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REDISTRICTING AND REPRESENTATION

By

Michael H. Crespin

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Political Science

2005

ABSTRACT

REDISTRICTING AND REPRESENTATION

By

Michael H. Crespin

In this dissertation, I use redistricting to test the bonds of representation between members of Congress and their constituents. Throughout the dissertation I use geographic information systems (GIS), a tool that has yet to be fully exploited in political science. First, I demonstrate how redistricting can make a district more or less competitive depending on how much the district changes in terms of the number of new constituents, and their general political leanings. Then, I show how a member's behavior changes to adapt to her new constituency, but only when voters are paying attention. Finally, I illustrate how redistricting influences fundraising from individual contributors who reside in a different district after the boundaries change.

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**This dissertation is dedicated to the Political Institutions and Public Choice program –
an institution that matters.**

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Chapter 1 - Introduction

In this dissertation, I seek to better understand the link between constituents and their elected representatives. Since elected officials in the United States represent a specific geographic area such as a congressional district, this variable will play an important role in understanding the relationship. In many cases, geography is not a variable precisely because it does not vary, hence it cannot explain much. However, and more specific to this dissertation, there are times when the boundaries change and this provides a unique opportunity to study members of Congress and their constituents. In this dissertation, I will study how redistricting influences members and constituents in the electorate, in government and in organization.

In three essays, I will explore this topic. In the first essay, I introduce a better measure of district change using geographic information systems (GIS) and study the effect of redistricting on electoral competition. The new measure will provide details of where the new population in a district came from and how the old population is distributed within new districts. I will then use the measure to demonstrate the independent and interactive influence of district change on competition in congressional elections.

In the second essay, I will use partisan theories of legislative government (Rohde 1991, Cox and McCubbins 1993) to predict changes in members' voting behavior after their districts have changed. I will show how member's behavior changes after redistricting. Downsian models of representation tell us that members of Congress should modify their voting behavior in the direction of a changing district median. Other partisan theories of representation, such as cartel theory, suggest that members

take more than district preferences into account before casting a vote. The theory assumes that party can pressure members to vote against their district if it is important to the party. More specifically, the party pressures members more on procedural motions compared to votes on substance. If Downsian theory is correct, then it follows that as a member's district median moves, she should modify her behavior on final passage votes in the direction of the change. If the party cartel model is accurate and party exerts influence over procedural matters, then it also follows that changes in the district should not be related to shifts in voting on partisan procedural motions.

In the final essay, I will use redistricting as a quasi-experiment to uncover geographic patterns of campaign contributions across different types of contributors. I will show that a member's ability to raise funds is a function of the supply and demand of contributors. Then I will demonstrate that after redistricting, members will earn less from areas that have been drawn out of their district, but they will see an increase in contributions from new areas of the district. Finally, I provide evidence that Democratic and Republican incumbents are influenced differently after redistricting.

Chapter 2 - Using Geographic Information Systems to Measure District Change, 2000-02

Introduction

How can we improve on our current understanding of the redistricting process? One way is by using the same tools that states use to draw district boundaries to create better measures of district change. In this brief research note, I outline how to use geographic information systems (GIS) to create a continuous measure of district continuity and change.¹ The primary goal of this analysis is to track the changes in the populations of congressional districts in the pre- (2000) and post-redistricting (2002) years using basic GIS techniques. The measure allows us to precisely state the fraction of constituents in district d in election year y has candidate c as the incumbent.

Previous Measures of Redistricting

As mandated by the U.S. Supreme Court following *Baker v. Carr* (1962), *Wesberry v. Sanders* (1964) and *Reynolds v. Simms* (1964), states must redraw district boundaries every ten years to ensure equality of representation. Soon after the initial rounds of redistricting, political scientists have tried to determine the influence of district changes on competition (Erikson 1972 and Tufte 1973), patterns of turnover (Bullock 1975), and more recently, challenger entry and incumbent exit decisions (Cox and Katz 2002 and Hetherington, Larson, and Globetti 2003).

Previous research has measured redistricting in different ways. The recent accounts of redistricting by Cox and Katz (2002)², Hetherington, Larson and Globetti (2003) and others measure redistricting with a simple dichotomous variable when the boundaries

¹In particular, I use Arc/Info 8.3 workstation for spatial analysis and ArcMap 8.3 to display the resulting shape files.

² Cox and Katz (2002:15-18) discuss a similar continuous measure but only use it sparingly.

are changed. In contrast, some are concerned with "major" redistricting as defined by some professional source such as Congressional Quarterly (see, e.g., Jacobson and Dimock 1994). Finally, Carson, Crespin, Finocchairo and Rohde (2004) go one step further and rely on county level maps to classify districts as "continuous" if 50 percent or more of the population is shared between the old and the redrawn district and "new" otherwise.

While each of these measures are valid, and have provided us with many useful insights into the effects of redistricting, it is now possible to move beyond simple dichotomous measures of redistricting and adapt the same techniques used by the states to draw district boundaries. This is important since, as scholars have pointed out, there are advantages in paying attention to measurement when trying to capture abstract concepts (Zeller and Carmines 1980, Jacoby 1991). In this case, the concept is changing district boundaries, but the measures to date have not indicated to what extent the districts have actually changed. It is now feasible to use geographic information systems (GIS) programs such as ARC/Info in combination with boundary shape files and census data to produce continuous measures of district continuity and change.³

Data and Methods

Creating a continuous measure of district change requires only simple spatial techniques and readily available census data.⁴ The data include district and census tract boundary files that are then combined with population tables for the tracts within each

³ ARC/Info is one of several programs that can be used to manipulate, explore and display data that is spatial in nature.

⁴ Creating a continuous measure is so simple, in fact, that the only ARC/Info commands used to create the measure are `intersect` and `union`. See Bolstad (2002) for an introduction to GIS and spatial analysis.

state.⁵ Along with the coordinates in each file is a polygon attribute table that provides data for each shape (i.e. district or tract) including the area and perimeter of each polygon as well as an identification code that matches up polygons with congressional district and census tracts.

The steps to create the measure are demonstrated in Figure 1, using Iowa as an example.⁶ The first step in the process is to spatially intersect the district boundary files for the 107th (labeled A in Figure 1) and 108th (B) Congresses. This new shape file is then overlaid on top of the census tract file (C).⁷

The result (D) includes three types of census tracts.⁸ The first types of tracts deemed “continuous” appear in both the new and the old districts. Second, I define “new” tracts as those that have been drawn into the 108th congressional district and, finally, “old” tracts that have been drawn out of the 107th districts after redistricting.⁹ The new

⁵ The 2000 census data used in this paper are available at www.census.gov. A cartographic boundary file is a series of coordinates that ARC/Info can read to produce a visual depiction of the shape.

⁶ This state provides an interesting case study because of the degree of district change produced by the non-partisan redistricting commission.

⁷ According to the census, tracts are small, relatively permanent statistical subdivisions of a county with populations ranging from 1,500 to 8,000. The tracts grow smaller in dense urban areas making it possible to measure change in all districts.

⁸ Since some tracts do cross district boundaries, some post-processing of the data is necessary. Further, spatial analyses such as intersect and overlay frequently create small spurious polygons called “slivers” which are an artifact of imprecise overlay (Bolstad 2002:398). The result in the attribute tables are the repeated listing of tracts with the same tract id (and population), but with different areas. To erase these slivers and place tracts in the appropriate district if there was an overlap, I dropped all of the repeated tracts except for the one with the largest area. This technique produced a final attribute table that had only one unique entry for each of the original census tracts.

⁹ This means that a tract can be simultaneously new for one district and old for another. Terms like new, old and continuous are really a mental short-cut for ways to think about tracts. An alternative way to think about tracts would be to identify each tract with a double (i,j) with *i* identifying the district number in the old scheme and *j*

attribute table, which is automatically updated by Arc/Info, makes it relatively easy to identify continuous, new and old tracts since each tract has an identifier that labels where it resided in both the 107th and 108th congressional districts. To produce a measure of change (continuity), simply divide the population for the new (continuous) tracts by the total population of the district. The final results are actually two measures of change or continuity. The first tells us what happened to the population of the 107th districts while the second reports where the population came from for the new 108th districts.

Technical Details

In this section, I will provide a bit of a technical description for creating the data within the GIS software. The initial step is to download the district boundary files and the census tract files from the United State census web-page at <http://www.census.gov>. The easiest version to start with is the one with the .e00 file extension. In this analysis, I performed the spatial intersections separately for each state; however, one could use the `mapjoin` command to combine each of the states at any point of the process. The `mapjoin` command is similar to most of the basic Arc/Info commands in that it requires the user to “tell” the program the names of the two input files (the files that are to be joined) and then give a new name for the output file (the file that was created by the particular command).

In order to get the data into Arc/Info, one must first use the `import` command. The syntax for this command is `import AUTO <input file name> <output`

identifying the district number in the new scheme. In fact, this is essentially how they are treated in the dataset.

file name>.¹⁰ This command needs to be run for each of the district and tract boundary files. Then, the next step is to intersect the files for each state. I initially intersected the pre-redistricting (107th Congress) files with the post-redistricting (108th Congress) boundary file. Similar to the other commands, the syntax is intersect <pre-redistricting file name> <post-redistricting file name> <output file name>. Then, this new boundary file is intersected with the census tract file with similar syntax.¹¹

Once the spatial analysis is completed the post-processing mentioned in footnote eight must be performed. This is due to the fact that census tract boundaries cross district boundaries and intersections in general tend to produce small areas called slivers. Slivers are defined as by Boldstad (2002:398) “small, spurious polygons at the margins or boundaries of feature polygons that are an artifact of imprecise digitizing or overlay.” To remove the slivers and other extraneous polygons, I exported the polygon attribute table (PAT) into the statistical package Stata as it is better suited for this task. Essentially, this file needs to be edited so each census tract is identified as residing in only one district at each point in time. Of course, the tract could be in the same district during both time periods, or reside in different districts before and after redistricting. In order to edit the tracts, I created a Stata .do file that, for any tract listed more than once, kept the listing with the largest area.¹² Now, each tract should be only listed once for

¹⁰ Text inside < > indicates the user provides the name of the files.

¹¹ Since each of the three files, old districts, new districts and census tract files are contained within the state boundaries; intersection and union perform similar tasks. Spatial intersection and union are analogous to the same techniques used in Venn diagrams.

¹² When polygons are edited in Arc/Info, the PAT records and updates the new areas and perimeters.

each time-period. Of course, an alternative approach would be to determine the percent, in terms of area, that each tract overlaps with different districts. This percentage can then be multiplied by the population in each tract and a weighted population average can be computed. For the purposes of this study, however, I decided this step was not necessary.

Once this editing is completed, the boundary files need to be merged with the population files to create the measures of continuity and change. The population data can also be downloaded from the census web-page. It can also be obtained in DVD format from most libraries with a census depository. Similar to most merges, a common identifier across files is necessary. In this case, the census tract number is sufficient. Once the merge is completed, I used the population data for each district to determine what percent of the population came from which district to make up the new district. Alternatively, I can determine the percentage of the population that was drawn out of the district and the new districts where they now resides.

Uses of New Measure

In order to better understand the different measures of district change, refer to Tables 1A, 1B, 2A and 2B that display the results of the spatial analysis for Iowa and New Hampshire. Each of the A tables reads from left to right across the rows and shows the first measure of district change, the distribution of population from the 107th Congressional districts to the new districts in the 108th Congress.¹³ The B tables read from the top down in the columns and display where the population came from for each

¹³ While it may rarely be the case that we would want to know where *voters* have gone, this technique can be used to examine where contributors reside in two different election cycles (see e.g. Crespin 2005).

of the new districts. For example, table 1A shows that 37.93 percent of the population in Iowa's first district in the 107th Congress remained in the first district for the 108th Congress. Meanwhile, the same district lost 62.07 percent of its population to the second district in the 108th Congress. The same population movements can be tracked for each of the other four districts.

Table 1B shows that new district one is made up of 39.13 percent of old district one and 60.87 percent of old district two. This measure also makes it relatively easy to match up new districts with their "parent" districts (see Cox and Katz 2002:107 *fn* 1).¹⁴ Clearly, new district one's parent district is not old district one, but district two since old two and new one share the largest percentage of the population.

In some states such as New Hampshire, redistricting only produces minor changes, as Table 2A and B demonstrate. In fact, the 100 percent in the row for district two in Table 2A means that all of the population in that district remained there during redistricting. Meanwhile, 98.73 percent remained in district one while it gave 1.27 percent away to district two. This demonstrates that district two lost population relative to district one between the 1990 and 2000 census.

As a final descriptive example, the measure can also be used to determine which districts are added to a state as a result of reapportionment. Table 3, read from top to bottom, describes where the population came from to make up the 108th congressional districts for Arizona, a state that gained two seats prior to the 2002 elections. It is possible to identify districts one and four as "new" since they share the smallest

¹⁴ Some districts will not have parents as a result of reapportionment. Depending on the research question, it is also possible for a district to have one or several "children" if districts are added to a state.

population with parent districts from the 107th Congress. Although these examples only make use of basic population counts, they hopefully show the worth of the new measure.¹⁵

Does Change Matter?

The above examples are interesting but they do not mean much if change does not matter. To show the importance of change on election outcomes, I add the new measure of district changes to a basic model of congressional elections (Jacobson 2004). The dependent variable is the change in the margin of victory measured as the difference between the incumbents vote in the 2002 congressional elections to the 108th Congress and the 2000 election, only for contested races in both years.¹⁶ The main independent variable of interest is the percent new (*% new 108th*) for each district before the 2002 election.¹⁷ To be clear, this variable is measured using the same incumbent's district for both elections. Although this measure does not take into account the types of voters who are being shuffled in and out of districts, we do know one thing about them for certain; *they have not been represented by the incumbent*.¹⁸ If part of the incumbency advantage lies in the fact that all an incumbent has to do to win

¹⁵ The district change data are available on the author's web-page, www.msu.edu/~crespinm.

¹⁶ To be clear, this means that for a district to be included in the regression there must be an incumbent facing a major party challenger in *both* the 2000 and 2002 elections. Conversely, open seat races, or races without a major party challenger in either year were excluded.

¹⁷ For example, referring back to table 1B, the value of the variable would be $100 - 60.87 = 39.13$ for district 1, $100 - 64.04 = 35.96$ for district 2, and $100 - 23.79 = 76.21$ for district 3 since Leonard Boswell decided to remain in district three, even though the bulk of his old district is in new district 4.

¹⁸ See Fenno 1977 for a discussion of how members represent different parts of their geographic constituency.

reelection is get all of the voters who voted for her the last time to do it again, then some of the advantage may be taken away if after redistricting, some of those voters no longer reside in the district. In other words, the incumbency advantage is not present for incumbents if the voters are new. For this reason, it is expected that the greater percent new for a district, the greater the decline in the incumbents vote share, all else equal. This is similar to the “personal vote” measure developed by Ansolabehere, Snyder and Stewart (2000).

It is also necessary to control for changes in the underlying political make-up of the district. This is measured by the change in the district presidential vote for the incumbent party’s presidential vote in the district (Δ *Presidential Vote*). This variable is operationalized, for Democratic incumbents, by subtracting Al Gore’s vote in the new 108th congressional districts from his vote share in the old 107th districts as reported by *Politics in America*. For Republican incumbents, the measure is based on the change in George W. Bush’s vote share. Including this control variable allows us to test for the independent influence of district change while controlling for the political nature of the change. As a district becomes more Democratic (Republican) then Democratic (Republican) incumbents should see an increase in their margin of victory. I also include an interactive variable between the percent new in the district and the change in district partisanship. This variable shows not only how much the district changed in terms of population, but also the ideological direction of the change.

The other control variables are standard measures taken from the congressional election’s literature (see Jacobson 2004 for an example). First, I include a dummy variable for *quality challenger* coded one in the presence of a quality challenger (where,

as Jacobson 1980 suggests, previously electoral experience is used as a proxy for “quality”), zero otherwise. There are also controls for the challenger’s and incumbent’s spending. In each instance, the natural log is used (*ln Incumbent spending* and *ln Challenger spending*).¹⁹ There is also a dichotomous variable that records if the incumbent is up for reelection for the first time. This variable, *Freshman incumbent* will control for the any presence of the sophomore surge and *party* (coded 1 for Democrats) will control changes in national trends. Finally I include a dummy variable controlling for *South* defined as the eleven states of the Confederacy. Since the dependent variable is theoretically continuous, OLS is used and Huber-White robust standard errors are used to correct for heteroskedasticity.

Table 4 displays the results of the regression. The negative and significant coefficient on *percent new 108th* is evidence that the more a district changes, the incumbent’s vote share declines. Although the coefficient on the change in presidential vote is not significant, the interaction between *percent new* and *presidential vote* is significant and in the expected direction. If the district changes in terms of population and that change is in the direction of the incumbent’s party, then the incumbent’s vote share increases.²⁰

In terms of the control variables, the more a challenger spends, the greater the decline in the incumbent’s vote share (Jacobson 2004). The party variable suggests that

¹⁹ I employ the convention adopted by Jacobson (1980) in assuming a minimum of \$5000 spent by each candidate.

²⁰ A joint hypotheses test between the three variables is significant at $p < .001$. I also examined scatter-plots and added-variable plot to check for non-linearity and did not uncover any.

the Republicans did better in 2002 compared to 2000. Freshman incumbents also did better in there second election, as expected.

Advantages of New Measure

The most obvious advantage of this new measure is that it provides more information than previous measures of district change. As mentioned above, previous measures could at best tell us if the district was 50 percent new, or not. The measure developed here was also created using equipment specially designed for the task. Previous scholars within political science who attempted similar types of analyses used counties, instead of census tracts, as the smallest geographic unit. Since tracts are much small than counties, this measure is likely more accurate. It is also possible to obtain measures for urban areas, something that is difficult when counties are used since multiple congressional districts are frequently contained within a single country. If the urban districts are not included in any subsequent statistical analysis, the results of the analysis may be biased. The bias may stem from districts being excluded in a deterministic, rather than random fashion.²¹

Another use of the new change, and one that is exploited throughout this dissertation, is to use it in a “quasi-experimental” fashion. That is, we can take a set of actors and expose them to some sort of treatment. In this case the treatment is a change in their congressional districts. By taking measurements before and after the treatment, the influence of the changing district boundaries can be determined. If the only available measure was the dichotomous redistricted yes/no, then this type of analysis would be

²¹ Of course, this is an empirical question and it is possible that results may not change by excluding these districts.

essentially meaningless because at most, only nine districts would be coded as not having undergone any change and there would be little variation within the data.²² In the chapters to follow, I will use the new measure to determine how members of Congress change their behavior in response to changes in the district. By measuring how much the district changes in terms of population, I can better capture the degree of uncertainty a member may have about the political change in a district. That is, if a member's district changed a great deal in terms of population, it may be more difficult for the member to determine the new political make-up of her district. However, if the district is only slightly new, it may be easy for the member to know if the new district moved in a liberal or conservative direction.

In the final empirical section, I use the measure and techniques more directly by tracking the geographic areas of individual campaign contributions. That is, I can determine if a contribution came from inside the member's district, inside the member's state, or outside the state. I can then test to see if members are able to earn contributions from areas that are new to the district, or areas that have left the district. The more a district changes in terms of population, the more a member should lose from areas that used to reside in the district. In contrast, the more a district changes, the more chances a member has to earn contributions from new constituents. In sum, this new measure of district change appears to have many uses within political science.

Conclusion

This chapter provides evidence that not all redistricting should be treated equally and offers an example to better measure district change. As illustrated above, the results

²² The nine districts are the seven single states plus the two Maine districts as Maine waits an additional election cycle to change its district boundaries.

suggest that this change can have an influence on the margins of victory in congressional races. If members wish to remain in office, they will need to adjust their homestyle accordingly (Fenno 1977).

More importantly, this note provided a new way to measure redistricting that can be used to answer other interesting questions. For example, the measure can be used in future research to track changes in member behavior before and after redistricting. As members pick up different types of voters, we would expect them to change their voting behavior accordingly. This measure allows us to learn where the new voters came from, and with the addition of other demographic census data, make predictions about how members will react to their new constituents. We can also move beyond voting and learn how potential campaign contributors will behave in response to their new representatives. Finally, we can also determine if different types of plans, i.e. Democratic plans or judicial plans differ in there propensity for change. Using this new measure, these questions may now be easier to answer.

Table 2A Displacement of Iowa's 107th Congressional Districts into 108th

		108th Congressional Districts					
		1	2	3	4	5	Total
107th Congressional Districts	1	37.93	62.07				100
	2	62.63		12.56	24.81		100
	3		36.68	24.27	27.89	11.16	100
	4			60.28	8.81	30.90	100
	5				41.07	58.93	100

Table 1B Continuity of Iowa's 107th Congressional Districts into 108th

		108th Congressional Districts				
		1	2	3	4	5
107th Congressional Districts	1	39.13	64.04			
	2	60.87		12.21	24.11	
	3		35.96	23.79	27.33	10.94
	4			64.00	9.36	32.81
	5				39.20	56.25
Total		100	100	100	100	100

Table 2A Displacement of New Hampshire's 107th Congressional Districts into 108th

		108th Congressional Districts		
107th Congressional Districts		1	2	Total
	1	98.73	1.27	100
	2		100	100

Table 2B Continuity of New Hampshire's 108th Congressional Districts from 107th

		108th Congressional Districts	
107th Congressional Districts		1	2
	1	100	1.29
	2		98.71
Total		100	100

Table 3 Finding “New” Districts in Arizona

		108th Congressional Districts							
		1	2	3	4	5	6	7	8
107th Congressional Districts	1			5.77	17.89	72.65	33.72		
	2		0.77		48.25			72.24	2.40
	3	31.41	90.51	8.63	13.80			9.57	
	4		8.57	74.54	20.06	8.72			
	5	8.14						15.03	97.60
	6	60.45	0.14	11.07		18.62	66.28	3.16	
Total		100	100	100	100	100	100	100	100

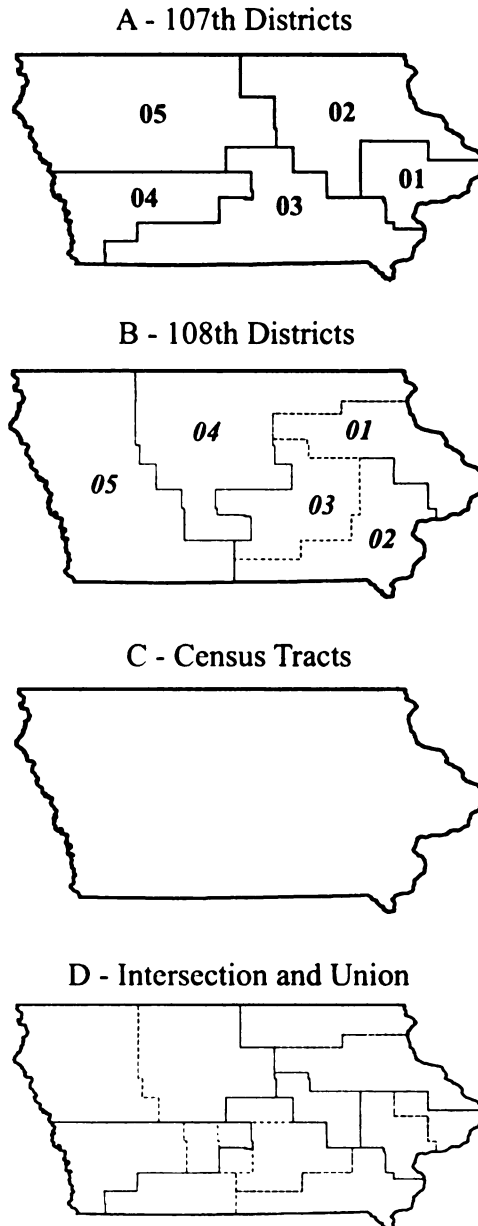
Table 4 Influences on Change in Incumbent Victory Margins, 2000-2002

Variable	Coefficient (Robust Standard Error)
% New 108th	-.037* (.019)
Δ Presidential Vote	.060 (.170)
%New 108th $\times$ Δ Presidential Vote	.019* (.005)
Quality Challenger	1.40 (1.04)
Ln Incumbent Spending	.160 (.527)
Ln Challenger Spending	-.532* (.185)
Party	-4.03* (.631)
Freshman Incumbent	5.22* (1.40)
South	.503 (.840)
<i>N</i>	274
Adj. R^2	.39
Root MSE	5.08
F-stat	20.10*

*p<.05

Dependent Variable – Incumbent 2002 vote minus Incumbent 2000 vote.

Figure 1 Example of Spatial Analysis - Iowa²³



²³ This map of Iowa may appear to be “squished” to some readers. However, it is only due to the choice of projection system from the round earth to the flat paper. GCS North American 1983 is the default system applied here.

Chapter 3 - Some Boots are Made for Walking: Congressional Voting Behavior in Response to Changing District Boundaries*

Introduction

What are the implications for representative democracy after a redistricting? The Downsian model of elections predicts that elected representatives will change their behavior to correspond with the new district median (Downs 1957). Previous scholars, (Glazer and Robbins 1983, 1985; Stratmann 2000; Boatright 2004) have demonstrated that members of congress will modify their voting patterns in predictable ways in response to changes in district boundaries. Does this result apply to all types of votes or does it only pertain to votes that are visible to the district? The congressional organization literature contends that parties can control legislative outcomes through agenda control by pressuring members to vote with the party on procedural matters (Cox and McCubbins 1993, 2002, 2005). This is an effective technique because it is difficult to trace voting on procedure to changes in real policy (Arnold 1990). If members in altered districts are not also adopting new positions on procedural votes, then representation at the district level may be present, but at a sub-optimal level.

In this essay, I use a quasi-experimental research design to determine how redistricting affects democratic representation by examining how members respond to competing pressure from their district and party. By developing hypotheses based on theories from the congressional organizations literature and then testing them empirically, I build upon previous research to assess whether members change their behavior in response to shifts in district boundaries after the 2000-02 round of congressional redistricting. The results indicate that representatives adjust their roll call

* Apologies to Nancy Sinatra and now apparently Jessica Simpson

behavior to fit their new districts on votes that are visible to their constituents.

However, when it comes to votes that are important to the party for controlling the agenda, movements in district boundaries are not related to members' roll call decisions.

In the following section, I briefly review some of the congressional elections and legislative organization literature to reveal different expectations regarding the motivations for members' voting behavior in the U.S. House of Representatives. Then, based on that literature, I develop testable hypotheses that predict why members may change their ideal points after redistricting on some votes but not on others. Next, I empirically test the hypotheses using basic econometric techniques and in the final section, I discuss the implications for the findings.

Electoral Accountability

A basic principle of representative democracy is that elected officials must pay homage to their districts if they wish to secure reelection. Edmund Burke, of course, would have done well to heed this advice. As the well known parable goes, Burke was not reelected to Parliament following his famous speech to the electors at Bristol when he proclaimed his own views to be superior to those of his constituents. The idea of electoral accountability is prevalent in many theories of representation and elections. The Downsian model, in its simplest form, predicts that candidates representing the parties will converge to the district median in order to win elected office (Downs 1957)²⁴. Although more nuanced versions of the model (e.g. Aaronson and Ordershook 1972; Calvert 1985; Palfrey 1984) predict some degree of divergence depending on the presence of primary elections, motivation of the candidates, the completeness of

²⁴ See also Hotelling 1929 and Black 1958.

information and the wish to deter potential third party challengers, they all depend on district preferences.

In a less formal fashion, Froman (1963) argued that constituency is the most important determinant of member behavior and that members may even need to exercise some independence from the party to increase their chances of reelection. If there is a conflict between party and district, the member should choose the district since the costs of party defection surely is less than losing the next election (9).

Fiorina (1974), Mayhew (1974) and Arnold (1990) all theorized that members of Congress will pay attention to their district when they are deciding how to vote on the floor and subsequently how it will influence their reelection chances. Fenno (1978) posited reelection, along with institutional and policy goals contribute to the decision making calculus. During his travels with representatives in their districts, members frequently remarked that their vote choice was often dependent on how certain parts of the constituency would react.²⁵ When a larger group of members were asked questions about representation on surveys, they also indicated that district plays a part in roll call decision making (Clausen 1973; Kingdon 1981; Sullivan et al. 1993).

Canes-Wrone, Brady and Cogan (2002) argued that members are held accountable at the ballot box based on their legislative history. Specifically, they found that the more often a member supports her party, the lower her vote share and the probability of retaining office decreases. Ansolabehere, Snyder, and Stewart (2001), Bovitz and Carson (2000) and Erikson and Wright (2005) also found support for this notion. Meanwhile, Carson (2005) demonstrated that members are more likely to face a quality

²⁵ Bishin (2000) later found empirical support for Fenno's earlier anecdotal evidence involving sub-constituencies.

challenger the more often they vote with their party on key issues.²⁶ In sum, members say they care about the ideology of their districts when they are deciding how to vote and the empirical evidence suggests that representatives also act as if it is important. Additionally, evidence suggests that voters are paying attention (or at least acting as if they are) since there is a possibility that when members begin to ignore their districts and vote in too extreme a fashion, they are punished at the polls.

Although the electoral accountability literature finds that members who are a good match for their district do better at the polls, it does not directly test if representatives are able to (or chose to) adapt to changes in their district. While Poole and Rosenthal (1998) have argued that members “die with their ideological boots on,” that is, members do not change their voting behavior over their careers, one exception to this rule has been when a member’s district changes as a result of redistricting (Glazer and Robbins 1983, 1985; Stratmann 2000, Boatright 2004). These scholars found that members are indeed responsive to changes in their district.²⁷ Through similar research designs but various measures of behavior (conservative coalition scores, ADA scores and, DW-NOMINATE) they all concluded that as a district becomes more liberal or conservative so does the representative. Based on these results, it appears that some members do not just happen to “fit” their district, rather many are willing to actively adjust their behavior if their district changes.

²⁶ These results hold even though surveys indicate that voters are frequently not well informed about their representatives. See Stokes and Miller 1966, Mann 1978, or Delli Carpini and Keeter 1996 for more on the public’s knowledge of candidates. For more research on how member’s voting behavior can influence their election results see Schoenberger 1969, Erikson 1971, Johannes and McAdams 1981, Brady et al. 1996 and Jacobson 1996.

²⁷ See Poole 1998 for a critique of Glazer and Robbins 1983.

Theories of Congressional Organization

In comparison to the literature on electoral accountability, a substantial segment of the congressional organization literature argues that party plays a consequential role in deciding legislative outcomes.²⁸ If this body of work is to be believed, then party must surely play a part in helping members to decide how to vote. One sub-section of the literature which falls under the label “conditional party government,” argues that party strength is conditional on internal party homogeneity and external heterogeneity between the two parties (Rohde 1991; Aldrich and Rohde 1998, 2000, 2001). When both conditions hold, rank-and-file members give up power to the leadership so the party can “encourage” members to act in ways to further the party’s goals. One way to stay in favor with the leadership is to vote with the party when needed on important legislation.

Another related theory, cartel theory, tells us that the key to legislative success in Congress is not necessarily trying to enforce party discipline on substantive votes, but lies in controlling the agenda (Cox and McCubbins 1993, 2002, 2005).²⁹ Here, we can think of party success in terms of positive and negative agenda control. Positive agenda control is associated with carrying legislation *forward* in the legislative process and negative agenda control is the ability to *stop* legislation from coming to a vote. Parties act as procedural cartels by exercising negative agenda control to assure that no legislation reaches the floor that could possibly split the party or move the status quo in

²⁸ For a thorough review of the congressional organization literature see Cox and McCubbins 2005. Of course, partisan theories are not without their critics; see e.g. Krehbiel 1993, 1999, and 2000.

²⁹ Conditional Party Government and Cartel theory are not necessarily contradictory. See Finocchiaro and Rohde 2002 for a discussion of the similarities and differences between the two theories.

ways that are unfavorable to the party. To make certain that such legislation (or amendments that would move policy in an adverse direction) does not receive a floor vote, rank-and-file members are expected to support the party on procedural votes in exchange for the possibility of securing a more powerful position in the institution and increase the probability of maintaining (or achieving) majority status. This idea is supported by Oleszek (2004:141) who argues that the majority party demands support on rules votes and any defectors could be punished.

Although positive agenda control is conditional and hence variable, negative agenda control, Cox and McCubbins (2005) argue, is not conditional but constant. They argue that, “party pressure can affect members’ decisions on procedure more than their decisions on substance,” (66). This gives members more freedom to vote their district on substantive votes but not on procedure. Of course, this does not mean that party does not *try* to pressure members on final passage votes, only that the party is relatively more successful when it comes to keeping members in line when it comes to voting on procedure.³⁰ This point is demonstrated by the high percentage of votes that are party unity votes on procedural motions, 89.1% versus final passage votes, 38.7% (Crespin, Rohde and Vander Wielen 2002).³¹

Although previous research (Glazer and Robbins 1983, 1985; Stratmann 2000, Boatright 2004) found that members are adapting to meet their new districts, their

³⁰ Sometimes the party can pressure members on final passage. In the 108th Congress, for example, House Republicans held open the vote on the Medicare bill for three hours while the leadership successfully pressured C.L. "Butch" Otter (ID) and Trent Franks (AZ) to vote yes in order to secure passage. Jackie Koszczuk and Jonathan Allen "Late-Night Medicare Vote Drama Triggers Some Unexpected Alliances," *CQ Weekly* (11/29/2003) p. 2958

³¹ Where a party unity vote is defined as a majority of one party voting against a majority of the other.

research designs did not account for the fact that members may be more responsive to their district on some votes and more responsive their party on others. In other words, representatives may vote with their district on substance, but by voting with the party on procedure they can stop legislation from coming to a vote. If legislation that the district wants never comes to a vote because of procedure, then the district, one could argue, is not fully represented. If we truly want to know if members are adapting to their new constituencies, and providing complete representation, then I argue that it is necessary to look separately at votes that are visible to the district, namely final passage votes, and votes that are important to the party but largely invisible to the district, procedural votes.

If cartel theory is correct and the party applies strong pressure on procedural votes but members are relatively free to vote their district on final passage, then it follows that as a member's district median moves, she should modify her behavior on final passage votes in the direction of the change. However, if the party demands discipline and is able to force members to vote against their district on procedural matters, then it should also follow that changes in the district should *not* be related to shifts in voting on partisan procedural motions. Rather changes in the party median should explain any shift in voting behavior on procedural votes. We can think of members having two masters to serve, but each puts emphasis on different matters. Members have to please their district on substantive matters and their party on procedure. The task, however, is not as troublesome as it may appear since procedural voting, which can stop any potentially troublesome issues from coming to the floor, is not visible to the district.

This way, members will not be forced to choose between their district and the party when it comes to roll calls that are noticeable by the district.

District Change and Behavior Change

In order to test these hypotheses, I take advantage of the same quasi-experiment presented by the shifting of district boundaries as a result of redistricting that Glazer and Robbins (1983, 1985), Stratmann (2000), and Boatright (2004) used.³² In this “experiment,” a member’s district -and the ideological characteristics therein- is allowed to vary while the party affiliation is held constant.³³

I use the spatial model depicted in Figure 1 to provide a visual representation of my argument. Each of the two lines represents the ideological spectrum before and after redistricting with liberal on the left and conservative on the right. Each member has two ideal points, one for reelection that is largely a function of district characteristics and is based on votes that are visible to the district and one for the party that is a function of party pressure and is realized through voting on procedure. Based on the theoretical expectations, I assume that a) procedural votes are largely invisible to the district but final passage votes are visible, and b) the party is more successful at pressuring members on procedural votes.

In the figure, $X_{i,t}^R$ represents the district reelection ideal point, for member i at time t , where t is some period before redistricting and $X_i^R = f(\text{district characteristics, party}$

³² This is a quasi, rather than a natural experiment, because the changes in the district boundaries are not random nor are they under control of the researcher. Instead, they are the result of actions other actors. See Campbell and Stanley 1963 for a discussion of quasi-experiments.

³³ This experiment is, in effect, the mirror image of Nokken (2000, 2005) and Nokken and Poole (2004) who hold districts constant but allow party to move for party switchers. Their findings confirmed the notion that a member’s voting behavior will change if he switches parties, even as the district remains constant.

pressure and personal preferences). $X_{i,t}^P$ represent the individual party ideal point that member i at time t must meet in order to avoid punishment from the member's party. Note that there is a party ideal point for each member (although it need not be unique), not one point for the entire party since some defection may still occur. It is further assumed that $X_i^P = f(\text{party pressure})$.³⁴

Between time t and $t+1$, the district boundaries for each member's district may change as a result of redistricting and in many cases, this will cause a shift in district characteristics.³⁵ Further, since the make-up of the House also changes, the individual party ideal points can also shift.³⁶ The new ideal points will then be $X_{i,t+1}^R$ and $X_{i,t+1}^P$.

Based on the spatial model and theoretical expectations, I will test the following hypotheses over two sets of votes, final passage and procedural:

H1: As a member's reelection ideal point shifts left (right) the member's behavior should shift left (right),

H1₀: As a member's reelection ideal point shifts left (right) the member's behavior should *not* shift left (right),

and

³⁴ It is not necessary to assume that X_i^P is more extreme than, X_i^R and the theoretical expectations will not change if it fell to the left or right of X_i^R . These ideal points do not necessarily have to be the medians, but rather some point that allows the member to secure reelection for the member. Research by Ansolabehere, Snyder and Stewart 2001 demonstrates that members do not converge to the district median, rather Democrats are to the left and Republicans are to the right. This may be related to personal policy preferences, the threat of a primary opponent or other reasons. See Fiorina 1999 for a discussion of why members may diverge from the district median. Similar logic can be applied to the party ideal points. It is only necessary to have some ideal point that is representative of the party. It could be the median, but could also be represented by the "leadership".

³⁵ For simplicity, I assume that a member's personal preference will not shift between the two periods.

³⁶ I am purposely being agnostic about why the individual party ideal point may change. It could be a change in the agenda, leadership, or rules.

H2: As a member's party procedural vote ideal point shifts left (right) the member's behavior should shift left (right),

H2₀: As a member's party procedural vote ideal point shifts left (right) the member's behavior should *not* shift left (right),

If the reelection ideal point is a function of district characteristics, as the electoral accountability literature suggests, then as a member's district changes, their behavior should shift accordingly between periods t and $t+1$. This means that H1₀ should be rejected on votes that are visible to the district (final passage) and can influence a member's reelection chances. Conversely, since the individual party ideal point is *not* a function of individual district characteristics, then I expect to fail to reject the null hypothesis that changes in the district should produce shifts in X^P_i between periods t and $t+1$. This hypothesis provides a critical test of the theoretical expectations. If changes in the districts predict changes in an individual's member's party ideal point, then this would be evidence against the theory.

Both the electoral accountability literature and the congressional organization literature predict that party can *sometimes* pressure members on votes that are visible to the district. This suggests the secondary hypothesis, H2. If party pressure is strong for visible votes, then H2₀ should be rejected if the party ideal point changes after redistricting, but not if party is weak. Finally, cartel theory predicts that party can pressure members on procedural votes, therefore, I expect to reject H2₀ on these types of votes, if the party ideal point shifts.

Data

In order to measure members' voting behavior on votes that are visible to the district and procedural votes, I use a variation of Poole and Rosenthal's (1997) W-NOMINATE

procedure to estimate ideal points on both subsets of votes.³⁷ More specifically, I use a “bridging” technique (see Rivers 2003, and Bailey and Chang 2001). The technique calls for two members from the wings of each party to be used as glue to bridge the two sessions together in order to insure comparability. In this case, I used Tom Delay who has been described by *Politics in America* as possessing a “conservative zeal,” and Jose Serrano the most liberal member of the House according to *National Journal*.³⁸ Both sessions are then estimated using one roll-call matrix to obtain ideal points for each member for the first sessions of the 107th and the 108th Congress with the same procedure used for both vote-type categories. The coding for the vote-types is based on a categorization by Crespin, Rohde and Vander Wielen (2002) and applied to the Rohde (2004) dataset for subsets of the 107th and 108th Congresses. All bills and resolutions that had a recorded final passage vote are included in the visible vote category since they are easily linked to policy outcomes. Meanwhile procedural motions that enable partisan advantage such as voting on special rules, the motion to recommit or moving the previous question make up the procedural grouping.³⁹

³⁷ NOMINATE procedures in general are based on the theoretical assumptions from the spatial theory of voting used to develop my hypotheses (Poole and Rosenthal 1985, Lewis and King 1999). Alternative measures such as ADA scores cannot be used since they do not differentiate between substantive and procedural votes and are also based on a relatively small subset of votes. DW-NOMINATE also cannot be used because it needs $n > 2$ congresses to calculate a score and is based on all votes, not just different sub-sets of votes. Finally, since others have used different measures and found significant changes in behavior after redistricting, I think it is reasonable to assume that any significant results are not a function of the scaling procedure.

³⁸ Note that in an alternative model, I estimated the ideal points separately for each session and the results were similar, with the exception of the change in party median variable where I did not have theoretical expectations in the final passage votes regression. It was significant using the alternative technique.

³⁹ The appendix lists the specific types of votes in each of the two categories. In the first session of the 107th Congress, there were 230 final passage votes and 85 partisan

Similar to previous work by Rothenberg and Sanders (2000) and Boatright (2004), it is necessary to calculate the ideal points for two time periods, one before the exogenous shock (redistricting) and one afterwards. I chose the first session of the 107th Congress (2001) as the pre-redistricting period and the first session of the 108th (2003) as the post-redistricting stage. In the first session of the 107th, states were beginning to formulate redistricting plans while by the first session of the 108th Congress, nearly every multi-district state with the exception of Maine had enacted their new plan.⁴⁰ If the entire 107th Congress were compared to both sessions of the 108th, it is likely that some of the behavioral shift will be missed since members will have begun to change their behavior in the second session of the 107th in time for the 2002 elections.⁴¹ Further, I only included members who were incumbents and ran for reelection to the 108th Congress since retirees and higher office seekers may not change their behavior in ways to suit their new congressional district (Rothenberg and Sanders 2000).⁴² In order to measure changes in member behavior, I subtract the member's NOMINATE score for the 108th Congress from the score for the 107th for both subsets of votes to create two separate dependent variables, *Final passage* and *Partisan procedural*.⁴³ Since NOMINATE ranges from -1 (liberal) to 1 (conservative) this means that a positive

procedural votes. For the first session of the 108th Congress, there were 283 final passage votes and 176 partisan procedural votes.

⁴⁰ Maine redistricted in 2003.

⁴¹ On this point, see Boatright 2004.

⁴² Including retirees and higher office seekers does not change the results.

⁴³ These variables correspond to $(X_{i,t}^R - X_{i,t+1}^R)$ and $(X_{i,t}^P - X_{i,t+1}^P)$ respectively.

change in scores corresponds to a shift to the left and a negative difference means the representative moved to the right.⁴⁴

To gauge district change I use two measures, one political measure which is the standard change in the presidential vote in the district (Glazer and Robbins 1983, 1985; Stratmann 2000; Boatright 2004) and another variable that more generally captures the degree of district continuity after redistricting based on new population. The first measure, change in *Presidential vote*, is taken from *CQ's Politics in America* and is the difference between the two-party Democratic share of the vote in 2000 and the share of the vote recalculated to the new district boundaries for the 2002 elections. Since this measure spans a redistricting, it was necessary to match up the correct districts corresponding to where members stood for election before and after redistricting. Based on the theoretical expectations, the sign on the coefficient for this variable should be negative and significant for final passage votes but not different from zero for procedural votes.

The second measure of district change, detailed in Crespin (2005), is created by using geographic information systems to spatially intersect district boundaries for the 2000 and 2002 congressional elections. These new areas are then overlaid on top of census tract boundary files. After this step, the census tracts are deemed new (drawn into the incumbent's district), removed (drawn into a new district and no longer remaining in the incumbent's district) or continuous (remain in the district pre and post-redistricting). After this step, the population of the tracts that are new to the incumbent's district is divided by the total district population and the result is the

⁴⁴ For example, John Dingell (D-MI) was at -.326 in the 108th Congress and -.532 in the 107th Congress, therefore $-.532 - (-.326) = -.206$ means he shifted to the right.

percent of the population that is new to a member's district. This measure, percent *New population*, is included in the model separately and also interacted with the change in presidential vote in order to capture political and population change in the district. The interaction allows for a variable that measures both direction and magnitude of change. As districts receive a greater percentage of new constituents, I expect it to be more difficult for members to gauge the political make-up of the new geographic constituency. These three variables are used to test hypothesis one. In order to test hypothesis two, I created a variable that measures the change in the *Party median* from the first session of the 107th Congress to the first session 108th for each sub-set of votes to gauge the effect that changes in the party ideal point has on a member's behavior.⁴⁵ If members are moving with their parties, then this variable should be positively signed.

The theoretical expectations and hypotheses are displayed in Table 1. First, the effect of district change should be *negative and significant* for the final passage votes model, but *not different from zero for procedural votes*. Again, this is the key test of the paper. Rejecting the null will provide strong evidence against the partisan theory. Second, the change in party median variable *may* be significant in the final passage model if the party is able to exert pressure on these types of votes but it will have a significant effect for voting on procedure since party the theory argues that party applies pressure on procedural votes. Since the dependent variables (the change in a member's ideal point from time t and $t+1$) are theoretically continuous, ordinary least squares regressions are used to estimate the results.

⁴⁵ Bernie Sanders (I-VT) is coded as a Democrat since he votes with them to organize the House.

Results

Table 2 displays the results from both regressions.⁴⁶ In the final passage vote regression, the change in presidential vote is negative and significant, suggesting that member's of Congress change their voting behavior in accord to changes in the district. If a district becomes more conservative (or liberal) so does the member and is consistent with the previous research (Glazer and Robbins 1983, 1985; Stratmann 2000; Boatright 2004). This result suggests that the elections literature is correct, members act in accordance with their district's preferences in order to secure their reelection goal. The coefficient on change in the party median, however, is not significant, suggesting that although there is anecdotal evidence of parties influencing voting on substance; in this case I do not find any systematic evidence to support the claim.

The results from the partisan procedure regression show that as a member's district changes, they do *not* change their behavior accordingly. Instead, the results suggest that shifts in the parties' ideal points and the resulting pressure to conform influences changes in their voting behavior on procedural votes. This is evidenced by the positive and significant coefficient on the party variable. Further since this variable and the

⁴⁶ In order to test the robustness of the findings, I ran diagnostics and estimated several other regressions. Since both models suffer from heteroskedasticity, the Huber/White/sandwich estimator of variance is used to obtain robust standard errors. A test for outliers revealed that none were substantially influencing the results. I also estimated models with state fixed effects and another regression that corrects for multiplicative heteroscedasticity to determine if individual states were influencing the results. In either case, they were not. The difference in the number of cases between the two models is a result of not being able to estimate ideal points for all members in the procedural vote category. Again, this does not substantively change the results since they were similar if the models were run on the same set of members. Finally, various other measures of party such as a simple dichotomous variable or shifts in party leadership ideal points were tried and the conclusions drawn were once again quite similar.

dependent variable are measured on the same scale, the coefficient of .93 means that as the party moves, individual members move nearly the same distance. This result gives support for the partisan theories of legislative organization, especially cartel theory which argues that the party will use procedural motions to exert agenda control. Since the engine for agenda control is procedure, this is where we would expect to find the strongest party influence. This is also substantiated by the relatively large adjusted R^2 (.84) for a model with party as the only significant variable. Further, the procedural votes model does a much better job at explaining the variance in changes in voting behavior since the R^2 for the second model is quite large relative to the first.⁴⁷

In order to interpret the district change terms correctly, I turn to a graphical procedure suggested by Brambor, Clark and Golder (2005). Their procedure calculates substantively meaningful marginal effects and correct standard errors for interaction terms. Figure 2 displays the marginal effect of district political change on voting behavior change, conditional upon the percent new population in the district for both models. The solid line in each of the graphs is the marginal effect while the curved dashed lines indicate the 95 percent confidence intervals. If the confidence intervals bound the dotted zero line, then the variable is not significant at that point. In the final passage model, we see that the marginal effect of district political change is negative until percent new in the district reaches just over 32 percent when the variable is no longer significant.⁴⁸ The increasing slope of the line indicates that the effect dissipates the more the district changes. The decreasing effect is likely indicative of growing

⁴⁷ Although the R^2 for the final passage vote model is quite small at .03, it is consistent with other similar studies.

⁴⁸ This range represents nearly 75 percent of the cases.

uncertainty about district characteristics. Fenno (1978) found support for this notion in his district travels as one urban congressman remarked about his redistricted territory:

“Let me pull over to the curb and look at the map. I can’t tell whether this area is in the district or not. It could be, but I’m not sure. That must have been some redistricting when the congressman who represents the district can’t even tell whether he’s in it or not,”(6).

If the members elected to serve in a district do not know who is in and out of their district, then this implies that there may be a learning curve for members becoming acquainted with new parts of their district when the boundaries change by large amounts.

In the partisan procedural model, the confidence intervals continuously bound zero and the solid marginal effect line actually lies *above* the zero line signifying that no matter how much the district changes, members do not change their behavior accordingly, providing strong evidence in support of the key hypothesis. In sum, (see table 3 for a summary of the findings) representatives change their behavior in accordance with theoretical expectations on votes that their constituents (or their potential opponents) are paying attention to. This give support to the simple Downsian hypothesis that elected officials will alter their own ideal points in order to secure reelection or other goals. In contrast, shifts on yeas and nays on procedural motions are not related to movements in the district median, rather party explains much of this change. Finally, we only see evidence of members moving with the party on procedural matters, not final passage.

Conclusion and Discussion

The results demonstrate that when a member's district changes, they shift their voting behavior on votes that their constituents are paying attention to, specifically, votes on final passage. However, I fail to find a relationship between district changes and how a member behaves on votes on which the party exerts influence, namely procedural votes. Although we generally need to be careful about drawing conclusions from null hypotheses, the chosen research design alleviates several of the problems. First, since both hypotheses are tested over *identical* models that only allow the dependent variable to vary, we can be more confident that the null results are not just a function of chance. Second, the null result of no effect is the prediction of the theory, not just the usual hypothesis test that assumes a null of zero. Finally, providing evidence in support of a theory with null results is not without precedent (See e.g. Krehbiel 1992 and Cox and McCubbins 2002).

I also find that changes in party medians explain a large share of the shift in voting on procedural votes, but not on final passage. In sum, members appear to be wearing two pairs of boots, only one of which is made for walking. Although this paper does provide evidence that "parties matter," it also implicitly shows how they matter. While previous research has demonstrated that members vote in accordance to their new districts, the findings may obscure the effects of party. If negative agenda control can keep issues off the floor, and members are not representing their new district on these types of votes, then representative democracy may not be working as well as previous research implied. Rather, it appears that elected officials are only representing their districts when they are paying attention and not voting with their new constituents when they can get away with it on procedural matters. Based on these results and what

the literature says about the importance of procedural control, I can conclude that a changing constituency may not be getting everything it wants from their members of congress.

In future work, I hope to better link member's voting behavior on various vote-types to their election results. Although previous research has demonstrated that members are punished or rewarded based on voting behavior, it does not test this hypothesis over different types of votes. If constituents are not paying attention to how a member votes on procedure, then we should not expect to find a link between election outcomes and these types of votes.

Table 1 – Hypotheses and Predictions

	Party-Influence Predictions on Voting Behavior	
	Final Passage Vote Regression	Procedural Vote Regression
Δ Reelection Ideal Point	Negative and Significant	Not Different from Zero
Δ Party Median	No Prediction	Positive and Significant
Note – Directions are a function of measurement		

Table 2 – Change in Member Voting Behavior as a result of Redistricting

Variable	OLS Coefficient (Standard Error)	
	Final Passage Votes	Partisan Procedural Votes
<i>District Change</i>		
Δ Presidential Vote (2000 Dem. vote in old district – new district)	-.016* (.007)	.006 (.006)
% New Population	.0007 (.0004)	-.00009 (.0004)
Δ Presidential Vote × % New Population	.0003* (.0001)	-.00006 (.0002)
<i>Party</i>		
Δ Party Median	.138 (.112)	.934* (.022)
Constant	-.434* (.057)	-.014 (.011)
<i>N</i>	356	353
Adj. R²	.03	.84
F	2.85*	517.96*

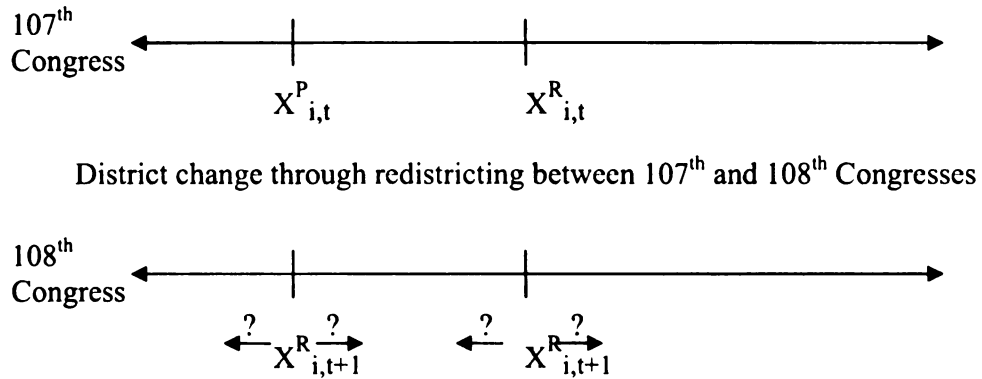
*p < .05

Dependent Variable – 107th Congress first session NOMINATE minus 108th Congress first session NOMINATE. Negative coefficient corresponds to a shift to the right. Only members serving in both Congresses and not retiring or running for higher office in the 2004 elections are included.

Table 3 - Substantive Results

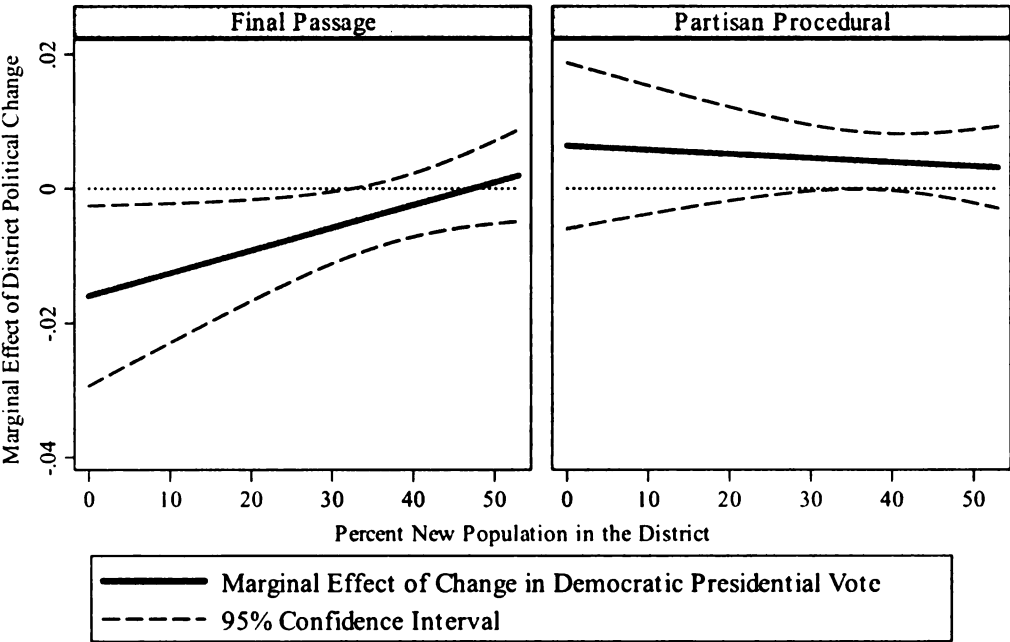
Variable	Final Passage Votes	Partisan Procedural Votes
Δ Presidential Vote (2000 Dem. vote in old district – new district)	As the Democratic presidential vote in the district increases, the member becomes more liberal (See Figure 2)	As the Democratic presidential vote in the district increases, behavior <i>does not</i> change
Δ Presidential Vote $\times$ $\%$ New Population		
Δ Party Median	Members do not move in the direction of the party median	Members move in the direction of the party median

Figure 1 – Spatial Representation of District Change



- Where $X^R_{i,t}$ is the reelection ideal point for member i at time t and $X^P_{i,t}$ is the party ideal point for member i at time t .
- $X^R_{i,t}$ may shift as a result of redistricting, members should respond on final passage voting, but *not* on procedural votes.
- X^P_t may shift as well, members should respond on procedural votes and possibly on final passage votes.

Figure 2 - Marginal Effect of District Change on Voting Behavior Change



Graphs by Vote-type

Chapter 4 - Geography and Individual Campaign Contributions to Congressional Candidates

Introduction

Individual contributions represent over half of the total money given to congressional candidates (Jacobson 2004), yet relatively few scholars focus on the contributions that originate from this important group of political activists. One exception to this lack of research is Francia, Green, Herrnson, Powell and Wilcox (2003:105) who argued that, “Geography is the most important factor influencing contribution decisions.” Francia et al. (2003) found that contributors are 33 percent more likely to give to a candidate if they reside in that representative’s district. On the surface, this would seem to run counter to Grenzke (1988) which reports that over half of individual donations come from outside a member’s district. However, if the roughly 434 possible contributors outside the district for every one inside the district are taken into account, then this outcome becomes empirically plausible.

Although the numbers “add up,” a set of interesting questions still remains. What enables a member of Congress to collect a substantial portion of her contributions from outside her district? Are different forces influencing contributors based on their geographic location relative to the candidate? Finally, what does it say about representation if members’ money constituencies lie outside their geographic constituency? In this paper, I seek to understand which factors contribute to incumbent members of Congress receiving money from areas inside and outside the district. I will argue that a member’s ability to fundraise from different geographic areas is constrained by both supply and demand of the donor pool and both of these factors are a function of incumbent, election, and district characteristics.

In the following section of the paper, I examine the influence of redistricting on a member's fundraising totals. Although most of a district remains intact after redistricting, some parts of the district may be removed while other areas are added. Consequently, redistricting allows for a quasi-experimental research design where the bonds of representation are severed for some individuals who find they are living in new districts after the boundaries have changed. By way of a new continuous measure of district change, I can test a member's ability to earn contributions from constant, new, and old areas of the district. This will shed light on whether members form representational bonds with new constituencies as well as whether they hold onto their link with old donors who have left the district.

Next, I review redistricting and campaign finance literature in order to develop a theory and test hypotheses with respect to individual campaign contributions to incumbent members of Congress residing from different geographic locations. Building on this, I am able to determine the influence of redistricting on a member's ability to fundraise and show that there is a difference between the two parties. Finally, I conclude and offer suggestions for future research.

Previous Research

Redistricting

The literature on congressional redistricting is quite extensive. Butler and Cain (1992) wrote one of the most comprehensive examinations of this topic. They cover the court decisions that led to the revival of nationwide redistricting in the 1960s, how the process worked during the 1980s and 1990s as well as comparing the efforts by different states.

A portion of this research has been devoted to the influence of redistricting on congressional stability (see, e.g., Bullock 1975; Gelman and King 1994a), minority representation (see, e.g., Lublin 1997; Lublin and Voss 1997; Canon 1999; Epstein and O'Halloran 1999; Shotts 2001) and responsiveness (Tufte 1973; Ferejohn 1977; Gelman and King 1994b; Ansolabehere, Snyder, and Stewart 2000, 2001).

Redistricting has also influenced the competitiveness of individual House races over time. Prior scholars examining this issue have linked the decline in competitiveness to the growth in the incumbency advantage (Mayhew 1971, Tufte 1973).⁴⁹

Beyond the incumbency advantage, scholars have also focused on the aggregate effects of redistricting in terms of the partisan balance of seats in the House (Abramowitz 1983; Cain 1985; Butler and Cain 1992; Niemi and Winsky 1992; Niemi and Abramowitz 1994).⁵⁰ In the best recent account of the consequences of the redistricting process, Cox and Katz (2002) showed how the courts influenced the drawing of new district boundaries in the 1960s. In addition, Carson and Crespin (2004) showed that competition can vary when courts or commissions become involved with the redistricting process.

Scholars have also focused some attention on changes in member's voting behavior as a result of redistricting (Glazer and Robbins 1986; Stratmann 2000; Boatright 2004). Finally, some have shown that members may concentrate work directed at different parts of the district based on changes in sub-constituencies after redistricting (Bickers and Potoski 2000, Grose 2000, Ansolabehere, Gerber and Snyder 2002).

⁴⁹ For a response and critique of the Tufte argument, see Burnham 1974, Ferejohn 1977 and Cox and Katz 2002.

⁵⁰ On this topic see also Squire 1985, Cain and Campagna 1987, Basehart and Comer 1991, Lyons and Galderisi 1995 and Swain, Borrelli and Reed 1998.

Until recently, redistricting students have not paid much attention to how altering district boundaries can influence campaign fundraising. Boatright (2004) demonstrated that candidates increase their fundraising in response to partisan and racial changes in the district. Boatright's piece, unlike this paper, focused on total fundraising numbers (PAC and individual) by the candidates and did not directly account for movement of new and old constituents.

Campaign Fundraising

Similar to the redistricting literature, there is quite a lot of work dealing with congressional campaign fundraising. Most of the research focuses on political action committees (see e.g. Jacobson 1980; Smith 1985; Wright 1985; Hall and Wayman 1990; Cigler and Loomis 1991; Romer and Snyder 1994; Stratmann 1995; Wright 1996; Herrnson 1998; Herrnson, Shaiko and Wilcox 1998; Box-Steffensmeier and Radcliffe 2001; Jacobson 2004). However, few scholars focus on individual campaign contributions, even though they make up over half of all contributions to congressional elections (Herrnson 1998; Jacobson 2004).

In the words of some of the leading scholars in the field of campaign finance, "There is little systematic research on the motivations and strategies of individual congressional donors," (Francis et al. 2003:12). Some of the earliest to study individual contributors were Jones and Miller (1985) who used questions from the 1980 National Election Study to examine determinants of the donation. They found that voters, people who were interested in politics and respondents who felt a high degree of civic duty contributed to candidates. Another early look at individual donations by Grenzke (1988) demonstrated that over 50 percent of individual and nearly all PAC

contributions come from outside of the district. However, most of the out of district money did come from inside the member's state.⁵¹

Recently, Francia et al. (2003:16) undertook a survey of contributors to the 1996 congressional election and provided a "thick description" of individual contributions. They also relied on a smaller longitudinal survey of "big" donors as well as interviews with donors and campaign officials. They found that contributors were, for the most part, rich, highly-educated white males. However, reasons for contributing were quite varied. They stylize three types of contributors, "investors" who gave for financial gain; "ideologues" who gave for more broad societal reasons and finally "intimates" who gave for reasons of solidarity, such as a personal relationship with the candidate or their fundraising surrogates.⁵² Although this study has helped to lay the groundwork for studying contributions from individuals, there are still many questions left unanswered.

Geography and Fundraising

Many accounts that offer a description of individual fundraising (Grenzke 1998, Herrnson 1998) point out that a significant portion of funds come from outside a member's district with a non-trivial fraction coming in from outside of the state. Since money is a necessary factor to win elections (Davidson and Oleszek 2004), then candidates will go wherever the money is to get it. A member's ability to fundraise from different geographic regions - district, state, and out of state - should be based on their demand for resources, which is constrained by the supply. In congressional

⁵¹ Grenzke's study included the 1981-82 election cycle that encompassed 1982 redistricting but she did not take this into account.

⁵² See Snyder 1990 and Baron 1994 for more discussion on investors and Rosenstone and Hanson 1993 for ideologues.

elections, supply and demand is a function of three factors, those specific to the incumbent, the election, and the characteristics of their district.

Incumbency

Previous research (Franica et al. 2003) suggests that a candidate's ideology is an important factor in the decision making calculus for individuals who contribute to congressional campaigns. Indeed, Grenzke (1988) found that as members become more liberal, they are more likely to earn a greater share of their campaign funds from outside the district. The political parties like to claim that extremists from both ends of the spectrum are improperly influencing members of Congress because the supply of potential donors increases as they become more extreme. Citizens who are moderates, and do have strong opinions on many issues, will be less likely to make a contribution. The Republicans like to blame the Hollywood liberals while the Democrats favorite whipping boys are the Texas oil tycoons. In addition, both parties like to point to Wall Street fat cats as contributing to problems with government. If these relatively small groups from distinct geographic areas are contributing to polarization in politics, then extreme members should get a greater share of their contributions from out of their district and state, relative to more moderate members.

The size of a candidate's donation network should have a significant effect on a member's ability to raise funds from outside of the district by increasing the potential money supply. Once members have tapped the bulk of their district for funds, they will have to look elsewhere for money. If members want to increase the size of their network, they will have to look outside of their district. Therefore members with large networks will have an easier time earning contributions from out of state compared to

members with small networks. In view of the fact that incumbents are unlikely to give up their lists of potential donors, I argue that a representative's seniority will be a good proxy for the size of their donor network. According to Fenno (1978), members spend the early part of their career in what he called an "expansionist phase." During the phase, members work to increase their base of support. Although Fenno's work focused on the member *in* the district, it is not much of a stretch to argue that members will also work to expand their donor list during this stage of their career. The longer members serve and the larger their networks, then they are more likely to earn a greater portion of their contributions from outside of the district and less from inside the district.

Members who serve on important committees receive more contributions from PACs (Herrnson 1995), but what about from individuals? Prestige committees such as Ways and Means and Budget tend to produce bills that target broad constituencies from around the country. Therefore, members on prestige committees should attract more money from outside their district. In contrast, constituency committees produce bills that are more geographically focused. Further, members frequently try to serve on constituent committees that are relevant to their constituency. If this is indeed the case, then representatives on constituency committees should collect a smaller percentage of their funds from out of state, and more from inside the district. Finally, a member's party affiliation should affect their ability to raise funds from different areas. Since Democrats tend to represent less affluent districts and thus have a smaller supply of money in the district, they are forced to go outside of their district to look for funds.

Thus, they should collect less from inside the district and more from other areas of the state compared to Republicans.

Election

Election factors that will influence where members raise funds fall largely on the demand side. The factors include the total amount of spending in the race and whether the incumbent is facing a quality challenger. Both of these election characteristics send a signal that the incumbent is in a competitive race and have a greater demand for funds. In terms of spending, the more money that is spent, the more that the incumbent needs to raise. Also, if donors see that a race is competitive, they may be more likely to contribute since their contribution may make a difference in the outcome. Given that the donor pool within the district is finite relative to the pool outside the district, members who are in high spending races will need to look outside the district for more money. Therefore, as total spending increases, members should earn a smaller percentage of their contributions from inside the district and more from areas outside the district and state. Another signal that the incumbent is in a competitive race is whether or not their opponent is a quality challenger, defined as someone who has held previous elected office (Jacobson 2004). These candidates should also have a greater demand for more money and they too should collect more money from outside the district and state. Further, if it appears that an incumbent is vulnerable, then political activists from around the country may contribute in order to defeat the sitting member of the House.

District Factors

Finally, there are supply and demand factors relevant to the member's district that will influence their fundraising. An incumbent who resides in a district that has more wealth, and thus a greater supply of money, should collect more money from inside their district. In contrast, members in poorer districts will have to look beyond their district and possibly outside the state for contribution.

Since fundraising can be costly, accounting for nearly 12 percent of a House candidate's budget (Herrnson 2000), then members will likely try to minimize costs. One way to keep costs low is to solicit funds from people that live in or near the district. Fenno (1978) argued that those closest to the member, inside the personal constituency, are often a source of campaign funds. However, any candidate who needed to raise enough money to win a congressional election would quickly bankrupt that circle if he repeatedly relied on them as the only source of campaign funds. Further, the limitations placed on the size of donations from individuals would also make it difficult to run a successful campaign if the personal constituency was the only donor pool. As Francia et al. (2003) argue, this group does make for a good source of seed money, but it is probably not enough to win. The next logical step then, is to look for the next closest set of donors. Donors who live near the incumbent's district make for relatively less costly solicitations and are more likely to have a connection (personal or business) with the incumbent or his chief fundraisers. In this respect, members of the personal fundraising constituency need not be inside the geographic district. Previous research (Grenzke 1988) is consistent with this idea and found that most of the money comes from inside the state or district and contributors are more likely to give if they live in

the candidate's state or district (Francia et al. 2003). If this is true, then the size of the state will be important in determining how much money candidates receive from different geographic areas. Incumbents who live in larger states should be less likely to collect money from outside the state. However, since the state's donor pool is large relative to the districts, these members will be able to earn more from the state than their districts.

Members who live in districts where they are a good political match to the underlying political conditions should demand less money from their district because they are relatively safe and insulated from a strong challenger from the other party. Owing to their safety, they may also be able to spend less time in the district and more time elsewhere raising funds. In sum then, a member's ability to raise funds is dependent on their demand for money and where they can find it. Members who need more money, will go where they have to in order to get it.

Campaign Finance Data

In order to test the hypotheses developed above and throughout the paper, I turn to data for incumbent members of Congress who ran for reelection in the 2000 or 2002 congressional elections. The 2000 election to the 107th Congress was the last held with the old district boundaries while the 2002 election immediately followed the national round of reapportionment and redistricting. After the passage of the 1974 Federal Election Campaign Act (FECA) any contribution over \$200 must be reported to the Federal Election Commission and is then made public.⁵³ Attached to each contribution is the contributor's name, ZIP code and the name of the candidate who received the

⁵³ Contributions over \$200 represent approximately 75 percent of all individual contributions (Lioz 2003).

contribution.⁵⁴ By manipulating these data with geographic information systems and using ZIP codes as the key link between different geographic areas, I can determine who the contributor gave to and where they lived at the time of the contribution.⁵⁵

The accounting of ZIP codes and their corresponding congressional districts requires only simple spatial techniques and data readily available from the U.S. Census. The necessary data include the 2000 and 2002 district and 2000 ZIP code boundary files. They consist of a series of XY coordinates that GIS programs can translate into polygons that represent the shapes for the districts and ZIP codes.⁵⁶

The first step in the process is to merge the FEC data with the shape files that represent the postal ZIP codes. A piece of information about ZIP codes is worth mentioning here. Technically, a ZIP code is not a geographic area because it is really just a list of addresses that follow a postal route and lines, by definition, do not have an area. Instead, the shape files used here are zip code tabulation areas (ZCTAs), which are a statistical geographic entity that *approximates* the delivery area for a U.S. Postal Service five-digit zip-code. Further, not all ZIP codes are included in the geographic boundary files. According to the U.S. census bureau, ZIP codes for businesses that have their own ZIP codes, post office boxes and general delivery addresses primarily located in areas otherwise served by a rural route or city style mail delivery are not represented by ZCTAs. Approximately, 7 percent of the data were lost due to the

⁵⁴ The contributor's full address is not made public as this would likely invite unwanted solicitations from other candidates and interest groups.

⁵⁵ See Bolstad 2002 for an introduction to GIS and spatial analysis.

⁵⁶ The census data and boundary files used in this paper are available at www.census.gov.

inability to match the ZIP code listed in the FEC file with the ZCTAs.⁵⁷ While this may appear problematic, assuming that ZIP codes and the ZCTAs are similar is a necessary assumption to answer the questions posed in this paper.

After merging the two files, I initially summed the total amount of contributions from each ZIP code to incumbent members of Congress running for reelection.⁵⁸ I then overlaid the ZCTA shape file with the boundary files for the respective congressional districts, the 107th and the 108th. The new attribute table, which is automatically updated by the GIS program after the intersection, makes it relatively easy to identify in which district the ZCTAs fall for each election.⁵⁹

Figure 1 displays these data for each ZCTA for the 2001-02 election cycle. The shaded areas denote the percentage of the total for each ZCTA that recorded a contribution that went to Democratic incumbents running for reelection and the black lines are the 2002 district boundaries. An initial look at the map, and the attached table, suggests that the Republican Party gets money from more areas of the country compared to the Democrats. For instance, 6,241 ZIP codes gave 100% of their

⁵⁷ This unmatched data could also include cases where the ZIP code was incorrectly reported by the candidates committee.

⁵⁸ I excluded members not up for reelection since they are likely to change their fundraising behavior.

⁵⁹ There are 33,178 total ZCTAs. Since some ZIP codes cross district boundaries, some post-processing of the data is necessary. Further, spatial analyses frequently create small spurious polygons called “slivers” which are an artifact of imprecise overlay (Bolstad 2002:398). The result in the attribute tables are the repeated listing of ZIP codes with the same number, but with different weights based on the size of the area in each district. For example, if 25 percent of the area resides in one district and 75 percent in another, the same ZIP code would be listed twice with weight of .75 and .25, respectively. To erase the slivers and place ZIP codes in the appropriate district if there was an overlap, I dropped all of the repeated ZIP codes except for the ones with a weight greater than 50 percent. This technique produced a final attribute table that had only one unique entry for each of the original ZIP code areas.

contributions to Republicans while only 3,752 gave only to the Democrats. The map also clearly shows the Republicans dominating in the West while the Democrats do well on the coast and in cities. Both California and New York provide interesting juxtapositions between contributions from the two parties. Democrats do well on the California Coast and in New York City, but fair poorly in the Central Valley and in upstate New York. This is, of course, consistent with how well they do at the polls. Arkansas appears to be an anomaly in the South with most of the state giving to Democrats. However, three of the four members of the House from this state are Democrats, with the exception of John Boozman who represents the lightly shaded area in the Northwest corner of the state. Generally speaking, this map is consistent with the electoral success of the two parties. That is, contributions tend to come from areas where the parties win.

In order to assess the how much money is coming from different areas, instead of just which party is receiving the contribution, I created Figure 2. In this figure, separated by party, the shaded areas represent the total dollar amount from each ZIP code, with darker shading meaning more money. As one might expect, the Democrats received large contributions from areas such as Los Angeles and the California coast, Seattle, Minneapolis, Chicago, Dallas/Forth Worth, Houston, Detroit, Atlanta and the east coast cities of Boston, New York and Washington D.C. The largest ZIP code contributor to the Democrats was Manhattan, donating over \$500,000. The Republicans also did well in big cities, but closer inspection reveals that they collect quite a bit of money from the suburbs too. For example, while most of the Democratic contributions from Illinois appear clustered around Chicago, the Republican contributions extend much further out

from the center city. Of course, Republicans also collect quite a bit of money from more rural areas such as Montana, Wyoming and Idaho. However, the largest Republican ZIP code contributor is just outside of Washington D.C. in Potomac, MD.

The 2000 Congressional Election

In order to determine why incumbents receive contributions from different areas, I need to measure if the contribution came from inside the incumbent's district, inside the incumbent's state, or came from out of state. These measures are easily created from a dataset similar to the one used to create Figures 1 and 2, but for the 1999-2000 election cycle. Data from this cycle will be free from any contamination as a result of redistricting for the 2002 election. As such, I created three variables; the first is the percent of money from areas inside each member's district, the second is the percent from outside the district but in the state and the final is the percent from out of state. According to Table 1, Republicans garner 14 percent more of their contributions from inside the district compared to Democrats (significantly different at $\alpha < .05$ one-tailed, $t_{388} = 6.38$). This is not too surprising since Democrats traditionally are elected in districts with lower incomes.⁶⁰ In contrast, Democratic incumbents get more money outside of their district than Republicans. They earn 4 percent more from in the state and 10 percent more outside it (both significantly different at $\alpha < .05$ one-tailed; $t_{388} = -1.95$ and -5.02 respectively). Since contributors will presumably vote for the candidate that they give to, the fact that Republicans have an additional advantage over Democrats in in-district contributions might give them an advantage on Election Day.

⁶⁰ This is also an empirical fact as the median household income for districts held by Democrats is about \$2600 less than that of Republicans.

Measures that may influence a member's fundraising include factors that are specific to the incumbent, the particular election and the district. Factors that are specific to the incumbent include measures of their behavior, their seniority, the committees they serve on and their party affiliation. Most of these variables are relatively standard in the congressional literature. In order to test if more extreme members are receiving contributions, I use the *absolute value of the incumbent's w-nominate* score where members become more extreme as this variable increases.⁶¹ If extreme members are receiving more contributions from any of the three geographic regions, then the sign on the coefficient for this variable should be positive. A member's *Seniority* is measured as the number of terms that an incumbent has served. I expect that the more senior the member, the larger their contribution network will be. Therefore, as seniority increases, they should get more of their contributions from outside of the district.

Another member factor that may influence incumbents' fundraising abilities is their committee assignments. Members on "constituent committees" should do a better job at providing particularized benefits to their constituents so individuals should be more likely to give to their own representative. Representatives serving on a "prestige committees" deliver goods that are not as geographically concentrated. Therefore, they should earn more money from beyond the district's borders. If a member served on a constituency committee during the 107th Congress, then the dichotomous variable *Constituency Committee* is coded one, zero otherwise. *Prestige Committee* is also

⁶¹ Scores are available from Keith Poole at <http://www.voteview.com>. See Poole and Rosenthal 1997 for more information.

coded one if the member served on a prestige committee.⁶² If either of these variables contributes to a member's ability to raise funds from a particular area, then they should be positive and significant. Since Table 1 suggests that there is a difference between the parties in terms of in vs. out of district fundraising, I also include a variable *Party* that is equal to one if the member is a Democrat, zero otherwise.

Factors particular to the specific election may also have an effect on fundraising. Members who are in a costly race must by definition raise substantial sums of money. This is also a signal that the race is competitive. Therefore, I created a variable *Total Spending*, that is the sum of the incumbent and challenger's spending, divided by 10,000. Since there is relatively less money available in a member's district compared to the rest of the donor pool, I expect this variable to be negative for fundraising in the district and positive outside the district. If a member is facing a quality challenger, a cue that the incumbent is vulnerable (Jacobson 2004), then they may be more likely to raise funds outside of the district. To test this, I include a variable, *Quality Challenger* that is coded one if the incumbent is facing a challenger that has previously held elective office.⁶³

There are factors related to the member's district that may influence where a candidate raises funds. If a member is from a relatively wealthy district, then they should be less likely to look outside the district for money. To control for this, I included *District Median Income* which is the median household income for the

⁶² Following the guidance of Smith and Deering 1990 and Alvarez and Saving 1997 I coded Appropriations, Budget, Rules and Ways and Means as prestige committees and Agriculture, Armed Services, Resources, Transportation and Infrastructure, Science, Small Business and Veterans' Affairs as constituency committees. Committee and seniority data are from the 2002 and 2004 issues of CQ's *Politics in America*.

⁶³ Spending and quality challenger data were provided by Gary Jacobson.

member's district, again divided by 10,000.⁶⁴ Members who do not match up well with their district politically may also need to look elsewhere for funds to bolster their reelection chances. This possibility is tested with a variable that measures the two-party share of the *District Presidential Vote* for the incumbent's party from the 2000 presidential election as reported by *CQ's Politics in America*. Finally, I include a variable that measures the number of districts in a member's state. Since previous research (Grenzke 1988) shows that most money comes from inside the member's state, then representatives who live in more populous states have a greater number of potential contributors. Thus, if a member is in a large state, they should get more of their contributions from inside that state and less from outside the state or from the district.

Due to the nature of the data, i.e. compositional, OLS is not the appropriate estimation technique. Compositional data analysis,

“...refers to analysis of non-negative data referring to mutually exclusive and exhaustive categories, where the data sum to one. The constraints thus imposed on the data mean that analysis of any one category must take into account the balance in the other categories: an increase in one category must be compensated by a decrease distributed across all the other categories (Brehm, Gates and Gomez 1998:1).

In mathematical terms, this constitutes a simplex and therefore, observations across each unit of analysis (an incumbent) are not independent. In order to correctly test my hypotheses, I employ a technique developed by Katz and King (1997) based on work

⁶⁴ Data obtained from the US Census www.census.org.

by Aitchison (1986). The first step in the analysis is to select the percent of contributions from outside the district as the reference category and transform the percent contribution shares from the other two areas (in the district and outside the district but inside the state) into log ratios with respect to the percentage of contributions from the base category (Tomz, Wittenberg and King 2003). More specifically, the formulas for creating the dependent variables are $\ln(\text{percent in the district} / \text{percent out of state})$ and $\ln(\text{percent in state, out of district} / \text{percent out of state})$. Then, the estimation technique is to run a seemingly unrelated regression model with the new dependent variables. In terms of interpretation, the sign of the coefficient is in comparison to the base category.

Results

The results from the seemingly unrelated regression model are displayed in Table 2. In the both models more extreme members do not receive a higher level of contributions from any particular area relative to incumbents who are more moderate. Thus, there is no evidence that more extreme representatives are collecting more money from individuals who live outside the district and could be influencing their voting behavior. This also runs contrary to the results by Grenzke (1988:91) who found that incumbents with liberal voting records receive a higher proportion of contributions from outside the district. However, Grenzke did not control for party affiliation and speculated that conservatives may come from wealthier districts.

A member's seniority does have a discernable influence on where they earn contributions. The negative sign on the seniority coefficient in both of the models means that as members accrue seniority, they earn a greater percentage of their

contributions from individual contributors outside of their district and their state. This is consistent with Fenno's (1978) notion of career expansion where he argued that during a course of a member's career, they work to expand their base of support. Although more speculative, it may be that as members enter into the protectionist phase of their career also described by Fenno, they have more time to attend fundraisers outside of the district since they do not have to spend all of their time meeting with constituents.

Figure 4 provides a substantive interpretation of this result for both Democratic and Republican incumbents. The solid lines in each of the figures represent the percent of contributions coming from the district while the dashed lines represent the percent coming from out of the state.⁶⁵ The x-axis measures the number of terms served while the y-axis is the percent of contributions. Republican incumbents early in their career have an advantage over Democrats in terms of the percent contributions from inside their district. First term Republicans collect about 50 percent of their individual contributions from inside the district compared to about 40 percent for Democrats. However, they each collect similar amounts from outside their state at similar points in their career, suggesting Democrats collect a greater percentage of their individual contributions from outside their district, but inside the state.

Over the course of their career, there are similarities and differences between Republicans and Democrats. Incumbents in both parties see an increase in contributions from outside the state and a decrease from contributions from inside the

⁶⁵ CLARIFY (Tomz, Wittenberge and King 2003) was used to obtain the values in the figure. All continuous variables were set to their mean, constituency was set to one, prestige was set to zero and quality challenger was also set to zero. A member's seniority was allowed to vary over the range of the data.

district. However, for Republicans, it is not until their 10th term when the out of state contributions pass the in district contributions. For Democrats, this event takes place earlier, around their 7th term. As such, it appears that seniority has a definite substantive influence on campaign contributions from individuals.

Referring back to Table 2, it appears that a member's committee assignment seems to have an effect over where they collect their contributions, but not necessarily in the expected direction for both types of committees. Representatives on prestige committees collect more of their funds from *inside* the district compared to the rest of their state. This runs contrary to the predictions. It may be that members on prestige committees such as appropriations are able to selectively target their constituencies and this is contributing to the result. However, members on constituency committees act as expected. They bring in more from inside the district, probably because they are less likely to help individuals from outside the district. Finally, in terms of incumbent or member factors, Democrats collect less of their money from inside the district compared to the rest of the member's state. However, neither party collected significantly more money from outside the state. This result combined with the null finding on the extremity variable suggests that liberal Democrats are at least as answerable to Hollywood liberals as conservative Republicans are to Texas oil tycoons.

When it comes to election characteristics, it appears that as the total cost of the race increases, incumbents collect less money from inside that district and are forced to look outside the district into other parts of the state for more funds. However, candidates who face a quality challenger do not receive a greater percentage of contributions from any of the three areas.

District characteristics also prove to be influential in determining where members collect their campaign funds. As the underlying partisanship of the district moves away from the representative, they earn less money from inside the district and more from contributors in other areas of their state. The partisanship of the district does not seem to force members to look outside the state though for contributions. Again, this is evidence against the argument that money is pouring in from outsiders and adversely affecting democratic representation. Finally, the size of the state does not have the hypothesized effect. If an incumbent is serving in a large state, they collect a smaller percentage of their campaign funds from other areas of the state compared to outside the state.

In sum, member, election and district characteristics are influential in determining where members of congress collect their contributions from individuals. As representatives serve longer, they appear to increase their donor networks and collect a greater percentage of their contributions outside of the state. Democrats, who represent less affluent districts, are forced to seek out contributions from beyond the boundaries of the geographic constituency. As such, it looks as if they make up that deficit by collecting from inside their state. This is also apparent for representatives who serve in a district that is a poor match politically. They too receive less from inside the district and more from their state. Members who are in costly races also earn less of their funds from inside the district. However, in this situation, members search outside of their state for more money.

Redistricting and Contributing

Although the above analysis explains where members collect contributions from individual contributors, it rests on an important assumption. The assumption is that the geographic areas remain constant over time. In actuality, the assumption does not always hold as every ten years states are forced to redraw district boundaries to accommodate for changes in population. After the boundaries change, some contributors may find themselves living in a new district. This event provides a unique opportunity to test the link between the representative and the contributor. If a member's ability to fundraise is not effected by redistricting, then it suggests a weak link between being elected to represent a contributor and earning their donation.

After each round of redistricting, members of Congress find that some of their old constituents no longer remain in their districts while new ones take their place. In Fenno's (1978) language, this represents a change in the geographic constituency. Figure 3 presents a stylized depiction of how a member's district can change. The upper portion of the figure, pre-redistricting, shows two districts, one and two, separated by the solid vertical line. It also shows four areas, A, B, C and D, separated by both the solid vertical line and the horizontal dashed line. In this simplified version of redistricting, each of the areas contains an equal number of constituents. The lower portion of the figure shows the new districts post-redistricting, now separated by the solid *horizontal* line. The table depicts an exhaustive but non-mutually exclusive typology of areas. For example, area A was part of district one before and after redistricting so it is type in-in for district one but out-out for district two. Area B, however, left district one after redistricting and is now new to district two so it is labeled type in-out for district one and out-in for district two. Area C is out-in for

district one and in-out for district two while area D is out-out for district one and in-in for district two. Since each of the areas contains equal populations, both district one and district 2 are 50 percent continuous, or conversely, 50 percent new.

This section of the paper seeks to determine what happens to the contribution patterns from areas that are continuous to a district (in-in), new to the district (out-in) and areas that no longer remain inside the boundaries (in-out). In their study, Francia et al. (2003:105) find a strong link between geography and the contribution. If there is a solid link between contributing to a representative and living in that person's district then I expect that the more a district changes in terms of population, the less an incumbent will earn from the area that remains within the district (in-in) before and after redistricting, *ceteris paribus*, compared to members who represent districts that do not change.⁶⁶ Members earn less the more the district changes because they have a smaller district continuous core compared to a district that does not change. If members collect less money as a result of district change, then this implies that the bond between a member and contributor can be broken.

Keeping that in mind, individuals who are in districts that undergo a large amount of change will have more of their old constituents in other districts and should be able to continue to collect from those individuals. As such, the more a district changes, the more a member should collect from areas that have left the district (in-out) compared to representatives who have few of their previous constituents living outside the district. Members in large changing districts will also have the opportunity to earn contributions

⁶⁶ There is some evidence that redistricting may not matter. For example, Francia et al. (2003:23) point out that 45 percent of donors who gave to a member in 1978 continue to give to that member in 1996, even though they are now represented by someone else. Yet, this still leaves 55 percent who did not continue to give.

from individuals that are new to the district. Therefore, the more a district changes, the more a member can collect from areas that are new to the district (out-in).⁶⁷

District change data

To test these hypotheses, I use a model similar to the one used in the first set of regressions with a few modifications. First, as the hypotheses suggest, the dependent variable is the *amount* of money collected from each of the three redistricted areas for the 2002 election divided by 10,000. I estimate three separate models, one for each of the areas.

In order to gauge district change I use a measure, detailed in Crespin (2005) which I will briefly describe. First, the district boundaries for the 2000 and 2002 congressional elections are spatially intersected. Then, these areas are overlaid on top of census tract boundary files.⁶⁸ After this step, the census tracts are deemed new (drawn into the incumbent's district), removed (drawn into a new district and no longer remaining in the incumbent's district) or continuous (remain in the district pre and post-redistricting). Next, the population of the tracts that are continuous to the incumbent's district is divided by the total district population. This number is then subtracted from 100 percent and the result is the percent of the population that is new to a member's district. Referring back to Figure 3, the percent new in district one would be the population from area A divided by the sum of the population from areas A and C. I expect that the sign for the coefficient for this variable, *% New population*, to be negative in the continuous area regression and positive for the other two, out-in and in-out. Percent

⁶⁷ Since the out-out category remains constant before and after redistricting, it is not included in the analysis.

⁶⁸ According to the census, tracts are small subdivisions of a county. They are designed to be relatively homogeneous units and average about 4,000 inhabitants.

new population is also interacted with another variable, Δ *Presidential vote* to create a variable that measures both direction and magnitude of change.

Change in presidential vote is the standard measure used to gauge political change in the district (Ansolabehere, Snyder and Stewart 2000, 2001). This measure is taken from *CQ's Politics in America* and is the difference between the two-party share of the vote in 2000 and the share of the vote recalculated to the new district boundaries for the 2002 elections. Al Gore's vote share is used for Democrats and George W. Bush's for Republicans so positive numbers mean the district is moving in the incumbent's direction.⁶⁹ In addition to these two variables and the interaction term, each model has a variable that measures the median household income for the respective areas. As the median income increases, I expect the incumbent to earn more contributions.

Redistricting Results

Table 3 displays the results of the ordinary least squares regressions used to test the influence of redistricting on individual campaign contributions. In terms of the control variables, members with more seniority collect less from the core of their district and from constituents that left the district. This is consistent with the earlier results that found as members serve additional terms, they collect more money from out of the state. This suggests that members may be trying to insulate themselves from redistricting during the course of their career. Next, the results indicate that Democratic incumbents lose money from the core of their district (in-in) and earn fewer contributions from new constituents compared to Republicans. Similar to the previous model, the more

⁶⁹ For example, if Bush received 63 percent in 2000 which was then calculated to be 61 percent in a new Republican district in 2002, the change in presidential vote would be $61 - 63 = -2$.

spending in a race, the more money members earn. Finally, in each of the three areas, as median incomes increase, members are more successful at fundraising.

Because the main variable of interest (percent new population) is interacted, the marginal effects and standard errors from the table are sufficient for interpretation since they vary depending on the values of the two interacted terms.⁷⁰ Figure 4 displays meaningful marginal effects and standard errors for percent new in the district, however, the dependent variable is rescaled to actual dollars instead of tens of thousands of dollars. In the figures, the solid line is the marginal effect of one percent new in the district over the range of change in presidential vote while the dashed lines represent 95 percent confidence intervals. The Y axis is total dollars and the X axis represents the change in presidential vote. Recall that negative numbers mean that the district is moving away from the incumbent. In the first column are the results for continuous areas, the second column shows results for areas that are new to a district and the final column represents the marginal effect for areas that were drawn out of the district. As long as the dashed lines do not bound zero (the dotted line), then percent new in the district is significant for that particular value of change in presidential vote.

When it comes to continuous areas, the marginal effect for each percent new in the district is negative and significant until change in presidential vote is equal to positive six. Substantively, this means that if the district moves away from the incumbent or

⁷⁰ For example, if $Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 XZ$ then the marginal effect, $\frac{\partial Y}{\partial X} = \beta_1 + \beta_3 Z$ and the variance used to calculate standard errors is, $\sigma^2 \frac{\partial Y}{\partial X} = \text{var}(\hat{\beta}_1) + Z^2 \text{var}(\hat{\beta}_3) + 2Z \text{cov}(\hat{\beta}_1, \hat{\beta}_3)$ (see Bambor, Clark and Golder 2005).

slightly in their favor, they collect less money from individuals compared to a district that did not change. If the district moves more in favor of the incumbent, then the amount of population change has no effect on the amount of funds raised. When change in the district is politically neutral, members lose \$2,034 for every percent of the population that is new. In terms of dollars then, this means that at the average level of percent new, 21.4 percent, and no political change, members lose about \$43,500. This corresponds to 35 percent of the total collected from continuous areas and about 13 percent of the total amount of contribution from individuals.

Although members lose money from their core district after a redistricting, they can still hope to earn contributions from their new constituents and those that have left the district. However, as the results indicate, they do not take in enough new money to make up for the money that they lose. For districts that have neutral political change, members earn \$576 from new constituents and \$634 from constituents that have left the district for every one percent new population. At the average amount of district change then, this amounts to a net loss of about \$17,600 or about 5 percent of the total collected from individuals as a result of redistricting. While this result is not overwhelming, it is non-trivial since members who are losing voters are the most in need of additional campaign funds.

Motivations for Giving

The results so far indicate that geography is an important determinant of the contribution, but the process does not take place in a vacuum. Individuals do not give simply because they reside in the same district as the member. Many give because they expect something in exchange for the contribution (Snyder 1990). Some contributors

are looking for tangible rewards and are deemed “investors” by Francia et al. (2003). These types of contributors are in search of *narrow* benefits for their particular industry, company or even their personal financial situation. However, it may not be correct to assume that all donors are seeking a monetary reward. The study also found that others, deemed “intimates”, give for solidary or social motives. Similar to the interest group literature (e.g. Olsen 1971), these contributors donate for the psychological rewards that come from the social aspect of giving. Unlike investors, solidary contributors do not give seeking tangible rewards. Consistent with solidary motivations, this type of contributor will give when invited to a fundraiser or directly asked by the candidate or a close friend. Some intimates stated “that friendship with a candidate or a solicitor was always important in helping them to decide to contribute,” (47). Others acknowledged that local community ties played a major role in the decision calculus. In other words, there needs to be a social or local connection between the contributor and the campaign for an intimate to donate.

These two types of contributors, the study determined, were not evenly distributed across the two major parties. Democrats gave largely based on solidary reasons while Republican focused on material gains. Since 75 percent of contributions did not cross party lines (Francia et al. 2003:105), it is reasonable to assume that Democratic members get most of their individual contributions from people who give for solidary reasons while Republicans receive donations based on material rewards. Below, I extend their theory to incorporate changes as a result of redistricting.

Given the different types of contributors, it may not be clear how redistricting will influence their behavior. Based on the reasons for giving, it may be the case that

redistricting does not influence the types equally. However, it seems reasonable to assume that since investors, i.e. Republicans, are giving for tangible rewards, they should be more likely to abandon their previous representative. This should hold especially if the member in the old district no longer has the ability to exchange particularized benefits for contributions.⁷¹ Solidary contributors, i.e. Democrats, are likely to give if their social group is connected to a candidate or local party. Since contributors who live in a different district after redistricting physically reside in the same location, their social networks are unlikely to have changed. In view of this detail, Democrats who have been drawn into new districts should be less likely to abandon their former member of Congress.

To test this hypothesis, I reran the regression on areas that were drawn out of the district separately for the Democrats and Republicans. These results are presented in Table 4 and are quite similar across the two parties, except for one key difference. The sign on the interaction term is negative for Democratic incumbents and positive for Republicans. Substantively, this means that as a Democrat's district becomes more Republican, he collects *more* money from areas that have left the district. In contrast, as a Republican's district becomes more Democratic, she earns *less* money from those areas. These results are made more apparent in Figure 5, a figure analogous to Figure 4. In the first column, the marginal effect of each percent new in the district is positive and significant for Democrats until the district moves five percentage points in the Democratic direction. At this point, the effect is no longer significant. Further, the

⁷¹ While there is no evidence of one to one exchanges between contributors and representatives, it is likely that a member of Congress will target rewards *in* their district versus outside of the district if given a chance.

slope of the line is negative indicating that Democrats collect less money the more their district moves away from them. This implies that Democratic contributors are willing to help their old representative out if they are in trouble but if the old member is safe, they will no longer contribute.⁷² Almost the exact opposite is evident for Republicans. Republicans will collect more money from their old constituents only if it looks like they have a good chance of returning to office. As the district moves in favor of the Republican incumbent they pick up more money from areas that previously were in their district. However, if the change in presidential vote is negative, then the effect is not statistically significant. Both of these pieces of evidence are consistent with Francia et al.'s theory that Democratic and Republican donors have different motivations for giving. Since Democrats receive contributions if they are more likely to lose, then it is unlikely that Democratic contributors are seeking some sort of tangible reward. On the other hand, Republican incumbents receive more contributions from their old constituents only if they have a good shot at returning to office. This means that Republican contributors are more likely to give if they can get something in return.

Conclusion and Future Research

In this paper, I have shown that representatives' abilities to earn money from different geographic regions are dependent on their demand for funds and the available supply of contributions in each area. Although members of Congress frequently have to look outside of the district for funds, there was no evidence that more extreme incumbents were more successful at earning outside donations. When it comes to

⁷² One could also argue that members who are in trouble would be more likely to ask former constituents for a donation.

factors that are specific to each member, more senior incumbents take home a greater percentage of their individual contributions from outside the state, and less from inside their home state or district. Democrats also collect more from outside the district, but largely from inside their state. However, there is no evidence that more extreme members collect a greater percentage of money from outside their states.

When total spending in a race is high, and members demand for money increases, they are forced to look outside the district to other states for money. Members also look outside the district, although within the state, when they are not a good political match for the district.

When it comes to redistricting, the more a member's district changes, the less money they earn from individuals compared to districts that do not change. On average, representatives lose about \$17,600 as a result of redistricting. This amount includes money lost when the district core shrinks, and money gained from new constituents. When it comes to holding onto old contributors, there is a difference between the two parties. Democrats earn money from the former parts of the district if their new district is more Republican. In contrast, Republicans receive money from their old contributors when their new district is more favorable politically. This helps to highlight the differences between contributors who give for solidary or tangible reasons. In terms of representation, this paper showed that the relationships between a member and contributor are not static; rather they can change depending on where the contributor resides.

In future research dealing with individual contributors and geographic areas I hope to move on to a more micro analysis at the individual donor level. By matching up

contributors across elections, I will better be able to test the influence that redistricting has on constituent behavior. I anticipate that individuals moving from districts that were in the minority to the majority and vice versa may also change their donation behavior in different ways. Although this paper has answered some basic questions, it could not answer all of them and in turn, has raised others. By moving beyond the aggregate level, I hope to find answers to some of those questions.

Table 1 – Percent of Money to Incumbent Candidates, 1999-2000 Election Cycle

Party	In District	Out of District/ In State	Out of State
Democrat	.30	.27	.43
Republican	.44	.23	.33

Table 2 – Percent Contribution from Geographic Areas

Variable	Seemingly Unrelated Regression Coefficient (Standard Error)	
	In the District	Out District of in State
<u>Member</u>		
Absolute Value W-NOMINATE	.082 (.373)	.125 (.340)
Seniority	-.172* (.016)	-.124* (.014)
Prestige Committee	.325* (.142)	.035 (.129)
Constituency Committee	.351* (.139)	.213 (.126)
Party (1=Dem.)	-.477* (.155)	.237 (.141)
<u>Election</u>		
Total Spending	-.002* (.0006)	-.0006 (.0005)
Quality Challenger	-.081 (.160)	-.086 (.146)
<u>District</u>		
District Median Income	.070 (.055)	.046 (.050)
District Presidential Vote	-.015* (.006)	.001 (.006)
Number of Districts	.0007 (.004)	.024* (.004)
Constant	1.92* (.480)	.136 (.436)
N	388	388
χ^2	185.31*	134.77*
R ²	.323	.258

Note - Dependent variable for “In the District” is the log-ratio of the percent of in-district contributions with respect to the percent of out-of-state contributions. Dependent variable for “Out of District in State” is the log-ratio of the percent of out-of-district-in-state contributions with respect to the percent of out-of-state contributions.

Table 3 – Contributions from Areas that are Continuous, New or Left the District

Variable	OLS Coefficient (Standard Error)		
	Continuous (In-In)	New to the District (Out-In)	Left the District (In-Out)
<u>Member</u>			
Absolute Value W-NOMINATE	-6.66 (4.24)	-1.66 (.952)	.589 (.926)
Seniority	-.692* (.134)	0.040 (.030)	-.147* (.036)
Prestige Committee	1.92 (1.42)	.349 (.292)	.191 (.425)
Constituency Committee	-1.18 (1.34)	.501 (.303)	-.092 (.393)
Party (1=Dem.)	-6.74* (1.47)	-.707* (.303)	.221 (.411)
<u>Election</u>			
Total Spending	.059* (.014)	.008* (.002)	.007* (.003)
Quality Challenger	1.64 (2.63)	.068 (.437)	-.073 (.562)
<u>District</u>			
Median Income	1.79* (.602)	---	---
Continuous Areas		.299* (.091)	---
Median Income	---		.334* (.084)
New Areas			
Median Income	---	---	
Old Areas			
District Presidential Vote	-.072 (.057)	.026 (.016)	-.009 (.017)
% New Population	-.203* (.036)	.058* (.011)	.063* (.011)
Δ Presidential Vote	-.757* (.335)	.114 (.076)	.112 (.094)
% New Population × Δ Presidential Vote	.020* (.009)	-.002 (.002)	-0.0004 (.002)
Number of Districts	-.041 (.028)	-.008 (.008)	-.001 (.008)
Constant	18.35* (4.37)	-2.36* (1.03)	-1.28 (1.16)
N	384	283	284
F	11.05*	8.78*	7.74*
Adj. R ²	.42	.33	.33

Dependent Variable – Amount of Contributions divided by 10,000.

*p<.05

Table 4 – Contributions from Areas Drawn Out of the District (In-Out) by Party

Variable	OLS coefficient (standard error)	
	Democrat Incumbent	Republican Incumbent
<u>Incumbent</u>		
Absolute Value W-NOMINATE	.273 (1.13)	.970 (1.74)
Seniority	-.156* (.058)	-.136* (.039)
Prestige Committee	.365 (.700)	-.289 (.340)
Constituency Committee	.475 (.726)	-.278 (.331)
<u>Election</u>		
Total Spending	.020* (.006)	.003* (.001)
Quality Challenger	.349 (1.05)	-.188 (.367)
<u>District</u>		
Median Income	.369* (.136)	.319* (.110)
Old Areas		
District Presidential Vote	.013 (.025)	-.0001 (.025)
% New Population	.067* (.022)	.048* (.008)
Δ Presidential Vote	.189 (.137)	.023 (.118)
% New Population × Δ Presidential Vote	-.004 (.003)	.004 (.003)
Number of Districts	-.012 (.013)	-.003 (.008)
Constant	-3.97 (2.02)	-1.12 (1.54)
N	122	162
F	3.83*	10.47*
Adj. R ²	.41	.37

Dependent Variable – Amount of Contributions divided by 10,000. All income and spending variables divided by 10,000

*p<.05

Figure 1 - Individual Congressional Campaign Contributions, 2001-02
Percent by party per ZCTA* - Incumbents only

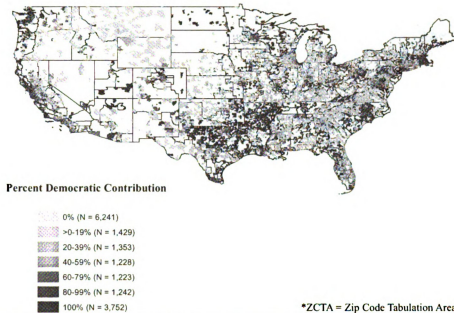
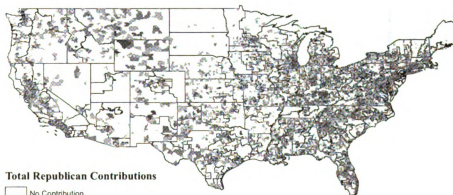
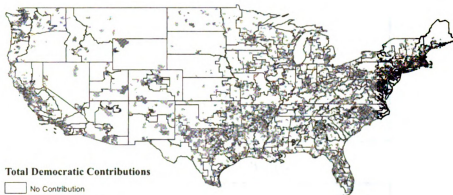


Figure 2 - Total Individual Congressional Campaign Contributions, 2001-02

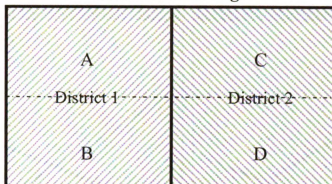
Contributions by party per ZCTA* - Incumbents only



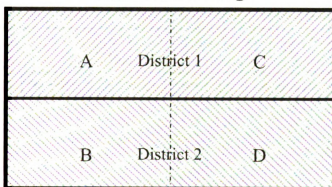
*ZCTA = Zip Code Tabulation Area

Figure 3 – Area Typology

Pre-Redistricting

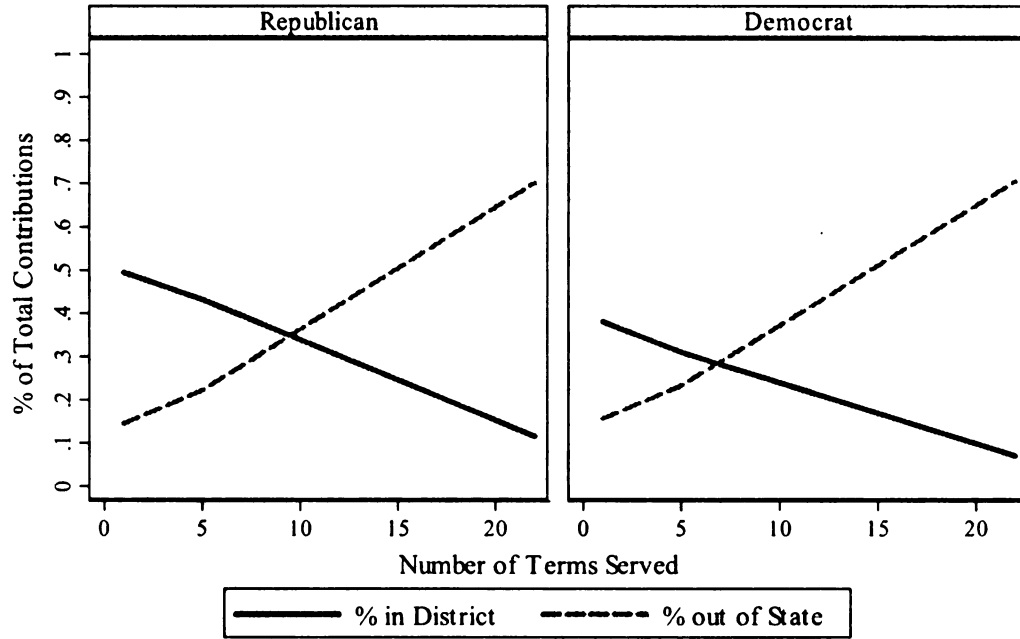


Post-Redistricting



District	Area	Type
One	A	In-In
	B	In-Out
	C	Out-In
	D	Out-Out
Two	A	Out-Out
	B	Out-In
	C	In-Out
	D	In-In

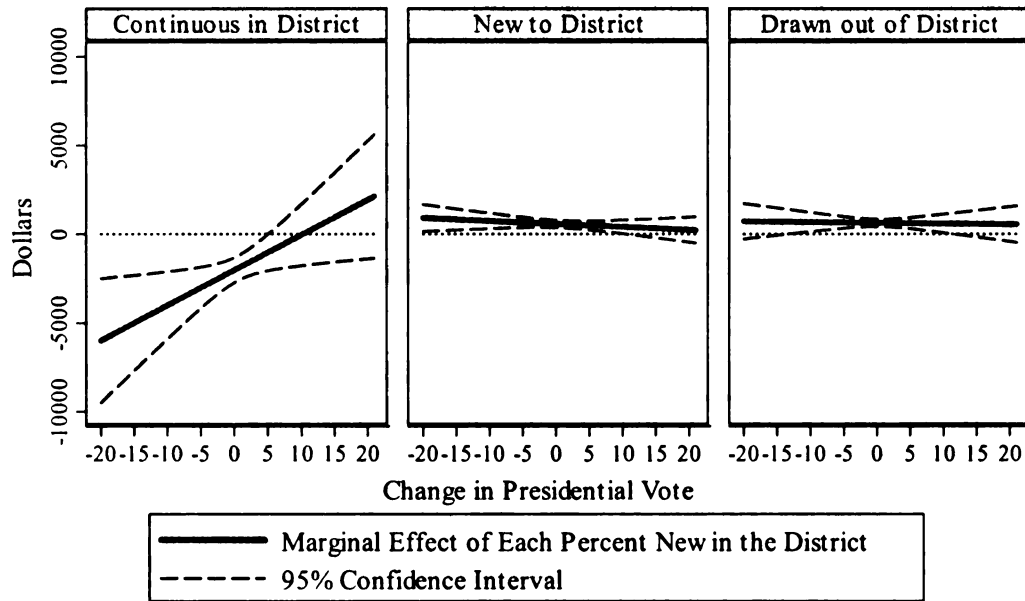
Figure 4 - Effect of Seniority On Contribution Area



Graphs by party

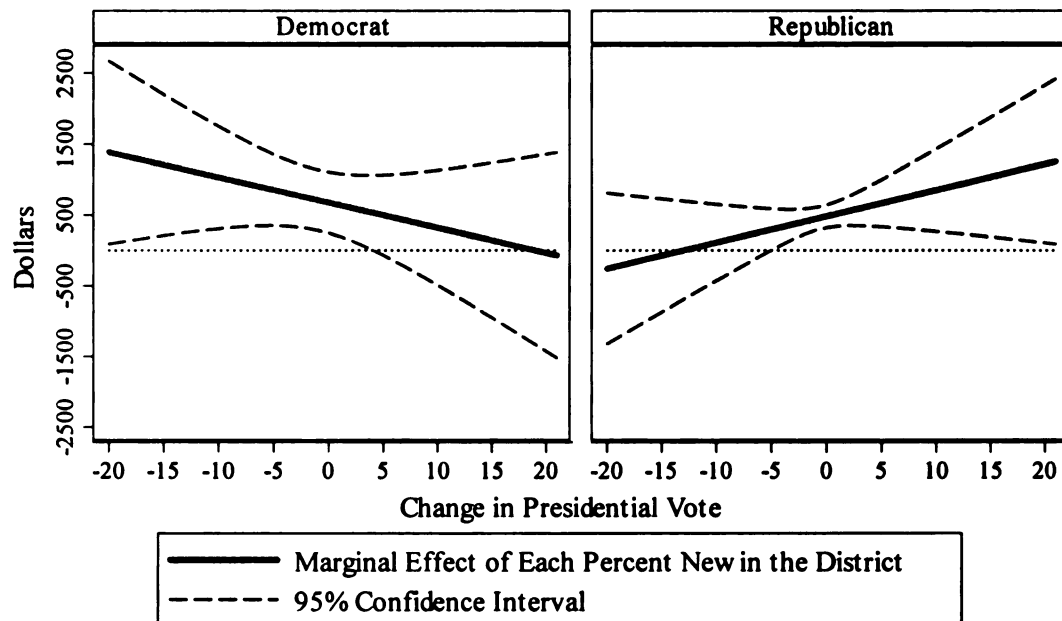
Figure 5 - Effect of Percent New in the District On Contributions

Dependent Variable - Contributions from ZCTAs



ZCTAs - Zip Code Tabulation Areas

Figure 6 - Effect of Percent New in the District On Contributions by Party
 Dependent Variable - Contributions from Old ZCTAs



ZCTAs - Zip Code Tabulation Areas

Chapter 5 - Conclusion

Pitfalls and Practicalities

Throughout this dissertation, I have largely ignored two potential threats to validity that plague all social science research – endogeneity and spatial-autocorrelation. In this section, I will first describe the two terms and then discuss how they may threaten my results.

Spatial autocorrelation stems from Tobler's (1970:236) first law of geography, that is, "everything is related to everything else, but near things are more related than distant things." This is clearly true in the social sciences as all one has to do is imagine the red and blue map of county election returns. Red counties dominate most of the space in the map and blue counties are clustered near each other in cities.

Spatial autocorrelation is defined as the "correlation among values of a single variable strictly attributable to the proximity of those values in geographic space, introducing a deviation from the independent observations assumption in classical statistics," (Griffith 2003:3). The most common form of spatial autocorrelation is positive spatial autocorrelation. This form is present when high values are proximate to high values and low values are proximate to low values. For example, wealthy city blocks tend to be near other wealthy city blocks. The less common type of this phenomenon is negative spatial autocorrelation and is present when high values are next to low values and medium values are next to other medium values.

Essentially, the problem of spatial autocorrelation is one of interdependence of observations. When data are spatially autocorrelated, the value of one observation can

be predicted based on adjacent observations. Spatial autocorrelation violates the assumption of independence of observations which is a concern for hypothesis testing. If the observations are spatially clustered in some way, the estimates obtained from the OLS estimator will be biased and overly precise due to the lack of independence of observations.

One way to test for spatial autocorrelation is an indicator called Moran's I. This test compares the value of the variable at any one location with the value at all other locations (Moran 1950). The statistic is similar to a correlation coefficient and varies between negative one and positive one. Positive numbers correspond to a high degree of positive autocorrelation and negative numbers indicate negative autocorrelation.

In this dissertation, since the unit of the analysis is measured at the district (or member) level, it could be the case that measures from one district are not independent from neighboring districts. For example, are districts that undergo significant change more likely to reside near each other? Alternatively, districts that undergo small amounts of change may also be spatially close. If this is indeed the case, then the results from the regression analyses may be biased.

Unfortunately, testing for spatial autocorrelation using the data in this dissertation is not altogether straightforward. The district boundary files as created by the census bureau do not contain one shape for each congressional district. Many districts are made up from several smaller polygons and there is an average of two polygons for each district. This does not pose a problem for spatial intersection but does for testing for spatial autocorrelation. For example, if district A was made up of three separate polygons and each of those polygons contained the exact same value on some measure,

then a test for autocorrelation is likely to report that it is present. However, it may prove to be a false positive since there are multiple measures for each unit. In order to correctly test for autocorrelation then the polygons for each district need to be merged in some fashion so that there is only one polygon for each district. This task proved quite difficult for this user within the Arc/Info software package and I was not able to successfully test for spatial autocorrelation.

Since I was unable to test for spatial autocorrelation, then the reader must exercise caution in terms of making causal inference. However, and perhaps more disconcerting, is the fact that almost all the research within political science ignores this potential problem.⁷³ In future research, I hope to better directly account for the effects of spatial autocorrelation.

Another potential threat to validity from this and all other research is the issue of endogeneity. More specifically, endogeneity exists when an “explanatory variable in a multiple regression model is correlated with the error term, either because of an omitted variable, measurement error, or simultaneity,” (Wooldridge 2003:835). If endogeneity is a problem, then the results are biased and possibly inconsistent. One way to control for endogeneity is by using instrumental variables and/or two stage least squares.

In terms of the analyses presented here, endogeneity may be a problem since district boundaries are not drawn in a vacuum. That is, there is a great deal of strategy behind the drawing of district lines. When Republicans are in charge of drawing district boundaries, they try to draw seats that can elect more Republicans and if possible, hurt

⁷³ For an exception, see Cho 2003.

Democratic incumbents.⁷⁴ The opposite hold if Democrats are drawing the lines.

Alternatively, when there is divided government, the result is generally an incumbent protection plan. A final group of line drawers are commissions and courts. When they are in charge of redistricting, districts tend to be more competitive compared to when political parties are involved (Carson and Crespin 2004).

In future research, I hope to not only control for this potential problem, but exploit it. For example, it would be interesting to see if members are more or less responsive to their district depending on who draws the boundaries. If commissions or courts increase competition, but decrease responsiveness, then perhaps policy makers may want to rethink this type of map making. However, if members who represent commission drawn districts do a better job of representing their districts, then this is another argument that one could use to change districting methods. As such, I hope to test for this in other research projects.

Concluding Remarks

In this dissertation, I have presented three essays that investigate the link between members of Congress and their constituents. I studied representation in each part of the party trifecta, in-the-electorate, in-government and in-organization (Key 1964, Beck and Sorauf 1991). In each essay, I used a new continuous measure of district change that is an improvement over the previous, dichotomous measure. In the first essay, the results suggested that as a district changes, a member's margin of victory varies. As more people of the incumbent's party enter the district, their margin of victory

⁷⁴ See Butler and Cain 1992 for a discussion of districting strategy.

increases. In contrast, if the district moves in the other direction, members do worse in the first election after redistricting. However, if the political change was neutral, but many new constituents entered the district, members saw a decline in their margins because the new constituents did not have time to form a representational bond with the incumbent.

In the second essay, I tracked changes in member behavior before and after redistricting. As members picked up different types of voters, they changed their voting behavior accordingly. However, members only changed their voting patterns in response to changes in the district on votes that were visible to their coefficients, namely final passage votes. Alternatively, any changes in a member's voting behavior on procedural votes – votes that the district does not understand – were not related to changes in the district. Instead, members moved to the left or right as their party median changes. Contrary to previous research, these results demonstrate that after redistricting, members of Congress do not adapt *all* of their behavior to fit their new district.

In the third and final essay, I provide evidence that members are able to earn campaign contributions from individuals from different geographic areas depending on the amount of money they demand, and the supply of money from each area. Then, I demonstrate that when districts change, members earn less as their core shrinks. They can earn some, but not all, of the money back from their new constituents, and those that have left the district. This means that the bonds of representation can be broken after redistricting, but can be formed with new constituents. In sum, I have shown that

redistricting is able to influence representation in all aspects of the political process
when we look in the right places.

Appendix

Final Passage Votes

Passage of a Bill
Final Passage of Conference Report
Final Passage of Joint Resolution
Passage over Presidential Veto
Suspension of Rules for a Bill
Suspension of Rules for a Joint Resolution
Suspension of Rules for Conference Report
Motion to Suspend the Rules and Concur
Amendments to the Constitution
Final Passage of Resolution
Adoption of Concurrent Resolution
Suspension of Rules for Concurrent Resolution
Suspension of Rules for a Resolution
Adoption of First Part of Resolution
Adoption of Second Part of Resolution

Partisan Procedural

Budget Waivers
Motion to End Debate
Motion to Rise from the Committee of the Whole
Motion to Disagree
Passage of Rules (Special Rule)
Motion to Recede
Motion to Order Previous Question
Election of Speaker
Motion to Recommit
Motion to Instruct Conferees
Motion to Recede and Concur
Previous Question on Special Rules

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