Comment: Conceptualization, Measurement, and the Analysis of Representation in Electoral Systems Undergoing Structural and Social Change

Michael A. Krassa and Bryan Combs, *University of Illinois*

Understanding the consequences for democracy and representation of various electoral structures has never been easy. Scholars from the Reverend Dodgson to Kenneth Arrow to Gary King have all undertaken theoretical and empirical studies of the comparative strengths and weaknesses of different electoral arrangements, yet these debates continue with no resolution in sight. Empirical studies often cannot distinguish social from structural effects, while analytic studies often make assumptions that diminish our ability to apply the findings to any real world comparison.

Such enterprises are most difficult when the electoral systems under consideration are concurrently in the midst of structural, social and issue evolution. The two preceding papers undertake a difficult task; i.e., separating the consequences of structural change from those of social change in the US South during a period of great flux in racial and partisan power relations. Much of the disagreement between these two analyses—and perhaps some of the agreement as well—can be attributed to the conceptual and methodological difficulties of the enterprise they undertake.

The two key questions addressed are: 1) which party benefited from the change to single-member districts, winner-take-all elections, from various multimember district electoral formats, and 2) which party benefited from redistricting?

Multimember vs. Single-Member Districts

The US experience with the multimember districts is a curious one. Jewel and Breaux attempt to show that in the US South, the transformation to the single-member district electoral method advantaged the minority parties over their experience with multimember districts. It is clearly true

MICHAEL A. KRASSA is Professor of Political Science at the University of Illinois.
BRYAN COMBS is a doctoral candidate and research assistant in the Department of Political Science at the University of Illinois.

that concomitant with the elimination of multimember districts throughout much of the South, more Republican candidates were elected to serve in state legislatures. How much of this change is attributable to the change in the structure of the electoral system, versus how much may be attributed to redistricting (cum gerrymandering), and how much is due to changes in the partisan balance of power remains an open question.

To answer this question Jewel and Breaux compare the number of legislative seats won by each political party to the votes that party received in the election. One assumption of any analysis using partisan voting percentages compared to the seats won as a measure of representation is that the structural changes imposed on the system do not alter turnout. In other words, there is an implicit assumption that the voting population remains constant across elections, although the electoral structure is altered. However, analytically it appears plausible that an alteration in the structure of the electoral system could systematically change the turnout of various groups within the society. The process of gerrymandering districts could create districts in which one party does not have a realistic chance of winning the election and therefore turnout by the minority party within the districts would decrease. Moreover, multimember districts increase the number of candidates on the ballot and therefore possibly increase the likelihood that any individual might be able to find a candidate they would support to the degree that they would go to the polls and vote.

Therefore, not only is there a problem in sorting out the social from the structural changes that occur in the voting process, but it is also very difficult to find an empirical measure to adequately embody the theoretical concept of representation. Comparing seats to votes is a place to start, but more evidence must be obtained before it can be accepted as a adequate measure of group representation, especially in the United States in which turnout is hovering around 50% of the population.

Secondly, one must address the not so simple question of defining the change from multimember to single-member districts. We discover one reason why Jewel and Breaux find that single-member districts advantage minorities is their conception of multimember districts. This finding is significant because much of the theoretical literature suggests that minorities are more successful in elections that are not winner-take-all single-member type (Schofield 1981; Balinski and Young 1982; Taagepera and Shugart 1989; Butler and Cain 1992). One reason for this discrepancy between the theoretical literature and Jewel and Breaux's findings arises from their definition of what constitutes a single-member district. If one defines this as a district in which each electoral contest selects only one winner, the one with the most votes, then one would be forced to conclude that a large

number of cases in their analysis are essentially misclassified by a theoretical standard. Specifically, the electoral form known as the positional multimember district is more properly coded as a variation of the single-member district. These are really best identified as large, single-member districts because each party contests each seat separately, and the winner gets the seat. The confusion occurs easily since there are several districts with the same boundaries, and therefore it looks something like a multi-member district. However, each position is a single race—declared for and contested separately, each "position" is a single-member district in exactly the same way that the two US Senate positions in a state are usually considered single-member districts (even on those occasions when both seats are up at the same time).

To understand why the change from this form of district (i.e., the "positional multimember district") to several small single-member districts advances minority representation, consider the following example. Take a region in a state that has five legislators and a partisan division favoring party A over party B by a moderate margin. In a setting where the legislators are elected from the region in five separate "positional" contests over the whole region, the majority party typically will win each race in which it puts up a candidate. When this region changes from five identical districts to five exclusive or non-overlapping districts, several things occur that increase the chances that a minority party may gain some representation.

First, as the electoral unit becomes smaller, races often become less expensive and easier for minority challengers to contest; in addition, it becomes easier to organize and run a "grass-roots" campaign across the entire district, again assisting candidates who may be less well financed (Wollock 1980). Most important, however, is the fact that among these smaller districts there may be some in which the regional minority is concentrated; the smaller districts may not uniformly dilute pockets of minority strength. Even if the two groups (in this case, party A and B partisans) are randomly dispersed over the geography, the division of the area into smaller districts increases the likelihood that there will be some districts where the regional minority is large enough to secure representation in the legislature, either by holding a majority or by being strong enough to be competitive within the district. This is especially true if the lines of the smaller district are not gerrymandered, but are drawn with regard to natural divisions or communities, are compact, and are relatively comparable to one another in size (see, among others, Balinski and Young 1982; Nagel 1971; Schofield 1981; Cain 1985).

This example describes approximately the transition that took place in a large fraction of the cases where states switched from "positional" races

with large districts to the small single-member districts. Smaller districts, ceteris paribus, almost always enhance minority representation in a body (Bonapfel 1976; Cain 1985; Butler and Cain 1992). The important new feature is not, in most of these cases, the change from multimember districts to single-member ones. The important change is the division of the larger but overlapping districts into smaller unique districts. The smaller districts do not dilute minority concentrations as surely as do large districts.

Thus, one important point is to note that the way the positional districts are defined as multimember may drive some significant portion of the finding that single-member districts offer more representation to minority groups. Jewel and Breaux note that the positional system is least likely to yield Republican (minority) representation; they fail to note precisely why. It is simple district size. The comparisons between single-member and the free-for-all forms of multimember districts show much less impressive gains by Republicans when election laws change. Here, the Southern data are sketchy, but the gains typically are small, as the authors note. Maryland shows the largest improvement in Republican legislative advancement, but the numbers of single-member districts are too small to draw any conclusions. When South Carolina had both single-member and free-for-all multimember districts, the Republicans actually fared better in the multimember district system, as one might expect given minority advantages under this particular multimember representational system (Brady and Grofman 1988). In Virginia and North Carolina the single-member districts appear to favor Republicans more than did the multimember districts, but again the differences and numbers of cases are too small to offer any conclusions. Thus, much of the conclusion that single-member districts advantage minorities comes from the fact that positional multimember districts disadvantage them.

While it is clearly true that Republicans gained more legislative representation in the South about the time these states switched more and more to single-member districting systems, it is not at all clear that the cause of the increase was the change in the electoral system. Other factors, such as the size of districts, gerrymandering, and simultaneous social change may not be ruled out as the driving forces in this finding. One should also keep in mind that the peculiar systems of "multimember districts" used in the U.S. South account for some of this change; many forms of multimember districts are explicitly designed to secure representation for minorities. The experiences in most systems of proportional representation in various countries, or with cumulative voting that has been used in some states, all illustrate how multimember districts may advantage rather than hinder minority representation.

One important illustration of the Jewel and Breaux study is the ability of nations to alter the representational ratio of government by altering the size of districts. The increase in minority representation need not rely on the transforming of the structure of electoral systems. The comparison between positional multimember districts and single-member districts reveals that representational change can be generated simply by altering the size of the districts. The study also provides a cautionary tale about comparing types of electoral systems. Although electoral systems can be fit into typologies such as single-member and multimember district systems, it is dangerous to make blanket conclusions about the representational nature of these typologies. It is the individual details of the systems that characterize their representational character and to gain information about the representational nature of any electoral structure one must consider numerous factors idiosyncratic to the system. Therefore, to question whether multimember districts provide fairer representation than single-member districts is not the appropriate question. Instead, scholars must compare the representational characteristics of specific sets of electoral structures.

Swing Ratios and Bias

Aistrup attempts to measure the political impact of both gerrymandering and the structural change from multimember to single-member districts in the South. To accomplish this task, he utilizes the swing ratio and bias as measurement tools to identify shifts in electoral support. The contention is that the higher the swing ratio, the larger the inequality between a party's support and their representation. Bias represents the asymmetry in a system. If one political party possesses a structural advantage over the other in the electoral system, then there is bias in the system. Aistrup uses these two measures to gain insight into changes in the electoral system.

The first empirical analysis undertaken by Aistrup is to compare swing ratios and bias in Southern states before and after redistricting periods. By doing this Aistrup tests whether the majority party can effectively utilize its control over the redistricting process to enhance its electoral advantage. One difficulty in the analysis of gerrymandering in this manner is the elimination of time from the analysis. By grouping the time periods between redistricting together, one encompasses changes caused by other mechanisms within the period of redistricting, greatly complicating the analysis by requiring the analyst to separate the effects of the two sources of change. Therefore, other structural and social events that impact the swing ratio and bias are absorbed by the gerrymandering analysis and are included in one's findings.

The elimination of time could be a major problem. The King and Gelman (1991) study of the US national legislature indicates that the swing ratio and bias trend over time with no major structural breaks indicate the presence of gerrymandering. King and Gelman examine a different population than Aistrup, which means that different phenomena are occurring, but the methodology used by King and Gelman offers a more precise evaluation of the time frame in which events are occurring and it illustrates how trends might be mistaken for gerrymandering if one collapses across time periods.

If a time serial methodology is used, it is easier to identify a structural break at the appropriate time point, and thereby one avoids grouping time related changes with any change due to district restructuring. There continues to be the assumption that the change, at the appropriate time, is due to the redistricting process, but at least it restricts the time of the change to the redistricting period.

We find also that the interpretation of the swing ratio is problematic, both in the case of gerrymandering and single versus multimember districts; the contention that a decreasing swing ratio indicates a Democratic entrenchment is not as clearly supported as it might seem. The rationale for this interpretation is that a decrease in the swing ratio is detrimental to Republicans because it protects incumbents.

However, an increasing swing ratio should be the sign of Democratic gerrymandering or incumbency advantage. Therefore, the characterization of a decreasing swing ratio as harmful to the Republican party is likely incorrect. From the formula given by equation 1, below, we see that if in one election the Democrats received 60% of the vote when swing ratio was three, the Democratic party would win approximately 77% of the seats in a unbiased election. Now assume that in a subsequent election the Democrats receive only 55% of the votes. For the Democrats to maintain 77% of the seats the swing ratio would have to increase to six. Therefore, as long as the Democrats are the majority party, an *increased* swing ratio would be evidence of Democratic entrenchment in the face of increasing Republican support, as increasing swing ratios are the way to maintain legislative power in spite of sliding popular support. Thus, under conditions of Democratic majorities, an increasing swing ratio is detrimental to Republicans, while a decreased swing ratio would accelerate Republican seat gains over their popular gains.

$$\left(\frac{DemVotes}{1-DemVotes} \right)^{swingratio} = \frac{DemSeats}{1-DemSeats}$$

(Eq. 1)

Moreover, the interpretation of the swing ratio does not reflect the cause of the change. Whether the increased swing ratios can be attributed to gerrymandering by the Democratic party or the increased power of incumbency with the Democratic candidates entrenched in office is uncertain. What can be deduced from the increased swing ratio is that as the swing ratio increases there is a reduction in the representation of the minority party in comparison to votes cast.

Conclusion

The research presented in these papers (Aistrup, and Jewel and Breaux) admits the limitations of studies attempting to resolve the chronology of events in the US South over the past 30 years. Both articles made an attempt to provide insight into the tumultuous political climate in the South and sort out political alterations that affected representation. The limitations of the studies do not overwhelm the knowledge that they provide, but the difficulties in examining the moving targets of simultaneous structural and social change challenge us to be vigilant in our methods and our interpretive discussions.

Republican advancement in the South is not in question, as the research by Jewel and Breaux and Aistrup clearly demonstrates. However, the sources of that advancement is not at all clear. That one change in methodology or operationalization can force a reinterpretation of the substantive conclusions demonstrates what a slippery subject voting system analysis is for the researcher. When changing some cases from one category to another forces us to change our view of whether it was the voting method or the district size that improved Republican representation in a legislature, it shows how far we truly are from a full scientific understanding of the interactive nature of social and structural change. These events, witnessed first hand by most of us, still defy our full understanding. We find we cannot identify singluar sources of change easily in this case.

REFERENCES

Balinski, Michael, and H. Peyton Young. 1982. *Fair Representation: Meeting the Ideal of One Man, One Vote*. New Haven: Yale University Press.

Bonapfel, Paul D. 1976. Minority Challenges to At-Large Elections: The Dilution Problem. *Georgia Law Review* 10:353-390.

Brady, David, and Bernard Grofman. 1988. Swing Ratio, Bias, and the Decline in Electoral Competition in U.S. House Elections, 1850-1980. Unpublished Manuscript. Irvine: School of Social Sciences, University of California.

Butler, David, and Bruce Cain. 1992. *Congressional Redistricting: Comparative and Theoretical Perspectives*. New York: MacMillan Publishing Co.

Cain, Bruce. 1985. Assessing the Partisan Effects of Redistricting. *American Political Science Review* 79:320-333.

King, Gary. 1989. Representation Through Legislative Redistricting: A Stochastic Model. *American Journal of Political Science* 33:787-824.

King, Gary, and Andrew Gelman. 1991. Systematic Consequences of Incumbency Advantage in U.S. House Elections. *American Journal of Political Science* 35:110-138.

Nagel, Stuart. 1971. Computers: The Law and Politics of Redistricting. *Rutgers Journal of Computers and Law* 2:13-21.

Niemi, Richard, and John Deegan. 1978 A Theory of Political Districting. *American Political Science Review* 72:1304-1323.

Schofield, Norman. 1981. The Relationship Between Voting and Party Strength in an Electoral System. In M.J. Holler, ed., *Power, Voting, and Voting Power*. Wurzburg, Germany: Physica-Verlag.

Taagepera, Rein, and Matthew Soberg Shugart. 1989. *Seats and Votes: The Effects and Determinants of Electoral Systems*. New Haven: Yale University Press.

Uslaner, Eric. 1978. Comparative State Policy Formation, Interparty Competition, and Malapportionment: A New Look at V.O. Key's Hypothesis. *Journal of Politics* 40:409-432.

Sundquist, James. 1992. *Constitutional Reform and Effective Government, 2nd Edition*. Washington, D.C.: Brookings Institution.

Wollock, Andrea J. 1980. *Reapportionment: Law and Technology*. Washington, D.C.: National Conference of State Legislators.