Redistricting Principles and Racial Representation *

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Abstract

How do traditional redistricting principles—contiguity, communities of interest, political subdivisions, incumbent protection, Section 5 of the Voting Rights Act, preservation of district core, and compactness—affect minority representation in state congressional districts? Using data from the 2001-02 redistricting process, we find that compactness is the only principle that significantly affects minority representation, both in terms of majority-minority districts and minority influence districts, but these effects are contingent on the size of the minority community and extent of racial segregation. Two other principles, Section 5 pre-clearance and political subdivisions, improve minority representation in a more limited way. Thus, race-neutral redistricting standards, like the compactness principle, can dramatically affect the racial composition of the resulting districts.
The practice of creating majority-minority election districts in recent decades has led to a fierce debate over whether this policy enhances the political influence of racial minorities. Some scholars have found that packing African Americans into a small number of legislative districts increases the conservatism of surrounding areas (Bullock 1995; Cameron, Epstein, and O’Halloran 1996; Lublin 1997; Swain 1995). As a result, some argue that African Americans would benefit more from the creation of “minority influence districts” (Lublin 1997, 121), where blacks constitute the swing vote that is crucial to a candidate’s victory. Other scholars either downplay the unintended consequences of majority-minority districts (Engstrom 1995; Grofman and Handley 1998; Petrocik and Desposato 1998) or champion the descriptive representation that typically results from them (Davidson 1992).

Obscured in this debate is the fact that those who draw political districts often are constrained by a number of rules that govern the redistricting process in their respective states. Indeed, recent court decisions (Shaw v. Reno 1993, Miller v. Johnson 1995) have emphasized traditional districting standards, such as compactness, contiguity, and the preservation of communities of interest, while questioning the constitutionality of using race as the predominant standard in drawing districts. Even as the United States Supreme Court’s position on racial redistricting continues to evolve, traditional standards are respected, if only because they permit an ostensibly objective—and presumably race neutral—assessment of district boundaries (Engstrom and Alford 2002; Pildes and Niemi 1993). For example, McDonald (1996) argues that compactness and contiguity standards are a valuable safeguard in a system where the district drawers are government officials (also see Polsby and Popper 1991; Stern 1974; Wells 1982).

Yet, are these traditional districting standards race neutral? Using computer simulations, Altman (1998a) shows that the racial impact of the compactness standard depends upon the
distribution of minority voters, where racial minorities become a majority of a district’s voters only if they are both numerous and concentrated (see also Lowenstein and Steinberg 1985). When minorities are not sufficiently concentrated, their percentages in any given district will be low under a compactness standard. Thus, the effect of compactness and other districting standards on the political influence of minorities is an empirical question, the answer to which likely depends on the size of the minority community, patterns of racial segregation, and the combination of redistricting requirements a state adopts.

We investigate this question using demographic, political, and institutional data for United States congressional districts after the 2001-02 redistricting cycle. We find support for Altman’s (1998a) assertion that population geography matters. Compactness rules are associated with reduced minority influence, except when they occur in combination with a large and segregated minority population, in which case they are associated with greater influence. More generally, we find that traditional redistricting principles have varying impacts on minority representation. Some, such as provisions regarding contiguity and the district core, matter little. Others, such as Section 5 of the Voting Rights Act and rules regarding political subdivisions, enhance minority representation but in a nuanced way.

Political Redistricting in the United States

Because redistricting has been left to state legislatures (Butler and Cain 1992), the precise mix of principles guiding the process varies widely in the United States. Observers of congressional redistricting in the states have found seven principles to be particularly important (Wattson 1999).

- The principle of contiguity holds that a district be a single geographic piece. A district is considered contiguous if all of its parts touch one another at more than one point.
• Mapmakers may strive to preserve *communities of interest* in districts, that is, groups of people united by common social, political, economic, or ethnic similarities.

• District lines may be drawn to adhere to existing *political subdivisions*, such as city or county lines or local, state, and federal election districts.

• *Incumbent protection* refers to the practice of drawing districts so that most incumbents are relatively safe in them. Some states explicitly condone the practice; others prohibit it.

• *Section 5 of the Voting Rights Act of 1965* requires that government officials in certain areas of the country (“covered jurisdictions”) obtain pre-clearance from the United States Attorney General or the United States District Court for the District of Columbia for any policy changes regarding voting, including redistricting plans. The Justice Department or court reviews these plans to prevent the dilution of minority voting strength.\(^3\)

• Redistricters may strive for the *preservation of the district core*, drawing boundaries so that new districts are based on the old district to the extent possible. This practice is thought to maintain voter continuity and minimize voter confusion.

• *Compactness* refers to the extent to which a district's geography is dispersed around its center. A district with branches that extend far from its center may be the result of racial or partisan gerrymandering.

Table 1 lists the requirements that govern congressional redistricting in the 43 states that underwent the process after the 2000 United States Census.\(^4\)

Insert Table 1 about here.

There is considerable variation among the states in their adoption of these guidelines. No state is governed officially by all seven redistricting standards, although three (Alabama, Arizona, and South Carolina) are governed by six. The overwhelming majority of states that redistricted in
2001-02 adhered to at least one of the seven standards (32), although a sizeable number (11) did not have any formal guidelines. No obvious single characteristic is shared by the states in this latter category, as it includes states both big (Pennsylvania) and small (Connecticut), states with regular (Colorado) and irregular (Maryland) boundaries, and states in all four major regions of the country. Scholars have not attempted to explain the patterns of adoption of these standards, but it is an area that is ripe for study.

For our purposes, the state-level variation in Table 1 provides an ideal opportunity to address the question, What impact do these districting principles have on minority representation? For example, with the exception of the slight under representation of the northeast, there is healthy variation among the 19 states that adhere to the compactness principle. The list includes states that lean Democratic (Minnesota and Washington) as well as those that typically elect Republicans (Utah and Idaho). Most important, there are significant differences in the number and distribution of racial minorities across these 19 states; compare, for example, Alabama and Nevada or South Carolina and Iowa on these characteristics. In short, the combination of real world variation in redistricting principles and racial demographics in the states provides a natural experiment that permits us to build upon Altman (1998a) and examine the effect of redistricting rules empirically.

Data and Methods

We examine the effect of redistricting rules on minority political representation, assessing whether these standards are in fact race neutral. Our task is complicated by the fact that the reapportionment process adds and subtracts congressional districts from some states. While it might seem straightforward to assess minority political representation with, say, the percentage
of African Americans that reside in each of a state’s congressional districts before and after redistricting, nearly half of the states that redistricted in 2001-02 gained or lost seats. Due to this practical problem, we conduct our analysis at the state, rather than the district, level. Fortunately, the existing literature provides guidance on how to conceptualize minority representation at the state level (Brace et al. 1988; Grofman and Handley 1989; Lublin 1997; Swain 1995).

Some argue that racial minorities can influence electoral politics even in districts in which they are not in the majority (Lublin 1997; Swain 1995). Others have noted that the presence of Latinos in a district reduces the percentage of blacks needed to assure the election of a Democrat (Grofman, Handley, and Lublin 2001; Lublin 1997, 1999). Thus, we can conceive of three types of districts in this regard: districts where minority voters (i.e., African Americans and Hispanics) determine the winner; districts where they serve as the swing vote; and districts where they do not influence election outcomes because they represent too small a percentage of the district. Blacks and Latinos can exert influence and gain representation in the first two types of districts, but probably not the third.\textsuperscript{5} We operationalize racial minority influence in two ways: the number of congressional districts in a state that have a minority population of greater than 50 percent (hereafter referred to as “majority-minority districts”); and the number of districts that have a minority population of 35 to 50 percent (hereafter referred to as “minority influence districts”).\textsuperscript{6} Both measures refer to seat counts in the immediate aftermath of the 2001-02 redistricting cycle.\textsuperscript{7}

For our independent variables, we used state constitutions, statutes, and the written guidelines of state redistricting commissions to create a dichotomous measure for each of the redistricting requirements listed in Table 1 (where 1 = rule required). This series of variables
will permit us to test the hypothesis that redistricting principles may have an impact on the political influence of racial minorities. In order to assess whether the impact of compactness is contingent upon the distribution of minorities, we created a measure of racial segregation for each state. Altman (1998a) argues that compactness enhances minority representation only in those states that also have a large and segregated minority community. Using county-level population figures archived at the University of Michigan’s Population Studies Center, we calculated the Index of Dissimilarity (ID) for each state. The theoretical range of the ID is 0-1, with higher values indicating a higher level of racial segregation. In our data, the ID ranges from 0.33 (South Carolina) to 0.93 (Nebraska).

Because the incidence of majority-minority and minority influence districts is a direct function of the presence of minority voters in a state, we controlled for the percentage of African American and Hispanic voters in a state using United States Census data. We also controlled for partisan composition of a state, which we expected to be related to the number of majority-minority and minority influence districts. More precisely, we anticipated that states with unified Democratic control of the state legislature and governor’s office would have more of both kinds of districts, owing to the fact that racial minorities tend to vote Democratic (Flanigan and Zingale 1998; but see McDonald 2004 on how majority-minority districts may benefit Republicans).

**Empirical Results**

Did the use of traditional redistricting principles affect the political representation of racial minorities in states that engaged in congressional redistricting following the 2000 Census? Our first measure of representation is a count of the number of majority-minority congressional districts in a state, where African Americans and Hispanics constitute 50 percent or more of a
district’s population. Our second measure is a count of the number of minority influence districts in a state, where African Americans and Hispanics constitute 35-50 percent of a district’s population. Since both of our dependent variables are counts bounded by zero at the low end, we use Poisson regression to estimate our models of effects on them (King 1989).^{10}

The small number of cases in our analysis ($N = 43$) presents certain statistical challenges. Although we want to examine the effect of all seven redistricting principals on minority representation, the loss in degrees of freedom and the high correlation among some of the principles in our dataset are a cause for concern.^{11} Building on a core model that included our measures of minority population, racial segregation, and political control of the redistricting process, we used likelihood-ratio (LR) tests to determine which of the seven redistricting rules to include in the model. Any variable that improved the fit of the model or came close at even a very weak level of statistical significance ($p < .20$) was retained. Variables passing this threshold were included in a model and, once again, tested with a series of LR tests. In the end, we were left with three redistricting standards in our model—compactness, Section 5 of the Voting Rights Act, and protection of political subdivisions—in addition to the political control, minority population, and racial segregation variables.

Estimated Poisson regression coefficients, robust standard errors, and marginal effects for our model with both dependent variables are in Table 2. As the first model indicates, the compactness standard has a negative and statistically significant effect on the number of majority-minority congressional districts in a state. States that adopt a compactness standard have fewer majority-minority seats, typically by just over half of one seat (a marginal effect of $-.45$). On the other hand, states that must comply with all or parts of Section 5 of the Voting Rights Act (VRA) are estimated to have at least one additional majority-minority seat. The terms
for the political subdivisions principle and unified Democratic control are not statistically significant in the majority-minority count model, after controlling for minority population and racial segregation. States with a greater percentage of minorities and more racial segregation also had more majority-minority congressional seats, even after controlling for the other factors.

Insert Table 2 about here.

The second set of estimates in Table 2 show that compactness also had a statistically significant effect on the number of minority influence congressional districts in a state, although the overall size of this negative effect was only about two-thirds of what it was in the majority-minority district model. On the other hand, Section 5 of the VRA had no impact on the number of minority influence districts. This differential effect across the two models is consistent with academic interpretations of the VRA. Following the 1982 amendments to the VRA, officials in the United States Justice Department and many state legislators interpreted the law as a mandate to create majority-minority districts (Canon 1999, 70-3). It should come as little surprise, then, that Section 5 coverage is related to the number of majority-minority congressional districts in a state, but not the number of minority influence districts. Far more important to the creation of minority influence districts was whether a state follows the political subdivisions principle. While preserving political subdivisions did not affect the count of majority-minority districts in our analysis, it increased the probability of having additional minority influence districts. Political control, on the other hand, had no effect. Consistent with the first set of estimates, a state’s minority composition added appreciably to its number of minority influence districts. The racial segregation term, an important predictor of the number of majority-minority districts in a state, was only marginally statistically significant ($p = .11$) in the second model.
To understand better the effects of these rules and demographic factors, Figure 1 displays the predicted probability of having a particular number of majority-minority and minority influence districts based on the models in Table 2. For example, Panel A of Figure 1 demonstrates that having a compactness rule increases the probability of having no majority-minority districts. More precisely, the model predicts that a state without a compactness rule has a .45 probability of having no majority-minority seats (standard error = .10); with a compactness rule, the probability of having no majority-minority seats jumps to .69 (standard error = .07). Contrast this with Panel B of Figure 1, which shows that states operating under Section 5 of the VRA are more likely to have multiple majority-minority districts than states that are not covered. In fact, the probability of having none of these districts drops from .70 to .23 (standard error of the difference = .12) when Section 5 of the VRA is a consideration in a state’s redistricting. Panels C and D of Figure 1 show, as expected, that the total number of majority-minority districts is predicted to rise along with the proportion of a state’s population that is minority and its level of racial segregation.

Figure 2 presents similar predicted probabilities, this time using the estimates from the Poisson model for minority influence districts. As with majority-minority districts, having a compactness rule decreases the probability of having districts in a state in which Hispanics and African Americans constitute 35-50 percent of the population (Panel A). But protecting political subdivisions (Panel B) does the opposite, making it somewhat more likely that a state will adopt at least one minority influence district. Panel C shows that our model predicts that the size of a state’s minority population has a similar effect on the number of minority influence districts as it did on the number of majority-minority districts. However, the impact of segregation varies
across the two models. High segregation virtually guarantees that a state will have at least one majority-minority district (see Panel D of Figure 1), but there is only a .33 probability that a state will have one or more minority influence districts when racial segregation is high.

A more subtle, but very important, question is how compactness, the size of a state’s minority population, and racial segregation work together to affect minority representation.\textsuperscript{13} Consistent with the prediction of Altman’s (1998a) computer simulations, we find that the effect of a compactness standard on minority representation is contingent upon the proportion of minorities in a state and their geographic distribution. Panel A of Figure 3 shows the predicted probabilities of having majority-minority districts in states with both a high proportion of racial minorities and a compactness standard under varying levels of racial segregation.\textsuperscript{14} In very segregated states, the probability of having no majority-minority districts is less than .02, meaning that a segregated state is virtually guaranteed at least one majority-minority district if it has a compactness rule. The modal value in this scenario is four majority-minority districts (probability = .12; standard error = .07). By contrast, states with a lot of minorities, a compactness standard, and low levels of segregation have .64 probability of having no majority-minority districts (standard error = .21).

Panel B of Figure 3 shows a similar relationship for the predicted number of minority influence districts. The modal value for a state with a compactness rule as well as a numerous and segregated minority population is three minority influence districts (probability = .17; standard error = .06). A compactness rule in the absence high racial segregation yields a modal prediction of zero minority influence districts.
To test the robustness of our models, we explored the impact of several other factors on our dependent variables. Using data from the United States Census, we examined whether changes in a state’s African American and Hispanic population had an impact on their representation in the 2001-02 redistricting cycle. While increases in a state’s Hispanic population were associated with more minority influence districts, our main substantive conclusions do not change when we control for changes in a state’s percentage of African Americans or Hispanics. We also included regional dummy variables to control for spatial autocorrelation. The only pattern was the tendency for southern states to have fewer majority-minority districts.

Our findings should be considered with a bit of caution for two reasons. First, only 43 states engage in redistricting at the congressional level, giving us few degrees of freedom to disentangle the direct and interactive effects of these rules. While studying congressional redistricting over time might help this, reapportionment complicates matters since some states lose, while others gain, congressional seats each decade. Future research on the effects of redistricting rules might gain leverage on this problem by moving to the state legislative level where the number of states engaging in redistricting is greater and the total number of districts is more stable over time.

A second concern with our research design is that states may choose different ways to implement these redistricting standards. For example, according to some estimates, there are over 20 unique measures of compactness (Niemi et al. 1990) and more continue to be developed (Engstrom and Alford 2002). Of course, our analysis only considers the legal requirements, not the manner in which or even whether they were implemented (but see Hirsch 2002 for anecdotal evidence that they are in fact implemented). If both parties agree not to follow a required
standard and if the plan is not challenged in the courts, it is possible to evade it. While this sort of chicanery is unlikely to occur in obtaining pre-clearance with Section 5 of the VRA, we have no sense of how many states fail to comply with their other formal standards. Future research with a measure of the redistricting standards that actually are followed in each state would likely arrive at a more precise estimate of the effects of these standards.17

**Conclusion**

Scholars and political practitioners debate whether explicit racial redistricting enhances the political influence of racial and ethnic minorities (Cameron, Epstein, and O’Halloran 1996; Engstrom 1995; Grofman and Handley 1998; Lublin 1997; Petrocik and Desposato 1998; Shotts 2003; Swain 1995). We have examined whether traditional redistricting principles might also have an effect on minority representation, however unintentional. This is an issue of vital political importance. Although these principles are the subject of much legal and media commentary and are widely applied, there has been little empirical examination of their impact. Our results suggest that both these principles and demographic factors can affect minority representation in congressional districts, but that these effects are quite nuanced. The compactness standard reduces minority representation, leading to fewer majority-minority districts and fewer minority influence districts. On the other hand, the mandate to obtain pre-clearance under Section 5 of the Voting Rights Act increases the number of majority-minority districts, and the requirement to preserve political subdivisions is associated with more minority influence districts. Other redistricting principles appear to have no effect on minority representation in our data.
Two findings deserve special note. First, we find that the impact of redistricting rules is conditional, so that we need to consider these standards in light of the number and distribution of minorities in a state. In particular, highly segregated states with a compactness standard and a large minority population are more likely to create majority-minority and minority influence districts. Second, we found that these districting principles had differential effects across the two models. Compactness had a greater impact on the number of majority-minority districts than it did on minority influence districts; the reverse is true for the political subdivisions rule. Thus, how we operationalize minority influence has some bearing on our substantive conclusions.

Recent court cases make this an important matter. In Page vs. Bartels 2001, a three-judge federal court ruled in favor of a plan that dismantled three majority-minority districts and created four minority influence districts (Hirsch 2002). If future redistricting plans emphasize effective majorities rather than strict numerical majorities (Grofman, Handley, and Lublin 2001), our analysis indicates that some factors, such as Section 5 of the Voting Rights Act, will become less important in enhancing minority representation while others, such as the use of a political subdivisions rule, will become more important. Regardless of how minority political influence is defined, however, our results indicate that at least some traditional and ostensibly race neutral redistricting principles can have significant effects on minority representation.
Appendix: Measuring Racial Segregation with the Index of Dissimilarity

The Index of Dissimilarity (ID) is the summation of vertical deviations between the Lorenz curve and the line of perfect equality (Slack and Rodrigue 2004). The ID ranges from 0 to 1, and the closer it is to 1, the more dissimilar the distribution of the measured characteristic is from the line of perfect equality. The formula for creating the ID is:

\[
ID = .5 \sum_{i=1}^{N} |X_i - Y_i|
\]

Consider the following example using the ID to measure racial segregation in New Hampshire:

| County   | Total Population | Black Population | % Black in County (Y) | Equal Distribution (X) | |X-Y| |
|----------|------------------|------------------|-----------------------|------------------------|---|---|
| Belknap  | 56,325           | 151              | 0.02                  | 0.10                   | 0.08 |
| Carroll  | 43,666           | 69               | 0.01                  | 0.10                   | 0.09 |
| Cheshire | 73,825           | 250              | 0.03                  | 0.10                   | 0.07 |
| Coos     | 33,111           | 36               | 0.00                  | 0.10                   | 0.10 |
| Grafton  | 81,743           | 419              | 0.05                  | 0.10                   | 0.05 |
| Hillsborough | 380,841   | 4,493            | 0.54                  | 0.10                   | 0.44 |
| Merrimack| 136,225          | 688              | 0.08                  | 0.10                   | 0.02 |
| Rockingham | 277,359      | 1,497            | 0.18                  | 0.10                   | 0.08 |
| Strafford| 112,233          | 658              | 0.08                  | 0.10                   | 0.02 |
| Sullivan | 40,458           | 93               | 0.01                  | 0.10                   | 0.09 |

Index of Dissimilarity = (.5 * 1.03) = .52

In this example there is an unequal distribution of African Americans with Hillsborough County accounting for 54% of the state’s blacks. As result, the ID for racial segregation in New Hampshire is a moderately high .52.
We were concerned that the variation in the number of counties in each state (mean = 67; s.d. = 48) might compromise the comparability of state-level IDs. However, when we regressed the racial segregation ID on state population and the number of counties in a state, neither coefficient was statistically significant ($p = .95$ and .25, respectively).
Endnotes

1. In *Easley v. Cromartie* 2001, the Supreme Court ruled that political, but not racial, considerations may be used in the creation of legislative districts.

2. None of these principles are mentioned explicitly in the United States Constitution (Canon 1999, chapter 2; Altman 1998b), although some, such as contiguity and compactness, were once mandated by federal law (e.g., the Apportionment Act of 1901).

3. Some entire states are subject to pre-clearance, while in others, only certain sections of the state must obtain pre-clearance. Section 5 of the Voting Rights Act remains in effect through 2007, at which point it will sunset if not renewed. Redistricting plans also have been challenged under Section 2 of the Voting Rights Act, which prohibits any state from abridging the right to vote on the basis of race.

4. Seven states (Alaska, Delaware, Montana, North Dakota, South Dakota, Vermont, and Wyoming) have a single at-large congressional district, so they are excluded from our analysis. We compiled Table 1 using information from state constitutions, statutes, and the written guidelines of state redistricting commissions (see Jerit, Gottemoller, and Barabas 2003 for details).

5. Failure to incorporate the size of the Latino population in our measure of racial minority influence would lead us to overestimate the proportion of blacks needed to elect black-preferred candidates, especially Democrats. Of course, Latinos do not vote as reliably for Democratic candidates as do blacks (Abramson, Aldrich, and Rohde 2002; Flanigan and Zingale 1998). Cuban Americans, in particular, tend to vote Republican.

6. We obtained demographic data on congressional districts from the Center for Voting and Democracy (http://www.fairvote.org/) and the National Committee for an Effective Congress.
For the six states for which these organizations did not have demographic data, we obtained the data from the United States Census, state librarians, or state officials involved in the redistricting process. These data are identical (after rounding) to figures reported in *Politics in America 2004* (Hawkings and Nutting 2004).

7. Maine redistricted in 2003. Also in 2003, the political parties in some states (e.g., Texas, Colorado, Pennsylvania, and Georgia) tried to redraw their 2001-02 congressional district lines. Lawsuits are pending in several of these states.

8. According to Harrison and Weinberg (1992), the ID is the most widely used measure of spatial distribution. See the Appendix for more information on calculating the ID. Data for these calculations were obtained from http://www.psc.isr.umich.edu/.

9. Although some states use bipartisan redistricting commissions, in nearly 80 percent of the states, the legislature plays the primary role in the congressional redistricting process (Barone, Cohen, and Cook 2001). In addition, the Governor in 84 percent of the states has some type of veto power in the process (Barone, Cohen, and Cook 2001). In most states, then, state-level elected officials have both the incentive and institutional means to act on their political preferences.

10. In our dataset, both dependent variables range from 0 to 13, with a mode of 0. Related techniques, such as negative binomial regression and zero-inflated versions of Poisson and negative binomial models (Long 1997), were tested but rejected as unnecessary since the dispersion parameter and terms in the inflation model were not statistically significant.

11. For example, the contiguity and communities of interest standards have a Pearson’s $r$ correlation statistic of $.59 (p < .01)$, while incumbent protection and political subdivisions are
correlated at .49 ($p < .01$). Multicollinearity might exacerbate the already low power of the study (Cohen 1988) and lead to Type II errors.

12. With the exception of the variable that is being manipulated, the values of all other variables in the model were held at their mean. We used Clarify (King, Tomz, and Wittenberg 2000) to generate these predicted values.

13. We explored the interactive effects of these variables through predicted probabilities. Interaction terms in our models were not statistically significant, which we attribute to the small number of cases.

14. We used the minimum and maximum level for states in our dataset for minority population proportion and racial segregation.

15. We consulted Summary File 1 (SF-1) for 1990 and 2000, which is archived at the United States Census Bureau’s webpage (http://www.census.gov/).

16. We did not enter total population directly into the model because of our concern with multicollinearity. However, in earlier analyses, we examined the effect of redistricting standards on the percentage of majority-minority and minority influence districts in a state and found similar results.

17. In other analyses, we included in our models a measure of media attention to the redistricting process as a rough proxy for adherence to legal requirements. The impact of this variable was inconsistent across the two models. The lack of cases and cross-sectional nature of our data do not permit us to sort out the direction of causality here, so we opted to exclude this variable from our analysis. Most importantly, however, including the media variable does not alter the main substantive findings reported in this article.
References


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Table 1. Principles Governing Redistricting in the United States Following the 2000 Census

<table>
<thead>
<tr>
<th>State</th>
<th>Contiguity</th>
<th>Communities of Interest</th>
<th>Political Subdivisions</th>
<th>Prohibit Incumbent Protection</th>
<th>VRA §5</th>
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Total: 27 16 21 8 15 10 19

Note: A "X" means that the state is governed by the principle in that column. This information was obtained from state constitutions, statutes, and state redistricting commission guidelines. Six states were not listed because they each have only one congressional seat, and therefore have no need to draw congressional districts.
Table 2. The Effects of Redistricting Principles and Demographic Factors on Minority Representation in Congressional Districts following the 2000 Census: Poisson Regression Estimates

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<th>Minority Influence Districts</th>
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Log-Likelihood: -44.70; N = 43

Note: The dependent variable in these models is the number of majority-minority or minority influence districts, respectively, in a state. The marginal effects are the partial derivatives with respect to a given independent variable evaluated at the mean. See Long and Freese (1997) for details on marginal effects calculations.

* \( p < .05 \) (two-tailed).
Figure 1. The Effects of Redistricting Principles and Demographics on the Number of Majority-Minority Districts in a State

Panel A: Compactness Rule

Predicted Probability

Number of Majority-Minority Districts

Panel B: VRA Section 5

Predicted Probability

Number of Majority-Minority Districts

Panel C: State Minority Composition

Predicted Probability

Number of Majority-Minority Districts

Panel D: Racial Segregation

Predicted Probability

Number of Majority-Minority Districts

Note: Predicted probabilities were calculated using Clarify (King, Tomz, and Wittenberg 2000) based upon the model estimates in Table 2. State minority composition is the sample minimum and maximum for the percentage of blacks and Hispanics in the states. Racial segregation is the sample minimum and maximum of the Index of Dissimilarity (see text for details).
Figure 2. The Effects of Redistricting Principles and Demographics on the Number of Minority Influence Districts in a State

Panel A: Compactness Rule

Panel B: Political Subdivisions Rule

Panel C: State Minority Composition

Panel D: Racial Segregation

Note: Predicted probabilities were calculated using Clarify (King, Tomz, and Wittenberg 2000) based upon the model estimates in Table 2. State minority composition is the sample minimum and maximum for the percentage of blacks and Hispanics in the states. Racial segregation is the sample minimum and maximum of the Index of Dissimilarity (see text for details).
Figure 3. The Effect of Racial Segregation in States with a High Minority Population and a Compactness Rule

**Panel A:**
Majority-Minority Districts

**Panel B:**
Minority Influence Districts

*Note:* Predicted probabilities were calculated using Clarify (King, Tomz, and Wittenberg 2000) based upon the model estimates in Table 2. For these predicted probability calculations, state minority composition is set to the sample maximum and the simulation assumes a compactness rule. The bars show the predicted probabilities for the number of congressional seats as the level of racial segregation varies from the sample minimum to maximum on the Index of Dissimilarity (see text for details).