

The "Totality of Circumstances Test" in Section 2 of the 1982 Extension of the Voting Rights Act: A Social Science Perspective*

BERNARD GROFMAN, MICHAEL MIGALSKI, and NICHOLAS
NOVIELLO

We discuss uses of social science definitions and research methods in judging compliance with the recently modified language of Section 2 of the Voting Rights Act. That Act now specifies a "totality of circumstances" effects test for the existence of racial vote dilution. There are seven "typical" factors listed by the Senate Committee on the Judiciary in its report on the 1982 Voting Rights extension as among those which may be used to establish a Section 2 violation. Because of the nature of these factors, extensive (and often conflicting) testimony by social scientists has now become an inescapable feature of Section 2 litigation. We focus particular attention on one of the seven factors, racially polarized voting, because measurement of it is, as judged by recent litigation, the most controversial, the most complex, and the most important. We also discuss at some length another factor, racial campaign appeals, which also raises issues of appropriate definition and measurement. The aim of this paper is to contribute to a standardization of terminology and operationalization in an important public policy area, and to show how social science methodology can assist legal fact-finding.

I. INTRODUCTION

In July 1982 the Voting Rights Act of 1965 was extended for the third time. The 1982 extension amended the Act in a number of ways, but the key change was in Section 2. The new language of Section 2 reads (in part) as follows:

(a) No voting qualification or prerequisite to voting or standard, practice, or procedure shall be imposed or applied by any state or political subdivision

*This research was partially supported by NSF Grant # SES 81-07754 to the first named author, who is the senior author of the paper. It is based in part upon expert witness testimony he submitted in *Gingles v. Edinisten* (D.C., North Carolina, 1984). We would like to acknowledge the data gathering, data coding and data analysis assistance of Sarah Crowder, Sue Pursche, and Kathy Alberti, and helpful conversations with (in alphabetical order) Kimball Brace, Robert Briscoetto, Fred Cervantes, Charles Cottrell, Jose Garza, Lani Guinier, Paul Hancock, Gerald Hebert, James Loewen, Paul Luebke, Poli Marmolejos, Judson Miner, Frank Parker, Dianne Ross, Judith Sanders-Castro, Ellen Weber, and Leslie Winner; and our special thanks to Chandler Davidson, whose paper on expert-witness testimony in civil rights cases was the inspiration for this article.

in a manner which results in a denial or abridgement of the right of any citizen of the United States to vote on account of race or color. . . .

(b) A violation of subsection (a) is established if, based on the totality of circumstances, it is shown that the political processes leading to nomination or election in the state or political subdivision are not equally open to participation by members of a class of citizens protected by subsection (a) in that its members have less opportunity than other members of the electorate to participate in the political process and elect representatives of their choice. The extent to which members of a protected class have been elected to office in the state or political subdivision is one circumstance which may be considered, provided that nothing in this section establishes a right to have members of a protected class elected in numbers equal to their proportion in the population.

According to the Report of the Committee on the Judiciary of the United States Senate on S1992,¹ the bill which extended the life of the Voting Rights Act, the specific intent of the amended language in Section 2 was to allow plaintiffs to choose to establish a violation by showing discriminatory effect without proving any kind of discriminatory purpose. The new language of Section 2 was enacted after *Mobile v. Bolden*² but before *Rogers v. Lodge*.³ A plurality of the Supreme Court had held in *Mobile* that a claim of unconstitutional racial vote dilution required plaintiffs to demonstrate discriminatory purpose and not merely discriminatory effect, and that it was not sufficient to infer the former from the latter using the standards enunciated in *Zimmer v. McKeithen*.^{4,5} The new language of Section 2 was intended to establish a new statutory standard which permits a return to the result test as articulated in *White v. Register* 412 U.S. 766 (1973), as the basic principle in that case "was applied prior to the *Mobile* litigation"—at least, as members of the Senate Judiciary Committee interpreted the *White* results test to have been construed in *Zimmer*.^{6,7}

The 1982 Report of the Senate Judiciary Committee⁸ identifies seven "typical" factors⁹ which may be used to establish a violation of Section 2.

1. The extent of any history of official discrimination in the state or political subdivision that touched the right of the members of the minority group to register, to vote, or otherwise to participate in the democratic process;
2. The extent to which voting in the elections of the state or political subdivision is racially polarized;
3. The extent to which the state or political subdivision has used unusually large election districts, majority vote requirements, anti-single-shot provisions, or other voting practices or procedures that may enhance the opportunity for discrimination against the minority group;
4. If there is a candidate-slating process, whether the members of the minority group have been denied access to that process;
5. The extent to which members of the minority group in the state or political subdivision bear the effects of discrimination in such areas as education, employment, and health, which hinder their ability to participate effectively in the political process;
6. Whether political campaigns have been characterized by overt or subtle racial appeals;

7. The extent to which members of the minority group have been elected to public office in the jurisdiction.

The 1982 Report of the Senate Committee on the Judiciary makes clear that the legislative intent of Congress is to ask courts to make "an overall judgment, based on the totality of circumstances and guided by those relevant factors in the particular case, of whether the voting strength of minority votes is, in the language of *Fortson v. Dorsey* 379 U.S. 433 at 439 (1965) and *Burns v. Richardson* 384 U.S. 73 at 88 (1966), 'minimized or canceled out'."¹⁰ The Senate Report makes clear that there is no intent that any particular number of factors must be proved, nor that a majority of factors must point one way or another, and warns against using the factors in a mechanical "point-counting" fashion (p. 29, n. 118).

In the remainder of this essay we shall consider how the seven factors listed above can be operationally defined, paying particular attention to the definition and measurement of factor 2, racially polarized voting, and, to a lesser extent, factor 6, racial campaign appeals; since these are the two factors which present the greatest conceptual problems and about which there has been the greatest controversy in the post-1982 Section 2 litigation. (See, e.g., *Gingles v. Edmisten* D.C. North Carolina 1984.) We shall focus primarily on racially polarized voting because it has come to be widely recognized by civil rights attorneys (e.g., Frank Parker, personal communication, April 1984) that without a showing of racially polarized voting establishing a Section 2 violation is virtually impossible. We shall briefly illustrate the definitions we offer of racial polarization and of racial campaign appeals with data drawn from North Carolina, whose multimember legislative districts in eight counties were overturned in 1984 as diluting minority voting strength under Section 2 in the aforementioned case of *Gingles v. Edmisten*.

II. OPERATIONALIZING FACTORS RELEVANT TO THE SECTION 2 "TOTALITY OF CIRCUMSTANCES" TEST

We believe that any social science research must satisfy four conditions before it is likely to be of use to litigants.

- (1) The definition of variables is unambiguously operationalizable in an objective fashion.
- (2) The necessary data can be generated within the time frame of a court case and with limited resources.
- (3) The definitions and their operationalization can be explained clearly and simply to lawyers.
- (4) There is a *prima facie* link between terms as defined by the social scientist and the ways in which statutory or constitutional language has been (or might reasonably be) interpreted by the courts.

We now turn to operationalizations of the seven factors identified as important for Section 2 litigation in ways which can meet this fourfold test.

1. History of Official Discrimination

Proving this factor is in most cases nonproblematic. The social science expertise which is most relevant is, of course, that of the historian. In most southern/southwestern states a state-wide history of official discrimination against blacks/Hispanics/Asians can readily be established by any competent historian from standard sources.¹¹ It is useful, however, to take the history as close to the present as can be done. Since *de jure* segregation will have been ended some time ago, this can be done in part by tracing official positions/legal resistance to various race-related issues, resulting in court-imposed solutions such as affirmative action hiring for police and fire departments, simplified procedures for voter registration in the minority community, school busing, Section 5 challenges, location of public housing, etc.¹² Evidence of state-wide policies of discrimination, while often sufficient, should if practicable, be supplemented with evidence specific to a given polity, e.g., segregated private clubs and other forms of social segregation participated in by local political officials, segregated housing patterns buttressed by red-lining or historic use of restrictive covenants, etc. Of particular relevance is evidence on barriers to voting participation/registration (e.g., few bilingual registrars, few minority poll-watchers and election officials, polling precincts located disproportionately in white areas). Some of this data can be established from official archives (e.g., polling maps, property deeds, litigation dockets, and court records) and from census data, but some of it can be introduced only via the testimony of knowledgeable local citizens.¹³

2. Racially Polarized Voting

Measuring racial polarization in ways which can meet the four-fold test specified above raises special problems because:

(a) Inferences about the voting behavior of individuals of each race must be based on evidence of aggregate (e.g., precinct level) data, and convincing courts that such inferences can validly be drawn can be quite difficult, since clearly no one can penetrate the secrecy of the ballot box to know how any given individual voted.

(b) the statistical techniques used to generate these inferences are likely to be unfamiliar to courts and involve an esoteric terminology (e.g., correlation coefficient, regression slope, coefficient of determination). Thus explaining results intelligibly can be difficult, and explanations are often subject to even more esoteric quibbles by expert witnesses for the other side (e.g., claims that problems of heteroscedasticity or multicollinearity invalidate the reliability of the statistical techniques that were used); and

(c) there has been no universally accepted threshold at which polarization would be regarded as statistically or substantively significant.

These problems are similar to those that arise in other areas of litigation (e.g., in the measurement of market share in anti-trust litigation; John Thomas, personal communication, May 1984), and in some other areas may be largely unresolved. However, in the definition and measurement of racial polarization, we shall propose a series of definitions which we believe will satisfactorily resolve each of these potential problems. We begin by defining *racially/linguistically polarized voting* as occurring when the voting patterns of minority voters (black/Hispanic/Asian) differ from those of the white/Anglo community. This definition is one which is both commonsensical and in accord with the standard political science literature on vote polarization (See, e.g., Miller, 1981). Usually, but not necessarily, the key differences in minority and non-minority voting patterns are found in high rates of "own-race" voting in contests where there are candidates of more than one race (or linguistic grouping).¹⁴

Differences in group voting patterns can be established by either of two standard techniques: ecological regression¹⁵ and extreme case analysis.¹⁶ The former involves a graphical comparison of the votes for minority candidates in each precinct with the racial composition of that precinct; the latter involves looking at precincts which are racially homogeneous (or nearly so).

Homogeneous case analysis

If we have available election data on precincts which are overwhelmingly (90% or 95%) composed of members of the same race, we can readily establish the voting behavior of members of that race. Of course, it may be argued that voters of that race who do not live in such racially homogeneous precincts may be voting differently. For example, blacks in overwhelmingly black precincts may be, on average, lower in income and/or education than blacks living in more nearly integrated areas and those differences may affect the voting behavior. However, in practice, within a relatively limited geographic area (e.g., a city or county) differences in electoral preferences between black (white) voters in homogeneous black (white) precincts and black (white) voters in mixed precincts are *on average*, apt to be minimal (a few percentage points at most). To verify that this is in fact the case, we can perform an ecological regression (which, of course, includes data from the mixed precincts) and compare the estimates of black/white voting behavior derived from the two methods. We later present such a comparison for legislative elections in Mecklenburg County, North Carolina. Ecological regression is, of course, needed if there are no precincts which are sufficiently homogeneous in racial composition to permit reasonable inferences to be drawn from the behavior of voters in them about all voters of their preponderant race.

Ecological regression

There are a number of variants of ecological regression. We show below, for the case of a single-member-district contest involving at least one black candidate and at least one white candidate for which registration or voting age population (VAP) or population data by race by precinct is available, a simple method of ecological regression.¹⁷ This method not only generates an estimate of the voting behavior of the electorate by race, but also generates an estimate of voter turnout by race. The specific illustration below is for the case where registration data by race is available, but the methodology is identical if the only available racial data on a precinct level is population or voting age population, we simply substitute population (VAP) for registration in the definitions given below.¹⁸

Let

- x = the proportion of total registration which is white
- $1-x$ = the proportion of total registration which is black
- P_W = the proportion of total registered voters who vote for the white candidate(s)
- P_B = the proportion of total registered voters who vote for the black candidate(s)
- T = the proportion of registered voters who vote

These four variables can all be determined directly from election returns, registration data from local election boards, or U.S. census data matched to the precinct level, i.e., their values are, in principle, directly observed.

Let

- P_{WW} = the proportion of white registered voters who vote for the white candidate(s)
- P_{BW} = the proportion of black registered voters who vote for the white candidate(s)
- P_{BB} = the proportion of black registered voters who vote for the black candidate(s)
- P_{WB} = the proportion of white registered voters who vote for the black candidate(s)

The above four variables are unobservable. To ascertain their values, we must make inferences from the variables we can directly observe.

It is true by definition that, for the electorate as a whole, we must have

$$P_W = x(P_{WW}) + (1-x)(P_{BW});$$

i.e.,

$$P_W = (P_{WW} - P_{BW})x + P_{BW}.$$

Let $P_W^{(i)}$ \approx the value of P_W in the i th voting precinct, etc.; i.e., in

general, we shall use the superscript (i) to denote the value of a variable in the *i*th voting precinct.¹⁹ Hence if

$$P_W^{(i)} = m_1 x^{(i)} + b_1$$

for all *i*, then

$$\begin{aligned} P_{WW} &= m_1 + b_1 \\ P_{BW} &= b_1; \end{aligned}$$

i.e., if we regress P_W on x , then the slope and intercept have a straightforward "natural" interpretation, in terms of the proportion of white (black) registered voters who vote for the white candidate. Similarly, if we regress P_B on x , we obtain

$$\begin{aligned} P_{WB} &= m_2 + b_2 \\ P_{BB} &= b_2. \end{aligned}$$

Analogously, if we regress P_W on $1-x$, then we obtain P_{WW} as the intercept of that regression equation; while if we regress P_B on $1-x$, we obtain P_{WB} as the intercept of that regression equation. Let us specify a new notation such that

$$P'_{WW} = \frac{P_{WW}}{P_{WW} + P_{WB}}$$

$$P'_{BW} = \frac{P_{BW}}{P_{BB} + P_{BW}}$$

etc.

These primed variables (which we obtain by combining the information from the two regression equations; P_W on x and P_B on x give us the white (black) vote for white/black candidates as a proportion of the total white (black) vote. Of the four primed variables, it is P'_{WW} and P'_{BB} in which we shall be most interested, since these denote the proportion of votes from white (black) voters which go to a candidate(s) of their own race.

Similarly we shall let

$$P'_W = \frac{P_W}{P_W + P_B}, \text{ and } P'_B = \frac{P_B}{P_B + P_W}.$$

These two primed variables give us the white (black) share of the actual vote. Of course, $P'_W = 1 - P'_B$.

Turnout

Our two-equation estimating procedure also tells us about (differential) turnout among white and black registered voters,²⁰ since $P_{WB} + P_{WW} = T_W =$ proportion of white registered voters who vote (i.e., white turnout as a proportion of white registered voters), while $P_{BB} + P_{BW} = T_B =$ propor-

tion of black registered voters who vote (i.e., black turnout as a proportion of black registered voters).

Statistical Measures of Goodness of Fit For Ecological Regression

When ecological regression is used, statistical measures can be generated for the goodness of fit of the assumption that voting is linearly polarized along racial lines and for the likelihood that the observed linear relationship between candidate support and race is due to chance. The former is commonly measured by Pearson's r , known as the correlation coefficient. The latter is measured by statistical significance. While there is no scholarly consensus on what goodness of fit is necessary for race to be regarded as an important factor in accounting for voting patterns, r values above .5 are quite uncommon in political science and values above .8 nearly unheard of.²¹ If, for a given election, the observed value of r has a statistical significance of .01 or less, i.e., a likelihood of occurring by chance alone of one in one hundred or less, this also would normally be regarded as quite adequate proof that race was a factor in that election. If either of these criteria ($r \geq .5$ or statistical significance less than .01) were met, we would say that *statistically significant racial polarization* existed.²² This definition was accepted by the trial court in *Gingles*.

Expert Witness Errors in Interpreting Racial Polarization

Social scientists testifying about racial polarization in voting rights litigation have, in our view, commonly made one of four errors. Either (1) they have focused exclusively on r , and not the parameters of greatest interest, such as P'_{WB} ; or (2) they have tried to set some arbitrary threshold of differences in candidate choices between the races as being necessary for voting to be racially polarized;²³ or (3) they have confused the ability to find *reasons for* the existence of racial polarization with the *nonexistence* of racially polarized voting; or (4) they have, by focusing primarily on cases where racial polarization was least severe, confused the exceptions with the norm.

Turning to the first of these errors, it is important not to confuse a high value of r with a high magnitude of racial polarization or to confuse statistical significance with substantive significance. A high r value merely indicates that the observed relationship between race and voting patterns is *consistent* across precincts (and linear in nature).²⁴ For example, in a single-member-district election with two candidates, one black and one white: if in each precinct 65% of black voters and 63% of the white voters voted for the black candidate, we could obtain a perfect linear fit ($r = 1.00$), even though there was little difference in the voting patterns of white voters and black voters. That a given value of r is statistically significant merely indicates that the observed pattern looks too much like a straight line to be a matter of chance alone and says nothing about the mag-

nitude of differences—which may best be judged from the slope and intercept of the regression line.

As to the second error, disputes about what is the appropriate threshold of differences between white and black voting patterns that is necessary for racially polarized voting to exist (with expert witnesses for the defense trying to set a high threshold and experts for the plaintiffs arguing for a lower cutoff point) are common in voting rights litigation.²⁵ While we do believe that, in looking at the totality of circumstances, the magnitude of (and not just the existence of) racial polarization should be ascertained, in our view, such disputes about thresholds miss the point and involve social scientists in semantic quibbling. We shall offer a definition of substantively significant racial polarization which, while unambiguously operationalizable, yet avoids arbitrary threshold points.

We propose to define *racial polarization* as being *substantively significant* if it is of sufficient magnitude that the racial composition of the electorate can effect the candidate(s) chosen, a definition which was accepted by the trial court in *Gingles*. This definition is a very general one, applicable to both single-member and multimember elections and to elections with one or more than one minority candidate. For a single-member-district election (or an at-large multimember-district election with a numbered place system, which gives rise to head-on-head contests analogous to those in single-member districts), our definition is synonymous with saying that substantively significant racial polarization occurs when a majority/plurality of the voters of one race would elect a different candidate than would the majority/plurality of voters of the opposite race. Thus, for example, in a two-candidate race if 80% of black voters vote for candidate A and 55% of white voters also do so, this would not be counted as substantively significant racial polarization as we have defined that term, because voters of both races would choose the same candidate. On the other hand, in a three-candidate race, if 40% of white voters vote for candidate A and 30% of white voters vote for candidates B and C, respectively, while 40% of black voters vote for candidate B, and 30% for candidates A and C, respectively, this would be counted as substantively significant racial polarization since the (plurality) choices of voters of the two races are different, even though the numerical difference in voting behavior is only ten percentage points. Note, also, however, that for multicandidate elections, even substantively significant racial polarization does not imply that the candidate preferred by the minority group will necessarily lose, because minority voters may act as a swing group in deciding the election outcome when whites divide their votes.

For multimember-district elections without a numbered place system, the above definition of substantively significant racial polarization again does not set a simple numerical threshold. Rather, voting would be defined as exhibiting substantively significant racial polarization whenever the *set* of candidates that would be chosen by voters of one race differs from the

set of candidates that would be chosen by voters of the other race. Thus, for example, if white voters (on average) ranked the black candidate fifth and black voters (on average) ranked that candidate first, that would necessarily give rise to racially polarized voting if there were four candidates or fewer being elected in the multimember district but would not, as we have defined the term, constitute substantively significant racially polarized voting if there were five or more candidates being chosen. Substantively significant racial polarization can occur even if white (black/Hispanic) voters vote for some minority (Anglo/white) candidates as long as they are not as willing to elect as many minority (Anglo/white) candidates as would the minority (Anglo/white) community. In short, substantively significant polarization occurs when the magnitude of the polarization is sufficient so as to have potential political consequences.

As for the third common error, it is sometimes argued by expert witnesses testifying for defendants in Section 2 that the existence of cases of cross-over voting (some whites voting for some black candidates and perhaps numerous black voters voting for white candidates (often incumbents)) shows the absence of real racial polarization. We disagree. A few instances of white support for some black candidates cannot outweigh a general pattern of white unwillingness to support black candidates.²⁶ Moreover, even if blacks are willing to vote for white candidates, substantively significant racial polarization can occur simply because whites are unwilling to vote for blacks.

Finally, the fourth error, thinking that finding reasons (e.g., lower income or education of black voters) for the observed differences in voting patterns between white and black voters rules out the possibility of race accounting for patterns of polarization is to confuse etiology with existence. It is the existence of racial polarization, not its etiology, that is at issue. That blacks vote differently from whites in part because blacks are less well educated, less affluent, etc., may be true, but is irrelevant to the simple question of *whether* polarization along racial lines exists. "Why?" is not the same question as "whether." Reasons why blacks vote differently than whites may form a part of the context of the "totality of the circumstance," but they cannot affect judgments as to whether or not racially polarized voting exists.

Comparing Ecological Regression and Homogeneous Case Analysis

The methods of ecological regression and homogeneous case analysis each have both advantages and drawbacks. For extreme (homogeneous) case analysis it may always be claimed for it to be possible for the electoral behavior of voters in mixed precincts to differ *significantly* from that of voters in homogeneous precincts; and, if analysis is confined to homogeneous precincts, this claim cannot directly be rebutted with data drawn from the precincts in question, even though the claim is almost certain to

be false. If ecological regression is the only technique used, then inferences drawn from *aggregate* level statistics about the average behavior of *individuals* of a given race are suspect because of the possibility of ecological fallacy. (See references cited in n. 17.)

Ecological regression enables us to ascertain the extent (if any) to which voters of a given race in racially mixed precincts vote differently from voters of that same race in racially homogeneous precincts. Homogeneous case analysis allows us to avoid even the remotest possibility of ecological fallacy, since if we know how voters in the overwhelmingly white (black) precincts vote, we have essentially direct knowledge of how white (black) voters as a class are voting—despite the fact that direct access to ballots is, of course, impossible. Thus, *ideally*, both methods should be used, since each fully compensates for the potential flaws in the other, since we can compare regression-based and homogeneous-case based estimates, and can also look at which precincts (if any) give rise to outliers from the best-fitting regression line. Moreover, ecological regression techniques provide us with measures of statistical significance.

Even so, we do not regard it as necessary to do ecological correlations if a substantively significant pattern of polarization can be clearly shown by comparing votes in precincts which are overwhelmingly composed of minority voters with votes in precincts which are preponderantly white/Anglo. Insistence on ecological regression is, in our view, unnecessary if a clear enough pattern of racial polarization (based on the values of P'_{BW} and P'_{WB}) is apparent from the homogeneous precinct data. Moreover, developing data based on homogeneous precincts is considerably less costly and less time-consuming than using regression methods. On the other hand, of course, if there are no precincts sufficiently racially homogeneous to enable us to make reliable inferences about voting behavior by race, then (if there are more than six precincts) it will almost always be possible to ascertain racial polarization from ecological regression alone.

We show in Table 1 data from three North Carolina counties on racial polarization in a 1982 Democratic Congressional primary and subsequent runoff in a district which encompassed those three counties. The black candidate, Michaux, won the primary but did not receive a majority of votes cast and this forced (under North Carolina's majority vote provision) a second runoff primary. This primary Michaux lost. We show estimates from both ecological regression and homogeneous case (90% +) analysis. It is apparent from Table 1 that the differences in parameter estimates between the two methods were minimal.²⁷

3. *Special Election Provisions*

Federal courts have repeatedly recognized the fact that majority vote requirements, anti-single-shot voting rules (or ones which, for multi-member-district elections, specify numbered places and/or staggered elections), and unusually large multimember districts are practices which make

Table 1
 Patterns of Racially Polarized Voting in the 1982 Michaux-Valentine Congressional Contest in Three North Carolina Counties

| | P _{WB} % White Voters Who Vote for Black Candidates | | P _{BB} % Black Voters Who Vote for Black Candidates | | Correlation Coefficient for Regression | Statistical Significance for Regression |
|-----------|---|-------------------------------------|---|-------------------------------------|--|---|
| | regression estimate | homogeneous precinct estimate | regression estimate | homogeneous precinct estimate | | |
| Edgecombe | 2(3) | 7(5) | 84(97) | 80(97) | -.98 (-.99) | .00001 |
| Wilson | 6(7) | 8(11) | 96(98) | 95(97) | -.90 (-.92) | .00001 |
| Nash | 6(6) | 7(9) | 73(81) | -(-) ² | -.91 (-.91) | .00001 |

Source: Bernard Grofman, expert witness testimony in *Gingles v. Edmisten* (D.C. N.C., 1984).

1. Numbers refer to first primary (won with a plurality by Michaux); numbers in parentheses refer to second (majority runoff) primary (won by Valentine).
2. There were no precincts in Nash County with a sufficiently high percentage of Black voter registration to allow for a homogeneous estimate.

it more likely that minority voting strength will be diluted.²⁸ In Section 2 cases, showing that such practices exist (or have been used) is all that is needed; the causal link between such practices and minority vote dilution in the particular case at issue need not be demonstrated, although if, say, a majority vote requirement was in effect, it would certainly not be amiss to point out instances where a black candidate was the plurality (but not the majority) winner of an election and was then defeated in a subsequent runoff (as occurred in North Carolina in the Michaux race).

The existence or past use of majority runoff requirements, numbered places, or staggered elections is clearly a matter of record. What constitutes an "unusually large election district" is not so clear, although the intended reference is clearly to the number of representatives elected from a district. However, also relevant would be data on the sheer physical size of the district and the transportation difficulties in gaining access to its remotest parts, or on the number of different media which serve the district, or on any other factor which would increase campaign costs or otherwise make campaigning difficult for minority candidates who were not very well financed in the larger districts.

We show in Table 2 the average number of legislators per district in the state houses and the state senates in each state as of 1980. For multi-member legislative districts these averages can provide a useful basis for comparison as to what constitutes a "large" district. Analogous information can be calculated for city or county levels of government in a given state.

4. Candidate Slating Process

In many jurisdictions there is no formal slating process (especially for nonpartisan elections), although groups of candidates may band together to run as an informal slate. In other jurisdictions, party organizations may designate certain candidates as having official endorsement, even though the actual nomination may take place in a party primary. In other jurisdictions (most commonly ones with a nonpartisan ballot), business and civic groups may endorse slates. If there is a slating process whose candidates are more likely of success than nonendorsed candidates, the number of minority candidates who are interviewed/nominated by it is, of course, the single most important piece of information bearing on the fairness of the process. However, potentially of almost equal importance is information on the composition of the slating group itself. For example, in *Alonzo v. Jones*,²⁹ a successful Section 2 challenge to at-large city council elections in Corpus Christi, Texas, the district court judge noted in his finding of facts that, although Mexican-American candidates had been slated and successful in their election campaigns, all who have won "have won their elections by being members of a slate basically assembled by Anglo . . . leaders."³⁰

Table 2: Types of Districts in State House and State Senate, 1980

| State | SENATE | | | | | | | | | | HOUSE | | | | | | | | | |
|---------------|-----------------|---------------------|----------------------------------|--------------------------------------|---|-----------------|---------------------|----------------------------------|--------------------------------------|---|----------------------------------|--------------------------------------|---|----------------------------------|--------------------------------------|---|----------------------------------|--|--|--|
| | Number of Seats | Number of Districts | Number of Multi-member Districts | Largest Number of Seats in Districts | Average Number of Seats in Multi-member Districts | Number of Seats | Number of Districts | Number of Multi-member Districts | Largest Number of Seats in Districts | Average Number of Seats in Multi-member Districts | Number of Multi-member Districts | Largest Number of Seats in Districts | Average Number of Seats in Multi-member Districts | Number of Multi-member Districts | Largest Number of Seats in Districts | Average Number of Seats in Multi-member Districts | Number of Multi-member Districts | House and Senate District Boundaries Coterminous | | |
| Alabama | 35 | 35 | 0 | 1 | | 105 | 105 | 0 | 1 | | 105 | 105 | 0 | 1 | | | Yes | | | |
| Alaska | 20 | 16 | 3 | 3 | 2.33 | 40 | 40 | 10 | 6 | 2.80 | 22 | 22 | 10 | 6 | 2.80 | | N.A. | | | |
| Arizona | 30 | 30 | 0 | 1 | | 60 | 60 | 30 | 2 | 2.00 | 60 | 60 | 30 | 2 | 2.00 | | Yes | | | |
| Arkansas | 35 | 35 | 0 | 1 | | 100 | 100 | 10 | 3 | 2.60 | 84 | 84 | 10 | 3 | 2.60 | | No | | | |
| California | 40 | 40 | 0 | 1 | | 80 | 80 | 0 | 1 | | 80 | 80 | 0 | 1 | | | No | | | |
| Colorado | 35 | 35 | 0 | 1 | | 65 | 65 | 0 | 1 | | 65 | 65 | 0 | 1 | | | No | | | |
| Connecticut | 36 | 36 | 0 | 1 | | 151 | 151 | 0 | 1 | | 151 | 151 | 0 | 1 | | | N.A. | | | |
| Delaware | 21 | 21 | 0 | 1 | | 41 | 41 | 0 | 1 | | 41 | 41 | 0 | 1 | | | No | | | |
| Florida | 40 | 19 | 14 | 3 | 2.50 | 120 | 120 | 21 | 6 | 4.57 | 45 | 45 | 21 | 6 | 4.57 | | No | | | |
| Georgia | 56 | 56 | 0 | 1 | | 180 | 180 | 17 | 4 | 2.52 | 154 | 154 | 17 | 4 | 2.52 | | No | | | |
| Hawaii | 25 | 8 | 7 | 4 | 3.42 | 51 | 51 | 0 | 1 | | 51 | 51 | 0 | 1 | | | No | | | |
| Idaho | 35 | 35 | 0 | 1 | | 70 | 70 | 35 | 2 | 2.00 | 35 | 35 | 35 | 2 | 2.00 | | Yes | | | |
| Illinois | 59 | 99 | 0 | 1 | | 118 | 118 | 59 | 2 | 2.00 | 59 | 59 | 59 | 2 | 2.00 | | Yes | | | |
| Indiana | 50 | 50 | 0 | 1 | | 100 | 100 | 20 | 3 | 2.35 | 73 | 73 | 20 | 3 | 2.35 | | No | | | |
| Iowa | 50 | 50 | 0 | 1 | | 100 | 100 | 0 | 1 | | 100 | 100 | 0 | 1 | | | Yes | | | |
| Kansas | 40 | 40 | 0 | 1 | | 125 | 125 | 0 | 1 | | 125 | 125 | 0 | 1 | | | No | | | |
| Kentucky | 38 | 38 | 0 | 1 | | 100 | 100 | 0 | 1 | | 100 | 100 | 0 | 1 | | | No | | | |
| Louisiana | 39 | 39 | 0 | 1 | | 105 | 105 | 0 | 1 | | 105 | 105 | 0 | 1 | | | No | | | |
| Maine | 33 | 33 | 0 | 1 | | 151 | 151 | 11 | 10 | 3.91 | 119 | 119 | 11 | 10 | 3.91 | | No | | | |
| Maryland | 47 | 47 | 0 | 1 | | 141 | 141 | 47 | 3 | 3.00 | 47 | 47 | 47 | 3 | 3.00 | | Yes | | | |
| Massachusetts | 40 | 40 | 0 | 1 | | 160 | 160 | 0 | 1 | | 160 | 160 | 0 | 1 | | | No | | | |

5. *Lingering Effects of Discrimination*

The extent to which minority group members bear the burden of previous discrimination as manifested in lower levels of education, employment, income, health and longevity, etc., can be documented at the county level using readily available census data. Such data is also tabulated for the larger cities in each state and can be obtained from census books (or tapes) for any desired unit of aggregation. The basic facts on minority registration and turnout as a function of voter-age minority population can be generated by combining census, registration, and election data and present no special problems.³¹ Customarily, sociologists or demographers present such data as a routine part of Section 2 litigation.

6. *Racial Campaign Appeals*

It would appear that a racial appeal, like pornography, is in the category of "know it when I see it." The only two definitions of racial appeal in either court cases or the social science literature we have been able to locate are ones offered by two sociologists: Paul Luebke and Jerry Himmelstein. Luebke's definition, offered as testimony in *Gingles v. Edmisten*, is as follows: *Racial appeals* occur in a campaign if one candidate calls attention to the race of his opponent or his opponent's supporters, or if media covering a campaign disproportionately call attention to the race of one candidate or of that candidate's supporters.

We believe that Luebke's definition satisfies the four-fold usefulness test we suggested above. Luebke's definition is clear and as unambiguously operationalizable as we can hope, given the inherent fuzziness of a term such as racial appeal. One instance of a racial campaign appeal that fits the definition perfectly would be where a white candidate uses a picture of his black opponents in his own campaign material. Except as a notice to white voters of his opponent's race, no candidate would give free photographic publicity to his opponent. Luebke provided such an example in his testimony in *Gingles*. Other Luebke illustrations included (Senator) Jesse Helms reelection campaign committee's use of a picture of Jesse Jackson identifying him as a Hunt supporter in an ad attacking Governor Hunt of North Carolina (Helms' probable opponent), a Helms reelection campaign committee ad accusing Hunt of using taxpayer funds to register black voters, and an ad which said that a (black) candidate was planning on busing his supporters to the polls—with busing in capital letters.

Himmelstein (1983) shows how themes identified as racist in earlier historical contexts are still being invoked during political campaigns in the South in sanitized forms that avoid overt references to race by using code words and other concealed messages which appeal to lingering feelings of white anti-black sentiment.³² As Himmelstein (1983: 155) points out (in remarks directed to Mississippi politics but applicable in the South and elsewhere),

“overt appeals to segregationist sentiments are no longer practiced by politicians who expect to win . . . Black voter strength and perhaps some degree of cultural change in the etiquette of race relations seems to have sanitized the language of political rhetoric. However, segregationist sentiments and political action continue among a large portion of the white population. In a society so recently and so dominantly obsessed with race . . . one important way political leaders have walked the line between divergent audiences is through the use of *code words*” (also known as *racial telegraphing*).

According to Himmelstein (1983: 156):

A code word is a word or phrase which communicates a well understood but implicit meaning to part of a public audience while reserving for the speaker deniability of that meaning by reference to its denotative explicit meaning. As for example, in 1968 Presidential candidate Hubert Humphrey accused his Republican opponents of using the phrase “law and order” as a code word for repression of blacks in reaction to riots in black ghettos. Another presidential campaign example is Jimmy Carter’s 1976 awkward attempt to pacify residents in a Polish neighborhood who were worried about desegregation in housing. He endorsed the preservation of “ethnic purity” in residential patterns. But blacks quickly identified this phrase as a code word for segregation, and Carter spent some time trying to explain it away. Code words are intended as rhetorical winks; and if they are too easily detected they lose their deniability and thus their effectiveness.

Luebke’s definition of racial appeal is easier to objectively measure than Himmelstein’s definition of code words. As Himmelstein (1983: 157) notes “identification of code words is an enterprise akin to the interpretation of symbols in literary criticism. For code words, such identification requires careful sociological and historical analysis.” Nonetheless, since overt racial appeals may be absent, testimony about more subtle and covert forms of racial appeal such as the use of code words and of themes associated with white supremacy and anti-black sentiment may be required if this element of the Section 2 vote dilution test is to be proved.³³ Luebke presented such testimony in *Gingles*, and the court gave it considerable credibility.

7. *Minority Electoral Success*

While identifying how many minority candidates there have been and which have been successful is, at least in principle, straightforward, an appropriate basis of comparison by which to judge whether minorities have been substantially underrepresented is less clear. Plurality-based election systems, even if single-member, cannot be expected to yield proportional representation.³⁴ The translation of a minority group’s voter strength into electoral success will vary with the nature of the election system, the extent to which the group’s strength is geographically concentrated, and the extent of minority voter turnout relative to white/Anglo voter turnout, as well as with the extent of racial polarization. We believe the most appropriate baseline is one derived from equal-population single-member districts (smds) which preserve as far as practicable historically defined neighbor-

hoods. Social scientists have developed computer methods to create hypothetical single-member-district plans satisfying specified constraints. By generating a large number of such plans, we can determine the expected racial representation under the modal single-member-districting scheme and compare a minority group's actual or anticipated ability to elect representation of its choice under the actual plan with the outcomes expected under neutrally drawn smd plans.³⁵ Other statistical methods for judging fairness of smd redistricting plans have also been devised.³⁶ Even without such (costly) computer simulations, a simple comparison of the likely ability of a minority to elect candidates of its choice under alternative plans (especially those considered and rejected by a districting body) can be quite informative. In a single-member district plan in which a minority can be expected to have (or has had) its voting strength given proportional or near-proportional representation in terms of its ability to elect candidates of its choice, it seems to us that this fact alone provides quite compelling evidence of the *absence* of racial vote dilution.

III. DISCUSSION

Our remarks above have dealt with the operationalization of the seven criteria commonly used to help judge whether or not a particular electoral arrangement dilutes minority voting strength in violation of the Voting Rights Act. In so doing, we have taken those criteria as given. We now wish to ask "How can these criteria be justified as appropriate ones, and what theory of voting rights is implicit in their use?"

When vote dilution is defined in the Voting Rights Act as "having less opportunity than other members of the electorate to participate in the political process and elect representatives of their choice," it is being defined in terms of *group* consequences. Other voting rights violations (e.g., violation of the one-person, one-vote standard) are customarily defined in terms of the violation of *individual* rights. Given the nature of the definition of vote dilution in the Voting Rights Act, it seems reasonable to look for factors which may impact the ability of a protected class (black, Hispanics, Indians, etc.) to translate its voting strength into representation of its choice. Factors 1, 3, and 4 of the list of seven enumerated in the Senate Report clearly *directly* fit under that rubric, while factors 2 and 6 *indirectly* provide evidence of possible racial vote dilution because racial polarization and racial campaign appeals show that the minority will be hindered in forming (or, perhaps, even be unable to form) winning coalitions with other segments of the electorate, because of racial ill will.³⁷ Finally, factor 7 (failure to elect black candidates) provides evidence that the vote dilution is real and not hypothetical. Thus the seven factors identified in the Senate report do seem to be part of a reasonably coherent theory of vote dilution, at least for at-large and multimember elections.

However, the "totality of circumstances" test can be attacked—either

because it requires too much, or because it either requires too little or focuses on the wrong factors. For multimember elections we take the first point of view, believing that the "totality of circumstances" test, as construed by the Senate, requires litigants to present evidence on *too many* factors.

In *Gingles v. Edmisten*, both the defense expert (Thomas Hofeller, Claremont College) and the senior author of this paper offered virtually identical definitions of submergence of minority voting strength in an at-large or multimember district system. We each defined *submergence* as occurring if: (1) the minority group did not comprise a voting majority of the multimember district; (2) The minority population was large enough and concentrated enough to form at least one single-member district in which its members would constitute an effective voting majority; and (3) voting was significantly racially polarized. By this test, most at-large elections in which there was a substantial minority population would be found dilutive of minority voting rights.^{38, 39} If this test were to be used, the standards for a Section 2 violation for mmds could be dramatically simplified.

On the other hand, in the single-member districts the connection between some of the seven factors and vote dilution is problematic, e.g., racially polarized voting actually helps minorities in districts where the minority group has a majority of voting strength, and other factors not among the seven, e.g., preservation of communities of interest, ought in our view to assume a greater importance.^{40, 41}

BERNARD GROFMAN is Professor of Political Science and Social Psychology, School of Social Sciences, University of California, Irvine. He is a specialist in mathematical models of collective decision-making and the political consequences of electoral laws, with at least fifty published articles on topics such as jury verdict choice, reapportionment and voter turnout, and coalition formation models. During the past four years he has been involved in ten states as an expert witness in redistricting litigation or as a court-appointed reapportionment expert.

MICHAEL MIGALSKI is a Ph.D. candidate in the Mathematical Social Sciences Program at the University of California, Irvine. He served as a Research Assistant in testimony prepared for Gingles v. Edmisten.

NICHOLAS NOVIELLO is a Ph.D. candidate in the Cognitive Sciences Program at the University of California, Irvine. He served as a Research Assistant in testimony prepared for Gingles v. Edmisten.

NOTES

1. May 25, 1982: 28.
2. 446 U.S. 55 (1980).
3. 102 S.Ct. 3272 (1982).
4. 485 F.2d 1297 (5th Cir 1973) (en banc) aff'd on other grounds sub nom *East Carroll Parish School Board v. Marshall* 424 U.S. 636 (1976). The Zimmer standards were "relied upon in the vast majority of nearly two dozen reported [vote] dilution cases [decided between 1976 and 1980]." (Report of the Senate Committee on the Judiciary, *op cit.* 23.)
5. In *Rogers v. Lodge* the Court held that discriminatory purpose could be

inferred from circumstantial evidence, including evidence on discriminatory effect, using a "preponderance of factors" test.

6. Report of the Senate Committee on the Judiciary, *op. cit.*, 28. See also Report of the Committee on the Judiciary, U.S House of Representatives, Report No. 97-227, 97th Congress, First Session, September 15, 1981, 28-32, where language may be found virtually identical to that from the Senate Report quoted above.
7. We shall not seek to review the accuracy of the Senate Report's claims as to the nature of pre-*Mobile* case law, since that topic has been extensively covered in the Senate Report and elsewhere. (See, e.g., Joaquin Avila (1982) "Mobile Evidentiary Requirements," in *The Right to Vote*, pp. 125-159. New York: Rockefeller Foundation.
8. Report of the Senate Committee on the Judiciary, 28-30.
9. The Report of the Senate Committee on the Judiciary, *op. cit.* 28 n. 113, indicates that "these factors are derived from the analytical framework used by the Supreme Court in *White* as articulated in *Zimmer*."
10. The Report of the Senate Committee on the Judiciary, *op. cit.* 29, identifies two additional factors that in some cases have had probative value: "whether there is a significant lack of responsiveness on the part of elected officials to the particularized needs of the members of the minority group," and "whether the policy underlying the state or political subdivision's use of such voting qualification, prerequisite to voting, or standard, practice or procedure is tenuous." But the Report makes clear that "unresponsiveness is not an essential part of plaintiff's case," and that "even a consistently applied practice premised on a racially neutral policy would not negate a plaintiff's showing through other factors that the challenged practice denies minorities fair access to the process." The Report also notes that "while these enumerated factors will often be the most relevant one in some cases other factors will be indicative of the alleged dilution."

In this essay we shall focus almost entirely on the seven numbered factors. We should note, however, our belief that other factors (e.g., fragmentation, tortuously shaped districts) assume greater importance in cases involving alleged gerrymandering of single member districts as compared to ones involving the use of at-large or multimember districts. It is quite clear that the Senate Report was principally aimed to prevent minority vote dilution via use of at-large elections because that had been the issue in *White*, *Zimmer* and *Mobile* and virtually all other pre-*Mobile* cases. However, the Section 2 provision is equally relevant to vote dilution which may occur in single-member districts which have been unfairly drawn, even though the specific seven factors enumerated in the Senate Report may no longer be the critical elements in a vote dilution test.

11. See, e.g., M. Kousser (1974) *The Shaping of Southern Politics*. New Haven: Yale University Press. Illustrative of voting rights denial is a New Mexico constitutional provision adopted in 1912 which was used to deny Indians the right to vote in state elections until a successful challenge was brought in federal court in 1948. (F. C. Garcia and P. L. Hain, eds. (1981) *New Mexico Government* rev. ed. Albuquerque: University of New Mexico Press, p. 171, cited in C. Cottrell, "Reflections of a Political Scientist as Expert Witness." Paper delivered at the Annual meeting of the American Political Science Association, Conference for Federal Studies, Denver, Colorado, September 25, 1981, n. 23.)
12. See, e.g., *Black Voters v. McDonough* 565 F.2d at 1, and 5 fn. 10 (1st Circuit, 1977), which cites a number of such cases in reviewing the evidence for discrimination in Boston.
13. In Section 2 cases, as in other civil rights litigation, hard data which is comprehensive in scope, if available, is to be preferred to personal reports which can too easily be dismissed as idiosyncratic or biased. However, testimony about personally experienced discrimination is also important, since it provides flesh

and substance to the rather bloodless and abstract reports commonly provided by social scientists.

14. Racially polarized voting may also occur in elections in which all candidates are of the same race, if the level of support for the various candidates varies significantly with the racial composition of the electorate.
15. See, e.g., L. A. Goodman (1956) "Ecological Regression and the Behavior of Individuals." *American Sociological Review*, 18, No. 6: 663-664; Morgan, Kousser (1973) "Ecological Regression and the Analysis of Past Politics," *Journal of Interdisciplinary History*, 4, No. 2: 237-262; B. Grofman and N. Noviello, "An Outline for Racial Bloc Voting Analysis." Prepared testimony in *Gingles v. Edmisten*. (D.C.N.C., 1984).
16. See, e.g., A. Duncan and B. Davis (1953) "An Alternative to Ecological Correlation" *American Sociological Review*, vol. 18; J. Loewen (1982) *Social Science and the Courtroom*. Lexington: Lexington Books; and B. Grofman and N. Noviello, *Ibid*.
17. The regression analysis given below, is taken from that in Grofman and Noviello, *Ibid*. Grofman and Noviello also provide extensions to deal with primaries and with multimember district contests without a numbered place system. Regression techniques for the case of small cities where there are only a handful of precincts are described in Bernard Grofman and Michael Migalski (1983) "Estimating Racial Bloc Voting when Detailed Precinct-Level Data is Unavailable." Unpublished manuscript.
18. In a handful of southern states there is available precinct-level voter registration data broken down by race. In a few states the linguistic composition of the actual electorate may be determined by using polling booth sign-ins to identify Spanish-named voters. (The number of false positives roughly equals the number of false negatives.) If, as is almost universally the case, the only available racial data is population (or voting age population) data from the U.S. census this data must then be matched to electoral precinct, a task aided by the fact that usually precincts are put together from census blocks or census tracts.
19. $P_{WB} + P_{WW} \leq P_{BB} + P_{BW} \leq 1$, and $P_W + P_B \leq 1$, since some white (black) registered voters may not vote.
20. The two equation technique we have described above is superior to most single equation regression techniques because it allows us to control for differential turnout by race. (Potential problems with single equation ecological regression techniques are described in B. Grofman, "Models of Voting." In S. Long, ed., *Micropolitics Annual* (in press).) However, other equivalent multi-equation techniques exist. For example, we can directly estimate turnout by race, as a proportion of registered voters, by making use of the identity

$$T_W x + T_B(1-x) = T = \frac{\text{Total votes cast}}{\text{registered voters}}$$
 and regressing T on x. The intercept of this regression will give us T_B while the sum of the slope plus the intercept will give us T_W . We can then use the T_W and T_B parameters to estimate the number of voters of each race in each precinct and then regress this variable on P'_W to obtain an alternative estimate of P_{WB} , etc. B. Grofman and M. Migalski (1984) "A Comparison of Five Ecological Regression Methods," unpublished manuscript, show that this technique can be expected to yield results virtually identical to those for the technique given in the text.
21. Values of this magnitude are almost invariably obtained for ecological regressions of racial bloc voting in cases challenging existing plans on vote-dilution grounds. (See, e.g., *McMillan v. Escambia County, Florida* 638 F.2d 1239 at 1241 n. 6 (1981).)
22. If we only have a few observation (precincts), no matter how strong the actual

- racial polarization, we may not be able to obtain a high level of statistical significance in the measurement of the degree of racial polarization.
23. In the District Court Order in *McMillan v. Escambia* cited in 638 F.2d 1241 n. 6, the district court found that "whenever a black challenges a white for countywide office, a significant majority of the whites who vote will consistently vote for the black's opponent. Sixty percent of the whites will do so in most cases." This sixty percent figure is not, however, as we read the text, being offered as a lower limit on the magnitude of differences in racial voting patterns *necessary* to constitute racially polarized voting, but only as a description of the facts in Escambia County, Florida—facts held by the court to be *sufficient* to establish racially polarized voting.
 24. It is important to emphasize that, in ecological regression analyses r (or r^2) is *not* a measure of the *extent* of racial block voting. Rather, a high value of r (or equivalently of r^2) is a necessary *prerequisite* for us to have confidence in estimates of parameters such as P'_{ww} and P'_{BB} , which are the ones actually to be used. The value of r^2 for a single-equation prediction equation based on the two regression equations specified on pages 204 and 205 above (where r is Pearson's correlation coefficient and r^2 is commonly called the coefficient of determination) tells us how good our assumption is that the *proportion* of white registrants who vote for the white (black) candidate(s) is constant across all precincts, i.e., it tests the assumption that the vote share of the white candidate(s) is in fact almost perfectly directly proportional to the proportion of white registration in each voting precinct.
 25. An interesting example of an expert's changing her testimony from one case to another as to what constitutes the necessary threshold for racial polarization to have taken place is reported in the trial transcript of *City of Port Arthur, Texas*, No. B-80-216-CA (ED Texas, September 5, 1980).
 26. Having analyzed each available election separately, we should then ask whether there is a consistent pattern of (statistically and) substantively significant racial polarization across elections. Such a finding would not require that each election be racially polarized, merely that enough racial polarization was present in enough elections so as to lead to the conclusion that the opportunity for the minority community to elect candidates of its choice was being impaired by the existing districting system.
 27. In general, the homogeneous case estimates will reflect less polarization than the ecological regression estimates since the precincts used for the former analysis are not actually 100% racially homogeneous. In general we believe the ecological estimates are marginally more reliable, but the differences are apt to be trivial. (See review of comparative data from the two methods below.)
 28. See e.g., *Zimmer v. McKeithen*.
 29. C.A. N. C-81-227 (S.D. Texas, February 3, 1983).
 30. Indeed, in a number of cases, slate-endorsed Hispanic candidates, in winning, defeated non-slate-endorsed Hispanic candidates who had greater support from the Hispanic community.
 31. It is one of the best established generalizations in political science that voter turnout and other forms of political participation are lower for individuals of lower socio-economic status. See, e.g., A. Campbell, P. E. Converse, W. E. Miller, and D. E. Stokes. *The American Voter*. New York: Wiley, 1960. "The courts have recognized that disproportionate educational employment, income level, and living conditions tend to depress minority political participation, e.g., *White* 412 U.S. at 768; *Kirksey v. Board of Supervisors* 554 F.2d 139, 145. Where these conditions are shown, and where the level of black participation in politics is depressed, plaintiffs need not prove any further causal nexus between their disparate socio-economic status and the depressed level of political participation." (Senate Report, *op. cit.*, 29, n. 114.)

32. J. Himelstein (1983) "Rhetorical Continuities in the Politics of Race: The Closed Society Revisited" *Southern Speech Communication Journal*, 48: 153-166. Among the themes identified by Himelstein are divisiveness vs. harmony, opposition to federal government intervention, and opposition to newcomers and outside agitators.
33. It does not appear that anything beyond the mere existence of racial appeals needs to be demonstrated. In particular, it would not appear that the effectiveness of the racial appeals must be shown. If voting is racially polarized, that fact provides indirect support for the probable impact of any observed racial appeals. In *Mobile, Alabama*, the court in *Bolden v. Mobile* 423 F.Supp. 384 at 388 (1976) found that "if a white is opposed to a black or the race is between two white candidates and one candidate is identified with a favorable vote in the black wards, or identified with sponsoring particularized black needs, . . . a white backlash occurs which usually results in the defeat of the black candidate or the white candidate identified with the blacks."
34. See G. Gudgin and P. J. Taylor (1979) *Seats, Votes and Spatial Organization of Elections*. London: Pion; B. Grofman, "For Single Member Districts Random is Not Equal." In B. Grofman, A. Lijphart, R. McKay, and H. Scarrow, eds. (1982), *Representation and Redistricting Issues*. Lexington: Lexington Books.
35. J. O'Loughlin (1982) "The Identification and Evaluation of Racial Gerrymandering," *Annals, Association of American Geographers* vol. 72; J. O'Loughlin, "Racial Gerrymandering: Its Potential Impact on Black Politics in the 1980s." In M. B. Preston, L. J. Henderson, Jr., and P. Puryear, eds. (1982) *The New Black Politics*, pp. 241-263. New York: Longman; R. Engstrom and J. K. Wildgen (1977) "Pruning Thorns from the Thicket: An Empirical Test of the Existence of Racial Gerrymandering," *Legislative Studies Quarterly*, 2: 465-479; and G. Gudgin and P. J. Taylor, *op. cit.* See also G. Own and B. Grofman, "Collective Representation and the Seats-Votes Swing Relationship." Paper presented to the Annual Meeting of the American Association of Geographers, San Antonio, 1982; B. Grofman, "Measures of Bias and Proportionality in Seats-Votes Relationships." *Political Methodology* (forthcoming).
36. The election of a few minority candidates does not "necessarily foreclose the possibility of dilution of the black vote" *Zimmer* 485 F.2d at 1307, cited in Senate Report, *op. cit.*, 29 n. 115.
37. We wish to emphasize, however, that racial polarization's relevance to vote dilution is much more problematic in the single-member district context than in the at-large context, since for smds racially polarized voting insures that the majority can elect a candidate of its choice, and this might be a *black* majority in some districts. Thus, for smds we must look at the *cumulative* impact of racial polarization in each of the districts in a given plane.
38. The Federal District court in *Gingles*, having found evidence of six of the seven factors, did not discuss whether submergence, as defined above, had occurred.
39. On the other hand, some litigants have argued that even if all seven factors were found, there still might not be a statutory violation. In particular, if, because of cross-over voting, candidates (both black and white) who receive majority support from the minority community are elected in rough proportion to the minority population, defendants in Section 2 suits have claimed this as proof that minority interests are being fairly represented. However, in our view, even if minorities are supporting winning candidates proportional to the minority population proportion there may still be a dilution of minority voting rights if (a) only a token number of black candidates receive white support; (b) white candidates can be elected without minority support but black or black supported candidates cannot be elected without white support; and (c) *most* white candidates actually were elected with little support from the minority community.

In such circumstances minority votes may simply be going to the least undesirable of the available alternatives. That minority voters choose to vote for certain candidates in a multimember district race, when these are the only candidates who stand any reasonable chance of victory, does not prove that these candidates would be the choices of the minority community in a fairly-drawn single member district plan which permitted the minority community to directly elect candidates of its choice in some minority-dominated districts.

40. An open question is the extent to which minority groupings not sufficient in size to comprise a district majority must be preserved intact. The district court opinion in *Gingles* suggests that as long as minority voting strength is fairly reflected in terms of districts in which the minority would comprise a majority of the district's voting strength the disposition of any remaining small pockets of minority voting strength is not of great importance in providing evidence for a statutory violation.
41. See footnote 10.

REFERENCES

- AVILA, J. (1981) "Mobil Evidentiary Analysis," in *The Right to Vote*, pp. 125-159. New York: Rockefeller Foundation.
- CAMPBELL, A., P. E. CONVERSE, W. E. MILLER, and D. E. STOKES (1960) *The American Voter*. New York: John Wiley and Sons.
- CITY OF PORT AURTHUR, TEXAS (1980) Trial Transcript No. B-80-216-CA (E.D Texas).
- DUNCAN, O. D. and B. DAVIS (1953) "An Alternative to Ecological Correlation." *American Sociological Review* 18: 665-666.
- ENGSTROM, R. L. and J. K. WILDGEN (1977) "Pruning Thorns From the Thicket: An Empirical Test of the Existence of Racial Gerrymandering." *Legislative Studies Quarterly* 2: 465-479.
- GARCIA, F. C. and P. L. HAIN, eds. (1981) *New Mexico Government*. Albuquerque: University of New Mexico Press. Cited in C. Cottrell, "Reflections of a Political Scientist as Expert Witness." Paper delivered at the annual meeting of the American Political Science Association, Conference for Federal Studies, Denver, Colorado, September 25, 1981.
- GOODMAN, L. A. (1953) "Ecological Regressions and the Behavior of Individuals." *American Sociological Review* 18: 663-664.
- GROFMAN, B. (1982) "For Single Member Districts Random is Not Equal." in B. Grofman, A. Lijphart, R. McKay and A. Scarrow (eds.) *Representation and Redistricting Issues*. Lexington: Lexington Books.
- GROFMAN, B. and M. MIGALSKI (1983) "Estimated Racial Bloc Voting When Detailed Precinct-Level Data is Unavailable." Unpublished manuscript. Irvine: University of California.
- and M. MIGALSKI (1984) "A Comparison of Five Ecological Regression Methods." Unpublished manuscript. Irvine: University of California.
- and N. NOVIELLO (1984) "An Outline for Racial Bloc Voting Analysis." Prepared testimony in *Gingles v. Edmisten*. Irvine: University of California.
- B. (forthcoming) "Models of Voting," in S. Long (ed.) *Micropolitics Annual*.
- (forthcoming) "Measures of Bias and Proportionality in Seats-Votes Relationship." *Political Methodology*.
- GUDGIN, G. and P. J. TAYLOR (1979) *Seats, Votes and the Spatial Organization*. London: Pion.

- HIMELSTEIN, J. (1983) "Rhetorical Continuities in the Politics of Race: The Closed Society Revisited." *Southern Speech Communication Journal* 48: 153-166.
- KOUSSER, J. M. (1973) "Ecological Regression and the Analysis of Past Politics." *Journal of Interdisciplinary History* 4: 237-262.
- (1974) *The Shaping of Southern Politics*. New Haven: Yale University Press.
- LOEWEN, J. W. (1982) *Social Science and the Courtroom: Statistical Techniques and Research Methods for Winning Class-Action Suits*. Lexington: Lexington Books.
- MILLER, W. (1981) *Electoral Dynamics*. London: Macmillan.
- O'LOUGHLIN, J. (1982) "Racial Gerrymandering: Its Potentials Impact on Black Politics in the 1980s," in M. B. Preston, L. J. Henderson, Jr., and P. Puryear (eds.) *The New Black Politics*. New York: Longman.
- OWEN, G. and B. GROFMAN (1982) "Collective Representation and the Seats-Votes Swing Relationship." Paper presented to the annual meeting of the American Association of Geographers, San Antonio, Texas.
- PARKER, F. (1984) Personal Communication.
- THOMAS, J. (1984) Personal Communication.
- U.S. HOUSE OF REPRESENTATIVES (1981) Report of the Committee on the Judiciary, Report number 97-227, 97th Congress, 1st Session. Washington, D.C.: U.S. Government Printing Office.
- U.S. SENATE (1982) Report of the Committee on the Judiciary on S1992, Senate Report 97-417, 97th Congress, 2nd Session. Washington, D.C.: U.S. Government Printing Office.

CASES

- Alonzo v. Jones* (1983) C.A.N. C-81-227 (S.D. Texas).
- Black Voters v. McDonough* (1977) 565 F.2d 1.
- Bolden v. Mobile* (1976) 423 F.Supp. 384.
- Burns v. Richardson* (1966) 384 U.S. 73.
- Fortson v. Dorsey* (1965) 379 U.S. 433.
- Gingles v. Edmisten* (1984) D.C. North Carolina.
- Kirksey v. Board of Supervisors of Hinds County, Mississippi* (1977) 554 F.2d 139.
- McMillan v. Escambia County, Florida* (1981) 638 F.2d 1239.
- Mobile, Alabama v. Bolden* (1980) 446 U.S. 55.
- Rogers v. Lodge* (1982) 102 S.Ct. 3272.
- White v. Register* (1973) 412 U.S. 755.
- Zimmer v. McKeithen* (1973) 485 F.2d 1297.

