Voter Participation with Ranked Choice Voting in the United States

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Abstract

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. I use a difference-in-differences design, matching cities using RCV with demographically similar cities using plurality voting at the same time. Preliminary evidence indicates that RCV does not appear to have a strong impact on voter turnout and ballot completion.

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This study begins to examine the degree to which voters turn out and use all of their votes, 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 one of the substitutes. 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. RCV has now been adopted by several cities in the United States, primarily for mayoral or city council elections.

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 by: (1) encouraging collaboration and civility among competing candidates; (2) allowing voters to provide a more accurate 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 1991; Reilly 2001). If some voters have been discouraged from participating in the zero-sum context of 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). Presumably, voters are more willing to participate in elections when they are more satisfied with the electoral system. 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 remain variants of preferential voting and thus one might expect RCV to produce similar voter turnout improvements. Finally, exit polls in American communities using RCV generally reveal high levels of understanding and satisfaction with the voting system.

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. There is evidence in American elections that confusing voting equipment or ballot design produces 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, seem to have worsened socioeconomic biases in turnout (Berinsky 2004). Some critics similarly imply that the novel and complex nature of RCV 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. Ultimately, the impact of RCV on voter participation is a researchable question. The next section describes the data and research design I use to begin to answer the participation question.

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, and demographic diversity. I use the same set of RCV and matched plurality cities as Donovan (2014, Table 1).

In addition, I use a "difference-in-difference" (DID) design to compare the RCV and plurality cities. This involves gathering data on voter participation in both groups 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 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).

For both sets of cities, I examine the 2013 elections (and other recent elections, where data are available) as well as the last election prior to the adoption of RCV. For now, I leave out the cities that held RCV elections in 2012 and generally hold RCV elections that coincide with the presidential contest. Voter participation in presidential years is strongly

shaped by the presidential campaign and is much higher than turnout in local elections in odd-numbered years. Thus, I do not expect RCV to have as much of an impact on turnout in those elections. Finally, since Cambridge, Massachusetts adopted RCV in the 1940s, I have been unable thus far to get voter participation data for Cambridge and its matching plurality cities before the adoption of RCV. I still examine both sets of cities for the 2013 election. Table 1 lists the cities and elections that are part of this study.

[Table 1 about here]

I gathered data from each city and election listed in Table 1 to create a couple of measures of voter participation.[1] Voter turnout is a common community-wide measure of participation. I measure voter turnout as the percentage of eligible voters who cast a ballot in the election. Data on the number of ballots cast are available from city and county election offices. I 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. I use the most recently released estimate for the voting age population in 2013. For earlier years I use the five-year average centered on the year the election was held.

To assess potential confusion among voters I 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

[1] There are a few cases of missing data. To date, I have been unable to get election data for Tulsa prior to 2013, and I have been unable to get data to compute other measures besides turnout for the Cambridge comparison group.

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). 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, I compute the residual vote rate in RCV elections just based on the first choice votes. In a case study of voting in Minneapolis, I use some additional measures of voter confusion and ballot completion that I describe below.

Preliminary Results: Turnout

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 in RCV and plurality cities before and after the adoption of RCV. In the election prior to RCV adoption, turnout in the RCV cities (22.2%) is 4.5 points lower than mean turnout in the plurality cities (26.7%). In elections after the adoption of RCV, the difference in mean voter turnout in RCV cities (21.4%) and plurality cities (26.5%) is 5.1 points. As the graph indicates, the difference in turnout between two groups hardly changes after the adoption of RCV.

[Figure 1 about here]

A more rigorous implementation of the DID method uses regression analysis to control for other factors that influence voter turnout. I include controls for 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. 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 results are reported in Table 2. The test of the impact of RCV is the coefficient for the interaction term (RCV City * After Adoption). In this case, the coefficient is smaller than its standard error, suggesting that RCV does not induce a statistically significant

change in voter turnout. The other model estimates indicate that turnout is, on average, 20 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, a competitive mayoral contest boosts turnout by 9 points, on average.

Preliminary Results: Residual Votes

Turning to a measure of voter confusion, Figure 2 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. In the election prior to RCV adoption, the residual vote rate in the RCV cities (0.9%) is 2.4 points lower than mean turnout in the plurality cities (3.3%). In elections after the adoption of RCV, the difference in the mean residual vote rate in RCV cities (1.7%) and plurality cities (5.0%) is 3.3 points. Somewhat unexpectedly, the residual vote rate increased somewhat in the later elections, with the difference between RCV and plurality cities increasing slightly.

[Figure 2 about here]

The regression results in Table 3 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 in a 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 2.6 percentage points, on average. Overall, voter participation seems to be influenced more by the stimulus of a competitive local or statewide campaign rather than by the adoption of RCV.

[Table 3 about here]

Preliminary Results from Minneapolis: Socioeconomic Bias in Voter Participation

While the evidence thus far does not indicate much of a change 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. This is the main critique of RCV made by Larry Jacobs and Joanne Miller (2013, 2014). 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), so RCV elections need to be compared to similarly situated plurality elections. I try to provide one such comparison below for the case of Minneapolis.

[Figure 3 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. I 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).[2] I include 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 3 indicates, the same 14 point gap in turnout between low and high income wards in the 2013 RCV election was present in the 2005 plurality election.[3] 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 4 compares the spoiled ballot rate in high and low income wards in the 2005 and 2013

[2] 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.

[3] 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 low income and high income wards. Moreover, as Figure 4 shows, the gap in the spoiled ballot rate between high and low income wards increased slightly in the 2013 RCV election.

[Figure 4 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 from 0.8 percentage points in the plurality election of 2005 to 1.7 points in the RCV election of 2013. 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 higher undervote rate in low income wards. As Jacobs and Miller also 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.[4]

Finally, it is worth examining city council elections in Minneapolis, which also used RCV in 2013. Council seats for all 13 city wards were up for election in 2005 and 2013. RCV

[4] 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).

seems to have encouraged more candidates to run for city council in Minneapolis. The number of city council candidates increased from 25 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 had more than two candidates running for the city council seat. While the residual vote rate in city council contests does not change much from 2005 to 2013, the rate is substantially lower in wards with more candidates running for the seat. Furthermore, in 2013 overvote and undervote rates appear to be unrelated to the socioeconomic status or racial composition of Minneapolis wards.

Conclusion

These findings are preliminary and are based on a rather thin base of evidence. 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 examine 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 firmer conclusions about the response of voters to RCV in the United States. It will be important to continue to monitor measures of voter confusion and voting errors 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
Cambridge, MA	Ann Arbor, MI; Lowell, MA; Stamford, CT; Worcester, MA		2013

Table 2
Predictors of Voter Turnout in RCV and Plurality City Elections

Independent Variable	Coefficient (Std. Error)
RCV City	2.5
	(4.4)
After RCV Adoption	1.1
	(2.5)
RCV City * After Adoption	-4.1
	(5.1)
2 to 3 Contests on Ballot	5.4
	(3.2)
More than 3 Contests	20.4*
	(3.4)
Contested Mayoral Contest	9.0*
	(2.6)
Constant	14.4*
	(3.2)
N	27
R^2	.79
Root MSE	5.2

The dependent variable is voter turnout in city elections (ballots cast as a percentage of the voting age population). Cell entries are ordinary least squares coefficients (standard errors in parentheses).
*p < .1, two-tailed

Table 3
Predictors of Residual Votes in Top Contest in RCV and Plurality City Elections

Independent Variable	Coefficient (Std. Error)
RCV City	-1.7
	(2.0)
After RCV Adoption	2.6*
	(1.4)
RCV City * After Adoption	-0.9
	(2.6)
Statewide Contest on Ballot	2.2
	(1.3)
Contested Mayoral Contest	-2.6*
	(1.3)
Constant	2.6*
	(1.3)
N	23
R^2	.45
Root MSE	2.7

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

Figure 1
Mean Voter Turnout in RCV and Plurality City Elections

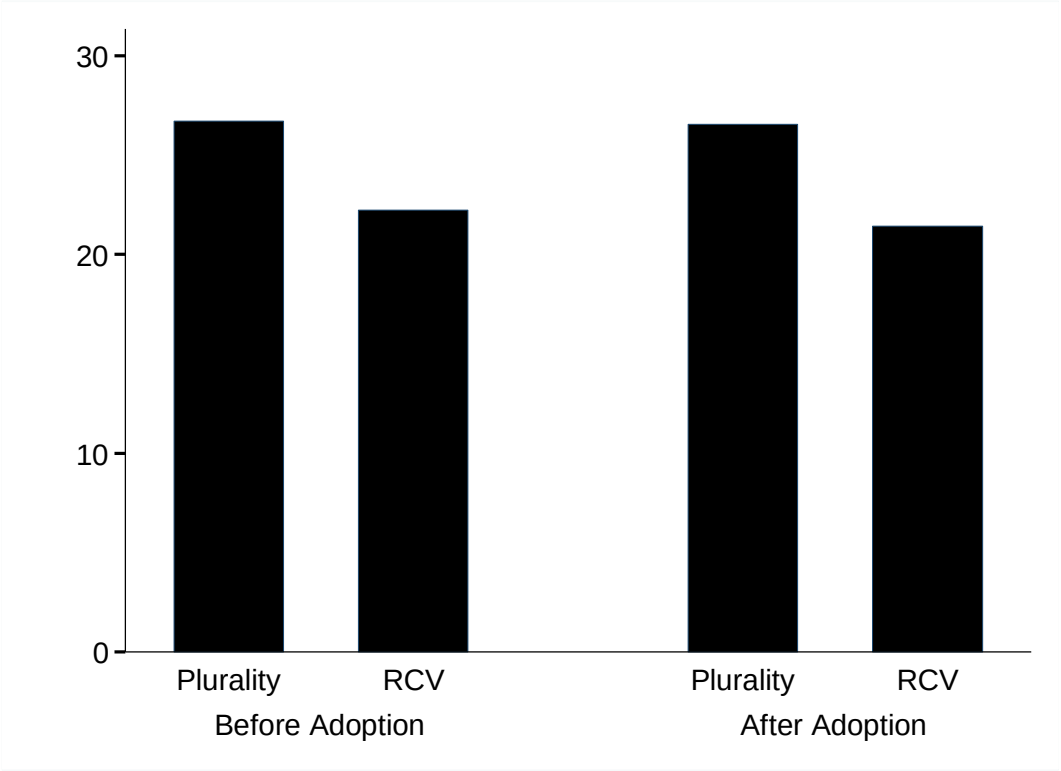

Figure 2
Mean Residual Vote Rate in Top Contest in RCV and Plurality City Elections

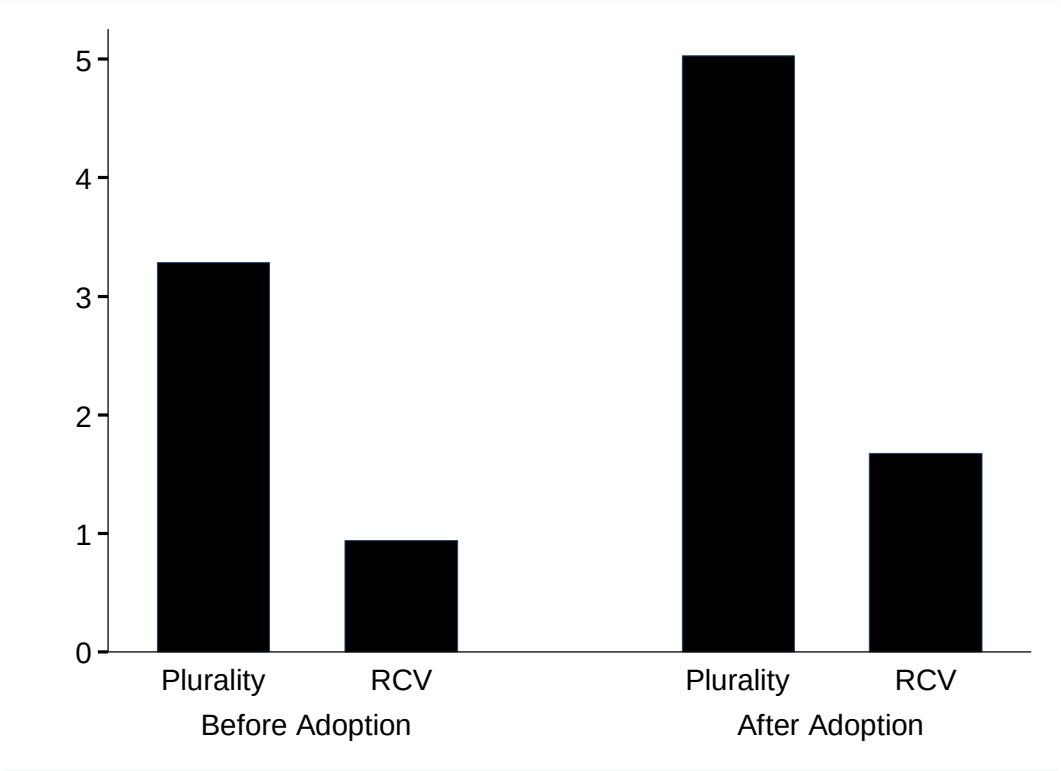

Figure 3
Voter Turnout by Ward Income:
2005 and 2013 Minneapolis Elections

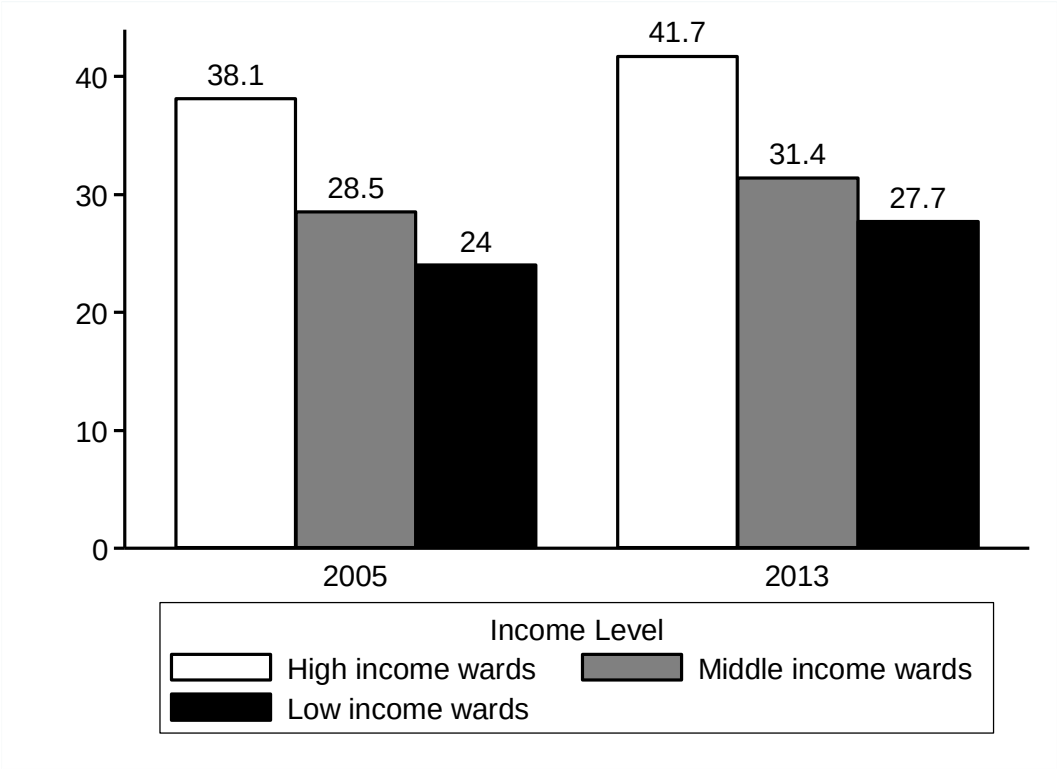

Figure 3
Ballot Spoilage by Ward Income:
2005 and 2013 Minneapolis Elections