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Electoral District Structure and Political Behavior

by

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ABSTRACT

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Assertions of the value of "traditional districting principles" are tested using survey data and contextual variables describing Congressional districts' geographic characteristics. Electoral district geography is found to have systematic relationships with citizen political behavior. District conformity to media market boundaries is found to affect citizen attentiveness to political campaigns as well as voter turnout. Some evidence is found to support the argument that district compactness matters for political behavior as well. These findings demonstrate that district shape matters in the political lives of citizens, and provides a better understanding of the particular implications district characteristics have for voters.
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Chapter 1: Introduction

"It requires no special genius to recognize the political consequences of having a district line along one street rather than another. It is not only obvious, but absolutely unavoidable, that the location and shape of districts may well determine the political complexion of the area. District lines are rarely neutral phenomena."

Justice Byron White. Gaffney v Cummings (1973)

Justice White's concern with the location and shape of electoral districts might seem obvious and unavoidable to him, but the consequences of the geographic layout of district plans have sparked serious policy and scholarly debate only recently. For centuries, the way districts were drawn and the particular constituents they contained drew very little attention from critics and commentators. Districts were manipulated for political gain, and population inequalities were ignored. The Supreme Court regularly rejected requests to rule on districting arrangements, arguing that districts were political decisions and thus had to be addressed in the political arena. Only in the mid-twentieth century did district characteristics begin to receive attention, and only then did policy makers begin to regulate the characteristics of districts. Political scientists have also, only recently, begun developing the perspective that would address the question of how electoral structures such as district shape matter for politics.

In this project, I provide examples of how electoral institutions, including the character of an electoral system's districts, have been linked to both electoral outcomes and the behavior of citizens in cross-national studies. I then note that in the American context this linkage between electoral districts and the behavior of citizens has only been explored theoretically. I argue that the empirical literature on U.S. elections and district characteristics fails to show how electoral district variation might impact citizens.
Finally, I argue for studying U.S. electoral district differences and their implications for citizen-level behavior, and outline a theory and tests for doing so.

Electoral Structures and Voters

Recent developments in political science have focused on how institutional conditions impact political outcomes (Heclo, 1977; March and Olson, 1984; North, 1990). Spurring this institutional focus are findings that even small changes in institutional rules can have substantial implications for political outcomes (Arrow, 1951; Ostrom, 1995). The growth and influence of this "new institutionalism" has been felt in various subfields, with topics ranging from the causes of conflict in the international arena to the policy consequences of rules changes in the U.S. House of Representatives. This relatively new emphasis replaces the once popular idea that political institutions are the product of important social, economic, or cultural factors at work in a polity. The rules of the political game, we are finding, are an important determinant of political outcomes rather than merely a byproduct of more fundamental processes. The idea that behavior is driven significantly by institutional features and political rules has been a popular and fruitful one, and has driven a great deal of current research into questions of why people behave the way they do.

In much of the recent political science literature, attention has been devoted to how differences in electoral rules impact both outcomes and the behavior of citizens. Work by many scholars has found that electoral rules and structures impact the number of parties that will emerge (Duverger 1954), the formation of coalitions (Laver and Schofield 1990; Strom, Budge, and Laver 1994), the ideological nature of party proposals (Lijphart 1994), the degree of pork barrelling that will occur during policy formation
(Lancaster and Patterson 1990), voter turnout rates (Jackman 1987), voters' propensity to vote strategically (Cox 1997), citizen satisfaction with government (Anderson and Guillory 1997), the amount of political unrest in which citizens engage (Powell 1982, Krain 1998), and other important factors in the political system.

The electoral district plays a prominent role in this literature—albeit in a limited form. The number of representatives per district (the "district magnitude") has been found to have a great impact on citizen political behavior. Duverger (1954) finds that district magnitude explains the number of parties in a political system, noting the "psychological effect" that district magnitude has on how citizens decide to vote. Jackman (1987) finds that turnout levels are influenced by the proportion of votes to seats in the electoral system, which Lijphart (1990) shows is influenced profoundly by district magnitude. The comparative literature on voting behavior highlights the electoral district as an important feature of the election system, one that plays an important role in determining individual-level behavior.

It is striking that most of this research is done by comparative scholars. Studies of the industrial democracies offer variation on several important institutional variables: party structure, aggregation rules, and constitutional arrangements, to name a few. Variables such as these have been shown to account for a great deal of the variation in political outcomes. However, scholars studying mass political behavior in the United States have not turned to political institutions as readily as have comparativists, perhaps because the variables that work so well cross-nationally do not tend to vary either over time or across political units within the U.S.
Political scientists have not aggressively pursued the study of the impact that electoral districts have on American voters. Our attempts to explain variations in how voters behave in the U.S. have relied on theory that is largely focused on individual-level differences. Scholars typically reference psychological variables, class-based explanations, and resource models to explain differences in American voting patterns (Berelson, Lazarsfeld, and McPhee 1954; Campbell, Converse, Miller, and Stokes 1960; Wolfinger and Rosenstone 1980; Fiorina 1981; Cain, Ferejohn, and Fiorina 1987; Rosenstone and Hansen 1993; Miller and Shanks 1996).

Districts do play a role in a number of important behavioral studies of representation in the U.S., but these studies focus almost exclusively on districts’ implications for the attitudes and behavior of representatives (Miller and Stokes 1963, Fiorina 1974, Fenno 1978, Converse and Pierce 1986, Arnold 1990). District characteristics can determine how a representative approaches the task of serving in the House of Representatives (Fenno 1978), as well as how a representative behaves in the legislation-making process (Arnold 1990). The literature shows that district concerns play an important role in determining the behavior of representatives, but it does not address the link between district differences and constituents.

Given that almost every national and state election in the U.S. takes place in a single-member district (exceptions are rare, but include such institutions as the North Carolina House, which elects members in multi-member districts), districts are viewed as equivalent from the perspective of most existing political science research linking electoral structure to mass behavior. However, single-member districts are certainly not equivalent in every sense. In fact, the theoretical implications of the variation that does
exist in U.S. electoral district structure has sparked a great deal of controversy, mostly related to the practice of drawing majority-minority districts.

In the context of a single member district system it is difficult for minority groups that are not geographically concentrated to elect minority candidates. It has long been argued that the U.S. system of winner-take-all, single-member districts under represents minority groups (McClain and Garcia, 1993). As a remedy for this situation, the U.S. has adopted the practice of intentionally constructing electoral districts that contain a majority of the minority population. By drawing district lines in such a way that a majority-minority district results, the hope is to give minorities the chance of electing minority candidates. The Justice Department has signaled that states should draw as many minority districts as feasible (Gingles: Shaw v Barr, 1992), and in 1992, twenty-five U.S. House districts were created with the intention of electing African American or Latino Congressmen. Majority-minority districts have attracted their fair share of controversy, and we are still in the process of resolving the details of majority-minority districting.

Debate Over Electoral Districts and Voters

Many of the districts drawn to meet representational criteria have been criticized for violating traditional districting principles, and thereby discouraging meaningful political debate and engagement. In their discussion of congressional redistricting, Butler and Cain (1992) outline three "considerations involving form" that they estimate "few would quarrel with" as guidelines for drawing districts. The considerations Butler and Cain suggest broadly coincide with much of the argument over traditional districting
principles. These considerations are "equal numbers," "natural frontiers," and "compactness and contiguity" (p. 65). Of these, "equal numbers" and "contiguity" are not controversial. Numerical equality of district populations in a state has been a strictly adhered to requirement since the Supreme Court demanded it in Reynolds v. Sims (1962). District contiguity is also a standard practice that is not notably violated in modern districting plans.

The conditions that districts be more or less compact and respect natural frontiers, however, are often disregarded in majority-minority districting plans. Plans that contain extremely non-compact districts that are unrelated to recognized boundaries have attracted criticism due to their "bizarre" shapes and their "artificiality" as representational units. A Wall Street Journal editorial, for instance, called North Carolinas 12th District "political pornography," (Feb. 4, 1992, at A14) and argued that this district and districts like it violate reasonable standards, and are unacceptable representational units.

Traditional districting principles and their link to constituent well-being are often asserted, but are rarely carefully explained. Critics posit important relationships between district structures and citizens’ attitudes and behavior. These critics do not, however, empirically confirm their assertions. In the next section I will discuss several theoretical arguments linking traditional districting principles to citizens’ attitudes and behavior.

**Compactness**

Compactness standards are often defended as protection against the possibility of gerrymandering (McDonald, 1996; Polsby & Popper, 1991; Stern 1974). The argument here is that compactness restricts the individuals who draw district lines from allowing themselves to think only of grouping people into districts that benefit one group or
political party. The requirement that districts be compact, in this view, is a barrier to those who would manipulate the district drawing process purely for political gain. Polsby and Popper (1991) argue that requirements that force districts to be compact will help make "the gerrymanderers life a living hell."

Compactness requirements are also defended with reference to the benefits of compactness itself. From the point of view of representatives and candidates for office, sprawling districts can make contacting a district's constituents more difficult. Fenno (1978) observes that representatives can have a difficult time finding constituents to present themselves to. Non-compact districts increase the difficulties that a representative or candidate must overcome in contacting constituents. If sprawling districts are created, and the space containing constituents is difficult to comprehend and keep track of, candidates will have a difficult time getting in touch with potential voters.

Additionally, Groffman (1985) argues that several recently constructed electoral districts are malformed and bizarre enough to affect voters' ability to think about the district and what it represents. By hindering citizens' ability to think clearly about the district they are in (what Groffman calls the district's "cognizability"), electoral districts can make political engagement difficult for citizens.

Niemi and Pildes (1993) argue that the problem is not voters' inability to think about districts, but rather the conclusions voters will draw once they have thought about them. Bizarre districts, they argue, imply that something is amiss and that those who make the rules are manipulating the electoral system. The implication this has for citizens is that the value of their participation has been lessened via the fact that the outcomes have to a large extent already been determined. Ely (1997) points out that
residents will be aware of the results built into the strangely shaped district and will find that "the self-actualizing power of the franchise is significantly reduced" when the process looks tainted and manipulated (n.34). Thernstrom (1994) and O'Conner in the Shaw opinion (1993) also express concern that these districts will marginalize voters and send an undesirable and "pernicious" message to constituents about the value and impact of their participation.

**Respect for existing boundaries**

Districts that fail to map onto existing boundaries can also create problems for constituents. Butler and Cain argue that people who live in a district that zigs and zags through urban and suburban areas may have less of a sense of common identity than those in a district that encompasses a compact area, making constituents more confused and ignorant than they would otherwise be about their representatives (p. 72; see also Ehrenhalt, 1993). O'Rourke (1995) argues that districts that ignore established political boundaries, such as county and precinct lines, raise campaign costs and confuse election officials and voters. The networking required of local party officials can also be seen as potentially more difficult when electoral district boundaries do not respect other local political boundaries (Schlesinger, 1965). Republican party official Donald Moon reports that a non-compact district presented problems in his job as District Chairman in Virginia (in Canon, 1999).

Theoretical work on this topic has reached the conclusion that district lines can be drawn with the effect, though unintended, of discouraging political engagement and participation on the part of citizens. These arguments have extended beyond the realm of academic debate, and have made a policy impact in the form of Supreme Court rulings.
Given the influence these opinions have wielded, one would hope that these arguments could be verified empirically.

**Majority-minority districts and turnout**

Scholars have also attempted to find a relationship between majority-minority districts and turnout. Some scholars have made the claim that racial redistricting may affect voter turnout (Lublin 1999, Donovan 1992, Brace et al 1995, de al Garza and de Sipio 1993, Gaddie and Bullock 1997). Contests in majority-Black districts are usually not close, so lack of suspense may depress turnout. And as mentioned above, white voters may abstain because they do not want to participate in an election designed to elect members from the district’s other demographic population. However, Bositis (1995) points out that there is no evidence supporting the claim that majority-minority districts lead to lower levels of turnout. Brace et al. (1995) test the proposition most directly, using a district-level analysis of Florida turnout data, demographics, and majority-minority district information, and they find only mixed evidence of a relationship between minority districts and voter turnout.

The few empirical tests of the effects of majority-minority districting on turnout do not consider the implications of characteristics of the districts. Rather, they test the effect that majority-minority districts have on turnout without reference to traditional districting principles or their implications. This further shows how majority-minority districts are subject to a great deal of empirical analysis that does not speak to the charge that they violate traditional districting principles and lose the crucial benefits that such principles, allegedly, provide.
The literature shows a glaring disconnection between the theoretical concerns over district characteristics and the empirical work on district characteristics. We have seen that many scholars assert, but do not demonstrate, a relationship between district characteristics and participation. We have also seen that many people who study districts empirically do so in such a way that cannot speak to the criticisms of district boundaries based on "traditional districting principles."

I develop a theory that highlights the influence that district characteristics may have on electoral environments and the citizens who are called on to participate in these environments. I integrate geographic measures of district boundaries into models of voter participation to create clear tests of the relationships between electoral district boundaries and citizens. Using this approach, I intend to directly address the question of whether or not traditional districting principles have the benefits posited in discussions of contemporary majority-minority districting practices.

Theory

The literature suggests that violating “traditional districting principles” has a negative effect on the polity in general, and on citizens’ political participation in particular. This assertion has not been adequately explained. At first glance, it might seem strange to argue that a factor as academic as an electoral district’s level of compactness would impact individual-level political behavior. Citizens certainly do not consult the geographic structure of their electoral districts when making political decisions. How, then, could electoral district geography impact the political behavior of individuals?

Scholars wary of the idea that measures describing individuals’ environments
have any direct effect on individuals have raised questions like this before. Hauser (1970) argues that contextual effects, if taken at face value, require that we accept what he can only describe as “magical” forces operating on individuals. The causal path from context to individual, when not carefully explained, implies that a static phenomenon influences people.

Yet other scholars (Huckfeldt and Sprague, 1993; Books and Prysby, 1991) argue that context is an important element in political and social activity, and should be included in explanations of political and social outcomes. Empirical studies (examples are discussed below) have found that many commonly studied political variables, such as voting and party identification, show clear relationships with contextual situations. Context, these studies suggest, cannot be ignored. But saying that context cannot be ignored does not mean that we can get away with poorly explaining the causal mechanisms at work when studying contextual effects. In order for a contextual argument to make sense, some mechanism must be outlined that links context to behavior.

The Role of Context in Political Behavior

People make observations about politics based on the information available to them, and they can discuss these observations with the people they encounter in their environment. Through observation and discussion, people adapt their store of information from which they make judgments about politics and the value of participation in politics. The context in which this activity takes place can impact the amount of information about citizens’ political environment that they receive and the ease with which they can find others to discuss electoral politics.
The geographic characteristics of electoral districts can ease or hinder the flow of the political information to which citizens have access. How sets of districts relate to media sources, for example, can change the way that politics is covered by the media, which in turn can affect the political information to which citizens have access. Also, the geographic structure of citizens' political environment can determine the relative proximity of people who do and do not share their electoral district, thus affecting the ease with which they can discuss the relevant electoral political issues with those around them. In other words, the boundaries of districts can wind in ways that make it difficult to assume that others share the same electoral options that you do. Factors such as these, which can be seen to lead to lower information levels and less political interaction, determine how context influences behavior.

In this project, I am interested in the influence that context has on political participation. The context that I focus on here is the geographic nature of citizens' electoral districts. I argue that the geographic structure of electoral districts impacts voter participation.

**Participation and the Debate Over Redistricting**

Why study political participation? Participation is important for a number of reasons. First, political participation is a legitimizing act. Through voting, the public gives its consent; if not to the policies that emerge from a given regime, then to the government itself. Also, participation contributes to the health of the political system by impacting those who participate. Citizens are better off as active participants in the polity because participation promotes interaction with the political system. Legislation such as the Voting Rights Act (1965) and, more recently, voter-voter registration laws indicate
that society encourages people to participate.

Participation is not only an academic concern, however. The debate over redistricting has as one of its primary documents the Voting Rights Act of 1965. This act was designed to ensure that African Americans are included in the democratic process in the United States. Debates over majority-minority districts are debates over electoral institutions and their impact on representation and the inclusion of minorities as participants in the electoral process. It therefore seems of fundamental importance to ascertain the implications of electoral districting practices for voter participation.

Context Matters

Political scientists usually investigate the roles that incentives and attitudes play in explaining varying levels of political participation among the public. Downs (1957) argued that participation could be explained with simple reference to the costs and benefits of participation. Many subsequent scholars (Riker and Ordeshook, 1968; Fiorina 1981) have used this approach. However, the attitudinal approach developed by the Michigan school (Cambell, Converse, Miller and Stokes, 1960) has come to dominate studies of political participation (Wolfinger and Rosenstone, 1980; Rosenstone and Hansen, 1993).

Despite political science's focus on the individual-level factors driving behavior, the idea that context can lead to changes in individual behavior has existed for quite some time. Over a century ago, Durkheim argued that understanding an individual’s behavior required an understanding of that individual’s context. In his work Suicide (1897), he observes that suicide rates vary by religion, with Protestants more likely to commit suicide than Jews or Catholics. In his study, he finds a striking contextual effect:
Protestants commit suicide less often when they are in communities surrounded by Catholics.

Key (1949) argued that understanding southern politics in the United States requires that we understand the effect of racial context on the behavior of southern whites. White southerners living in the “Black belt” (counties with high concentrations of Black populations) created political institutions in response to their context. The one-party South, Key argues, is the result of political incentives created by the context in which political actors found themselves.

Miller (1956) found that county partisanship has a profound effect on individual votes, and that minority party identifiers frequently vote with the majority when they live in counties where the other party dominates. This is an early empirical test of the idea that the characteristics of where citizens are located play an important role in their political decision-making.

Converse (1962) studied information flow from media sources to individuals and argued that people are exposed to different levels of information, and that unstable voting intentions are related to moderate levels of political information. Low and high levels of information are related to stable intentions, while moderate levels are associated with sudden shifts in intentions.

Ennis (1962) found that citizens’ focus on personalistic or issue-based criteria when choosing a candidate is related the size of respondents’ cities. Those in smaller towns rely on evaluations of “the man himself,” while city residents focus on “the stand he takes on public issues.”

Segal and Meyer (1969) found that neighborhood interactions can have a varying
influence on resident party identification, and that neighborhoods that are more politically ambiguous have more of an influence on voters. This further established the complex and enduring relationship between context and behavior. It seems that when neighborhoods are neither Democratic nor Republican, neighborhood political interactions can be heterogeneous and less biased (because it is more difficult for Democrats and Republicans to isolate themselves) and therefore much more influential on individuals.

Huckfeldt (1986) and Sprague (1982) have argued that participation can largely be explained by individuals' place in social networks. Information and political norms are passed through networks of citizens, and understanding how those networks work will allow us to better understand why individuals behave the way they do when it comes to making political decisions.

All of these studies show that individual level behavior is often found to vary with contextual circumstances. Knowing something about individuals' contexts can tell us something about their behavior that is not explained by individual characteristics. Context, however, can be defined in different ways.

Books and Prysby (1991) present a taxonomy of contextual factors that may influence individual-level behavior. They argue that there are at least three ways to think about context, and that all three are important to our understanding of the mechanisms through which environments influence individuals. The three types of context are compositional, structural, and global.

Compositional contexts are those that describe the characteristics of other individuals in an area. Most contextual studies fall into this category. Durkheim’s study
falls into this category, as does much of the literature on how neighborhood “context” affects the behavior of people. Structural contexts focus on the activities taking place in an area. For example, a study investigating how partisanship among citizens changes based on the amount of party activity in an area would be a study of a structural context’s effect on individuals. Finally, global contexts are characteristics of an environment that are not tied to the behavior of people in the environment. Studies of the effects of borders, agricultural features, economic development, and population sizes on individuals would fall under the category of studies investigating global contexts and individual behavior. The question of how an electoral district’s geographic structure influences behavior is an example of a question about the influence that “global contexts” can have on individuals’ behavior.

The reason for this disconnect is that all of the studies reviewed above use what Books and Pryby (1991) term “compositional variables” in their study of districts. The districts are characterized by the demographic characteristics of the people contained in the district. The literature on majority-minority districts has failed to consider the characteristics of the districts themselves, which would fall into the category Books and Pryby term “global” characteristics requiring “global variables.”

District characteristics are often said to be what matters for citizens, and these cannot be measured using demographically constructed, compositional variables. Knowing the percentage of minorities in a district tells us very little about how that district is shaped. In order to get at the effects of concepts such as “compactness” and geographic “conformity” to other boundaries, we have to move beyond compositionally based measures of electoral district characteristics. Global measures are needed to
address the assertions made by those who defend traditional districting principles. In the absence of global measures, we are still without an empirical verdict on the impact of district structure on citizens.

There have been several calls for scholars to explore the role of context in our understanding of individual-level political behavior. Researchers, such as Huckfeldt and Sprague, have implored students of political behavior to integrate context into their studies. Books and Prysby would particularly like to see studies involving contexts that have been beneath the radar of even those who argue that context matters. And as Books and Prysby point out, researchers of political behavior have thus far failed to pay much attention to global context—the form that is under investigation in this project.

Information, Interaction, and Electoral Districts

In this project, I am concerned with the influence of electoral geography on political participation. District geography, by itself, does not impact individual decisions to participate in elections. However, electoral district geography does impact the environment in ways that can change the information to which citizens are exposed, as well as the opportunities that citizens have to find people with whom they can discuss the decisions they face on election day.

One element of district geography that can have such an impact is the district’s degree of compactness. An electoral district that winds and sprawls in unpredictable ways has been described as “cognitively demanding” by Bernard Grofman (1984). Non-compact districts do indeed make the areas inside and outside of a district more difficult to distinguish and hold in one’s mind. Not knowing where a district takes an unexpected right turn means not knowing who in the immediate area is and is not in the district. This
confusion about district boundaries can lead to confusion about which legislative race to pay attention to and who among one's neighbors is also in the relevant district. By keeping an electoral district compact, boundary confusion is minimized and citizens are better able to focus on the correct political information and find other constituents with whom to discuss the district's politics.

District conformity with other boundaries is also an important element of a district's geography. Fenno (1974) observes that representatives cannot contact a high proportion of the district's constituents directly, and must therefore rely on those he or she does contact to pass the information to others. For this reason, he concludes that "members of Congress thrive where some sense of community already exists" (p. 236). When community boundaries coincide with district boundaries, sending information to constituents can involve meeting with community and group leaders and having information passed to the group members - all of whom are also residents of the district. When districts fragment the community boundaries that exist, it is more difficult to take advantage of the community's potential as an information pathway.

From the constituent's perspective, districts that conform to existing boundaries provide a degree of "cognitive simplicity for voters" (Butler and Cain, p. 71). That is, citizens are better able to identify their representatives and their fellow constituents when their electoral districts are congruous with boundaries they already recognize. In this simpler political environment, a constituent is more likely to know about the campaigns in the district and is more likely to know who else would have, or be interested in, information on the district's politics. By attaching electoral districts to other geographic domains of which citizens are already aware, citizens are better able to locate and
participate in the district's flow of political information.

In sum, electoral districts' shape and location can simplify or complicate political environments for citizens. As electoral districts become simpler, I expect political participation to increase among those living in that district. As districts become more complex, I expect political participation to decline. This, I argue, is how traditional districting principles matter for participation.

District compactness and congruity with surrounding communities will affect citizen political interaction by making discussion and exposure to opinion either easier or more difficult. The district impacts the information environment present in the district by making relevant information relatively difficult or easy to come by. The information environment, in turn, influences how attentive voters are to the political contests around them, how efficacious they feel toward the political system, how easily they can engage in useful political discussion, and perhaps ultimately, whether or not they choose to vote on election day. At the extremes, I expect spread-out districts that do not conform to community boundaries to create difficulties for the flow of information, while compact districts that conform to community boundaries should be conducive to the flow of information and therefore to constituents' political attentiveness, efficacy, and their tendency to turn out. This, I will show, explains how district characteristics matter for constituents.

An Illustration

Suppose Joe is a potential voter. As an election approaches, Joe must familiarize himself with the issues and candidates on which he will vote. Joe clearly has attitudes and characteristics that might determine much of what he will do on election day. For
example, Joe might be the kind of person who chooses never to vote, or to always vote, and to vote Democratic. But he also might be swayed to vote by the campaign. Toward this end, Joe has access to newspapers, radio, and television, acquaintances with whom he can discuss his electoral options, signs and billboards that encourage him to vote one way or another, and other sources of political information in his environment. After Joe assimilates all of this information, he then decides whether or not to vote, and also how to vote.

Joe might live in an electoral district with boundaries that sprawl in a non-compact shape and bear little relationship to other boundaries in his area. If this is the case, Joe could easily find that he is not sure which electoral district he lives in. Even if Joe learns which district he lives in, he could find that people in his immediate community are in another district and are not paying attention to his district’s race. And with different districts serving the same area, local media outlets carry news reports about several districts and do not focus on his district’s race. Those media outlets also carry advertising for many races in the area, and he has to filter through hours of irrelevant political information to get the information he needs to make his decision on election day. Even as Joe drives to work, he might drive through several districts, seeing yard signs for candidates that may or may not be relevant for him. It would not be surprising to find that Joe loses interest in participating in such a complicated and confusing endeavor. Surely the relative benefits of voting seem to shrink dramatically when weighed against the difficulty of gathering and exchanging the relevant political information.

Joe’s situation would be very different in an area where district boundaries followed the conventions of being compact and conforming to other boundaries. It would
be relatively easy to learn which district he is in (everyone in the county might be in the same district, for example), and thus easy to find other people in the district with whom to discuss politics. Also, the local media would be less likely to cater to several district races, and thus only carry news reports and advertising related to Joe’s district race. Information acquisition and exchange would be easier in this kind of district, and one might expect constituents in this scenario to feel less frustrated and to be more likely to gather the relevant information and participate on election day.

We can see that while individual characteristics are important determinants of voting behavior, context can also influence voting behavior. Who Joe is, and the information he receives in his environment, both contribute to his decisions about engaging in the political process. Importantly, the political context that is created for Joe does contribute to his decision of whether or not to vote.

**Hypotheses**

This theory has implications for those interested in a better understanding of the impact of geographic characteristics on electoral districts, as well as general implications for the current controversies surrounding districting standards and practices. Districts may, theoretically, be geographically structured in such a way that does harm to constituents by impeding the flow of useful political information within the district. Many of the districts that have been criticized as being “bad” for citizens may, in fact, have negative consequences. If districts can affect the efficiency with which information can flow to and among constituents, it seems that districts with "bizarre" shapes may create complex and inefficient information environments. Bizarre districts create
environments where it is difficult to identify candidates and to exchange information with fellow constituents.

This inefficient environment bodes poorly for the efforts of citizens to effectively engage themselves in the political process. As a result, I predict that the geographic nature of electoral districts will affect citizens' attentiveness levels, their confusion about politics, and their ability to discuss politics with fellow constituents. These factors, in turn, will affect citizens' tendency to participate in the election process. Concluding that this is the case, however, requires an empirical test.

A number of hypotheses can be derived from the theory outlined above. First, we should see a relationship between district compactness and citizen turnout. We should also see relationships between district congruity with existing boundaries and citizen turnout.

\( H_1: \) compact districts will be associated with higher citizen turnout.

\( H_2: \) district congruity with county boundaries will be associated with higher citizen turnout.

\( H_3: \) district congruity with media market boundaries will be associated with higher citizen turnout.

If it is the case that district geography does matter for citizen turnout, then the mechanism through which this effect operates will be examined.
\( H_4 \): district geography will be associated with higher levels of attentiveness among citizens.

\[ H_{4.1} \]: compact districts will be associated with higher levels of attentiveness among citizens.

\[ H_{4.2} \]: district congruity with county boundaries will be associated with higher levels of attentiveness among citizens.

\[ H_{4.3} \]: district congruity with media market boundaries will be associated with higher levels of attentiveness among citizens.

\( H_5 \): district geography will be associated with lower levels of political confusion among citizens.

\[ H_{5.1} \]: compact districts will be associated with lower levels of political confusion among citizens.

\[ H_{5.2} \]: district congruity with county boundaries will be associated with lower levels of political confusion among citizens.

\[ H_{5.3} \]: district congruity with media market boundaries will be associated with lower levels of political confusion among citizens.
H₆: district geography will be associated with higher levels of political discussion among citizens.

H₆.1: compact districts will be associated with higher levels of political discussion among citizens.

H₆.2: district congruity with county boundaries will be associated with higher levels of political discussion among citizens.

H₆.3: district congruity with media market boundaries will be associated with higher levels of political discussion among citizens.

Conclusion

Political scientists have spent a great deal of effort outlining the role that individual differences play in determining voting behavior. This project will focus on the less-explored topic of the role of context. In terms of the previous illustration: how does Joe’s geographic context influence his political behavior? Could his environment be structured in ways that would lead to a greater or lesser likelihood of participation? Could his environment be changed such that media messages were either less likely to get to him or the messages themselves less frequent or clear? Could billboard advertisements be less influential for Joe in particular geographic situations? Could geography make political discussion more difficult? In short, does geography impact citizens’ tendency to participate in politics?

Districts vary in their compactness and their degree of conformity to the
boundaries of preexisting "natural" communities that seek representation. It is my contention that these differences matter for voters. As I will discuss below, these factors can be seen to affect the ease with which citizens can access political information. The extent to which constituents can receive political messages from candidates and interact with other constituents will affect their ability to receive relevant political information and their ability to exchange such information with other constituents. If it is the case that electoral districts create conditions to which citizens react, then we can expect to see important relationships between district differences, how those differences relate to the information environment created by the district, and the political attitudes and behavior of constituents.

Electoral districts in the United States often undergo several evaluations. They are debated by state legislators and governors, scrutinized by Justice Department officials, and evaluated by courts and the scholarly community. Every stage of this process is guided by various assumptions implying that districts have meaningful implications for how citizens interact with the political system. This research project will address the relationship between these legislative district characteristics and political behavior.

Specifically, it will focus on how the geographic structure of legislative districts serves to encourage or discourage citizens from engaging in the political process. It seems reasonable to assert that electoral districts create a context in which citizens learn and exchange information about candidates running for office. How district lines fall determines the geographical space in which these activities take place.

In this project I develop a theory that links district characteristics to political
behavior, and then test whether or not the characteristics of legislative districts do, in fact, condition the behavior of citizens. Chapter 2 describes the data used in this project and the analyses performed on this data. Chapters 3 and 4 contain analyses of relationships hypothesized in Chapter 2. Chapter 3 presents the results from individual level tests of the hypotheses, and Chapter 4 presents the results from tests using aggregated data. Chapter 5 summarizes the findings and outlines paths for future research on this topic.
Chapter 2: Data and Methods

To test the assertions I make about the implications of variations in district geography, I use data on the geographic characteristics of districts, as well as data on the political behavior of citizens living in those districts. In this chapter, I describe the geographic measures of districts that I use. I also describe the survey data I use to measure the political behavior and attitudes of citizens living in the districts. Finally, I describe the techniques employed to test for relationships between district geography and political behavior.

District Measures

The assertions I make about the impact district geography has on citizens focus on two particular geographic characteristics: compactness and congruity. The first is a statement about shape, and the second is a statement about the relationship between a particular shape and other shapes in the environment. These two concepts require different approaches to measurement.

Compactness

Measures of compactness are based on the approach of comparing the shape under investigation to that shape which is perfectly compact: a circle. There have been numerous proposed measures for describing a district's compactness. Niemi et al. (1990) identify and evaluate twenty-five such indicators. They show that compactness measures fall into one of two categories: measures concerned with a district's dispersion, and measures concerned with a district's perimeter. McDonald (1996) concludes that the fact that all measures of compactness can be reduced to these two approaches indicates that
compactness is a two-dimensional concept and therefore compactness claims should be judged based on two measurements.

**Dispersion-based compactness measures.**

The dispersion measure compares the area of the district to the area of the smallest circumscribing circle surrounding the district.

\[
\text{Area of district} / \text{area of smallest possible circumscribing circle}
\]

The strength of this measure is that it produces higher scores for districts that place the most distant parts of the shape near the shape’s geometric center. The closer the most remote parts of the shape are to the center, the smaller the circle surrounding that shape needs to be, and the higher the compactness score. Dispersion measures punish shapes that have sections that extend far away from the center.

The drawback to dispersion based measures is that highly irregular patterns that do not extend away from the district can actually increase a shape’s compactness score, when most people would conclude that the shape was being made less compact. Figure 2.1 represents a district that is square and a circumscribing circle. The dispersion measure would draw such a circle around the square and then compare the area of the square to that of the circle. Since the square is not perfectly compact, we would expect the compactness score to return a score that is less than one. This is what we would find, since the circle obviously contains more area than the square (it in fact contains all of the square’s area and more). Now suppose that we were to draw an irregular sunburst pattern on the top of the square. The square with the sunburst (shown in Figure 2.2) does not
Figure 2.1

Square District with circumscribing circle.
Square district with circumscribing circle and additional protuberances that do not extend beyond the circle.
extend beyond the arc of the circumscribing circle. What we have done here is increase the area of the shape, thus increasing the numerator in the dispersion-based compactness measure. The end result is a more compact score, hardly what we would expect given the irregularity of the district’s new feature. Thus, dispersion-based measures are not perfect indicators of varying degrees of compactness.

**Perimeter-based compactness measures.**

The perimeter measure compares the area of the district to the area of a circle with the same perimeter as the district.

\[
\frac{\text{Area of district}}{\text{area of a circle with the same perimeter as district}}
\]

This measure produces high scores when shapes have regular boundaries and low scores when districts twist and turn in irregular patterns. A shape’s twists and turns create perimeter without necessarily creating more area. Imagine 5 blocks in a row on a grid (Figure 2.3). The perimeter of that shape is 12 unit lengths. Now imagine that the top block moves over one unit, so that it is only touching the other blocks at one point (Figure 2.4). Now we have a new shape that, while having the same area as the shape in Figure 2.3 now has a larger perimeter (14 units). The perimeter-based measure would react to this change by comparing the area of the second shape with the area of a larger circle (because the perimeter has increased). The smoother the boundaries, the lower the perimeter; therefore, the higher the compactness score. Perimeter-based measures punish shapes that have jagged edges and angles.
Simple rectangular district made up of five unit squares.
Five unit square district with an irregular shape.
The drawback to the perimeter-based measures is that they fail to react when parts of a district move away from the district's center. Imagine a district that is shaped like a long rectangle and has some arbitrary perimeter \( X \) (Figure 2.5). If we compare that district to one where the rectangle is the exact same size, but curled around on itself (as in Figure 2.6), we would find that the two districts share the exact same compactness score using a perimeter-based measure. Most people would probably see Figure 2.6 as more compact than Figure 2.5, based on the fact that it does not sprawl out from its center as much as the longer shape. However, the perimeter-based measure does not account for this, and sees the two objects as equivalent.

Even with their drawbacks, both scores have a conceptually useful property: the shape under investigation is compared with a circle. This produces the sensible result in both cases that the compactness score of a circle is 1. Measuring the dispersion-based compactness of a circle would require that we draw the smallest circumscribing circle around that circle (one of the exact same size) and calculate the ratio of those two circles' areas. Since the two areas would be identical, the result would be a perfect compactness score of 1. Measuring the perimeter-based compactness of a circle would involve comparing the area of the circle to the area of another circle with the same perimeter. Again, the two areas would be identical, and the result would be a perfectly compact score of 1.

**Measuring compactness.**

It has been established that there is no absolutely reliable way to describe a two-dimensional shape with one number (Lee and Salee, 1970; Manninen, 1973). Yet that is the intention of compactness measures. Dispersion-based and perimeter-based measures
Long, rectangular district with perimeter $X$. 

Figure 2.5
Spiral district with perimeter X.
are both sensible, but they measure different things. The fact that both measures ignore
the concerns of the other measure means that they can be tricked into yielding
nonsensical results. It seems like a good idea to combine these measures, but the
procedure for doing so is unclear. Averaging them, for example, would produce a score
that would lose the property of having a clear 0 to 1 scale. The fact that both measures
make sense leads McDonald to argue that both should be used whenever possible.

However, Niemi, Grofman, Carlucci and Hofeller (1990) point out that, while
measures can be misled into exaggerating or underreporting compactness on their own
(when shapes are carefully drawn with the intent of misleading them), in real world
applications different compactness measures produce remarkably similar results. In the
end, it does not matter much which measure we use, since districts are never drawn with
the express purpose of foiling compactness measures. Dispersion-based and perimeter-
based measures can both be expected to provide reasonable measures of compactness.

For the purposes of his study, I will use perimeter-based scores in measuring
compactness. I do so because I believe that this measure picks up the characteristics of
the districts that seem to be of greatest concern in the redistricting debate: their irregular
shape. Distance from a geographic center (the characteristic that dispersion-based
measures are sensitive to) is not really the concern in the debate over district shape as
much as the irregularity of boundaries.

Congruity

Measuring how congruous a shape is with other shapes in its environment is also
not particularly straightforward. The goal is to find a measure that produces high scores
when sets of boundaries overlap. A set of district boundaries that is perfectly congruous
with a set of county boundaries would share those boundaries perfectly. When boundaries are not shared, a degree of incongruity exists. The congruity measure must account for the fact that the degree of incongruity between two sets of boundaries can be affected by two things: a district falling entirely within another set of boundaries and not touching those boundaries, and a district and another set of boundaries crossing one another. Figure 2.7 illustrates this difference. District 1 is entirely contained within a set of county boundaries, and it is obvious that the district and county are not congruous. District 2 is also not congruous with its county boundaries, but for a different reason. District 2 has boundaries that intersect county boundaries. A measure of congruity will have to account for both forms of incongruity.

**Measuring congruity.**

The congruity measure used in this study is adapted from Campbell, Alford, and Henry (1984). The measure used in this study is different from the one used in the Campbell et al. article in that it focuses entirely on geography. Their measure, though structured in the same way as the one used here, focused on population characteristics rather than geographic characteristics. I have adapted their approach to measuring population congruity to my concerns with geographic congruity.

When one district is entirely contained within a county, the measurement of congruity is simple: county area is divided into district area. The resulting quotient will report the proportion of the district contained in the county. The higher the congruity score, the closer the two sets of boundaries approach congruity. When district boundaries align perfectly, this procedure will report a congruity score of 1.
Figure 2.7

Square county with oval district contained entirely within the county.

Oval district that crosses county boundaries.
When a district is only partly in a county (that is, when district and county boundaries intersect), the measure must be calculated differently. In this case, the following procedure is used:

1. Calculate the area of overlap between the district and each county.
2. Perform the following calculation for each overlapping section of the district.
   
   \[(\text{Area of Overlap/\text{Area of County}}) \times (\text{Area of Overlap})\]

3. Add those calculated numbers up for all sections of the districts.
4. Perform the following calculation: \((\text{Sum of calculated sections)/\text{Total District Area}}\)

This procedure calculates the area of intersection between each district and their relevant counties, and determines the proportion of the county that each intersection occupies. It then weights these individual values according to the areas of the intersected portions of the districts. This produces an overall score that has the same properties as the simpler index calculated when a district is entirely contained within a county. The same procedure is used to determine the degree of congruity between district and media market boundaries.

**Behavioral Measures**

In the analyses for this project I will use survey data to determine how district conditions impact citizens':

1. Tendency to vote
2. Attentiveness to campaigns
3. Sense of political confusion
4. Political discussion with other citizens

The measures used to assess citizens’ attitudes and behaviors in districts with varying geographic characteristics are taken from the 1994, 1996, and 1998 National Election Studies.

Voter turnout

One of the relationships that I test in this project is that between district geography and voter turnout. Whereas the measurement of district geography has been discussed above, here I need to describe my measure of citizen voting. The measure of voter turnout used in this study is simply the reported turnout of NES survey respondents. In each survey the following question is asked:

In talking to people about elections, we often find that a lot of people were not able to vote because they weren’t registered, they were sick, or they just didn’t have time. How about you—did you vote in the elections this November?

This variable is coded as a 1 if the respondent reported voting, and as a 0 if they did not. As is the case for all the NES variables used in this project, answers such as “no answer” and “refused to answer” are eliminated from the analysis. It is true that voter turnout is typically over-reported in NES surveys, but analyses have shown that this over-reporting is distributed in a manner that is sufficiently unbiased to allow for its use in voter turnout models (Teixeira, 1992; Ragsdale and Rusk, 1993).

Attentiveness to campaigns

I am also interested in the extent to which district geography impacts the attention that citizens pay to political campaigns. Attentiveness in this study is operationalized as citizens’ ability to recall candidates’ names. NES respondents are asked to name
candidates running for the House of Representatives from their district. NES interviewers then go back and code the accuracy of the respondents’ answers. In this study, the variable is coded as a 1 if the name the respondent first mentioned was, in fact, a candidate running for the House of Representatives from that respondent’s district. If the name the respondent first mentioned was someone who was not running for the House from that district, or if he or she reported that they did not know, the answer is coded as a 0.

**Political confusion**

The literature on redistricting contains several claims that districts with particular geographic characteristics confuse citizens. The NES question that asks respondents the extent to which they agree with the following statement serves as the assessment of political confusion:

> Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.

This variable is coded on a five point scale:

1. AGREE STRONGLY
2. AGREE SOMewhat
3. NEITHER AGREE NOR DISAGREE
4. DISAGREE SOMewhat
5. DISAGREE STRONGLY

The higher the level of disagreement, the lower the respondent’s reported sense of political confusion. This variable is commonly referred to as citizen levels of “internal efficacy.” Internal efficacy really measures the opposite of confusion, and I therefore expect higher levels of internal efficacy (which indicates lower levels of confusion) in compact and congruous districts.
Political discussion

I hypothesize that the geographic layout of electoral districts can affect citizens’ ability to find fellow constituents with whom to discuss politics. To determine the extent to which people in different kinds of electoral districts discuss politics, I use the NES question in which respondents are asked “Do you ever discuss politics with your family or friends?” “Yes” responses are coded 1, “no” responses are coded 0.

Control variables

A set of control variables will be used to account for well-known influences on voting behavior. These variables can be divided into two categories: individual-level influences and district-level influences. Variables describing individual-level characteristics such as income, age, education, race, gender, and the strength of one’s party affiliation are standard control variables commonly used in models of voter behavior. We know that more educated people, for example, are more likely to vote, be attentive to politics, feel efficacious, and discuss politics. The fact that these variables are known to have such effects means that models that fail to account for them could produce unreliable results.

Variables describing activity in the district, such as whether or not the district’s House seat is open or if a candidate is unopposed, also can be seen to affect citizen behavior. The nature of an electoral race influences how intense the campaign is, and can therefore be expected to raise or lower citizens’ levels of attentiveness, their chances of voting, discussing politics, and so on. For these reasons, variables that describe the nature of the race are included in the analyses for this project.
Methods

A conventional contextual approach

The usual way to measure a contextual effect on individual-level behavior is to obtain data for two levels of analysis and combine them in a model of individual-level behavior. This allows us to find the role the context plays at the individual level. Typically, contextual variables serve as independent variables in a regression model of individual-level behavior:

\[ Y_{ij} = a + b_1 X_{ij} + b_2 C_{ij} + e_{ij} \]

There can be problems with this approach, however. Books and Pryby (1991) outline four potential problems:

1. It can be difficult to determine the appropriate unit of analysis for the contextual variable.
2. Contextual and individual level data may be collected at different times.
3. Members’ own scores should technically not count in the calculation of the “context.”
4. There can be a lack of equivalence across contexts.

Though these problems can be serious, they do not serve as problems in this analysis.

While it is true that in most cases, the choice of geographic unit to use in the measurement of context can be arbitrary, that is not the case in this study. Racial context, for example, has been measured at the level of everything from precincts (Carsey, 1995),
to counties and cities (Herring and Forbes, 1994; Giles and Buckner, 1993) to entire
states (Hill and Leighley, 1999). It may be the case that some geographic area is, in fact,
the appropriate unit of measurement in determining an appropriate measure of racial
context and that several of these contextual analyses on race are using inappropriate
measures. This study, on the other hand, is about geographic contextual variables, which
by definition are studied at the appropriate level of geography. The geographic
characteristics of a district are obviously the most appropriate measures for a study of the
impacts of geographic characteristics of districts.

When collecting data for contextual studies, one must be careful to ensure that
both levels of data are collected at the same point in time. Merging survey data with
measures of context using geographic key variables seems straightforward. But the
possibility exists that the contextual data has been measured at a time that is not relevant
to the survey questions. In this study, contextual data in each year has been merged to
survey data in that year. 1994, 1996, and 1998 survey data are matched with 1994, 1996,
and 1998 district information.

A person’s own characteristics should not contribute to that person’s “context.”
When comparing an individual’s score to the average of his or her peers, using an overall
average as opposed to an average constructed without the individual’s score introduces
bias into the results. Books and Prysby note that this problem diminishes when “n” is
sufficiently large. This is not a problem in this study because the contextual variable is a
global contextual variable rather than a compositional one. As such, it is not a summary
score of individual characteristics, but a measurement of a contextual characteristic that
all individuals in that context operate within.
Finally, it is possible that there is a lack of equivalence across contexts. Eckart and Durand's (1975) study of anomie demonstrates this problem. They show that a scale of anomie had different meanings to residents of different neighborhoods. What looked like contextual differences in behavior was really just a difference in interpretations of the same dependent variable across contexts. This problem is common in comparative research, where things such as linguistic differences can create artificial relationships between contextual variables and dependent variables that have nothing to do with respondent variation. This is not a problem in this study, because the dependent variables used are not subject to geographically varying interpretations. Additionally, there is absolutely no reason to believe that such variation would vary by compactness and congruity measures.

It is clear that researchers have to be careful when using contextual data in models of individual-level behavior. Issues of measurement can arise that are not usually concerns when using only individual-level data. However, as explained above, this study does not fall prey to the problems that often arise, and I will therefore proceed with the approach outlined above.

The influence of the geographic characteristics of electoral districts on individual-level behavior will involve adding the contextual-level variable to a model of individual behavior:

\[ \text{Dependent variable} = a + \text{control variables} + \text{geographic characteristic} \]
Using this approach, overall relationships between voting and district compactness, contiguity with counties, and contiguity with media markets is determined:

\[ \text{Vote} = a + \text{control variables} + \text{district compactness} \]

\[ \text{Vote} = a + \text{control variables} + \text{district contiguity with counties} \]

\[ \text{Vote} = a + \text{control variables} + \text{district contiguity with media markets} \]

The theoretical problems in assuming that contextual effects impact individual behavior are discussed above. Books and Prysby note contextual effects involve intervening variables, and can be illustrated using the following formulation:

\[ \text{Context} \rightarrow \text{Intervening variables} \rightarrow \text{Behavior} \]

In this analysis, I have proposed that those intervening variables are attentiveness to the campaign, political confusion, and political discussion. I therefore use the following models to determine the relationship between these variables and the geographic characteristics under investigation:

\[ \text{Attentiveness} = a + \text{control variables} + \text{district compactness} \]

\[ \text{Attentiveness} = a + \text{controls} + \text{district-county congruity} \]

\[ \text{Attentiveness} = a + \text{controls} + \text{district-media market congruity} \]

\[ \text{Political confusion} = a + \text{control variables} + \text{district compactness} \]
Political confusion = a + controls + district-county congruity

Political confusion = a + controls + district-media market congruity

Political discussion = a + control variables + district compactness

Political discussion = a + controls + district-county congruity

Political discussion = a + controls + district-media market congruity

Using these models I will determine whether or not the contextual variables under investigation can be plausibly attributed to the theory outlined above. Because voting, attentiveness, and political discussion are measured as dichotomies, logit analysis will be used for those models. The political confusion variable is ordinal rather than dichotomous, and ordered logit will therefore be used.

On the topic of variable measurement, it should be noted that I have ordered these intervening variables in accordance with how directly they can be expected to tap into the district-specific and election-specific concepts with which I am concerned. Attentiveness is a variable measured such that the election in the district is of primary importance. Respondents are demonstrating their attentiveness to the election in the district. This speaks directly to the concerns in this project.

The measurement of political confusion, on the other hand, is not so cleanly operationalized. Respondents report a general sense of confusion about politics, not confusion about the congressional races in their districts. I do expect that those living in the sorts of districts that I hypothesize to be confusing will, all else being equal, be more likely to find politics in general confusing as a result. However, this variable taps the
concept in which I am interested only indirectly, and I therefore expect the effects of geography on this confusion variable to be consequently weakened.

Finally, the measurement of political discussion also suffers from a less than ideal operationalization. Because it is not measured with reference to the current congressional election, I will pick up the effects I am looking for in a less direct manner than would be ideal. However, I still expect district geography to impact political discussion, and I expect that the discussion variable used here will respond to that relationship.

An aggregate approach

Using data at two different levels of measurement, though a conventional approach in the literature on context, does create problems for regression analysis. In the interests of making similar comparisons, it is useful to aggregate the individual-level data up to the district level. That way, the comparisons being made (and the relationships uncovered) would be at the contextual level.

Aggregating the survey data up to the district level involves producing new scores representing what was previously the individual-level data. These new scores will be averages of the scores given for each case in each district. For example, the following nine cases would be combined:

<table>
<thead>
<tr>
<th>Case number</th>
<th>District</th>
<th>Vote</th>
<th>Efficacy</th>
<th>Compactness</th>
</tr>
</thead>
<tbody>
<tr>
<td>940801</td>
<td>1312</td>
<td>1.00</td>
<td>2.00</td>
<td>.08</td>
</tr>
<tr>
<td>940722</td>
<td>1312</td>
<td>0.00</td>
<td>1.00</td>
<td>.08</td>
</tr>
<tr>
<td>941004</td>
<td>1312</td>
<td>1.00</td>
<td>5.00</td>
<td>.08</td>
</tr>
<tr>
<td>940509</td>
<td>1312</td>
<td>1.00</td>
<td>4.00</td>
<td>.08</td>
</tr>
</tbody>
</table>
940015  | 1312 | 1.00 | 5.00 | .08
940334  | 1312 | 0.00 | 4.00 | .08
941101  | 1312 | 1.00 | 2.00 | .08
940310  | 1312 | 1.00 | 3.00 | .08
940106  | 1312 | 0.00 | 2.00 | .08

These nine cases would aggregate into the following single observation:

| Xxxxxx | 1312 | .667 | 3.11 | .08 |

These data would no longer indicate individual scores, but summary scores representing the district. The respondents in district 1312 would have an average vote score of .667 and an average efficacy score of 3.11. In a regression analysis using this data, district compactness will be compared to average levels of voting and feelings of efficacy in the district.

Using this second set of data, the relationships posited above will be tested again. An important difference in these tests will result from the changes in the data. The dichotomous and ordinal data in the individual-level data set becomes continuous in this aggregate data set. Therefore it is appropriate to use OLS techniques on all of the models under investigation.

Conclusion

Using the techniques outlined above, I will test the assertions I have made about the implications district geography has for citizens. Using carefully selected measures representing district compactness and conformity, I test to see if district characteristics
affect citizen turnout, and whether or not those relationships can be attributed to changes in citizen attentiveness, confusion or interaction. These tests are done using both individual-level models and district-level models of political behavior. Variables known to impact citizen political behavior are included as statistical controls in these analyses.
Chapter 3: Individual-level Results

The theory outlined in the previous chapter implies a number of important relationships between district geography and citizen behavior that should be observable in real world tests. In this chapter I use standard statistical techniques to try and uncover those relationships. The hypotheses I test are:

\[ H_1: \text{Compact districts will be associated with higher citizen turnout.} \]

\[ H_2: \text{District congruity with county boundaries will be associated with higher citizen turnout.} \]

\[ H_3: \text{District congruity with media market boundaries will be associated with higher citizen turnout.} \]

Each hypothesis speaks to assertions about the relationship between electoral district shape and the political reactions of citizens. It is possible that any or all of these assertions will be confirmed by the tests below. If a relationship between district geography and voting is revealed, however, the need arises to account for that relationship. The mechanism for the relationship between district geography and citizen behavior will be tested using the following hypotheses:

\[ H_4: \text{District geography will be associated with increased citizen attentiveness.} \]

\[ H_5: \text{District geography will be associated with decreased citizen confusion levels.} \]

\[ H_6: \text{District geography will be associated with increased levels of political discussion.} \]

All of the hypotheses outlined above will be tested using survey responses from the biannual National Election Study and contextual variables that represent geographic characteristics of NES respondents' congressional districts.
Compactness

The first hypothesis is that district compactness is related to citizen voting behavior:

\[ H_1: \] Compact districts will be associated with higher citizen turnout.

Compact districts, the theory argues, create information environments that make it simpler to participate in politics. When a district twists and turns in unpredictable ways, cognitive demands increase for citizens who are trying to understand what district they live in, who is running for office, and who is and is not in the district. This increase in the costs of acquiring information about electoral politics in non-compact districts should result in a decrease in electoral participation on the part of citizens living in those districts. Compact districts, on the other hand, should minimize these sorts of costs because knowledge of district boundaries, and therefore candidate names and other relevant information, is more easily accessible. Therefore, we should find that voter turnout, an important form of citizen political participation, is higher, all else being equal, in compact districts. Using a perimeter-based compactness measure that compares the district to a circle (the perfectly compact shape), I test to determine if districts’ compactness scores are indeed related to voter turnout in those districts.

The compactness measure in this data set ranges between a minimum score of .01 and a maximum score of .77. North Carolina’s 3rd Congressional district has a score of .01, and as Figure 3.1 shows, it is remarkably non-compact. This district winds around itself and sprawls outward, with portions of the district extending away from its
Figure 3.1

North Carolina's 3rd Congressional District

Wyoming
geographic center. The state of Wyoming, on the other hand, has a compactness score of .77; Figure 3.1 shows that this Congressional district cannot be said to sprawl or wind around in an irregular shape. The districts associated with the respondents in the National Election Study between 1994 and 1998 have an average compactness score of .2580 and have a standard deviation of .1305. Figure 3.2 graphically demonstrates the range of compactness scores in this data set. We can see that U.S. Congressional districts display an array of compactness scores.

The question is: are these varying degrees of compactness related to differences in turnout behavior? Of course, we would not expect compactness to be the dominant factor in determining whether or not people vote. Political scientists have shown previously that turnout is driven by a variety of factors that will not necessarily correlate with district compactness. The history of the study of political behavior shows that individual-level factors such as age and income, as well as environmental factors such as the competitiveness of the district and party contacting activities, determine whether or not people vote. Therefore, a real test of the relationship between compactness and voter turnout requires that we account for these factors that are known to influence political participation.

Table 3.1 presents the results from such a test. Compactness is included as the variable of interest in a logistic regression analysis that models turnout and includes a number of important control variables that are known to influence turnout. Once factors such as income, age, party strength, and the competitive conditions in the districts' elections are accounted for, we find that compactness exhibits a random relationship with voter turnout. The control variables in this model behave as would be expected. Though
Table 3.1

Vote and Compactness

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N = 4126
Chi-square = 1008.823 (.0000)
% predicted correctly = 72.54%
% reduction of error = 24.7%
the compactness variable is positively related to voter turnout, it is not significant in the model.

Compactness, the geographic characteristic that has so concerned scholars and political commentators does not seem to discourage citizens from participating in the political process. Non-compact districts, in this analysis, do not lead to discouraged, non-participatory citizens. Because compactness is not significantly related to voter turnout, it is difficult to conclude that district compactness has the kinds of real-world effects often alleged in discussions of redistricting practices.

Conformity with county boundaries

The second hypothesis is that the extent to which electoral district boundaries conform to existing county boundaries will be related to citizen turnout:

\[ H_2: \text{District congruity with county boundaries will be associated with higher citizen turnout.} \]

Districts that conform to existing political boundaries, such as county boundaries, simplify the political environment for citizens. When district boundaries coincide with county boundaries, citizens know which electoral district they live in simply by knowing the county they live in. Officials elected at the county level, for example, could be called on to mobilize their constituents in support of a candidate. When electoral districts conform to county boundaries, not only are the districts less cognitively demanding, but information pathways from candidates to citizens are more readily accessible.
Figure 3.2
Thus, citizen participation in elections should be easier in districts with boundaries that conform to county boundaries, and we should find higher levels of citizen participation in districts with high levels of district-county congruity. Using a measure of district congruity that indicates the extent of the district-county overlap, I test to determine if district conformity with existing boundaries is related to voter turnout.

The measure of district conformity with counties in this data set ranges between scores of .01 and 1 in districts associated with NES respondents. California’s 32nd Congressional district has a score of .01, and as Figure 3.3 shows, its boundaries have very little relationship with county boundaries. Iowa’s district 3 follows county lines perfectly, and thus has a conformity score of 1. The districts in the data set have an average county conformity score of .7210 and a standard deviation of .3059.

As the high average conformity score indicates, most districts conform remarkably well to county boundaries. It is obvious that those who draw district boundaries commonly use county lines as a guide. Nevertheless, the data in the analysis does show that congressional districts vary quite a bit in the degree to which they conform to county boundaries. Figure 3.4 shows the range of conformity scores in the data set. Are these varying degrees of conformity systematically related to turnout? Table 3.2 presents the results of a logistic regression analysis and shows that district conformity to county boundaries is not systematically related to voter turnout. Once we account for many of the variables that are related to turnout, we find that people who live in districts with a greater degree of conformity to county boundaries are no more likely to turnout to vote than are those in districts with a lesser degree of conformity to county boundaries. This does not support the assertion that citizens are demonstrably
Table 3.2

Vote and District-County Congruity

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N = 4126
Chi-square = 1006.708 (.0000)
% predicted correctly = 72.15%
% reduction of error = 23.7%
California’s 32nd Congressional District
In Los Angeles county

Iowa’s 3rd Congressional District and its constituent counties
harmed when electoral districts fail to conform to existing political boundaries such as counties.

**Conformity with media market boundaries**

The third hypothesis I test is that district conformity to media market boundaries is related to citizen turnout:

\[ H_3: \text{District congruity with media market boundaries will be associated with higher citizen turnout.} \]

When districts conform to media market boundaries, we can expect that information about candidates running for office is easier to obtain. Media markets are geographic regions that define the areas that share sources of media information. When electoral districts conform to media market boundaries, candidates' media efforts should target the relevant audiences efficiently. Easier information acquisition on the part of citizens should lead to lessened costs of participation. We should therefore see higher levels of voter turnout in districts that conform to media market boundaries. Using a geographic congruity measure that represents the overlap between congressional districts and media markets, I perform another test to determine if district conformity with existing boundaries is related to voter turnout.

The measure of district conformity with media markets ranges between scores of .01 and .94. New Jersey’s 10th Congressional district has a score of .01, and as Figure 3.5 shows, its boundaries have very little relationship with media market boundaries. No congressional district in the data set maps perfectly onto a media market; however
New Jersey's 10th Congressional District in its media market

California's 17th Congressional District in its media market
California's 17th Congressional district follows media market lines remarkably accurately, with the exception of a small area in the north where the media market extends outside of the district. This district thus has an understandably high conformity score of .94. The districts in the data set have an average media market conformity score of .2047 and a standard deviation of .1704.

Districts do not conform as well to media market boundaries as they do to county boundaries, but there is still a significant degree of conformity. The data in the analysis show that congressional districts vary quite a bit in the degree to which they conform to media market boundaries. Figure 3.6 shows the range of conformity scores in the data set. Do varying degrees of media market conformity significantly correlate with turnout?

Table 3.3 presents the results of a logistic regression analysis and shows that, as predicted, district conformity to media market boundaries is systematically related to voter turnout. Once we account for other factors that influence turnout, we find that people who live in districts with greater levels of conformity to media markets are more likely to turnout to vote than those in districts with lower levels of conformity to media market boundaries.

The three analyses above empirically verify only one of the assertions made in the redistricting literature about the importance of traditional districting principles of compactness and conformity to existing boundaries. Compactness does not play the central role that one might expect, given its prominence in the literature. Compactness does not seem to have much of an influence on whether or not people participate in elections, at least among NES respondents between 1994 and 1998. The role of existing political boundaries (tested here in the form of county boundaries) also does not seem to
Table 3.3

Vote and District-Media Market Congruity

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N = 4126
Chi-square = 1010.960 (.0000)
% predicted correctly = 72.25%
% reduction of error = 23.9%
Figure 3.6
have an important relationship to voter turnout. What does seem to matter is the extent to which districts map onto media market boundaries.

This analysis shows that when congressional districts map onto media markets relatively cleanly, citizens are more likely to vote in congressional elections. When electoral districts fail to respect media market boundaries, citizens are less likely to vote. Figure 3.7 depicts the relationship between the geographic characteristics of congressional districts and voting.

How does media market conformity matter?

As mentioned earlier, contextual variables and their behavioral consequences are appropriately explained using intervening variables. What is the mechanism through which these differences in media market-district relationships translate into differences in voter behavior? The redistricting literature points to several possible explanations for the behavioral consequences of geography.

First, geography can create difficulties in obtaining information about the candidates and the election. These difficulties can lead to a lack of attentiveness on the part of citizens. When information is difficult to find, we expect the increased information costs to result in lessened attentiveness to the campaign. As Table 3.4 shows, attentiveness (measured as candidate recall) is positively related to people's tendency to vote. If district-media market congruity is systematically related to citizen attentiveness, this explanation may account for the relationship between district-media market congruity and voting. Another possibility is that district geography can contribute to citizen levels of "confusion" about electoral politics. By obscuring the relationship between citizens and
Table 3.4

Vote and Candidate Recall

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Chi-square = 221.394 (.0000)
% predicted correctly = 83.57%
% reduction of error = 1.5%
Figure 3.7

Compactness → Vote

County Conformity → Vote

Media Market Conformity → Vote
their districts, district geography may serve to frustrate citizen attempts to participate in politics. Citizens' district-media market situations may overload them with various political messages that may or may not have any relevance for them. When asked to come to a conclusion about the relative merits of candidates, as citizens are asked to do when voting, a fragmented and confusing environment may lead citizens to conclude that sorting through the issues is beyond them. Table 3.5 shows that citizen confusion levels (measured in terms of internal efficacy) are related to voting behavior. Thus, confusion may be an intervening factor between district-media market congruity and voting.

Finally, district geography can affect the ease with which people can engage in political discussion with others in their districts. It is possible that districts that conform well to media market boundaries create an environment with clear political signals, thus inspiring citizens to discuss politics with one another more often and to vote. Table 3.6 shows that respondents who report discussing politics with family and friends tend to vote more often. If a variable representing how well districts conform to media markets is shown to impact political discussion, we would then have some evidence for why district-media market congruity is related to voting behavior.

If it is the case that district-media market conformity impacts any or all of these factors, than the mechanism or mechanisms through which district conformity to media markets influences voter turnout would be better understood. If there is not a relationship between district-media market conformity and some intervening factor, then we still do not understand how conformity matters for voter turnout. Using variables representing these concepts, I test these assertions about the relationship between district
Table 3.5

Vote and Internal Efficacy

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N = 4104
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% predicted correctly = 72.2%
% reduction of error = 23.6%
Table 3.6

Vote and the Discussion of Politics

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<td>1</td>
<td>.0000</td>
</tr>
</tbody>
</table>

N = 4125
Chi-square = 1082.962 (.0000)
% predicted correctly = 72.99%
% reduction of error = 25.9%
characteristics and citizen political behavior to determine why conformity to media market boundaries might be associated with voter turnout.

Measurement issues may have some effect on my findings, however. Of the three intervening concepts outlined above, I have the greatest degree of confidence in the operationalization of "attentiveness" for the purposes of this project. By using the NES variable tapping candidate recall, I am getting a measure of how familiar district residents are with the candidates running for office in their district (a direct indication of how attentive they are to the district's campaigns).

The measure I use for citizen political confusion, on the other hand, can only partly be the result of district-specific and election-specific factors. This NES question is designed to assess a general level of confusion, and though I expect it to be responsive to the confusion that can be caused by district geography, there are many other factors that can influence citizen confusion levels. Unfortunately, the NES battery of questions offers no better alternative than the internal efficacy question.

The measure I use for political discussion suffers from similar limitations. This variable is not tailored to tap citizen discussion of the races in their congressional districts, and will therefore be subject to outside influences that have little to do with district-level effects. But again, given what is available in the NES battery, it is the best measure available.

Because district-media market congruity was the only geographic variable found to be related to voter turnout, I will only look for intervening effects for that variable. I will not explore effects hypothesized to mediate between compactness or county
congruity and the vote, because there is no overall effect. Therefore, I will only be
testing the following hypotheses:

$H_{4.3}$: District congruity with media market boundaries will be associated with
increased levels of citizen attentiveness.

$H_{5.3}$: Increased district-media market congruity will be associated with lessened
citizen confusion levels.

$H_{6.3}$: District congruity with media market boundaries will be associated with
increased citizen political interaction.

**Attentiveness**

Hypothesis number 4 makes the assertion that district geography can affect citizen
attentiveness to political campaigns.

$H_{4.3}$: District congruity with media market boundaries will be associated with increased
levels of citizen attentiveness.

When district boundaries and media market boundaries conform to one another,
information is easier to gather and we can therefore expect citizens to be more informed
about campaigns in high-conformity districts than they are in low-conformity districts.
My expectation is that district-media market conformity will be positively related to
citizens' ability to recall candidates' names. Table 3.7 shows that this prediction is
empirically verified by the data in this analysis. District-media market conformity is
positively and significantly related to citizens' ability to accurately recall candidates' names.
### Table 3.7

**Candidate Recall and District-Media Market Congruity**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>s.e.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.0012</td>
<td>.0099</td>
<td>.0134</td>
<td>1</td>
<td>.9077</td>
</tr>
<tr>
<td>Education</td>
<td>.0882</td>
<td>.0243</td>
<td>13.2369</td>
<td>1</td>
<td>.0003</td>
</tr>
<tr>
<td>Age</td>
<td>.0013</td>
<td>.0035</td>
<td>.1325</td>
<td>1</td>
<td>.7158</td>
</tr>
<tr>
<td>Afr. Amer.</td>
<td>-.5824</td>
<td>.2080</td>
<td>7.8394</td>
<td>1</td>
<td>.0051</td>
</tr>
<tr>
<td>Female</td>
<td>-.2936</td>
<td>.1109</td>
<td>7.0118</td>
<td>1</td>
<td>.0081</td>
</tr>
<tr>
<td>Party Str.</td>
<td>-.0268</td>
<td>.0258</td>
<td>1.0764</td>
<td>1</td>
<td>.2995</td>
</tr>
<tr>
<td>Party Cnc.</td>
<td>.3059</td>
<td>.1167</td>
<td>6.8734</td>
<td>1</td>
<td>.0087</td>
</tr>
<tr>
<td>Openseat</td>
<td>-.3993</td>
<td>.1640</td>
<td>5.9261</td>
<td>1</td>
<td>.0149</td>
</tr>
<tr>
<td>Unopposed</td>
<td>-.5858</td>
<td>.1752</td>
<td>11.1772</td>
<td>1</td>
<td>.0008</td>
</tr>
<tr>
<td>DMAmap</td>
<td>.7879</td>
<td>.3273</td>
<td>5.7951</td>
<td>1</td>
<td>.0161</td>
</tr>
<tr>
<td>Constant</td>
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<td>.4300</td>
<td>.5276</td>
<td>1</td>
<td>.4676</td>
</tr>
</tbody>
</table>

N = 1692  
Chi-square = 65.007 (.0000)  
% predicted correctly = 70.92%  
% reduction of error = 0%
**Political confusion**

Hypothesis H5 suggests a relationship between district geography and political confusion:

H$_{5.3}$: Increased district-media market congruity will be associated with lessened citizen confusion levels.

The extent to which media market boundaries and electoral district boundaries map on to one another can be expected to affect the levels of confusion of citizens living in the districts. By using the NES variable that asks respondents how confusing they find politics to be, I seek to uncover a relationship between citizens' levels of political confusion and the geographic structure of their congressional districts. My expectation is that district-media market conformity will negatively impact citizen confusion. However, table 3.8 shows that there is no relationship between the confusion reported by citizens and their electoral district’s conformity with media market boundaries.

**Political discussion.**

My final test examines the assertion that district geography affects the ease with which people can discuss politics. Hypothesis H6.3 states:

H$_{6.3}$: District congruity with media market boundaries will be associated with increased citizen political interaction.
Table 3.8

Internal Efficacy and District-Media Market Congruity

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>s.e.</th>
<th>Z</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>.0133</td>
<td>.0051</td>
<td>2.636</td>
<td>.008</td>
</tr>
<tr>
<td>Education</td>
<td>.2147</td>
<td>.0132</td>
<td>16.229</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
<td>-.0104</td>
<td>.0017</td>
<td>-6.016</td>
<td>.000</td>
</tr>
<tr>
<td>Afr. Amer.</td>
<td>.0751</td>
<td>.0978</td>
<td>.768</td>
<td>.442</td>
</tr>
<tr>
<td>Female</td>
<td>-.5372</td>
<td>.0590</td>
<td>-9.106</td>
<td>.000</td>
</tr>
<tr>
<td>Party Str.</td>
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<td>.0145</td>
<td>.852</td>
<td>.394</td>
</tr>
<tr>
<td>Party Cnct.</td>
<td>.1094</td>
<td>.0665</td>
<td>1.646</td>
<td>.100</td>
</tr>
<tr>
<td>Openseat</td>
<td>-.2109</td>
<td>.0914</td>
<td>-2.308</td>
<td>.021</td>
</tr>
<tr>
<td>Unopposed</td>
<td>-.2398</td>
<td>.0881</td>
<td>-2.722</td>
<td>.006</td>
</tr>
<tr>
<td>DMAmap</td>
<td>-.2274</td>
<td>.1723</td>
<td>-1.320</td>
<td>.187</td>
</tr>
</tbody>
</table>

Ordered logit estimates
N = 4105
LR Chi-square = 607.04 (.0000)
Pseudo R2 = .0516
My expectation is that a district's relationship with media market boundaries will facilitate the discussion of politics, and will thus show up in empirical tests as having a positive and significant impact on whether or not respondents report that they discuss politics often. However, as table 3.9 shows, there does not seem to be a relationship between citizens' discussing politics often and their districts' media market geographies.

Summary

Figure 3.8 shows the overall findings from this analysis. District compactness is shown to have no relationship with citizens' tendency to vote. Despite numerous assertions among scholars and political observers, compactness does not seem to have significant consequences for citizen voting participation, contradicting many of the concerns in the redistricting literature. Conformity to existing political boundaries (counties) is also found to be unrelated to voter behavior. This geographic characteristic of electoral districts also fails to demonstrate the consequences predicted by those who argue for the value of traditional districting principles.

Conformity to another set of "existing boundaries," however, does prove to have a significant impact on voting behavior. District conformity to media market boundaries proves to have important and systematic consequences for voter participation. The greater the district-media market conformity, the more likely citizens are to be informed about the candidates, and therefore the more likely citizens are to vote on election day. The substance of this relationship is demonstrated in Table 3.10. Here we can see the likelihood of a person voting when residing in districts with various levels of district-media market conformity. The probability of a person voting in a district with an average level of conformity to media markets is 67.17%. The table clearly shows that as a person
Table 3.9

Discussing Politics and District-Media Market Congruity

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>s.e.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
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<td>.0068</td>
<td>27.0822</td>
<td>1</td>
<td>.0000</td>
</tr>
<tr>
<td>Education</td>
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<td>.0178</td>
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<td>.0000</td>
</tr>
<tr>
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<td>.0004</td>
<td>.0024</td>
<td>.0230</td>
<td>1</td>
<td>.8794</td>
</tr>
<tr>
<td>Afr. Amer.</td>
<td>.0717</td>
<td>.1281</td>
<td>.3128</td>
<td>1</td>
<td>.5760</td>
</tr>
<tr>
<td>Female</td>
<td>-.1730</td>
<td>.0834</td>
<td>4.3079</td>
<td>1</td>
<td>.0379</td>
</tr>
<tr>
<td>Party Str.</td>
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<td>.0208</td>
<td>.3001</td>
<td>1</td>
<td>.5838</td>
</tr>
<tr>
<td>Party Cnct.</td>
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<td>.1077</td>
<td>44.4511</td>
<td>1</td>
<td>.0000</td>
</tr>
<tr>
<td>Openseat</td>
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<td>.1233</td>
<td>2.3007</td>
<td>1</td>
<td>.1293</td>
</tr>
<tr>
<td>Unopposed</td>
<td>.0355</td>
<td>.1211</td>
<td>.0862</td>
<td>1</td>
<td>.7691</td>
</tr>
<tr>
<td>DMAmap</td>
<td>.0096</td>
<td>.2451</td>
<td>.0015</td>
<td>1</td>
<td>.9688</td>
</tr>
<tr>
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<td>-2.1324</td>
<td>.2839</td>
<td>56.4022</td>
<td>1</td>
<td>.0000</td>
</tr>
</tbody>
</table>

N = 4126
Chi-square = 423.531 (.0000)
% predicted correctly = 79.76%
% reduction of error = 2.4%
Table 3.10

Probability of voting at various levels of District-Media Market Congruity.

<table>
<thead>
<tr>
<th>-2 s.d</th>
<th>-1 s.d.</th>
<th>Mean</th>
<th>+1 s.d.</th>
<th>+2 s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.6365</td>
<td>.6543</td>
<td>.6717</td>
<td>.6887</td>
<td>.7051</td>
</tr>
</tbody>
</table>
Figure 3.8

Compactness

County Congruity

Media Market Congruity

Vote

Attentiveness

Internal Efficacy

Political Discussion

+ 0

+ 0
moves from districts with low conformity scores to districts with high conformity scores, their associated probability of voting increases. For example, a person moving from a district that can be characterized as typical among non-conforming districts (one standard deviation below the mean), to one that displays typically high levels of conformity (one standard deviation above the mean) increases his or her probability of voting by 3.44%. Moving from a typically non-conforming district to one that is exceptionally-conforming (two standard deviations above the mean) increases that person's chances of voting by over 5%.

As reported above, the reason for the relationship between district-media market congruity and voting seems to be because district-media market congruity has an impact on citizen attentiveness levels and therefore information levels. Citizens in districts that conform to media market boundaries are more likely to know the names of candidates running for office in their districts. The substantive interpretation of that finding is presented in table 3.11. Here we see that the likelihood of a respondent knowing the name of a candidate in his or her Congressional race is .6809 in districts with an average level of district-media market congruity. Those chances increase as district conformity to media market boundaries increases, however. In fact, citizens in districts that are typically non-conforming to media markets (one standard deviation below the mean) are 5.83% less likely to know the names of candidates than those in districts that are typically conforming to media markets. The difference between the chances of a person in a typically non-conforming district and one in an exceptionally-conforming district knowing the names of candidates is greater than 8.5%.
Table 3.11

Probability of knowing candidates' names at various levels of District-Media Market Congruity.

<table>
<thead>
<tr>
<th>-2 s.d</th>
<th>-1 s.d</th>
<th>Mean</th>
<th>+1 s.d</th>
<th>+2 s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>.6192</td>
<td>.6502</td>
<td>.6809</td>
<td>.7085</td>
<td>.7353</td>
</tr>
</tbody>
</table>
For purposes of comparison, I run a final, complete model of the relationship between district geography and citizen voting tendencies. This model includes all three geographic variables investigated in this project: district compactness, district conformity to county boundaries, and district conformity to media market boundaries. The model, presented in Table 3.12, verifies the conclusions above. Compactness and county congruity are not systematically related to citizen voting behavior. The coefficient for county congruity is actually in the wrong direction in this model, further indicating that political boundaries are not as essential to participation as might otherwise be argued. Media market congruity, on the other hand, is properly signed, and significantly related to voter turnout.

The findings presented in this chapter show that the relationship between traditional districting principles and voters is subtler than many believe. Compactness and conformity to boundaries are not, perhaps, as essential to the healthy functioning of democracy as many claim. However, there do seem to be important and theoretically reasonable relationships between district geography and electoral behavior. Media markets, rarely discussed in analyses of electoral districts and redistricting questions, seem to play a role worthy of our attention. It may be that those who draw electoral district lines would serve democracy well if they paid greater attention to where sources of information lie on the electoral district maps they construct.
Table 3.12

Vote and Compactness

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>s.e.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.0000</td>
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<td>.0165</td>
<td>204.7377</td>
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<td>.0000</td>
</tr>
<tr>
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<td>.0024</td>
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<td>.0000</td>
</tr>
<tr>
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<td>.2207</td>
<td>.1191</td>
<td>3.4339</td>
<td>1</td>
<td>.0639</td>
</tr>
<tr>
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<td>.0749</td>
<td>.6472</td>
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<td>.4211</td>
</tr>
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<td>.0188</td>
<td>.2345</td>
<td>1</td>
<td>.6284</td>
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<td>145.1198</td>
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<td>.0000</td>
</tr>
<tr>
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<td>.0351</td>
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<td>.8514</td>
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<td>.1096</td>
<td>13.2557</td>
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<td>.0003</td>
</tr>
<tr>
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<td>.0192</td>
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<td>323.6315</td>
<td>1</td>
<td>.0000</td>
</tr>
</tbody>
</table>

N = 4789
Chi-square = 1014.369 (.0000)
% predicted correctly = 72.37%
% reduction of error = 39%
Chapter 4: Aggregate Results

The relationships that I posit between district geography and citizen behavior are tested using a different approach in this chapter. Here, I use aggregated data to analyze how district characteristics affect the behavior of the groups of people in districts. The use of aggregated data allows me to compare variation in like units of analysis. Rather than ask an individual level model to parse out variation between individual-level and district-level variables, aggregating the data allows the comparison of variables describing district characteristics at the same level of analysis. Given that the dependent variables in this analysis are no longer dichotomous, I use OLS techniques. The hypotheses I test are the same as in the previous chapter:

H₁: Compact districts will be associated with higher citizen turnout.

H₂: District congruity with county boundaries will be associated with higher citizen turnout.

H₃: District congruity with media market boundaries will be associated with higher citizen turnout.

If a relationship between district geography and voting is revealed, statistical tests of the potential intervening variables will be conducted. The mechanism for the relationship between district geography and citizen behavior will be tested using the following hypotheses:

H₄: District geography will be associated with increased citizen attentiveness.

H₅: District geography will be associated with decreased citizen confusion levels.
H₆: District geography will be associated with increased levels of citizen political discussion.

All of the hypotheses outlined above will be tested using aggregated survey responses from the 1994, 1996 and 1998 National Election Studies and contextual variables that represent geographic characteristics of the NES respondents' congressional districts.

District Geography and Aggregate Behavior

Compactness

The first hypothesis is that district compactness is related to voting behavior:

H₁: Compact districts will be associated with higher citizen turnout.

I expect to find that voter turnout is higher, all else being equal, in more compact districts. Using the compactness measure, I test to determine if districts' compactness scores are indeed related to voter turnout. Table 4.1 presents the results from this test. Compactness is included as the variable of interest in an OLS regression analysis that models turnout and includes a number of important control variables that are known to influence turnout. Once factors such as income, age, party strength, and competitive conditions in the districts are accounted for, we find that, as predicted, compactness is positively related to voter turnout. The control variables in this model behave very well. The compactness variable is positively related to voter turnout, and it is a significant factor in this model of voter turnout.
Table 4.1

Vote and Compactness

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
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<td>.000</td>
</tr>
<tr>
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<td>.141</td>
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</tr>
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<td>.000</td>
</tr>
<tr>
<td>Age</td>
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<td>.000</td>
<td>.326</td>
<td>26.246</td>
<td>.000</td>
</tr>
<tr>
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<td>.013</td>
<td>.005</td>
<td>.328</td>
<td>.743</td>
</tr>
<tr>
<td>Female</td>
<td>.01368</td>
<td>.016</td>
<td>.011</td>
<td>.880</td>
<td>.379</td>
</tr>
<tr>
<td>Party Strength</td>
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<td>.003</td>
<td>-.043</td>
<td>-3.017</td>
<td>.003</td>
</tr>
<tr>
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<td>.160</td>
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<td>.000</td>
</tr>
<tr>
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<td>.008</td>
<td>-.035</td>
<td>-2.885</td>
<td>.004</td>
</tr>
<tr>
<td>Unopposed</td>
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<td>.008</td>
<td>-.150</td>
<td>-12.311</td>
<td>.000</td>
</tr>
<tr>
<td>Compact</td>
<td>.07471</td>
<td>.020</td>
<td>.046</td>
<td>3.712</td>
<td>.000</td>
</tr>
</tbody>
</table>

Dependent Variable = Vote
R2 = .346
N = 566
Given these results, district compactness does seem to encourage citizens to participate in the political process. Non-compact districts, in this analysis, lead to lower participation levels. When viewed from the perspective of aggregated data, compactness does have the kinds of real-world effects often alleged in discussions of redistricting practices.

**Conformity with county boundaries**

The second hypothesis is that the extent to which electoral district boundaries conform to existing county boundaries will be related to turnout:

\[ H_2: \text{District congruity with county boundaries will be associated with higher citizen turnout.} \]

Districts that conform to existing political boundaries, such as county boundaries, simplify the political environment for citizens. Thus we should find higher levels of citizen participation in districts with high levels of district-county congruity. Using the congruity measure, I test to determine if district conformity with existing boundaries is related to voter turnout in the aggregate.

Table 4.2 shows that district conformity to county boundaries is not systematically related to voter turnout. Using the aggregate data, we still fail to find support for the assertion that citizens are demonstrably harmed when electoral districts fail to conform to existing political boundaries.
Table 4.2

Vote and County Congruity

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
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</tr>
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<tr>
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<td>.009902</td>
<td>.000</td>
<td>.331</td>
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<td>.000</td>
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<td>-.005</td>
<td>-.335</td>
<td>.738</td>
</tr>
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<td>.010</td>
<td>.770</td>
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<td>.001</td>
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<td>.000</td>
</tr>
<tr>
<td>Open Seat</td>
<td>-.02279</td>
<td>.008</td>
<td>-.035</td>
<td>-2.829</td>
<td>.005</td>
</tr>
<tr>
<td>Unopposed</td>
<td>-.100</td>
<td>.008</td>
<td>-.156</td>
<td>-12.909</td>
<td>.000</td>
</tr>
<tr>
<td>County Map</td>
<td>.001956</td>
<td>.009</td>
<td>.003</td>
<td>.224</td>
<td>.823</td>
</tr>
</tbody>
</table>

Dependent Variable = Vote
R2 = .344
N = 566
Conformity with media market boundaries

The third hypothesis I test is that district conformity to media market boundaries is related to citizen turnout:

\[ H_3: \text{District congruity with media market boundaries will be associated with higher citizen turnout.} \]

When districts conform to media market boundaries, we can expect to see higher levels of voter turnout. Using a geographic congruity measure on the aggregate data set, I perform another test to determine if district conformity with existing media market boundaries is related to voter turnout.

Table 4.3 presents the results of an OLS regression analysis and shows, as predicted, district conformity to media market boundaries is systematically related to voter turnout. Here the aggregate analysis matches the findings from the individual level tests. Again, we find that people who live in districts with greater levels of conformity to media markets are more likely to turnout to vote than those living in districts with lower levels of conformity to media market boundaries.

The district-level analyses described above empirically verify two of the assertions made in the redistricting literature about the importance of the traditional districting principles of compactness and conformity to existing boundaries. Compactness does seem to have an influence on voter participation in elections, at least when examined using aggregate data. This finding differs from that of the individual-level
Table 4.3

Vote and Media Market Congruity

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.035</td>
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<td>.000</td>
</tr>
<tr>
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<td>0.160</td>
<td>9.945</td>
<td>.000</td>
</tr>
<tr>
<td>Education</td>
<td>0.04560</td>
<td>0.002</td>
<td>0.292</td>
<td>19.140</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
<td>0.009813</td>
<td>0.000</td>
<td>0.328</td>
<td>26.724</td>
<td>.000</td>
</tr>
<tr>
<td>African American</td>
<td>0.004260</td>
<td>0.013</td>
<td>0.004</td>
<td>3.20</td>
<td>.000</td>
</tr>
<tr>
<td>Female</td>
<td>0.009762</td>
<td>0.016</td>
<td>0.008</td>
<td>0.630</td>
<td>.529</td>
</tr>
<tr>
<td>Party Strength</td>
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<td>-0.054</td>
<td>-3.803</td>
<td>.000</td>
</tr>
<tr>
<td>Party Contact</td>
<td>0.187</td>
<td>0.015</td>
<td>0.165</td>
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<td>.000</td>
</tr>
<tr>
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<td>.009</td>
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</table>

Dependent Variable = Vote
R² = .349
N = 566
analysis. It may be, however, that the district-level data allows the relationship to emerge in statistical tests, whereas problems with the allocation of variation in the multi-level model may have hidden the relationship. At any rate, the relationship between compactness and the vote is confirmed in this analysis.

The role of existing boundaries, on the other hand, reflects nicely the individual-level findings. Congruity with county boundaries is shown in both analyses to not matter for turnout. What does seem to matter is the extent to which districts map onto media market boundaries. When tested at both individual and aggregate levels, media market congruity shows itself to have a significant impact on turnout.

This aggregate analysis suggests that when districts are compact, citizens in those districts are more likely to vote in congressional elections. It also lends additional support to the individual-level finding that when congressional districts map onto media markets relatively cleanly, citizens are more likely to vote in congressional elections. When electoral districts fail to respect media market boundaries, citizens are less likely to vote.

How do compactness and media market conformity matter?

As discussed in Chapter 3, the redistricting and contextual analysis literature points to several possible intervening variables explaining the behavioral consequences of geography. Possibilities include: geographically created difficulties in information flow about the candidates and the election, citizens' "confusion" about politics that might be affected by their geographic environments, and the ease with which citizens can engage in political discussion with others in their district. Tables 4.4 to 4.6 demonstrate that average levels of attentiveness, average levels of political confusion among district
Table 4.4

Vote and Internal Efficacy

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
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<th>Beta</th>
<th>T</th>
<th>Significance</th>
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</thead>
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</tr>
<tr>
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<td>.003</td>
<td>.222</td>
<td>13.690</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
<td>.01029</td>
<td>.000</td>
<td>.344</td>
<td>28.188</td>
<td>.000</td>
</tr>
<tr>
<td>African American</td>
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<td>.013</td>
<td>-.014</td>
<td>-1.025</td>
<td>.305</td>
</tr>
<tr>
<td>Female</td>
<td>.04713</td>
<td>.016</td>
<td>.037</td>
<td>3.010</td>
<td>.003</td>
</tr>
<tr>
<td>Party Strength</td>
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<td>.003</td>
<td>-.043</td>
<td>-3.024</td>
<td>.003</td>
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<td>.163</td>
<td>12.815</td>
<td>.000</td>
</tr>
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<td>Open Seat</td>
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<td>.008</td>
<td>-.023</td>
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<td>.054</td>
</tr>
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<td>.008</td>
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Dependent Variable = Vote
R2 = .361
N = 566
Table 4.5

Vote and Attentiveness

<table>
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<th>Beta</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.000</td>
</tr>
<tr>
<td>Income</td>
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<td>0.001</td>
<td>0.173</td>
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<td>0.000</td>
</tr>
<tr>
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<td>0.312</td>
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</tr>
<tr>
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<td>0.000</td>
<td>0.347</td>
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<td>0.000</td>
</tr>
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<td>0.014</td>
<td>0.044</td>
<td>3.001</td>
<td>0.003</td>
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<td>0.016</td>
<td>-0.001</td>
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<td>-0.041</td>
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<td>0.005</td>
</tr>
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<td>0.015</td>
<td>0.146</td>
<td>10.970</td>
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</tr>
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<td>-0.020</td>
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<td>0.110</td>
</tr>
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<td>Unopposed</td>
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<td>0.008</td>
<td>-0.164</td>
<td>-13.163</td>
<td>0.000</td>
</tr>
<tr>
<td>Candidate Recall</td>
<td>-0.03465</td>
<td>0.008</td>
<td>-0.052</td>
<td>-4.135</td>
<td>0.000</td>
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</table>

Dependent Variable = Vote
R² = .362
N = 566
Table 4.6

Vote and Discuss Politics

<table>
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<th>Model</th>
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<th>Beta</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
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</tr>
<tr>
<td>Income</td>
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<td>.001</td>
<td>.138</td>
<td>8.749</td>
<td>.000</td>
</tr>
<tr>
<td>Education</td>
<td>.03954</td>
<td>.003</td>
<td>.253</td>
<td>15.201</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
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<td>.000</td>
<td>.327</td>
<td>26.583</td>
<td>.000</td>
</tr>
<tr>
<td>African American</td>
<td>-.008578</td>
<td>.013</td>
<td>-.009</td>
<td>-.647</td>
<td>.518</td>
</tr>
<tr>
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<td>.016</td>
<td>.012</td>
<td>.999</td>
<td>.318</td>
</tr>
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<td>-.049</td>
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<td>.015</td>
<td>.158</td>
<td>12.184</td>
<td>.000</td>
</tr>
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<td>.008</td>
<td>-.030</td>
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<td>.014</td>
</tr>
<tr>
<td>Unopposed</td>
<td>-.102</td>
<td>.008</td>
<td>-.159</td>
<td>-13.179</td>
<td>.000</td>
</tr>
<tr>
<td>Dispol</td>
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<td>.018</td>
<td>.075</td>
<td>5.354</td>
<td>.000</td>
</tr>
</tbody>
</table>

Dependent Variable = Vote
R2 = .348
N = 566
respondents, and the average amounts to which citizens engage in political discussion in a
district do, in fact, have systematic relationships with citizens’ average reported voting
levels.

Contextual effects are mediated through intervening variables such as those
mentioned above. Using intervening variables, I test these assertions about the
relationship between district characteristics and citizen political behavior to determine
why district geography is associated with voter turnout.

Compactness

Attentiveness.

First, I test hypothesis $H_4$, the assertion that district geography can affect the
extent to which citizens are attentive to campaigns in their districts.

$H_{4.1}$: Compact districts will be associated with increased citizen attentiveness.

When districts are compact, the relevant political information is easier to gather,
and we can expect citizens to be more attentive to campaigns, and therefore more
informed about campaigns in compact districts than they are in less compact districts.

My expectation is that compactness will be positively related to citizens’ ability to recall
candidates’ names. Table 4.7 shows that this prediction is empirically verified by the
data in this analysis. District compactness is positively and significantly related to
citizens’ ability to accurately recall candidates’ names.

Political Confusion.
<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.616</td>
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<td>9.341</td>
<td>.000</td>
</tr>
<tr>
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<td>-9.611</td>
<td>.000</td>
</tr>
<tr>
<td>Education</td>
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<td>.004</td>
<td>.206</td>
<td>10.786</td>
<td>.000</td>
</tr>
<tr>
<td>Age</td>
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<td>.001</td>
<td>-.079</td>
<td>-5.200</td>
<td>.000</td>
</tr>
<tr>
<td>African American</td>
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<td>.025</td>
<td>-.152</td>
<td>-8.670</td>
<td>.000</td>
</tr>
<tr>
<td>Female</td>
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<td>.030</td>
<td>-.075</td>
<td>-4.960</td>
<td>.000</td>
</tr>
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</tr>
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<td>.009</td>
<td>.536</td>
<td>.592</td>
</tr>
<tr>
<td>Open Seat</td>
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<td>-.075</td>
<td>-4.978</td>
<td>.000</td>
</tr>
<tr>
<td>Unopposed</td>
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<td>.014</td>
<td>-.123</td>
<td>-8.295</td>
<td>.000</td>
</tr>
<tr>
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<td>.035</td>
<td>.045</td>
<td>2.926</td>
<td>.003</td>
</tr>
</tbody>
</table>

Dependent Variable = Candidate Recall
R² = .089
N = 566
Hypothesis H$_3$ suggests a relationship between district boundaries and political confusion:

H$_{3,1}$: Increased compactness will be associated with lessened citizen confusion levels.

By using the NES variable that asks respondents how confusing they find politics to be, I seek to uncover a relationship between citizens' levels of political confusion and the geographic structure of their congressional districts. My expectation is that compactness will decrease citizen confusion. The way that the variable is coded however, produces higher scores for respondents who report low feelings of political confusion. Therefore we expect a positive relationship between the confusion about politics variable (internal efficacy) and compactness. However, as Table 4.8 shows, there is a negative and significant relationship between the internal efficacy reported by citizens and their electoral district’s compactness. This implies that respondents report higher levels of confusion as their districts become more compact. This is not explained by the arguments linking geography to political behavior.

**Political discussion.**

This test examines the assertion that district compactness affects the ease with which people can discuss politics. Hypothesis H$_{6,1}$ states:

H$_{6,1}$: District compactness will be associated with increased citizen political discussion.
Table 4.8

Internal Efficacy and Compactness

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
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</tr>
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<td>.000</td>
</tr>
<tr>
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<td>.421</td>
<td>27.356</td>
<td>.000</td>
</tr>
<tr>
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<td>.001</td>
<td>-.070</td>
<td>-5.593</td>
<td>.000</td>
</tr>
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<td>.035</td>
<td>.044</td>
<td>3.119</td>
<td>.002</td>
</tr>
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</tr>
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<td>.019</td>
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<td>.038</td>
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<td>.841</td>
<td>.400</td>
</tr>
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<td>.012</td>
<td>-.066</td>
<td>-5.361</td>
<td>.000</td>
</tr>
<tr>
<td>Unopposed</td>
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<td>.020</td>
<td>-.088</td>
<td>-7.222</td>
<td>.000</td>
</tr>
<tr>
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<td>-.072</td>
<td>-5.773</td>
<td>.000</td>
</tr>
</tbody>
</table>

Dependent Variable = Internal Efficacy
R2 = .337
N = 566
My expectation is that higher levels of district compactness will facilitate the discussion of politics, and will thus show up in empirical tests as having a positive and significant impact on whether or not respondents report discussing politics with others.

Table 4.9 is a test of this political discussion hypothesis. My expectation is that if political discussion in the district is assisted by district compactness, then the compactness variable will be positively related to respondents' reports of discussing politics with their friends and neighbors. However, as Table 4.7 shows, discussing politics and district compactness are negatively and systematically related. It does not seem that the discussion hypothesis stands up to empirical examination. And again, we are faced with a puzzling finding: as compactness increases, political discussion decreases. This finding is contrary to this study's predictions.

**District-Media Market Conformity**

In the next step in these analyses I investigate the potential intervening factors that may explain the relationship between district-media market congruity and voting. I do not investigate potential factors for district-county congruity because there proved to be no main effects between district-county congruity and voting.

**Attentiveness.**

First, I test hypothesis H₄₃, the assertion that district-media market conformity can affect the political attentiveness of citizens.

**H₄₃:** District congruity with media market boundaries will be associated with increased citizen attentiveness.
Table 4.9

Discuss Politics and Compactness

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
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<td>.021</td>
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<td>.026</td>
<td>1.588</td>
<td>.112</td>
</tr>
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</tr>
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<td>.000</td>
<td>.059</td>
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<td>.000</td>
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<td>.039</td>
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<td>.008</td>
</tr>
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<td>-.037</td>
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<td>.005</td>
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<td>.749</td>
</tr>
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<td>.012</td>
<td>.115</td>
<td>8.499</td>
<td>.000</td>
</tr>
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<td>-.059</td>
<td>-4.643</td>
<td>.000</td>
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<td>Unopposed</td>
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<td>.030</td>
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<td>.018</td>
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<td>-4.283</td>
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</table>

Dependent Variable = Discuss Politics
R2 = .291
N = 566
When district boundaries and media market boundaries conform to one another, information on a particular election is more readily available, and we can therefore expect citizens to be more attentive to campaigns in high-conformity districts than they are in low-conformity districts. My expectation is that district-media market conformity will be positively related to attentiveness, as measured by citizens’ ability to recall candidates’ names. Table 4.10 shows that this prediction is empirically verified by the data in this analysis. District-media market conformity is positively and significantly related to citizens’ ability to accurately recall candidates’ names.

**Political Confusion.**

Hypothesis $H_5$ suggests a relationship between district boundaries and political confusion:

$H_{5.3}$: Increased district-media market congruity will be associated with lessened citizen confusion levels.

The extent to which media market boundaries and electoral district boundaries map on to one another can be expected to affect the levels of confusion of citizens living in the districts. By using the NES variable that asks respondents how confusing they find politics to be ("internal efficacy"), I seek to uncover a relationship between citizens’ levels of political confusion and the geographic structure of their congressional districts. My expectation is that district-media market conformity will negatively impact citizen confusion (and thus positively impact the internal efficacy variable). However, as table
Table 4.10

Candidate Recall and Media Market Congruity

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
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<th>Sig</th>
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<td>-8.196</td>
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<tr>
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<tr>
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</table>

Dependent Variable = Candidate Recall
R2 = .094
N = 566
4.11 shows, there is no relationship between the confusion reported by citizens and their electoral district’s conformity with media market boundaries.

**Political discussion.**

My final test examines the assertion that district-media market conformity affects the ease with which people can discuss politics. Hypothesis $H_{6.3}$ states:

$$H_{6.3}:$$ District congruity with media market boundaries will be associated with increased citizen political discussion.

My expectation is that a district’s relationship with media market boundaries will facilitate the discussion of politics. Table 6.12 is a test of this discussion hypothesis. The dependent variable in this model is whether or not the respondent reports discussing politics with others. My expectation is that if political discussion in the district is assisted by the district’s media market geography, then the media market conformity variable will be positively related to respondents’ reports of having frequent political discussions with their friends and neighbors. However, as Table 4.12 shows, discussing politics with others and district-media market geography are not systematically related. Using these aggregate data, it seems that the discussion hypothesis does not stand up to empirical examination.

**Full Model**

Table 4.13 presents the results from a full model containing all of the control variables and all of the geographic variables where the dependent variable is voter turnout. As the table shows, compactness and conformity to media markets are still
Table 4.11

Internal Efficacy and Media Market Congruity

<table>
<thead>
<tr>
<th>Model</th>
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<th>Beta</th>
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Dependent Variable = Internal Efficacy
R2 = .333
N = 566
Table 4.12

Discuss Politics and Media Market Congruity

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Dependent Variable = Discuss Politics
R2 = .289
N = 566
# Table 4.13

**Full Model of Geographic Characteristics and the Vote**

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<th>Beta</th>
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<th>Significance</th>
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<td>.675</td>
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</table>

Dependent Variable = Vote  
R2 = .353  
N = 566
correctly signed and significantly related to turnout. District-county congruity is significantly related to turnout, but incorrectly signed. The significance of county conformity is somewhat puzzling, but given the fact that it has failed to play a role in any previous test it is difficult to conclude that this model elevates it to theoretical relevance. The full model further verifies the relationships that this analysis has highlighted, specifically those between voter turnout and compactness, and voter turnout and district-media market conformity. The fact that these independent variables do not wash each other out of this full model indicates that compactness and district-media market congruity are separate and significant factors influencing voter turnout in this analysis.

Summary

Figure 4.1 shows the overall findings from this analysis. Conformity to existing political boundaries (counties) is once again found to be unrelated to voter behavior. This geographic characteristic of electoral districts fails to demonstrate the consequences predicted by those who argue for the value of traditional districting principles.

The relationship between compactness and voting can be accounted for with reference to the impact that compactness has on citizens' attentiveness to political campaigns. It does not appear that varying levels of district compactness have an impact on political discussion among citizens. Here compactness does appear, oddly, to be negatively related to internal efficacy. That compact districts would lead to increased confusion among citizens is something not predicted by the theory above or in the literature.

The relationship between district-media market relationships and voting seems to be mediated by the understandable tendency for those who live in districts with high
district-media market conformity to know candidate names. These citizens, seemingly as a result of their easier access to such election-relevant information, know more about the election and therefore turn out to vote more often. The models show that district-media market congruity is not associated with increased political discussion in the district.

The findings presented in this chapter show that the relationship between traditional districting principles and voters is different than what is typically argued in the literature. Conformity to political boundaries (tested here in the form of county boundaries) is not as essential to the healthy functioning of democracy as many claim. And there is no evidence of sprawling district shapes causing political confusion among citizens. However, there do seem to be important and theoretically reasonable relationships between district geography and electoral behavior. District compactness and district conformity to media market boundaries are systematically related to both the vote and to intervening variables that account for the role they play in voter turnout.
Chapter 5: Conclusion

"We believe that reapportionment is one area in which appearances do matter. A reapportionment plan that includes in one district individuals who belong to the same race, but who are otherwise widely separated by geographical and political boundaries...bears an uncomfortable resemblance to political apartheid."


If Justice White had the initial word on the implications of district geography, Justice O'Connor has had the most recent. In the current Court's opinion, malformed districts are constitutionally relevant because they imply that something might be amiss. In the interests of citizens, districts should be drawn according to traditional districting principles so that citizens are not sent pernicious messages that discourage participation in the democratic process.

The current legal environment requires that state legislators think carefully about the geography of their district lines, and that the districts they draw not take on strikingly irregular shapes. As mentioned above, these rules have been adopted without a careful study of what consequences district geography might have for citizens. This project seeks to address that lack of investigation.

It does make sense that district lines impact citizens, given that the way lines are drawn directly determines the space in which electoral politics will take place. How that district space groups people can certainly have an impact on the flow of political information and interaction. But exactly how geography relates to citizens' political environments and behavior has been an open question without adequate empirical analysis.
In this project, I investigate several hypotheses linking district geography to citizen behavior. The first three stated an overall expectation that district geography has an impact on voter turnout:

H₁: compact districts will be associated with higher citizen turnout.

H₂: district congruity with county boundaries will be associated with higher citizen turnout.

H₃: district congruity with media market boundaries will be associated with higher citizen turnout.

Of these three hypotheses, H₃ received the strongest support in empirical tests. Multi-level and aggregated district-level models both show significant, positive relationships between district-media market congruity and voter turnout. District-county boundary congruity was not shown to have a systematic relationship with voting using either statistical approach. Compactness was insignificant when modeled as a predictor of individual-level participation, but was significant in an aggregated, district-level model.

Given that a relationship between district characteristics and citizen behavior is verified in statistical tests, the task then becomes understanding the intervening variables that can explain the relationship. As suggested in the literature on contextual effects, possible intervening factors include changes in citizens’ access to information, and thus their attentiveness, as well as changes in how citizens interact. The literature on
Redistricting suggested that citizen behavior could change as a result of districts being geographically confusing. These led to the following hypotheses regarding possible intervening effects:

$H_4$: district geography will be associated with higher levels of attentiveness to campaigns among citizens.

$H_{4.1}$: compact districts will be associated with higher levels of attentiveness among citizens.

$H_{4.2}$: district congruity with county boundaries will be associated with higher levels of attentiveness among citizens.

$H_{4.3}$: district congruity with media market boundaries will be associated with higher levels of attentiveness among citizens.

$H_5$: district geography will be associated with lower levels of political confusion among citizens.

$H_{5.1}$: compact districts will be associated with lower levels of political confusion among citizens.

$H_{5.2}$: district congruity with county boundaries will be associated with lower levels of political confusion among citizens.
$H_{5.3}$: district congruity with media market boundaries will be associated with lower levels of political confusion among citizens.

$H_{6}$: district geography will be associated with higher levels of political discussion among citizens.

$H_{6.1}$: compact districts will be associated with higher levels of political discussion among citizens.

$H_{6.2}$: district congruity with county boundaries will be associated with higher levels of political discussion among citizens.

$H_{6.3}$: district congruity with media market boundaries will be associated with higher levels of political discussion among citizens.

In the individual-level models, no relationship between district compactness or district-county boundary congruity and the vote was revealed. As a result, I did not attempt to determine possible intervening variables. District-media market congruity, however, was significantly related to voting behavior. Tests of hypotheses 4.3, 5.3, and 6.3 revealed that the intervening variable that was, indeed, related to both district-media market congruity and citizen voting was citizen attentiveness to campaigns.
In the aggregate models, both district-media market congruity and compactness were related to voter turnout. Analyses of the potential intervening factors confirmed the fact that district-media market congruity was related to citizen attentiveness to campaigns, which was in turn related to voter turnout. Attentiveness was also the best performing mediating variable in explaining why compactness is related to voter turnout.

The results of the analyses in this project indicate that traditional districting principles are important, but in ways that are not fully understood by many people who debate the issue. District geography does, in fact, impact citizen political engagement. However, the commonly asserted principle that districts should conform to existing political boundaries does not seem to be a useful principle in guiding those who draw district lines. The results from this project fail to support the idea of a relationship between how well districts conform to county boundaries and citizen participation.

The principle that districts be compact receives some support in this study. In the analysis of data aggregated to the district level, compactness is statistically related to whether or not people vote. And tests of the relationship between compactness and several mediating factors that can exist between context and behavior, suggest that compactness has these effects due to its impact on citizens' attentiveness, as measured by their ability to recall candidate names.

However, the strongest finding in this study points to a factor that is largely ignored by those who debate redistricting. The most consistent relationship linking district geography to political behavior is the relationship between electoral district boundaries and the boundaries of media markets. When districts conform to media market boundaries, voters are much more likely to know candidate names and to vote.
This finding speaks to the assumptions many people make about the implications district lines have for citizens. In much of the redistricting debate lies an assumption that bizarre districts will serve to confuse citizens and discourage them from participating in elections. This study finds that, while district geography can discourage citizen participation, the process at work is different from that discussed in the literature. District lines affect citizens’ access to political information. It is when districts muddle the flow of information that we find consistently depressed turnout.

It is important to note that the finding that certain kinds of districts discourage voter participation is a limited (though I certainly believe important) finding. One should not conclude that I am suggesting that districts that fail to encourage participation are bad in a fundamental sense. Electoral districts are drawn with many goals in mind, and to say that certain kinds of districts discourage participation is to say nothing about how they may or may not achieve those other goals. But it remains important to know the consequences of designing districts with particular characteristics.

Methodological Issues

This study also touches on methodological issues surrounding contextual analyses. The typical approach involves estimating the effect that contextual-level measures have on individual-level behavior. In addition to this approach, I use an aggregated model, where district-level measures of behavior are compared to district-level descriptions of context.

The use of both of these approaches reveals that the multi-level approach has the advantage of measuring things in a manner that coincides with our theoretical interest: how context affects individual-level behavior. But the multi-level approach has the
disadvantage of forcing individual-level variation to fight over variance that is not free to vary in each individual case. Regression or likelihood analyses then have to deal with situations where individuals in a district participate at different levels while living in the same district with the same compactness score.

Using aggregated data, on the other hand, allows for a district-level analysis where varying degrees of district participation can be compared to varying degrees of compactness. With both variables free to vary, comparisons are more straightforward. The statistical advantage of this approach is evident in the behavior of the independent variables in the analysis. Relationships between age, income, and so forth are much clearer in the aggregate analysis than they are in the multi-level analysis.

However, the aggregate analysis produced several counter-intuitive results that are difficult to explain. Given that a multi-level approach is the more common approach, I have greater confidence in the individual-level analysis. However, I am encouraged by the fact that the aggregated analysis confirmed the role that media markets play in the effects of district geography on individual citizens. The fact that both approaches confirm the importance of media market boundaries to citizen attentiveness and voting speaks to how robust the relationship is. This project demonstrates that district shape does, indeed, matter for citizen participation. District shape matters, furthermore, in a way that is not often discussed by those who draw district lines.

Future Research

Given that this project has provided some evidence to the claim that district shape matters for individuals, the question now is what form should future analyses take? One obvious path will be to extend my investigation to state legislative districts. States vary
pretty dramatically in terms of how legislative districts are drawn and what factors go into the drawing process. States also draw districts with more substantial population variations. Finally, state legislative campaigns differ in that they can be less media-intensive, and they can target a much smaller group of voters. All of these things can influence the degree to which district geography matters.

Another possibility is a cross-national comparison of electoral district characteristics. Countries with parliamentary systems and national campaigns may demonstrate lessened consequences of district geography. On the other hand, such countries may also rely heavily on constituency services and more powerful local political organizations, so geography might be important in different ways. Countries such as Australia and Japan have voter surveys similar to the National Election Study, and an analysis similar to the one used in this project is possible.

This study implies that political boundaries have important implications for citizen behavior. It is important that district boundaries change, in most instances, every decade with the new census. If district geography matters cross-sectionally, one might expect it to matter also across time. What happens to people in areas that are redistricted several times? Do habits formed earlier continue into the new district, or does the new district cause such upheaval that old voting habits are difficult to maintain? A time-series analysis before and after a round of redistricting could address this question.

This study implies that political boundaries matter for the political lives of citizens. I would like to investigate this assertion further. What are the implications of living near a district's periphery as opposed to its center? Do effects exist most strongly in one geographic part of the district and taper off at the edges? Or does the district have
relatively constant effects that impact the entire population? An analysis that takes into account the location of respondents (attainable through the census-tract variable that is normally hidden in NES data, but that is available through application to the Survey Research Center) could address this question.

This study shows that relationships exist between district geography and citizen behavior, but there is room for improvement in variable measurement. The compactness variable can certainly be improved upon. Perhaps some districts are relatively non-compact, but the population centers within them are very compact. Or perhaps some compact districts have population patterns that sprawl within its geographic boundaries. Also, as mentioned above, compactness measures are imperfect and there may yet be a better approach to determining the relative compactness of a geographic area.

Finally, the fact that district geography has implications for citizen behavior opens the door for another set of questions related to representation issues. If district geography can influence how well known candidates are, it is possible that certain representatives have an easier time straying from their constituents’ wishes than do others. It may be that citizens in certain districts are able to watch their representatives like a hawk, while others exist in a muddled media environment where representatives have less to fear. This could lead to different representational styles and different kinds of voting patterns, all traceable to district geography and media-market relationships.

Finding support for the idea that district geography impacts citizens is no real surprise, but the details of the relationship are relatively novel. Many people have argued that district geography should matter, but failed to demonstrate how. This project makes a contribution to our understanding of the implications of how electoral district lines are
drawn. However, there is work to be done on this topic, and I intend for this to be a launching point for further research investigating the implications of geography for citizen political behavior.
List of References


Colegrove v. Green, 328 U.S. 549 (1946).


