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Black Candidates and Black Voters: Assessing the Impact of Candidate Race on Uncounted Vote Rates

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Numerous studies show that the rate at which African-Americans cast ballots with missing or invalid votes, i.e., the African-American residual vote rate, is higher than the corresponding white rate. While existing literature argues that the plethora of African-American residual votes is caused by administrative problems or socioeconomic factors, we show using precinct-level data from two recent elections in Cook County, Illinois, that the African-American residual vote rate in electoral contests with black candidates is less than half the rate in contests without black candidates. African Americans, therefore, are able to reduce their residual vote rate when they wish to do so. We present complementary findings for white voters, whose residual vote rate often substantially increases in contests which feature dominant black candidates.

Recent research on voting and elections demonstrates that African Americans produce disproportionately more residual votes than whites. That is, the rate at which ballots cast by blacks do not contain valid votes is higher than the corresponding white rate (Brady et al. 2001; Herron and Sekhon 2003; Tomz and van Houweling 2003; United States Commission on Civil Rights 2001). The white-black residual vote rate gap is large, often greater than 10%; it is present regardless of voting technology, and it affects election outcomes. The case of Florida during the 2000 Presidential Election is a prime example: if the black residual vote rate there had been as low as the white rate, Albert Gore would now almost certainly be president (Herron and Sekhon 2003).

The presence of a white-black gap in residual vote rates is not a new phenomenon in American politics. Scholars have been aware of it since Price (1957, 73–75,77), and evidence of the gap can be found in Darcy and Schneider (1989), Nichols and Strizek (1995), and Knack and Kropf (2003), among others.[1]

[1] We distinguish between residual vote rates and what is traditionally known as voter rolloff, the phenomenon in which voters stop voting at some point on a ballot. Suggesting that voters systematically roll off in a given election implies that residual vote rates necessarily increase as one moves down a ballot; our results show that this is not always the case.

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The dominant explanation for this gap posits that residual votes reflect administrative shortcomings in polling places or socioeconomic problems like literacy limitations that disproportionately affect African Americans. All of the major studies of the 2000 election rely on this explanation when evaluating the performance of various voting technologies, and implicit in it is the presumption that residual votes are *nondiscretionary*, which is to say they are mechanically induced and devoid of political substance for individual voters (e.g., Brady et al. 2001; Caltech/MIT Voting Technology Project 2001; United States Commission on Civil Rights 2001). If political considerations are examined at all, only the most general are considered such as competitiveness of a given electoral contest (Brady et al. 2001; Crain, Leavens, and Abbot 1987) or its prominence (Dubois 1979).

A competing explanation for the relatively high black residual vote rate emphasizes *discretionary* behavior and posits that residual votes reflect intentional ballot spoilage, abstention, and other types of deliberate actions. Although this explanation has been around for many years (Kim and Koh 1972; Stiefbold 1965), scholars have commonly ignored it. Nonetheless, this explanation is supported by various exit polls and surveys which show that some voters participating in general elections choose not to vote for president and that such abstention is more common among blacks than whites (Knack and Kropf 2001; Tomz and van Houweling 2003). Relatedly, there exists some evidence that African-American ballot roll-off rates are lower when there are black candidates for whom they can vote (Harris and Zipp 1999; Vanderleeuw and Utter 1993).

Given the literature on political participation, the dominance of mechanical explanations for the white-black residual vote rate gap is surprising. No one argues that purely mechanical features of elections account for high black voter turnout in elections with overly racist white candidates (Bullock, Gaddie, and Kuzenski 1995). Likewise, no one argues that purely mechanical features account for the decline in white turnout rates when blacks are elected to Congress (Gay 2001).

We contend that studies of residual votes should incorporate the same sort of substantive political considerations that dominate research on race and political participation. If the meat of politics—feelings of efficacy, attitudes toward representation, and so forth—affects turnout and other forms of voluntary political activity, there is every reason to think that it may similarly affect the rate at which individuals cast invalid votes.

Our objective is to examine the source of the white-black residual vote rate gap and to assess whether discretionary behavior contributes to it. We add to research on residual votes a demonstration that the black residual vote rate decreases with the presence of black candidates and that the white residual vote rate increases with the presence of a black candidate who is overwhelmingly likely to win. Of the many electoral contests we analyze, the *only* ones with black residual vote rates lower than white rates are contests with dominant black candidates.

Nothing in our argument should be taken to suggest that voting technology, voter experience, and socioeconomic variables are not important factors when accounting for the high residual vote rates of African Americans. Indeed, we usually find a significant white-black residual vote rate gap even when African Americans can vote for major-party black candidates. However, because the African-American residual vote rates we study dramatically decline in contests with black candidates, we know that African-American voters are able to reduce significantly their residual vote rates when they wish to do so. This reduction occurs even when both administrative (e.g., voting technology) and socioeconomic (e.g., education) factors remain constant.

In addition to our substantive contribution to the study of race and political participation, we make two methodological contributions. First, we develop an innovative research design that allows us to distinguish residual votes produced by discretionary behavior from residual votes produced by administrative or socioeconomic factors. Second, we contribute to the debate on ecological inference. We make clear when our estimates of white and black residual vote rates are based on information contained in actual data and when they are based in part on essentially unverifiable statistical assumptions. It is extremely rare for users of ecological inference methods to report the extent to which their results rely on such assumptions, and we believe that our reporting standards should become the norm.

In the upcoming section we briefly review literature on race and participation. We go on to discuss our research design, data, and statistical methods. Our empirical results then follow, and we conclude with comments on racial polarization, redistricting, and the study of residual votes.

Race, Participation, and Residual Votes

We argue that an individual's decision to cast a valid vote in a given electoral contest is, much like the turnout decision itself, driven by feelings of political engagement and efficacy. For African Americans, these feelings reflect beliefs about the extent to which blacks and black interests are represented in government. Cole (1976), Morris (1984), and Guinier (1994) claim that black political involvement and engagement increases when there is a possibility of black representation or leadership. African Americans have strong preferences for descriptive representation (Mansbridge 1999; Tate 2001) to the extent that they support increased minority representation more than the principle of color blindness in Congressional redistricting (Tate 2003).

Bobo and Gilliam (1990) show that African Americans who live in areas of high political empowerment, as measured by control of the mayor's office, are more politically active than whites of similar socioeconomic status. Lublin and Tate (1995) show that candidate race can positively affect voter turnout (black and white) in mayoral elections. And using data from the 1996 Congressional elections in Georgia (Bositis 1998; Voss and Lublin 2001) and Florida (Voss and

Lublin 2001), scholars have found that black mobilization increases in districts represented by African Americans.[2]

Questions on the 1993–1994 National Black Politics Study directly address the importance of minority representation and black political involvement. For instance, Dawson notes that 65% of African-Americans responded "no" when asked whether "White officials elected from predominantly black communities represent black interests just as well as black elected officials" (2001, 328). In addition, Davis and Brown (2002) find that 17% of African Americans agree and 10% of African Americans strongly agree that "African Americans should always vote for a black candidate."

Although it is important to note that "most blacks believe that blacks better represent blacks than whites *and* that no candidate deserves support just because they are black" (Dawson 2001, 109; emphasis in original), we hypothesize that on average African-American voters feel so strongly about electing black representatives that they are more likely to cast discretionary residual votes in contests which lack black candidates. If our conjecture is correct, the African-American residual vote rate will shrink in contests with black candidates. If, in contrast, socioeconomic and administrative factors alone explain why African Americans cast residual votes, then the black residual vote rate will not vary with the race of available candidates.

Research Design and Data

Our research design depends on examining a single election which meets three constraints. First, the election must contain some contests with prominent black candidates and others without. Second, both ballot format and voting technology must be constant across voting precincts. And third, a significant subset of such precincts must be racially segregated.

The first two constraints are required because we compare residual vote rates across contests and precincts: we hold ballot format and voting technology constant so these two variables cannot confound inferences based on comparing black and white residual vote rates in contests with prominent black candidates with black and white residual vote rates in contests without such candidates. Our racial segregation requirement allows us to make reliable ecological inferences for at least the subset of voting precincts which are segregated.

It is difficult to find elections that satisfy our three requirements. The striking variance of voting technology (Brady et al. 2001) and ballot design (Niemi and Herrnson 2003) across electoral jurisdictions makes it difficult to conduct cross-county analyses of election results. While the Louisiana and South Carolina data set used by Tomz and van Houweling (2003) contains validated turnout rates

[2] Swain (1993) notes that the presence of black representatives sometimes reduces black turnout. And Gay (2001) argues that the election of blacks to Congress only rarely increases political engagement among African Americans.

broken down by race, we cannot use it because our requirements of uniform voting technology and ballot design are not met. And finding electoral jurisdictions with a number of prominent African-American candidates on the ballot is more difficult than one would hope.

With our constraints in mind, we focus on the 1998 general election in Cook County, Illinois, the 1998 Cook County Democratic primary, and a set of 1998 U.S. House contests. These elections nicely satisfy our requirements.[3] First, all three of them had a number of separate contests, only some of which featured prominent African-American candidates. Second, ballot format and voting technology were uniform throughout Cook County in 1998.[4] Third, Cook County, the second largest county in the United States, is both racially heterogeneous and highly segregated.

Our analysis relies on election returns at the level of a precinct because precincts are the smallest voting units in Cook County for which we can obtain residual vote rates. This necessitates our having access to precinct racial demographics. The 2000 Census reports demographics by race for the precincts in Cook County that existed in the year 2000, and we assume that these demographics were also valid in 1998. All of our calculations rely on a slightly abbreviated Cook County data set, and throughout this article we ignore absentee voting.[5]

Methods

Ballot secrecy necessitates that we confront the difficult issue of ecological inference, and for this we turn to two different ecological inference techniques. The first, the method of bounds, depends on an accounting identity which does not require statistical or behavioral assumptions. We use this method to make inferences about black and white residual vote rates in racially homogeneous areas of Cook County. Unfortunately, the method of bounds only leads to useful inferences where there is a high degree of segregation. To make inferences about black and white residual vote rates across the entire county, we use various statistical methods of ecological inference.

[3] Illinois ended straight party voting in time for the 1998 elections. This means that our results are not confounded by the presence of a "party lever" that makes discretionary nonvoting a difficult maneuver.

[4] The entire county used Votomatic punch card machines. These machines neither prevented voters from making errors when selecting candidates nor alerted them when they did so.

[5] Cook County is comprised of the city of Chicago and 30 outlying townships. Our collection of Chicago precincts is based on those wards in Chicago that had fixed boundaries between March, 1998 and April, 2000; there were 38 such wards. With respect to townships, the Cook County Clerk's Office publishes electronic maps that describe precisely where each township precinct is physically located. For a 2000 precinct that corresponds exactly to a 1998 precinct it is straightforward to match census racial demographics with 1998 residual vote rates. For township precincts that do not correspond in this way, we aggregate 1998 precincts to 2000 precincts based on precinct area intersections.

Logical Bounds and Inference from Racially Homogeneous Precincts

The method of bounds (Duncan and Davis 1953) is based on a simple accounting identity. For a given precinct, the minimum bound on the black residual vote rate is the lowest possible such rate that is consistent with the number of blacks and nonblacks in the precinct and the number of valid and invalid votes cast there. The maximum bound and the bounds for whites are constructed analogously. The true black residual vote rate must lie between the precinct's minimum and maximum bounds, inclusive, no matter what fraction of blacks and whites who lived there are eligible to vote and no matter what fraction of these eligible voters actually turned out to vote.

Consider Table 1A which describes electoral participation data from the U.S. Senate contest in the 1998 Cook County general election. While each question mark ("?") in the table represents a quantity that is unknown, the observed margins logically bound these entries. For example, because the number of whites (2,521,584) in the county is greater than the number of voters (51,374 + 1,075,574 = 1,127,308), some Cook County whites must not have turned out to vote in the 1998 election. The logical upper bound on white turnout in Cook County is 1,127,308, and we can therefore say for certain and without any assumptions that the white turnout rate was no greater than 1,127,308/2,521,584 = 45%. Similarly, the lower bound on the white turnout rate is 0% because because the total number of nonwhites residing in Cook County (1,758,203) exceeds the total number of voters.

These logical bounds (0% to 45%) at the level of Cook County as a whole are wide and relatively uninformative. However, we observe the equivalent of Table

TABLE 1

The Ecological Inference Problem, 1998 General Election U.S. Senate Contest

A: For Cook County as a whole

	Residual Votes	Legal Votes	Nonvoters	
Blacks	?	?	?	988,946
Whites	?	?	?	2,521,584
Others	?	?	?	769,257
	51,734	1,075,574	3,152,479	

B: For Cook County precincts which are at least 99% Black

	Residual Votes	Legal Votes	Nonvoters	
Blacks	?	?	?	118,394
Whites	?	?	?	316
Others	?	?	?	569
	2,457	36,786	80,036	

1A for each precinct in the county. At the precinct level, the bounds are sometimes *highly* informative, especially in those precincts where there is marked segregation. For example, a precinct may be defined as homogeneous black (white) if at least 99% of its residents are black (white). If such a definition is applied to Cook County, there are 135 homogeneous African-American precincts and 18 homogeneous white precincts. In the 1998 Cook County general election, the former produced 39,243 ballots and the latter, 5,126.

Combining all of our homogeneous black precincts into a large aggregate unit yields Table 1B. We know that the lower bound on the number of blacks in our group of homogeneous black precincts who cast residual votes is 2,457 − (316 + 569) = 1,572; this is equivalent to a black residual vote rate of 1,572/(1,572 + 36,786) = 4.1%. Similarly, the maximum black residual vote rate is obtained when blacks cast the maximum number of residual votes (2,457) and the minimum number of valid votes (36,786 − 885 = 35,901) consistent with all of our information; this rate is 2,457/(35,901 + 2,457) = 6.4%. Bounds for whites are calculated analogously.

Statistical Models for Ecological Inference

Logical bounds on race-based residual vote rates are always valid, regardless of their width. Nonetheless, the bounds tend to be useful only when analyzing relatively homogeneous areas. Moreover, homogeneous areas may be politically distinct from heterogeneous areas. To make ecological inferences about Cook County in general, and to make sure that our results do not depend entirely on idiosyncratic characteristics of homogeneous areas, we turn to statistical models.

There are a large number of reasonable statistical models we could use to estimate county-wide white and black residual vote rates with precinct-level data, and we have tried many of them to ensure that our results are not driven by a single set of statistical assumptions. We have used Goodman's regression (1953); an extension of Goodman's regression proposed by Achen and Shively (1995, 116–42) which relaxes the assumption that estimated parameters are mean-independent of the proportion of blacks in a precinct; nonrobust versions of the overdispersed logistic regression models in Wand et al. (2001) and Mebane and Sekhon (forthcoming); Hansen's (2003) multivariate beta-logistic regression; and a first moments-based approximation to a multinomial-Dirichlet (AMD) model proposed by Rosen et al. (2001). For our 1998 Cook County election returns, all of these statistical models produce estimates of county-side black and white residual vote rates that are substantively the same.

We present results from the AMD model of Rosen et al. (2001) because it combines deterministic information contained in precinct bounds with a coherent statistical model that is consistent with a number of plausible data-generating processes. The Rosen et al. model is an extension of King, Rosen, and Tanner (1999), who propose the first hierarchical Bayesian model for ecological inference. The King, Rosen, and Tanner model is itself noteworthy because it relaxes

the single-cluster assumption of the ecological inference model in King (1997). However, King, Rosen, and Tanner is limited to the case where the ecological inference problem of interest can be expressed in a 2×2 table—e.g., black vs. white and voter vs. nonvoter. But as shown in Table 1, we face a 3×3 problem. Rosen et al.'s AMD model is thus useful for us because it allows inferences to be made with arbitrary $R \times C$ tables. Rosen et al. propose both a fully Bayesian hierarchical model and a moments-based approximation which is estimated by nonlinear least squares. We use the latter, and it is outlined in the appendix.

1998 General Election in Cook County

The top seven races in the 1998 general election in Cook County were for federal or statewide office and hence were voted on by all Cook County voters.

- Contest 1. The Bernardin Amendment, a (nonbinding) proposed state constitutional amendment named after then Cardinal Joseph Bernardin. This amendment called for universal health care coverage to be guaranteed in the Illinois Constitution.[6]
- Contest 2. U.S. Senate; two main candidates, Carol Moseley-Braun (African American) and Peter Fitzgerald (white).
- Contest 3. Illinois governor; no major-party African-American candidates.
- Contest 4. Illinois Attorney General; no major-party African-American candidates.
- Contest 5. Illinois Secretary of State; two main candidates, Jesse White (African American) and A1 Salvi (white).
- Contest 6. Illinois Comptroller; no major-party African-American candidates.
- Contest 7. Illinois Treasurer; no major-party African-American candidates.

In these seven contests, there were two prominent African-American candidates: Carol Moseley-Braun and Jesse White. We say that a candidate is prominent if he or she is a major-party candidate. Moseley-Braun in 1998 was a Democratic U.S. Senator who was running for reelection. Jesse White was the Democratic candidate for Illinois Secretary of State.

Table 2 lists residual vote rates for the top seven contests in the 1998 Cook County general election, and it is immediately evident from this table that conventional wisdom on ballot "roll-off" did not hold in this election. The Bernardin Amendment notwithstanding, note how the Cook County residual vote rate increased from Contest 2 to Contest 3, decreased between Contests 4 and 5, and then increased again between Contests 5 and 6.

It is also evident from Table 2 that Contests 2 and 5—notably, the two races with major-party African-American candidates—had lower residual vote rates than the other top contests on the ballot. One might conjecture that these two races were the closest among the seven. Perhaps, that is, low residual vote rates

[6] See "Care Amendment Has Way To Go," *The Chicago Tribune*, November 5, 1998.

TABLE 2

Residual Vote Rates in Cook County, 1998 General Election

Contest	Residual Vote Rate
1 Bernardin Amendment	.5440
2 U.S. Senate	.0459
3 Governor	.0765
4 Att'y Gen'l	.0730
5 Sec'y of State	.0503
6 Comptroller	.1020
7 Treasurer	.1200

Note: Based on 1,127,308 ballots in 3,966 precincts.

TABLE 3

Vote Margins, 1998 General Election

Contest	Winner		Loser		Margin	Rank
1 Bernardin Amend.	Yes	.805	No	.195	.61	7
2 U.S. Senate	Peter Fitzgerald	.503	Carol Moseley-Braun	.474	.029	2
3 Governor	George Ryan	.51	Glenn Poshard	.475	.035	3
4 Att'y Gen'l	Jim Ryan	.609	Miriam Santos	.374	.235	6
5 Sec'y of State	Jesse White	.555	Al Salvi	.425	.13	4
6 Comptroller	Daniel Hynes	.586	Chris Lauzen	.396	.19	5
7 Treasurer	Judy Topinka	.5	Daniel McLaughlin	.48	.02	1

Note: Proportions do not sum to one due to rounding and the presence of minor-party candidates.

occur in very tight contests because, in such contests, voters are aware of the increased importance of every single vote.

Table 3, which displays vote margins for the top seven races, refutes this conjecture. The closest contest of the seven was for Illinois Treasurer, and, paradoxically, this contest had the second largest residual vote rate among all seven contests and the largest residual vote rate for a political office. The U.S. Senate race (Contest 2) was close, having a margin of 2.9% between Fitzgerald and Moseley-Braun, but the Secretary of State race (Contest 5) was not close at all, having a margin of 13%.

The three initial columns of Table 4 display the mean residual vote rate ("Mean") in a collection of homogeneous black precincts, the lower bound ("Min") on this rate, and the corresponding upper bound ("Max"). Here we say that a precinct is homogeneous black (white) if at least 99% of its residents are black (white). The second three columns report analogous figures for the grouping of 18 homogeneous white precincts. In addition, the last six columns of Table 4 present results based on the AMD model as applied to all precincts in Cook

TABLE 4

Method of Bounds and Approximate Multinomial-Dirichlet Estimates for Black and White Residual Vote Rates, 1998 General Election

	Method of Bounds						Approximate Multinomial-Dirichlet					
	Black			White			Black			White		
Contest	Mean	Min	Max	Mean	Min	Max	Mean	95% CI		Mean	95% CI	
1 Bernardin Amend.	.722	.716	.739	.415	.406	.422	.697	.692	.703	.462	.458	.466
2 U.S. Senate	.0626	.041	.0641	.0339	.019	.0345	.054	.052	.0558	.0332	.0322	.0343
3 Governor	.135	.115	.138	.0377	.0228	.0382	.12	.116	.123	.0475	.0462	.0488
4 Att'y Gen'l	.141	.121	.144	.0365	.0216	.037	.126	.121	.13	.0425	.0411	.0438
5 Sec'y of State	.0653	.0437	.0668	.0312	.0162	.0317	.0564	.0539	.059	.0359	.0347	.037
6 Comptroller	.143	.123	.146	.0655	.0511	.0666	.129	.125	.133	.0774	.0758	.0791
7 Treasurer	.188	.17	.193	.0636	.0491	.0646	.171	.167	.176	.0834	.0815	.0852

Note: The Method of Bounds estimates are based on 39,243 ballots across 135 precincts which are at least 99% African American and on 5,126 ballots across 18 precincts which are at least 99% white. The Approximate Multinomial-Dirichlet estimates are based on all of the data: 1,127,308 ballots in 3,966 precincts. Confidence intervals are obtained via bootstrapping.

County, both homogeneous and heterogeneous. Of these latter six columns, the first lists point estimates ("Mean") of black residual vote rates for all of Cook County and the second and third report 95% confidence intervals for these rates. The final three AMD columns report analogous figures for whites.

The bounds and AMD results in Table 4 are quite similar, and this is despite the fact that our bounds estimates are based on a highly selected subgroup of Cook County precincts. One can see the similarity between the two different types of estimates for both blacks and whites by comparing appropriate "Mean" columns in the table. For instance, the AMD estimate for the black residual vote rate in Contest 1 is 69.7%, and the bounds estimate is 72.2%.

There is some evidence that the bounds estimates in Table 4 are more extreme than corresponding AMD estimates: the former are slightly lower than the latter.[7] This suggests that the black voters in our homogeneous precincts—which are among the poorest areas in Cook County—were somewhat less politically engaged than those in heterogeneous precincts. This is consistent with Leighley (2001, ch. 7), who finds a positive relationship between education levels and political participation, and with Bledsoe et al. (1995), who show that blacks in non-integrated neighborhoods exhibit more black solidarity than those in racially mixed neighborhoods.

Even with Table 4's mild discrepancies between bounds and AMD estimates for black and white residual vote rates, the key similarity among the two sets of estimates is their ordering across contests and their general magnitudes. Both sets of estimates rank residual vote rates identically, and black and white residual vote rate estimates are of similar magnitudes for all contests.

To avoid repetition, we focus on method of bounds estimates. We see that residual vote rates for the Bernardin Amendment (Contest 1) were high for both blacks and whites and that there is a sizable white-black gap: the black residual vote rate of 72% is 30% larger than the white rate of 42%. But amendments may be anomalous, and the Bernardin Amendment certainly lacks the competitive nature of the races that follow it. The high residual vote rates for the Bernardin amendment almost certainly reflect discretionary abstention.

Table 4 shows that black residual vote rates are lowest for the two contests with prominent African-American candidates. For Contest 2 (U.S. Senate), in which Carol Moseley-Braun was a candidate, the African-American residual vote rate is 6.3%. The corresponding rate is 6.5% for Contest 5 (Illinois Secretary of State), in which Jesse White was a candidate. The next lowest African-American residual vote rate is 13.5% in Contest 3. The black residual vote rates in Contests 4 and 6 are about 14%, and the corresponding rate for Contest 7 is almost 19%.

We know from the African-American residual vote rate in Contest 2 that about 94% of the African Americans who turned out to vote in the 1998 Cook County general election were capable of casting valid votes. Thus, around half of the indi-

[7] Table 4 suggests that one way to measure aggregation bias in ecological data is to compare results based on homogeneous areas only with AMD results based on homogeneous and heterogeneous areas.

viduals who failed to cast a valid vote in Contest 3, and similarly for other contests without black candidates, must have failed to do so because of some discretionary reason.

Table 4 shows that the *maximum* black residual vote rate in Contest 2 (and similarly for Contest 5) is lower than the *minimum* black residual vote rate in contests that lacked prominent African-American candidates. We see no such pattern for whites. Although mean white residual vote rates for Contests 2 and 5 were relatively low, these rates fall within the minimum-maximum white residual vote rate intervals for other contests. One cannot conclude, based on our bounds, that the white residual vote rates in Contests 2 and 5 were any lower than those in the races for Illinois Governor or Attorney General.

Our bounds findings hold, but are less dramatic, even if we weaken our definition of "homogeneous precinct" down to 94%. Below this point, the black residual vote rate bounds for the gubernatorial race (Contest 3) overlap with bounds for Contests 2 and 5. Except for Contest 3, our results based on bounds hold down to a homogeneous cutoff level of 92%. Below 92%, there is so much racial heterogeneity that the bounds become too large to support useful inferences.

The AMD estimates in Table 4 tell a story qualitatively identical to the bounds discussion we offered above. Across Contests 1–7 there are dramatic differences in the AMD estimates of county-wide black residual vote rates, black rates vary significantly with the racial makeup of available candidates, and white rates do not so vary. Moreover, 95% confidence intervals for black residual rates for Contests 2 and 5 are lower and do not overlap with the intervals of any of the other contests.

1998 Democratic Primary in Chicago

We now consider whether our hypotheses about black and white residual vote rates hold in the 1998 Cook County Democratic primary. We do not study the 1998 Republican primary because very few Republicans live in the heavily black areas of Cook County. We focus here on Chicago only—as opposed to suburban Cook County—because we do not have access to data on the number of Democratic ballots cast per precinct in the latter.

In the 1998 Cook County Democratic primary, Carol Moseley-Braun ran unopposed for a U.S. Senate nomination. The Illinois Attorney General and Illinois Comptroller races were also unopposed and neither had major-party African-American candidates. Thus, the 1998 Cook County Democratic primary provides us the opportunity to compare how blacks and whites participated in races that were structurally similar insofar as having an unopposed candidate yet distinct insofar as having candidates of different races.

There were seven major races in the 1998 Democratic primary:

- Contest 1. U.S. Senate; Carol Moseley-Braun (African American) ran unopposed.

- Contest 2. Illinois Governor; six candidates with one African American, Roland Burris.
- Contest 3. Illinois Lieutenant Governor; six nonblack candidates.
- Contest 4. Illinois Attorney General; Miriam Santos, not an African American, ran unopposed.
- Contest 5. Illinois Secretary of State; two candidates, including Jesse White (African American).
- Contest 6. Illinois Comptroller; Daniel Hynes, not an African American, ran unopposed.
- Contest 7. Illinois Treasurer; two nonblack candidates

Table 5 displays residual vote rates for the seven top races in the 1998 Cook County Democratic primary broken down, as in our general election analysis, by racially homogeneous precincts. The black residual vote rates in these precincts are based on 92,774 ballots across 495 precincts which are at least 97% African American, and white rates are based on 2,192 ballots across 13 precincts which are at least 97% white. A 97% cutoff is used here to define homogeneity instead of our earlier 99% cutoff because in the primary there were fewer ballots to work with—particularly fewer white Democratic primary ballots in homogeneous white precincts.

Table 5 also presents results from AMD models which are based on Democratic primary results in all Chicago precincts. As before, bounds results and AMD results are very similar, and to keep the presentation simple, we focus mainly on the former.

Although black residual vote rate bounds overlap for Contests 1, 2, and 5, the bounds for all three of these contests are substantially lower than the bounds for the four contests which lacked black candidates. The largest maximum bound of the three contests which had an African-American candidate is 16.3% and the smallest minimum bound of the other four contests is 31.6%. The bounds also confirm that the black residual vote rate was indeed lower than the white rate (and by a substantial amount) for the uncontested U.S. Senate race.

In the Cook County Democratic primary, the lowest black residual vote rate—either 11.7% or 11.9%, depending on whether one consults homogeneous precincts only or AMD estimates, respectively—occurs in the battle for Illinois governor (Contest 2), a contested race with one African-American candidate. The second lowest black residual vote rate occurs in the U.S. Senate race (Contest 1), where incumbent Carol Moseley-Braun ran unopposed. And, the third lowest rate is for the contested Secretary of State race that featured Jesse White.

Note how the African-American residual vote rate varies across the three unopposed primary races: African Americans had a low residual vote rate of 13.1% in the U.S. Senate race (Contest 1) where a black candidate ran unopposed, but they had high residual vote rates in the two other uncontested races which did not include black candidates (Contests 4 and 6). In these latter contests, the African-American residual vote rates were enormous, 47.3% and 51.5%, respec-

TABLE 5

Method of Bounds and Approximate Multinomial-Dirichlet Estimates for Black and White Residual Vote Rates, 1998 Democratic Primary

	Method of Bounds						Approximate Multinomial-Dirichlet					
	Black			White			Black			White		
Contest	Mean	Min	Max	Mean	Min	Max	Mean	95% CI		Mean	95% CI	
1 U.S. Senate	.131	.0562	.143	.553	.516	.599	.127	.12	.136	.473	.462	.483
2 Governor	.117	.0408	.127	.0858	.00939	.0929	.119	.113	.126	.0763	.0685	.0845
3 Lt. Governor	.37	.316	.402	.208	.141	.225	.367	.358	.375	.197	.184	.211
4 Att'y Gen'l	.473	.428	.514	.365	.311	.395	.467	.457	.477	.345	.334	.356
5 Sec'y of State	.15	.0765	.163	.134	.0613	.145	.145	.14	.15	.121	.111	.132
6 Comptroller	.515	.473	.559	.399	.349	.433	.511	.501	.521	.389	.378	.402
7 Treasurer	.403	.351	.438	.238	.174	.258	.402	.394	.409	.272	.26	.287

Note: The Method of Bounds estimates are based on 92,774 ballots across 495 precincts which are at least 97% African American and on 2,192 ballots across 13 precincts which are at least 97% white. The Approximate Multinomial-Dirichlet estimates are based on all of the data: 302,284 ballots in 1,860 precincts. Confidence intervals are obtained via bootstrapping.

tively, according to our bounds estimates (or 46.7% and 51.5% according to the AMD model).

Discretionary behavior is also evident among white voters: such individuals dropped out of the unopposed Carol Moseley-Braun vote at a higher rate than they did any other contest, unopposed or not. Indeed, and according to both bounds results and AMD estimates, the white residual vote rate in the Moseley-Braun race is actually *greater* than the African-American rate. In light of literature on race and residual votes, this is striking. If standard theories of voter roll-off were applicable to the 1998 Cook County Democratic primary, then we should observe more whites voting for Carol Moseley-Braun than for Miriam Santos; yet, we observe the opposite. The logical conclusion here is that white voters felt less engaged by a dominant African-American candidate than they did by a dominant nonblack candidate (who in this cases happens to be Hispanic).

It is important to recall that the white residual vote rate was low in Carol Moseley-Braun's general election contest (only 3.4%, as in Table 4). But, of course, the general election contest for a U.S. Senate Seat was closely contested. We thus conclude that white voters have no compunction about participating in meaningful elections that have African-American candidates, but they appear less willing to participate in contests which have an unopposed African-American candidate of whom they presumably do not approve.

The white-black residual vote gap was smallest in the U.S. Senate contest where it was actually negative. As expected, it is also small in the gubernatorial and secretary of state contests, both of which included African-American candidates.

The method of bounds fails to support useful inferences if the definition of homogeneous precinct is decreased below 63% for black voters or below 87.5% for white voters. Given the data, where there is greater racial heterogeneity, we must rely on statistical assumptions such as those of the AMD model.

1998 House Contests in Cook County

We now turn to an analysis of contests for the U.S. House of Representatives. These appear on the eighth position of the 1998 General Election ballot in Cook County. House contests are useful because they include some dominant African-American candidates. There were no such candidates in the seven top races in the 1998 general election.

There were 12 Illinois Congressional Districts that intersected Cook County in 1998, and the three such contests with African-American candidates took place in the 1st, 2nd, and 7th Districts. The 2nd District race, on which we elaborate below, was contested by incumbent Jesse Jackson, Jr., a Republican challenger Robert Gordon III, and Matthew Beauchamp, a Libertarian.

Table 6 displays bounds and AMD estimates for the 2nd District. A precinct here is said to be racially homogeneous if at least 95% of its residents are of the same race (the change from previous cutoffs reflects available data points). As

TABLE 6

Method of Bounds and Approximate Multinomial-Dirichlet Estimates for Black and White Residual Vote Rates, 2nd Congressional District, 1998 General Election

	Method of Bounds						Approximate Multinomial-Dirichlet					
	Black			White			Black			White		
Contest	Mean	Min	Max	Mean	Min	Max	Mean	95% CI		Mean	95% CI	
1 Bernardin Am.	.669	.647	.712	.416	.365	.452	.657	.646	.667	.401	.381	.421
2 U.S. Senate	.0487	0	.0519	.0321	0	.0349	.044	.0414	.0469	.0376	.0339	.0407
3 Governor	.103	.0448	.109	.0438	0	.0476	.0947	.0913	.1	.0353	.0321	.0389
4 Att'y Gen'l	.11	.052	.117	.0292	0	.0317	.101	.0961	.106	.0345	.031	.0376
5 Sec'y of State	.0462	0	.0492	.0428	0	.0466	.0426	.04	.0457	.0409	.0372	.045
6 Comptroller	.113	.0554	.12	.0594	0	.0646	.105	.101	.11	.0637	.0577	.0702
7 Treasurer	.15	.0954	.16	.0701	0	.0762	.143	.135	.147	.0671	.0599	.0758
8 Congress	.0872	.0282	.0928	.43	.381	.468	.0754	.0691	.0824	.137	.0898	.209

Note: The Method of Bounds estimates are based on 43,916 ballots across 127 precincts which are at least 95% African American and on 1,027 ballots across three precincts which are at least 95% white. The Approximate Multinomial-Dirichlet estimates are based on all of the data: 105,633 ballots in 328 precincts.

before, our bounds estimates and AMD estimates are in general very close. However, the bounds estimate (43%) for the white residual vote rate in Contest 8 is much higher than the corresponding AMD estimate (13.7%). While the AMD confidence interval for the white residual vote rate has a fat upper tail (the 95% confidence interval ranges up to 20%), it is nonetheless much lower than the methods of bounds estimate.

Table 6 shows that, within the 2nd Congressional District, the African-American residual vote rate in the U.S. House race (Contest 8) is the third lowest of all top electoral contests from the 1998 Cook County general election—only two other contests, both of which included prominent black candidates, had lower residual vote rates. Bounds in Table 6 also show that the African-American residual vote rate for this congressional contest slightly overlapped (by 0.2%) that for the Illinois Governor contest. But apart from this very small deviation, the pattern which we have observed before holds: there were relatively low African-American residual vote rates in contests with prominent African-American candidates.

White residual vote rates in the 2nd Congressional District vary in a markedly different fashion. Two contests have high rates: Contest 8 (the Jackson race) and Contest 1 (the Bernardin Amendment). Table 6 shows that the true white residual vote rate in homogeneous white precincts lies between 38.1% and 46.8% for Contest 8. Excluding the Bernardin Amendment, the next highest bound for the white residual vote rate is only 7.62%, for the Illinois Treasurer contest!

For black voters, the method of bounds fails to support useful inferences if the definition of homogeneous precinct is decreased below 95%. For white votes, we are no longer able to make useful inferences if the definition is decreased below 91.2%.

The disjuncture between bounds and AMD estimates of the white residual vote rate for Contest 8 is unusually high. This is probably the result of whites in homogeneous areas having unusually strong antiblack sentiments. Nonetheless, both bounds and AMD estimates tell a similar substantive story: regardless of which white residual vote rate estimate is consulted—and it is important to note that the AMD estimate of 13.7% is more than twice the AMD estimated white residual vote rate for any other electoral office—we know that white voters had a precipitous uptick in their nonvote rate when pondering Contest 8, a race with a dominant African-American candidate.

One might conjecture that whites cast an unusual number of residual votes in the Jesse Jackson, Jr. contest because the contest was not at all close. We address this possibility by examining winning margins and residual vote rates for the other congressional contests.

Table 7 displays bounds estimates for all Congressional District races that intersected this county, and Table 8 displays corresponding AMD estimates. The former describes bounds only for Congressional Districts with a sufficient number of racially homogeneous precincts. For Congressional Districts which contain no homogeneous black precincts, bounds for the black residual vote rate are of course uninformative.

TABLE 7

Margins and Residual Vote Rates in U.S. House Races, Method of Bounds, 1998 General Election

			Method of Bounds							
			Black				White			
District	Black candidate	Winner Proportion	Ballots	Mean	Min	Max	Ballots	Mean	Min	Max
1	Yes	.871	91,805	.118	.0678	.124	3,951	.12	.044	.131
2	Yes	.9	43,916	.0872	.0282	.0928	1,027	.43	.381	.468
3	No	.725	609	.309	.256	.332	43,788	.063	0	.0688
4	No	.817					583	.307		
5	No	.74					6,090	.131		
6	No	.673					19,646	.06		
7	Yes	.929	67,092	.14	.0759	.15	1,292	.34	.288	.366
8	No	.686					12,538	.0555		
9	No	.746					14,088	.114		
10	No	1					24,594	.178		
11	No	.588					1,343	.0715		
13	No	.61					20,355	.0934		

Note: Winner proportions based on complete Congressional districts. The bounds estimates are based on residual vote rates based on precincts which are at least 95% black or white. These are only informative for four Congressional Districts (1, 2, 3 and 7).

TABLE 8

Residual Vote Rates in U.S. House Races, Approximate Multinomial-Dirichlet estimates, 1998 General Election

		Approximate Multinomial-Dirichlet					
		Black			White		
District	Ballots	Mean	95% CI		Mean	95% CI	
1	128,369	.114	.109	.12	.0964	.0874	.107
2	105,633	.0754	.0691	.0824	.137	.0898	.209
3	113,166	.416	.279	.696	.0609	.0564	.0632
4	64,435	.302	.213	.466	.153	.118	.195
5	139,548	.723	.422	.904	.0957	.0878	.106
6	59,186	.792	.731	.841	.0571	.0508	.0697
7	147,200	.135	.126	.15	.212	.199	.238
8	61,685	.844	.828	.856	.0435	.0412	.0462
9	153,952	.163	.108	.259	.0844	.0671	.0968
10	88,314	.851	.767	.96	.191	.183	.206
11	25,336	.118	.101	.141	.0707	.0637	.078
13	42,031	.663	.585	.733	.826	.0708	.104

Note: Approximate Multinomial-Dirichlet estimates are based on all of the precincts in a given district which are also in Cook County. See Table 7 for additional details.

According to Table 7, white voters had unusually high residual vote rates in Contests 2, 4, 7, and 10. Table 8's AMD results highlight the same four races. And as before, AMD estimates are not as extreme as bounds estimates. Of these four key contests, Contests 2 and 7 had dominant black candidates, Jesse Jackson, Jr. and Danny Davis, respectively; Contest 4 had a dominant Hispanic candidate, Luis Gutierrez; and Contest 10 had only one candidate, John Porter, who is white. But the white residual vote rate for Contest 9 was low, even though the contest was not at all close.

Black residual vote rates in Congressional races were lowest in Districts 1, 2, 7, and 11. All of these districts, except for the 11th, had prominent and dominant African-American candidates.

Both Tables 7 and 8 imply that white voter political participation is often a function of candidate race: when an African-American candidate is essentially guaranteed to win an election, white voters often do not participate. We observed the same phenomena in the Democratic primary in which white voters did not participate in Carol Moseley-Braun's uncontested U.S. Senate race. These findings are consistent with Leighley and Vedlitz's (1999) results showing decreased white political participation during periods of perceived racial threat. Voss and Lublin (2001) and Voss and Miller (2001), however, find little evidence of white "backlash" against African-American candidates, and we find no such evidence for the contest in District 1. Thus, white attitudes toward black candidates appear to reflect contextual effects that vary by election.

Conclusion

Our results on residual votes and discretionary behavior show that voters decide whether to participate in an election separately for each contest on a ballot. The turnout decision is not completed once a voter enters a polling booth, and "roll-off" is not a good characterization of what happens across electoral contests. From a Downsian point of view, one could say that a rational abstention choice is made for each office, amendment, and initiative that appears on a ballot. The considerations that inform such choices reflect one of the main fault lines in American politics: race.

The racial divide in American politics is so large that a significant number of voters who spend the time and energy to go to the polls nevertheless cast discretionary nonvotes for important and competitive contests when there are no candidates of their own race for whom they may vote. This finding is based on real behavioral data and not post-election surveys.

The observed behavior of African-American voters highlights the extent to which these voters value black represenatives.[8] Majority-minority redistricting as currently implemented probably diminishes the substantive representation of African Americans (Cameron, Epstein, and O'Halloran 1996; Epstein and O'Halloran 1999; cf. Lublin 1999; Swain 1993), but the behavior of both African Americans and whites leads us to conclude that many voters would prefer to give up some substantive representation in order to elect officials who look like themselves. These results are consistent with the public opinion evidence offered by Tate (2003).

Research on election administration should not proceed as it mostly has done, without taking even the grossest political features of elections into account. If the decision to cast a residual vote is like the turnout decision, then ignoring salient political variables when examining the quality of various voting technologies may lead to erroneous inferences. Politically salient factors in addition to candidate race, such as candidate gender, religious affiliation, and ideology, are likely determinants of residual votes.

Many scholars and commentators argue that voting technology which prevents or makes difficult the casting of residual votes should be adopted because it shrinks the white-black residual vote rate gap and reduces the overall number of residual votes. But since some voters truly do wish to cast a "none of the above" vote, such technology can frustrate their wills. The obvious solution is to adopt error-alerting voting technology and also allow for a "none of the above" option on the ballot. The state of Nevada already affords voters this option, and it should be more widespread.

[8] We are agnostic as to why black voters prefer black candidates. For example, black voters may have this preference because black candidates have distinct policy positions or it may be that black candidates simply expend more effort mobilizing black voters by, among other things, spending more time campaigning in black areas. A variety of factors are no doubt at work.

Appendix: Moments-Based Multinomial-Dirichlet

The first moments-based nonlinear least squares model proposed in Rosen et al. (2001) approximates their fully Bayesian hierarchical multinomial-Dirichlet model. The moments-based estimator is computationally much faster, and its results are robust against some minor departures from the distributional assumptions of the Bayesian model. We obtain standard errors via the percentile bootstrap with 1000 replications.

We use the same notation as Rosen et al.; see Table A1. For a single precinct i ($i = i, \ldots, p$), we observe the fractions of people who turned out to vote for specific parties ($T_{1,i}, \ldots, T_{C,i}$) and the fractions of people of different races ($X_{1,i}, \ldots, X_{R,i}$). The unobserved quantities ($\beta^i_{r,c}$, $r = 1, \ldots, R$, $c = 1, \ldots, C - 1$) are the fractions of people in racial group r who were of type c (nonvoters, legal voters, or residual voters). Let $\mathbf{T}'_i = (T'_{1,i}, \ldots, T'_{C,i})$ be the numbers of people in each voter type category. It is assumed that $\mathbf{T}'_i$ follows a multinomial distribution with parameter vector $\theta_i = (\theta_{1,i}, \ldots, \theta_{C,i})$ and count N_i where $\theta_{c,i}$ equals $\sum_{r=i}^{R} \beta^i_{r,c} X_{r,i}$ for $c = 1, \ldots, C$, under the constraint that $\sum_{c=1}^{C} \theta_{c,i} = 1$. It is assumed that the mean of $\beta^i_{r,c}$ is $\exp(\gamma_{r,c} + \delta_{r,c} Z_i)/(1 + \sum_{j=1}^{C-1} \exp(\gamma_{r,j} + \delta_{r,c} Z_i))$, for $r = 1, \ldots, R$, $c = 1, \ldots, C - 1$ and $i = 1, \ldots, p$, and where $\gamma_{r,c}$ and $\delta_{r,c}$ are parameters and Z_i is a covariate.

The $\gamma_{r,c}$ and $\delta_{r,c}$ are the parameters to be estimated. The quantities of interest—the β terms—are functions of these estimated quantities. We have tried a number of demographic covariates (such as proportion black and Hispanic), and none were found to be significant as judged by both Wald tests and bootstrap goodness-of-fit tests based on the penalized least-squares fit.

Coefficient estimates used to generate Tables 4–6 are available at http://www.journalofpolitics.org.

TABLE A1

Notation for Precinct i in our 3×3 Ecological Inference Problem

	Residual Votes	Legal Votes	Nonvoters	
Blacks	$\beta^i_{1,1}$	$\beta^i_{1,2}$	$1 - \sum_{c=1}^{2} \beta^i_{1,c}$	$X_{1,i}$
Whites	$\beta^i_{2,1}$	$\beta^i_{2,2}$	$1 - \sum_{c=1}^{2} \beta^i_{2,c}$	$X_{2,i}$
Others	$\beta^i_{3,1}$	$\beta^i_{3,2}$	$1 - \sum_{c=1}^{2} \beta^i_{3,c}$	$1 - \sum_{r=1}^{2} X_{r,i}$
	$T_{1,i}$	$T_{2,i}$	$1 - \sum_{c=1}^{2} T_{c,i}$	

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References

Achen, Christopher H., and W. Phillips Shively. 1995. *Cross-Level Inference.* Chicago: University of Chicago Press.

Bledsoe, Timothy, Susan Welch, Lee Sigelman, and Michael Combs. 1995. "Residential Context and Racial Solidarity among African Americans." *American Journal of Political Science* 39(2): 434–58.

Bobo, Lawrence, and Franklin Gilliam. 1990. "Race, Sociopolitical Participation, and Black Empowerment." *American Political Science Review* 84(2): 377–93.

Bositis, David A. 1998. "The Future of Majority-Minority Districts and Black and Hispanic Legislative Representation." In *Redistricting and Minority Representation: Learning from the Past, Preparing for the Future*, ed. David A. Bositis. Washington: Joint Center for Political and Economic, pp. 9–42.

Brady, Henry E., Justin Buchler, Matt Jarvis, and John McNulty. 2001. "Counting All the Votes: The Performance of Voting Technology in the United States." Report published by the Survey Research Center and Institute of Governmental Studies, University of California, Berkeley.

Bullock, III, Charles S., Ronald Keith Gaddie, and John C. Kuzenski. 1995. "The Candidacy of David Duke as a Stimulus to Minority Voting." In *David Duke and the Politics of Race in the South*, eds. John C. Kuzenski, Charles S. Bullock III, and Ronald Keith Gaddie. Nashville, TN: Vanderbilt University Press, pp. 99–114.

Caltech/MIT Voting Technology Project. 2001. "Residual Votes Attributable to Technology: An Assessment of the Reliability of Existing Voting Equipment." Working draft available from http://www.vote.caltech.edu.

Cameron, Charles, David Epstein, and Sharyn O'Halloran. 1996. "Do Majority-Minority Districts Maximize Substantive Black Representation in Congress?" *American Political Science Review* 90(4): 794–812.

Cole, Leonard A. 1976. *Blacks in Power: A Comparative Study of Black and White Elected Officials.* Princeton: Princeton University Press.

Crain, Mark, Donald R. Leavens, and Lynn Abbot. 1987. "Voting and Not Voting at the Same Time." *Public Choice* 53(1): 221–29.

Darcy, Robert, and Anne Schneider. 1989. "Confusing Ballots, Roll-Off and the Black Vote." *The Western Political Quarterly* 42(3): 347–64.

Davis, Darren W., and Ronald E. Brown. 2002. "The Antipathy of Black Nationalism: Behavioral and Attitudinal Implications of an African American Ideology." *American Journal of Political Science* 46(2): 239–53.

Dawson, Michael C. 2001. *Black Visions: The Roots of Contemporary African-American Political Ideologies.* Chicago: University of Chicago Press.

Dubois, Philip L. 1979. "Voter Turnout in State Judicial Elections: An Analysis of the Tail on the Electoral Kite." *Journal of Politics* 41(3): 865–87.

Duncan, Otis Dudley, and Beverly Davis. 1953. "An Alternative to Ecological Correlation." *American Sociological Review* 18(6): 665–66.

Epstein, David, and Sharyn O'Halloran. 1999. "A Social Science Approach to Race, Redistricting, and Representation." *American Political Science Review* 93(1): 187–91.

Gay, Claudine. 2001. "The Effect of Black Congressional Representation on Political Participation." *American Political Science Review* 95(3): 589–602.

Goodman, Leo. 1953. "Ecological Regressions and the Behavior of Individuals." *American Sociological Review* 18(6): 663–66.

Guinier, Lani. 1994. *The Tyranny of the Majority: Fundamental Fairness in Representative Democracy.* New York: Free Press.

Hansen, Bruce E. 2003. "Recounts From Undervotes: Evidence From the 2000 Presidential Election." *Journal of the American Statistical Association* 98(462): 292–98.

Harris, Jamie H., and John F. Zipp. 1999. "Black Candidates, Roll-Off, and the Black Vote." *Urban Affairs Review* 34(4): 489–98.

Herron, Michael C., and Jasjeet S. Sekhon. 2003. "Overvoting and Representation: An examination of overvoted presidential ballots in Broward and Miami-Dade counties." *Electoral Studies* 22(1): 21–47.

Kim, Jae-on, and B. C. Koh. 1972. "Electoral Behavior and Social Development in South Korea: An Aggregate Data Analysis of Presidential Elections." *Journal of Politics* 34(3): 825–59.

King, Gary. 1997. *A Solution to the Ecological Inference Problem.* Princeton: Princeton University Press.

King, Gary, Ori Rosen, and Martin A. Tanner. 1999. "Binomial-Beta Hierarchical Models for Ecological Inference." *Sociological Methods and Research* 28(1): 61–90.

Knack, Stephen, and Martha Kropf. 2001. "Roll Off at the Top of the Ballot: Intentional Undervoting in American Presidential Elections." Working Paper, University of Missouri at Kansas City.

Knack, Stephen, and Martha Kropf. 2003. "Voided Ballots in the 1996 Presidential Election: A County-Level Analysis." *Journal of Politics* 65(3): 881–97.

Leighley, Jan E. 2001. *Strength in Numbers?: The Political Mobilization of Racial and Ethnic Minorities.* Princeton: Princeton University Press.

Leighley, Jan E., and Arnold Vedlitz. 1999. "Race, Ethnicity, and Political Participation: Competing Models and Contrasting Explanations." *Journal of Politics* 61(4): 1092–1114.

Lublin, David. 1999. "Racial Redistricting and African-American Representation: A Critique of 'Do Majority-Minority Districts Maximize Substantive Black Representation in Congress?'." *American Political Science Review* 93(1): 183–86.

Lublin, David, and Katherine Tate. 1995. "Racial Group Competition in Urban Elections." In *Classifying by Race*, ed. Paul E. Peterson. Princeton: Princeton University Press.

Mansbridge, Jane. 1999. "Should Blacks Represent Blacks and Women Represent Women? A Contingent 'Yes'." *Journal of Politics* 61(3): 628–57.

Mebane, Walter R., Jr., and Jasjeet S. Sekhon. Forthcoming. "Robust Estimation and Outlier Detection for Overdispersed Multinomial Models of Count Data." *American Journal of Political Science.*

Morris, M. 1984. "Black Electoral Participation and the Distribution of Public Benefits." In *Minority Vote Dilution*, ed. Chandler Davidson. Washington: Howard University Press.

Nichols, Stephen M., and Gregory A. Strizek. 1995. "Electronic Voting Machines and Ballot Roll-Off." *American Politics Quarterly* 23(3): 300–18.

Niemi, Richard G., and Paul S. Herrnson. 2003. "Beyond the Butterfly: The Complexity of U.S. Ballots." *Perspectives on Politics* 1(2): 317–26.

Price, Hugh Douglas. 1957. *The Negro and Southern Politics: A Chapter of Florida History.* New York: New York University Press.

Rosen, Ori, Wenxin Jiang, Gary King, and Martin A. Tanner. 2001. "Bayesian and Frequentist Inference for Ecological Inference: The $R \times C$ Case." *Statistica Neerlandica* 55(2): 134–56.

Stiefbold, Rodney. 1965. "The Significance of Void Ballots in West German Elections." *American Political Science Review* 59(2): 391–407.

Swain, Carol. 1993. *Black Faces*, *Black Interest*. Cambridge: Harvard University Press.

Tate, Katherine. 2001. "The Political Representation of Blacks in Congress: Does Race Matter?" *Legislative Studies Quarterly* 26(4): 623–38.

Tate, Katherine. 2003. "Black Opinion on the Legitimacy of Racial Redistricting and Minority-Majority Districts." *American Political Science Review* 97(1): 45–56.

Tomz, Michael, and Robert P. van Houweling. 2003. "How Does Voting Equipment Affect the Racial Gap in Voided Ballots?" *American Journal of Political Science* 47(1): 46–60.

United States Commission on Civil Rights. 2001. "Election Reform: An Analysis of Proposals and the Commission's Recommendations for Improving America's Election System." http://www.usccr.gov/pubs/vote2000/elecref/main.htm.

Vanderleeuw, James M., and Glenn H. Utter. 1993. "Voter Roll-Off and the Electoral Context: A Test of Two Theses." *Social Science Quarterly* 74(3): 664–73.

Voss, D. Stephen, and David Lublin. 2001. "Black Incumbents, White Districts: An Appraisal of the 1996 Congressional Elections." *American Politics Research* 29(2): 141–82.

Voss, D. Stephen, and Penny Miller. 2001. "Following a False Trail: The Hunt for White Backlash in Kentucky's 1996 Desegregation Vote." *State Politics and Policy Quarterly* 1(1): 63–82.

Wand, Jonathan N., Kenneth W. Shotts, Jasjeet S. Sekhon, Walter R. Mebane, Jr., Michael C. Herron, and Henry E. Brady. 2001. "The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida." *American Political Science Review* 95(4): 793–810.

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