Mullin 2007), early voting (Burden et al. 2014), and term limits (Bowler and Donovan

2012) have had done little to increase voter participation in the United States (also see Cain, Donovan, and Tolbert 2008). Berinsky (2005) classifies election reforms into two groups: (1) those that stimulate new voters, and (2) those that retain existing voters. By merely allowing voters to indicate a preference for more than one candidate RCV may not alter the basic calculus of voting and thus may not stimulate many new voters.

Ultimately, the impact of RCV on voter participation is a researchable question. However, much of the existing research examines RCV elections in isolated case studies. To assess the relative advantages and disadvantages of new voting rules, it is important to compare the performance of the new system to the old system it is replacing. The next section describes the data and research design we use to examine the participation question for RCV in the United States.

Data and Methods

In assessing the impact of RCV on voter participation this study uses a research design similar to that employed by Bowler, Donovan, and Brockington (2003) in their study of cumulative voting. The basic approach is to compare a “treatment” group of cities that have adopted RCV to a “control” group of cities using plurality voting. The comparison cities in the control group are similar to the RCV cities in terms of population, region, income, poverty, and demographic diversity. We compare a similar set of RCV and matched plurality cities as Donovan et al. (2016, Table 1) and Kropf (2015, Table 1).

In addition, we use a “difference-in-differences” (DID) design to compare the RCV and plurality cities. This involves gathering data on voter participation in both sets of cities from elections held before and after RCV was adopted. The reason for this approach is that

the cities that have adopted RCV tend to have a strong reputation for progressive politics. As such, the RCV cities may have civic cultures and prior policies that reduce barriers to voting and promote widespread voter participation. Thus, it is possible that different rates of participation existed in the matched RCV and plurality cities even before adoption of RCV. The DID design assesses the impact of RCV by measuring how much the difference in participation rates between the two groups of cities changes after the adoption of RCV. In ordinary least squares regression analysis, the treatment effect is estimated by an interaction between a treatment variable (indicating whether a city is in the treatment or control group) and a time variable (indicating whether the time period is before or after adoption of RCV). For a summary of the statistical treatment of DID methods, see Wooldridge (2013, chapter 13) or Bailey (2016, chapter 8).

For both sets of cities, we examine the recent elections through the 2015 cycle as well as the last election or two prior to the adoption of RCV. We leave out the cities that held RCV elections in 2012 and other years that coincide with a presidential contest. Voter participation in presidential years is strongly shaped by the presidential campaign and is much higher than turnout in local elections in other years. Thus, we do not expect RCV to have as much of an impact on turnout in those elections. Furthermore, since Cambridge, Massachusetts adopted RCV in the 1940s, we have not included voter participation data for Cambridge and its matching plurality cities before the adoption of RCV. We still examine both sets of cities for the 2009, 2013, and 2015 elections. Similarly, Portland, Maine adopted RCV in 2011 at the same time that it resumed electing a mayor. Prior to 2011, Portland had not elected a mayor since the 1920s. Therefore, we do not include data for Portland and its matching cities prior to 2011. We still examine both sets of cities for the

2011 and 2015 elections. Table 1 lists the cities and elections that are part of this study. Our sample includes a total of 96 elections, including 19 elections using RCV.

[Table 1 about here]

We gathered data from each city and election listed in Table 1 to create several measures of voter participation. Voter turnout is a common community-wide measure of participation. We measure voter turnout as the percentage of eligible voters who cast a ballot in the election. We collect data on the number of ballots cast from city and county election offices. We measure the number of eligible voters in each city based on estimates of the citizen voting age population (CVAP) reported in the Census Bureau's American Community Survey (ACS). The ACS releases five-year average population estimates for American municipalities. We use the most recently released estimate for the citizen voting age population in 2013, 2014 and 2015. For earlier years we use the five-year average centered on the year the election was held.

We examine turnout in local primary, general, and runoff elections. In cities with a plurality system there are typically two elections held to choose local officials: (1) a primary election and a (2) runoff election. The top candidates who receive the most votes in the primary election (usually the top two) advance to the runoff election. The winner of the runoff election then wins the office. In some cases, if a candidate wins at least 50 percent of the vote in the primary, then she wins the seat without the need for a runoff election. Also, in some cities the primary occurs in the spring or summer and the runoff takes place on the general election date in early November. In other cities the primary occurs in November and the runoff election takes place a month or so later. Turnout tends

to be higher in the November general election than in summer primaries or winter runoff elections because the November election often shares the ballot with other statewide or federal contests that tend to attract more voters.

In RCV systems, where voters rank candidates in order of preference, just one election is held to select government officials. RCV is thus designed to combine the primary (first choice selections) and runoff (re-allocation of votes for losing candidates to the voter's second or third choice) in one election, which is why RCV is sometimes called "instant runoff voting." The RCV elections in our sample all take place in November. As a result, we make separate comparisons of turnout in RCV elections to turnout in general elections as well as in primary or runoff elections in plurality cities. Similarly, we compare the drop in voter participation from the first round to the last round of vote tabulation in RCV cities to the drop in votes between the first round (primary election) and the last round (runoff election) in plurality cities.² In our sample, 45 of the 77 city elections with plurality rules held a separate primary or runoff in addition to the November general election.

To assess potential confusion among voters we measure the residual vote rate (Ansolabehere and Stewart 2005) in the top local contest on the ballot (usually a mayoral race). The residual vote rate is the difference between the total ballots cast and the number of valid votes recorded for the contest in question (as a percentage of total ballots cast). Residual votes can occur by two mechanisms: (1) overvotes (when a voter selects too many candidates in a column), or (2) undervotes (when a voter makes no selection in a column).

² Thanks to Robert Montjoy for a conversation about this comparison.

Overvotes are almost always an indication of voter error, while undervotes may be due voter error or they may be intended by a voter who wants to skip a particular contest on the ballot. The residual vote rate measure is not perfect since it combines both mechanisms. Unfortunately, most jurisdictions, including most cities in this study, do not report overvotes and undervotes separately. Nevertheless, previous studies indicate that the residual vote rate is a valid measure of poorly designed ballots and voting equipment (Ansolabehere and Stewart 2005; see Kropf and Kimball 2012 for a review). In presidential elections, a residual vote rate substantially above 1% is usually a sign of some type of problem with the ballot or voting machinery (Knack and Kropf 2003).

There is an additional decision in how to apply the residual vote measure to RCV elections. In plurality elections, where the voter has just one vote, the residual vote calculation is straightforward. In RCV elections, where the voter has multiple choices (and hence multiple votes), there are several possible ways to compute the measure. Should it be based on all of the votes available to the voter? It appears that the vast majority of voters in RCV systems record a first or second choice, but many may purposefully abstain from a third or fourth choice. It may not make sense to interpret those abstentions as a sign of voter confusion. To allow for as close a comparison as possible to plurality elections, we compute the residual vote rate in RCV elections just based on the first choice votes. In a case study of voting in Minneapolis, we use some additional measures of voter confusion and ballot completion that we describe below.

Turnout Results

A simple version of the difference-in-difference method can be illustrated with a graph. Starting with the broader measure of participation, Figure 1 plots the mean turnout rate for November elections in RCV and plurality cities before and after the adoption of RCV. In the elections prior to RCV adoption, turnout in the RCV cities (40.1%) is almost eleven points higher than mean turnout in the plurality cities (29.3%). This supports our suspicion that the cities adopting RCV already had higher turnout rates before adoption. In elections after the adoption of RCV, the difference in mean voter turnout in RCV cities (34.1%) and plurality cities (28.4%) is roughly 6 points. As the graph indicates, the difference in turnout between the two groups is smaller after the adoption of RCV, suggesting that RCV reduces general election turnout.

[Figure 1 about here]

A more rigorous implementation of the DID method uses regression analysis to control for other factors that influence voter turnout. We include controls for the timing of the election, the number of contests on the ballot, and the level of competition in the mayoral campaign. The basic hypothesis is that turnout is higher when there are more contests on the ballot and when the campaigns are more competitive. Elections in even-numbered years are expected to produce higher turnout because other state and federal contests are on the ballot in even-numbered years. The competitive nature of the contest for mayor is measured with a dummy variable indicating whether the mayoral election is an open seat contest or the outcome is closer than a 60-40 margin of victory for the winner.

[Table 2 about here]

The model results for turnout in general (November) elections are reported in Table 2. The estimates indicate that average voter turnout was roughly 9 percentage points higher in RCV cities than in control cities before the adoption of RCV. The test of the impact of RCV is the coefficient for the interaction term (RCV City * After Adoption). In this case, the coefficient is negative but barely larger in magnitude than its standard error, suggesting that RCV is not associated with a statistically significant change in voter turnout in November elections. The other model estimates indicate that turnout is, on average, almost 9 points higher when there are more than three contests on the ballot. In this sample, the additional contests are often statewide races or ballot measures which are bound to include more intensive voter mobilization campaigns. Furthermore, turnout is almost 10 points higher in even-numbered years, and a competitive mayoral contest boosts turnout by roughly 5 points, on average.

For the second participation analysis we compare RCV turnout to primary or runoff election turnout in plurality cities. We exclude 22 plurality elections where a primary or runoff election was not held, leaving a sample of 64 elections. Figure 2 plots the mean turnout rate for primary or runoff elections in RCV and plurality cities before and after the adoption of RCV. The figure again shows that primary or runoff turnout was higher in RCV cities than in plurality cities. In the elections prior to RCV adoption, turnout in the RCV cities (22.3%) is approximately 7 points higher than mean turnout in the plurality cities (14.8%). In elections after the adoption of RCV, the difference in mean voter turnout in RCV cities (31.7%) and plurality cities (16.9%) is 14.6 points. The difference in turnout between two sets of cities is larger after the adoption of RCV, suggesting that RCV increases turnout when compared to plurality runoff or primary elections.

[Figure 2 about here]

The regression estimates comparing turnout in RCV cities to primary or runoff turnout in plurality elections are reported in Table 3. As in Figure 2, the estimates indicate that average voter turnout was roughly 5 percentage points higher in RCV cities than in control cities before the adoption of RCV. In this case the coefficient for the interaction term is positive and statistically significant. This suggests that the adoption of RCV is associated with an 8 percentage point increase in turnout over what was observed in primary or runoff plurality elections. The other model estimates indicate that turnout is also higher in even-numbered years, when there are more than three contests on the ballot, and when there is a competitive mayoral contest.

These results are consistent with other studies which conclude that the scheduling of local elections has a major impact on voter turnout and political representation (Hajnal 2010; Anzia 2013). Local elections held in November (particularly in even-numbered years to coincide with statewide and federal contests) generate higher voter turnout than local elections scheduled during off-cycle periods (e.g., outside of November). Thus, the turnout effect of RCV reported in Figure 2 and Table 3 may be due to the election schedule rather than the RCV voting rules, per se.

[Table 3 about here]

Residual Vote Results

Turning to a measure of voter confusion, Figure 3 plots the mean residual vote rate in RCV and plurality cities for the top local contest on the ballot before and after the

adoption of RCV.³ In elections prior to RCV adoption, the residual vote rate in the RCV cities (7.5%) is slightly lower than the mean residual vote rate in the plurality cities (8.0%). In elections after the adoption of RCV, the difference in the mean residual vote rate in RCV cities (4.8%) and plurality cities (6.9%) is about 2 points. Thus, it appears that residual votes declined after the adoption of RCV.

[Figure 3 about here]

The regression results in Table 4 indicate that the change in the difference between group means is not statistically significant. Thus, the adoption of RCV does not appear to be associated with a noticeable change in the residual vote rate for the top contest on the ballot in these local elections. Meanwhile, a competitive mayoral contest does appear to reduce the residual vote rate by roughly 3.7 percentage points, on average. Residual vote rates also tend to be higher in local elections held in even-numbered years, when state and federal contests likely draw attention away from the local election.

[Table 4 about here]

Vote Drop-off

Our final comparison examines the drop-off in votes between the first and last rounds of votes in each system. In elections with multiple rounds of voting or tabulating a fundamental question involves how many votes still count when candidates are eliminated at each stage. Some have highlighted high rates of “ballot exhaustion” as a shortcoming of

³ There are three elections in our sample excluded from this analysis. Two elections from Lowell, Massachusetts are dropped because there were no mayoral contests in either election, and the city uses an at-large system for electing the city council. At-large elections do not produce a comparable residual vote measure. We also exclude the Tulsa election of 2005 because there was no mayoral race in that election.

RCV voting rules. Thus, the votes for the winning candidate in the final round of tabulation for an RCV election may not comprise a majority of all ballots cast in the election (Burnett and Kogan 2015). However, a similar critique applies to the more familiar primary election with plurality rules and later runoff election for the top primary finishers. In the elections using the familiar plurality rules the number of votes cast in the primary or runoff elections tend to be substantially smaller than the votes cast in the general election. A common claim of RCV proponents is that replacing two elections (primary and runoff) with one RCV election yields greater continuity in voter participation between the first and last rounds of voting. Does ballot exhaustion in RCV elections undermine this claim?

For RCV elections, we compute voter drop-off as the difference between the total ballots cast in the election and the number of valid votes counted in the final round of RCV tabulation (as percentage of total ballots cast). Thus, the votes that drop off in RCV elections include blank ballots, overvotes, and exhausted ballots. For plurality elections, we compute voter drop-off as the difference between the total ballots cast in the general election and the valid votes for the top local contest in the primary or runoff (again as a percentage of total ballots cast). Thus, the drop-off includes people who vote in the general election but not in the primary or runoff election. We exclude 22 plurality elections where a primary or runoff election was not held. We exclude two additional plurality elections where a primary or runoff was only held for one council district, rather than for the entire city.⁴ This leaves a sample of 62 elections. Figure 4 plots the mean vote drop-off in RCV and plurality cities before and after the adoption of RCV. As the figure shows, the drop in voting participation between primary and runoff elections is very substantial in cities using

⁴ These elections occurred in Des Moines (2013) and Worcester (2013).

plurality rules. On average, the drop-off is equivalent to roughly half of the voters in the general election. In the elections prior to RCV adoption, drop-off in the RCV cities (50.3%) is only 3 points lower than mean drop-off in the plurality cities (56.8%). In elections held after the adoption of RCV, the difference in mean voter drop-off in RCV cities (13.1%) and plurality cities (45.8%) is 32.7 points. The difference in vote drop-off between the two sets of cities is much larger after the adoption of RCV, suggesting that RCV substantially reduces the drop in votes between the first and last rounds.

[Figure 4 about here]

The regression estimates comparing vote drop-off in RCV cities to plurality cities are reported in Table 5. As in Figure 4, the estimates indicate that average vote drop-off was roughly the same in RCV and plurality cities before the adoption of RCV. In this case the coefficient for the interaction term is negative and statistically significant. This suggests that the adoption of RCV is associated with a roughly 24 percentage point reduction in voter drop-off compared to what is observed in plurality elections. The other model estimates indicate that a competitive mayoral contest also reduces vote drop-off, by roughly 11 points. Thus, the evidence on vote drop-off supports a particular claim made by RCV proponents about continuity in voter participation. Again, this seems to be an advantage of holding one November election in place of two elections held on separate dates. Overall, with the exception of improved turnout compared to plurality primary and runoff elections, voter participation seems to be influenced more by the stimulus of a competitive local or statewide campaign rather than by the adoption of RCV rules.

[Table 5 about here]

Results from Minneapolis: Socioeconomic Bias in Voter Participation

While the evidence thus far indicates an improvement in overall rates of voter participation due to the adoption of RCV, some have expressed concerns that RCV fails to ameliorate socioeconomic biases in participation (Jacobs and Miller 2013, 2014; Neely and McDaniel 2015; McDaniel 2016). For American voters who have grown accustomed to plurality voting, properly casting an RCV ballot may take some learning and skill, which may confer a participatory advantage on voters with more resources (i.e., wealth, education, and civic skills). In a recent paper, Jacobs and Miller (2014) report on the 2013 Minneapolis election, noting higher rates of voter participation in white and high-income wards than in wards with high concentrations of racial and ethnic minorities and low-income voters. However, Jacobs and Miller do not provide evidence to indicate how the disparities in voter participation observed in 2013 compare to patterns in previous elections. Is the evidence from Minneapolis in 2013 worse than usual? Socioeconomic biases in voter participation are hardy perennials in American elections (Leighley and Nagler 2013; Schlozman, Brady, and Verba 2012), particularly in local elections (Hajnal and Lewis 2003; Oliver 2012; Anzia 2013). Thus, RCV elections need to be compared to similarly situated plurality elections. We try to provide one such comparison below for the case of Minneapolis.

[Figure 5 about here]

Jacobs and Miller present evidence showing that in the 2013 Minneapolis election turnout was considerably higher in the three wealthiest wards (11, 12, and 13) than in the three least affluent wards (2, 3, and 5). They measure turnout as a percentage of registered

voters in each ward. We use the same data from Minneapolis elections to replicate this finding and generate the same turnout measures from the same wards in the 2005 election (the last local election in Minneapolis using plurality voting). Both elections included contests for mayor and city council.⁵ Our analysis includes the rest of the city's 13 wards, labeled "Middle income wards." Voter turnout was slightly higher in 2013 (29%) than in 2005 (26%). As Figure 5 indicates, the same 14 percentage point gap in turnout between low and high income wards in the 2013 RCV election was present in the 2005 plurality election.⁶ The income disparity in voter turnout is not unique to RCV elections in Minneapolis, but as Jacobs and Miller note, that disparity did not get smaller in the 2013 RCV election.

Jacobs and Miller also examine measures of voter confusion. One such measure is the frequency of spoiled ballots (as a percentage of total ballots cast). The spoiled ballot rate is not specific to a particular contest on the ballot but reflects the overall voting experience. The good news about spoiled ballots is that they preserve the right to vote. If a mistake is recognized by a voter or the voting equipment, the voter can return the ballot in exchange for a new one. The ballot with the mistake is "spoiled" and is not counted. The voter completes a new ballot, which is counted. Nevertheless, spoiled ballots can diagnose voter difficulty in completing the ballot. In the 2013 election, Jacobs and Miller observe a higher rate of spoiled ballots in low income wards than in high income wards. Figure 6 compares the spoiled ballot rate in high and low income wards in the 2005 and 2013

⁵ This is not an identical geographic comparison since Minneapolis ward boundaries changed somewhat between 2005 and 2013. Smaller geographic units, such as precincts, are preferable for inferences about the relationship between income, race, and voter participation, but precinct boundaries also tend to change when wards are redrawn.

⁶ The same pattern, not shown here, holds when comparing the wards with the highest share of white voters to wards with the smallest share of white voters.

Minneapolis elections. The citywide spoiled ballot rate increased from 1% in 2005 to 4% in 2013, and the rate increased in both low income and high income wards. Moreover, as Figure 6 shows, the gap in the spoiled ballot rate between high and low income wards increased only slightly in the 2013 RCV election.

[Figure 6 about here]

A somewhat similar pattern emerges when examining the mayoral contests. The residual vote rate is higher in low income wards in both years, and the gap between the two sets of wards increases slightly from 0.8 percentage points in the plurality election of 2005 to 1.7 points in the RCV election of 2013, a statistically insignificant increase. A similar study of San Francisco found that residual votes did not increase after the adoption of RCV (Neely and Cook). In 2013, the Minneapolis elections department began reporting overvotes and undervotes for local elections. The overvote rate in the mayoral contest was low (0.2% of ballots cast), and the rate was the same at all income levels. Therefore, the gap in first choice residual votes between low and high income wards in 2013 is due to a slightly higher undervote rate in low income wards. Voters can rank up to three candidates in RCV elections in Minneapolis. As Jacobs and Miller note, a bit more than 20% of voters did not record three candidate choices for mayor. When tabulating undervotes across all three choices for mayor in 2013 the undervote rate is somewhat higher in low income wards (24%) than high income wards (21%). However, the undervote rate is even higher

(26%) in middle income wards.⁷ Overall, the undervote and overvote data do not reveal substantial income disparities in the 2013 Minneapolis mayoral election.

Finally, it is worth examining city council elections in Minneapolis, which also used RCV in the 2013 election. Council seats for all 13 city wards were up for election in 2005 and 2013. Therefore, we can make a similar comparison between a plurality election (2005) and an RCV election (2013). RCV seems to have encouraged more candidates to run for city council in Minneapolis. The number of city council candidates almost doubled, increasing from 25 candidates in 2005 to 47 in 2013. In 2005, no ward featured a campaign with more than two city council candidates. In 2013, ten of the thirteen wards produced more than two candidates running for a city council seat.⁸

Jacobs and Miller also present evidence showing that in the 2013 Minneapolis election voter participation in the mayoral contest was higher in the wards with the highest share of white voters (10, 11, 12, and 13) than in wards where the non-white share of the population is at least 50 percent (4, 5, 6 and 9). We use the same data to compare the residual vote rate in the city council races for the 2013 RCV election and the 2005 plurality election. We include the rest of the city's 13 wards, labeled "Mixed wards." Figure 7 compares the residual vote rate in the 2005 and 2013 Minneapolis city council elections by racial composition of the wards. The citywide residual vote rate for first choice city council voting increased from 4% in 2005 to 5.9% in 2013, but the increased is confined to racially mixed wards. As the figure shows, the 2005 plurality election produces the familiar pattern

⁷ The Minneapolis rates for overvotes, undervotes, and failure to rank three candidates are substantially lower than those reported for RCV elections in San Francisco (Neely and Cook 2008; Neely and McDaniel 2015).

⁸ The 2009 election (the first in Minneapolis using RCV) also produced a higher number of city council candidates.

of higher residual vote rates in minority wards and lower rates in white wards. However, as Figure 7 shows, the residual vote rate actually declined in the minority wards in the 2013 RCV election. This is because the minority wards featured several candidates running for city council seats in 2013. The residual vote rate in city council contests is substantially lower in wards with more candidates running for a seat. Furthermore, in 2013 overvote and undervote rates for city council contests appear to be unrelated to the income or racial composition of Minneapolis wards. Overall, the Minneapolis evidence indicates that socioeconomic disparities in voter participation are similar in plurality and RCV elections.

[Figure 7 about here]

Conclusion

Several American cities have adopted RCV rules for local elections, and other jurisdictions may be considering RCV in the future. In assessing the impact of RCV voting rules it is important to evaluate RCV alongside the plurality systems that RCV replaces. For the most part, we find that RCV elections have minimal effects on rates of voter participation. The main exception involves the comparison with primary and runoff elections using plurality rules. By compressing the voting and winnowing of candidates into one election scheduled in November, RCV elections increase voter participation when compared to plurality primary and runoff elections held before or after the November general election date. When comparing general elections to general elections, plurality and RCV elections generate similar turnout rates. We also find similar rates of residual votes, a measure of voter confusion, in plurality and RCV elections.

Our case study of Minneapolis also reveals comparable rates of participation and voter confusion in plurality and RCV elections. The main exception is that we observe higher rates of spoiled ballots in the RCV election than in the plurality election. We also observe that the socioeconomic and racial disparities in voter participation are similar in plurality and RCV elections in Minneapolis.

These findings are based on a rather small but growing sample of evidence. Some caution is recommended in drawing conclusions from this evidence about the impact of RCV on voter participation. Nevertheless, the research design can be used to continue examining the effect of RCV adoption on voters. As more results from past elections in RCV and comparison cities are included in the data, and as more cities continue to hold RCV elections in the future, the evidence will grow and support more confident conclusions about the response of voters to RCV rules in the United States. It will be important to continue to monitor measures of voter participation in RCV and plurality elections in the United States.

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Table 1
Cities and Elections for Voter Participation Comparisons

RCV City	Matched Plurality Cities	Elections Before RCV	Elections After RCV
Minneapolis, MN	Boston, MA; Cincinnati, OH; Tulsa, OK; Seattle, WA	2005	2009, 2013
St. Paul, MN	Cedar Rapids, IA; Des Moines, IA; Madison, WI; Spokane, WA	2009	2013, 2015
Cambridge, MA	Ann Arbor, MI; Lowell, MA; Stamford, CT; Worcester, MA		2009, 2013, 2015
Berkeley, CA	Alameda, CA	2002, 2006	2010, 2014
Oakland, CA; San Leandro, CA	Anaheim, CA; Santa Ana, CA; Santa Clara, CA; Stockton, CA; Richmond, CA	2002, 2006	2010, 2014
San Francisco, CA	San Jose, CA	2002	2006, 2010, 2014, 2015
Portland, ME	Lewiston, ME; Dover, NH		2011, 2015

Table 2
Predictors of General Election Turnout in RCV and Plurality City Elections

Independent Variable	Coefficient (Std. Error)
RCV City	9.1* (3.2)
After RCV Adoption	0.9 (2.0)
RCV City * After Adoption	-4.1 (3.8)
Even-Numbered Year	9.6* (2.1)
More than 3 Contests	8.9* (2.2)
Contested Mayoral Contest	5.5* (2.0)
Constant	16.7* (2.1)
N	96
R ²	.58
Root MSE	7.9

The dependent variable is voter turnout in city elections (ballots cast as a percentage of the citizen voting age population). Cell entries are ordinary least squares coefficients (standard errors in parentheses).

*p < .1, two-tailed

Table 3
Predictors of Turnout in RCV Cities and Primary/Runoff Elections in Plurality Cities

Independent Variable	Coefficient (Std. Error)
RCV City	5.4 (3.4)
After RCV Adoption	1.9 (2.5)
RCV City * After Adoption	8.2* (3.8)
Even-Numbered Year	4.8* (2.4)
More than 3 Contests	8.8* (2.3)
Contested Mayoral Contest	6.4* (2.1)
Constant	6.8* (2.4)
N	64
R ²	.69
Root MSE	6.9

The dependent variable is voter turnout in city elections (ballots cast as a percentage of the citizen voting age population). Cell entries are ordinary least squares coefficients (standard errors in parentheses).

*p < .1, two-tailed

Table 4
Predictors of Residual Votes in Top Contest in RCV and Plurality City Elections

Independent Variable	Coefficient (Std. Error)
RCV City	-2.7 (1.8)
After RCV Adoption	0.2 (1.2)
RCV City * After Adoption	-0.0 (2.2)
Even-Numbered Year	5.6* (1.2)
Contested Mayoral Contest	-3.7* (1.2)
More than 3 Contests	1.1 (1.3)
Constant	5.0* (1.3)
N	93
R ²	.40
Root MSE	4.6

The dependent variable is the residual vote rate (as a percentage of the number of ballots cast). For RCV elections, the residual vote measure is based on the first choice votes. Cell entries are ordinary least squares coefficients (standard errors in parentheses).

*p < .1, two-tailed

Table 5
Predictors of Voter Drop-off between First and Last Rounds in RCV Cities and Primary/Runoff Elections in Plurality Cities

Independent Variable	Coefficient (Std. Error)
RCV City	-10.6 (9.8)
After RCV Adoption	-8.7 (7.4)
RCV City * After Adoption	-24.4* (11.2)
Even-Numbered Year	4.5 (7.1)
More than 3 Contests	-1.5 (6.8)
Contested Mayoral Contest	-11.3* (6.2)
Constant	58.7* (6.9)
N	62
R ²	.48
Root MSE	19.9

The dependent variable is voter drop-off between the first and last round of voting in city elections (as a percentage of ballots cast). Cell entries are ordinary least squares coefficients (standard errors in parentheses).

*p < .1, two-tailed

Figure 1
Mean Voter Turnout in RCV and Plurality City Elections:
General Elections

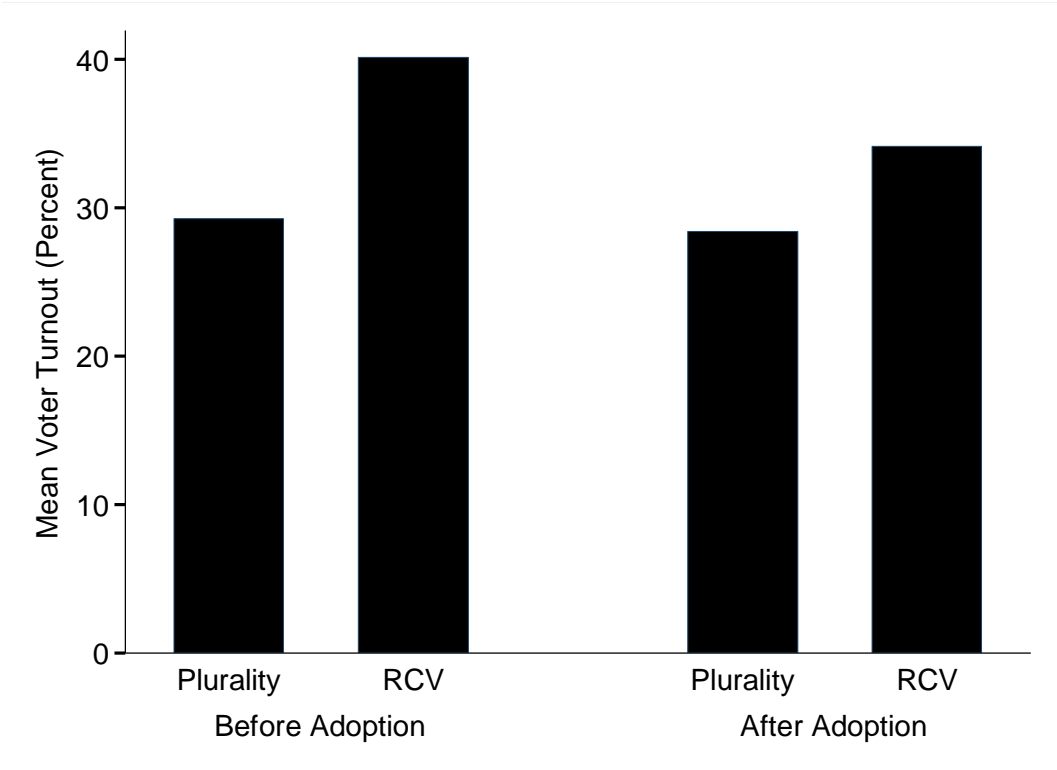


Figure 2
Mean Voter Turnout in RCV and Plurality City Elections:
Primary/Runoff Elections

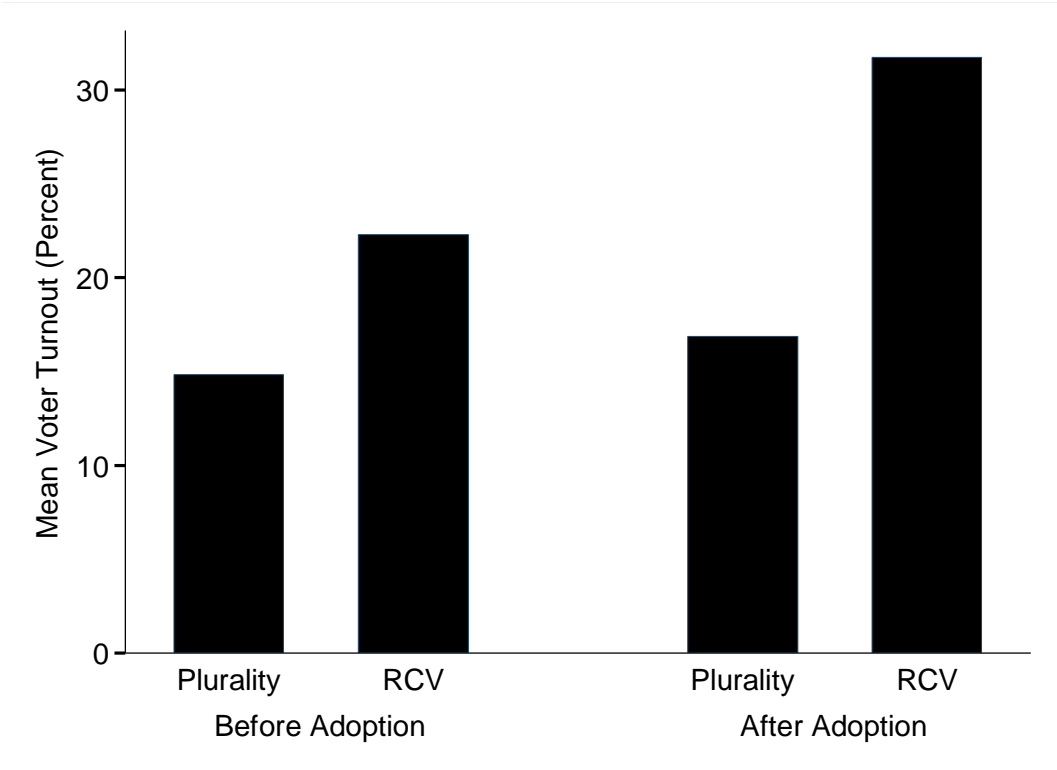


Figure 3
Mean Residual Vote Rate in Top Contest in RCV and Plurality City Elections

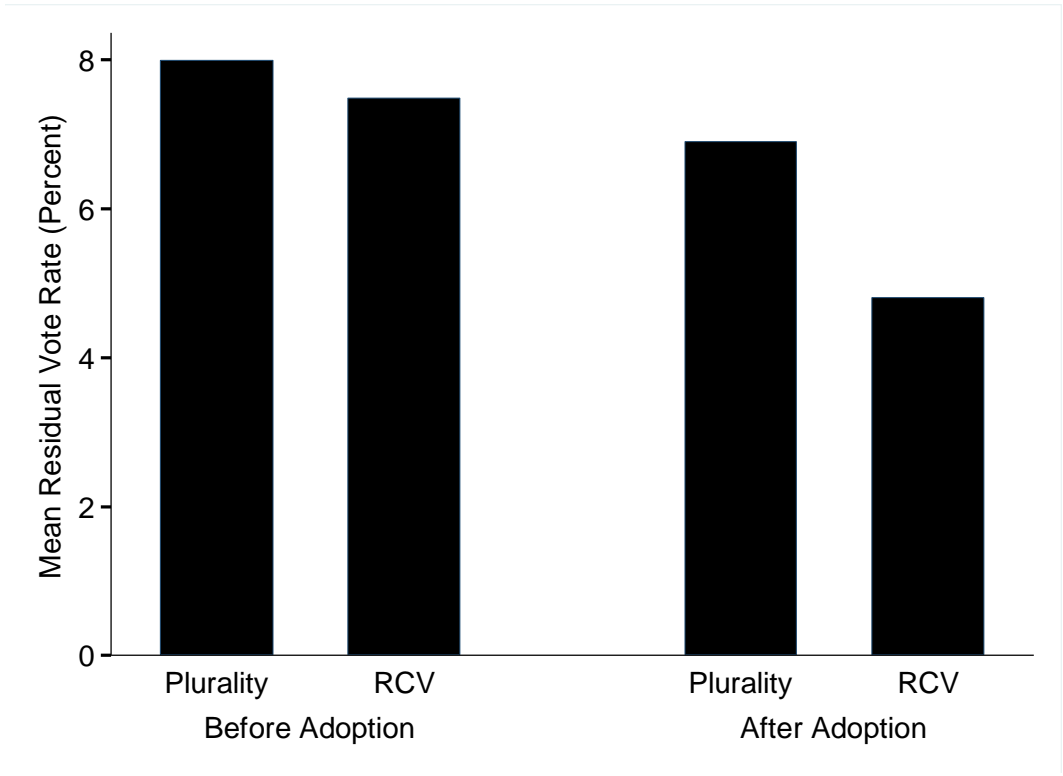


Figure 4
Mean Voter Drop-off Between First and Last Rounds in RCV and Plurality City Elections:
Primary/Runoff Elections

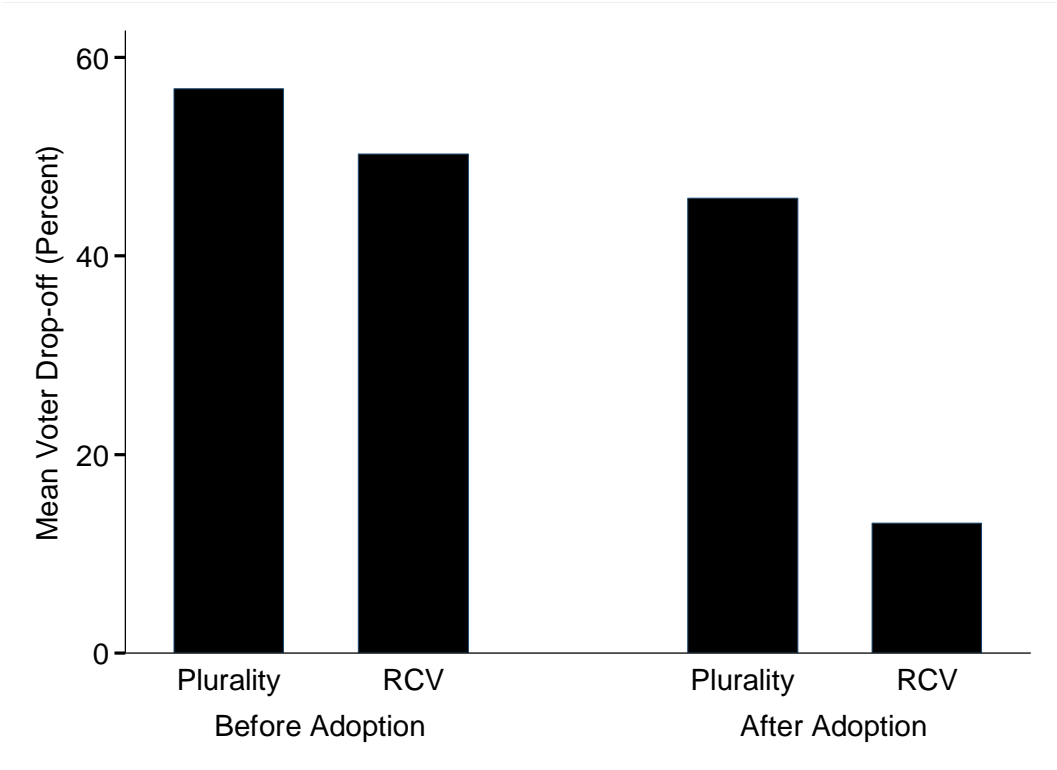


Figure 5
Voter Turnout by Ward Income:
2005 and 2013 Minneapolis Elections

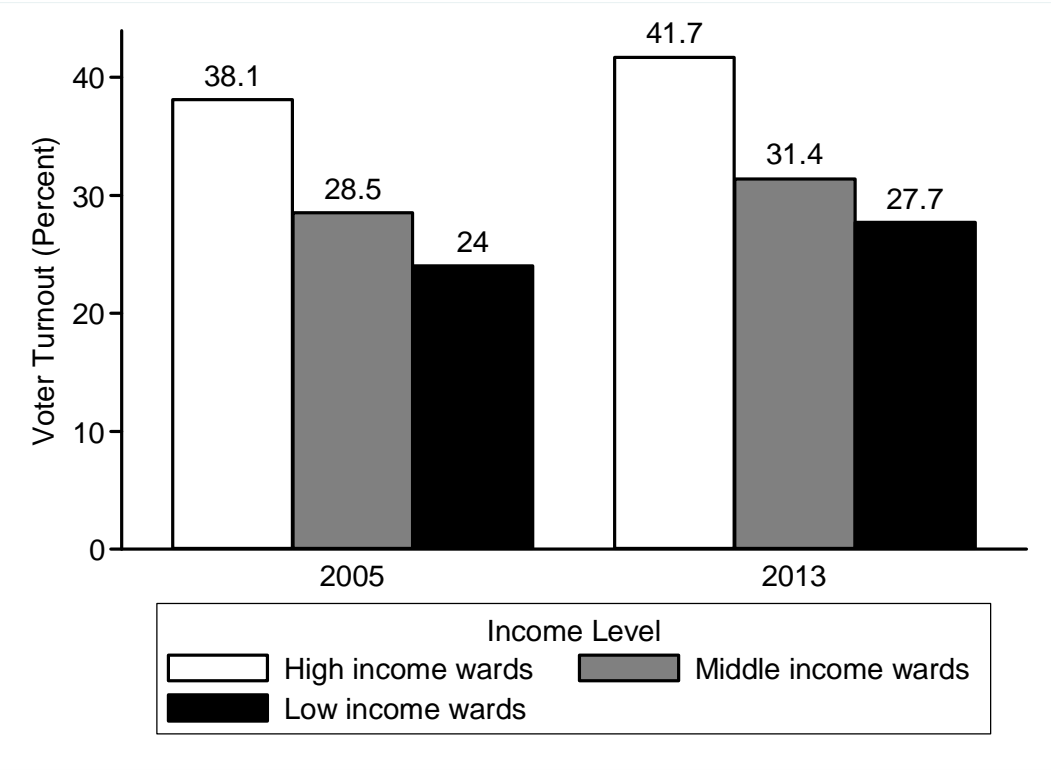


Figure 6
Ballot Spoilage by Ward Income:
2005 and 2013 Minneapolis Elections

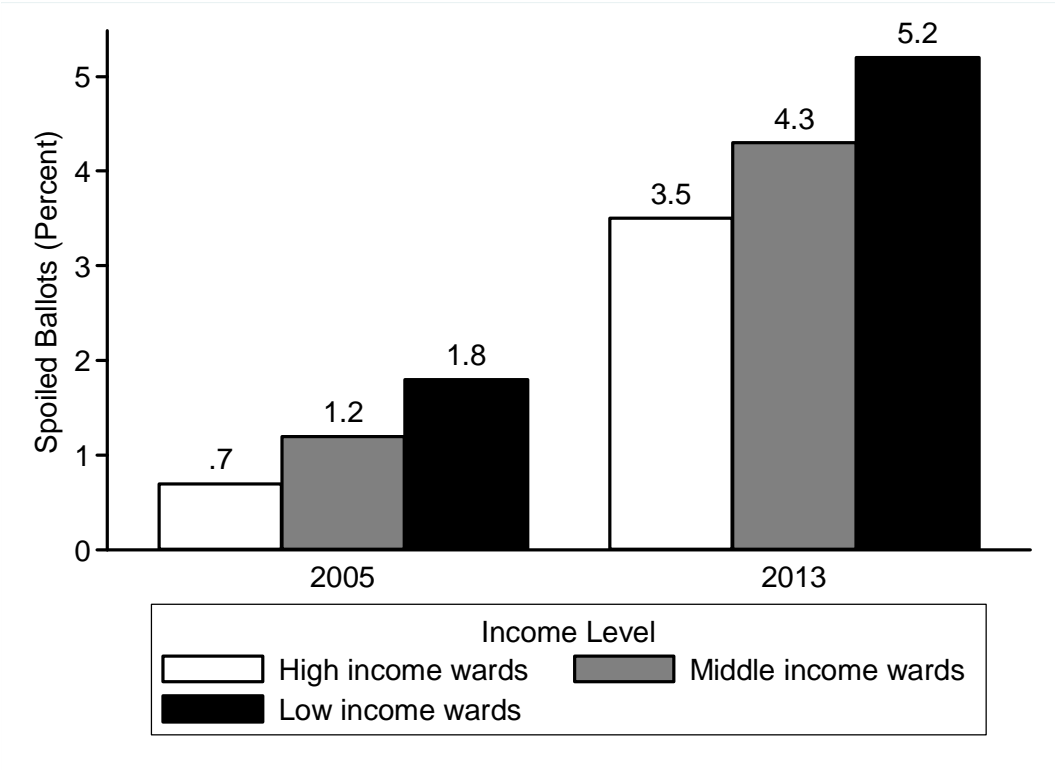


Figure 7
Residual Vote for City Council (1st Choice) by Ward Race:
2005 and 2013 Minneapolis Elections

