Chapter 1
Introduction

Dissertation Abstract

Current public debate about legislative redistricting in the United States most commonly champions reforms toward nonpartisan commissions as promoting competition and balance, while assailing partisan gerrymanders as ossifying incumbents, often adverse to the will of the voters. This dissertation challenges this conventional wisdom along several dimensions using a simulation model and empirical evidence from survey data and four decades of congressional election results.

The dissertation is broadly divided into three parts, each of which employs the simulation model, detailed in Chapter 2, accompanied by empirical evidence. The first part, comprising Chapter 3, tests the effects of interacting redistricting institutions with national partisan tides (i.e. wave elections) on party composition and turnover in Congress. The middle section, comprising Chapter 4 and an addendum to Chapter 5, alters the model to fit the legal requirements under the Voting Rights Act to create majority-minority districts, first with respect to tides, and then with respect to voter welfare of minority voters. The last part, comprising Chapters 5 and 6, tests the effects of these institutions, also interacted with tides and party polarization, on different measures of democratic representation or voter welfare.

Supported by both the model and evidence, the dissertation finds that maps drawn by nonpartisan institutions do yield closer election contests and greater sensitivity to tides. And while nonpartisan maps often succeed in electing a median delegation member responsive to tides, they perform extremely poorly in electing individual members that personally represent the voters in their own constituencies. On the other hand, aggressive partisan maps, while biased in favor of the gerrymandering party when tides are neutral, are very responsive to tides adverse to
the gerrymandering party, both with respect to competitiveness and turnover. Additionally, aggressive partisan maps elect delegations that perform moderately well on three out of four measures of voter welfare. They perform badly on the fourth measure, policy median welfare, when tides are low, but can achieve the best results among all maps under strong tides in both directions. The dissertation also provides additional insight into the effects of majority-minority districting on partisan composition and voter welfare, and also the effects of increased party polarization.

1. Structure of Introduction

Broadly, this dissertation explores the relationship between the districting institutions and representational norms, mediated by such factors as polarization and partisan tides, first by looking at party composition, and then through direct measures of voter welfare. This introduction gives a brief summary of the political and legal factors involved in districting, and then explains how both districting institutions and representational norms are conceptualized and operationalized throughout the dissertation. Section II given political background, explaining how districting is conducted in the United States. Section III gives legal background, reviewing what is constitutionally required of mapmakers, and how courts view partisan gerrymanders and “traditional districting principles”. Section IV details “three regimes of gerrymanders”, how the dissertation conceives of the incentives for bipartisan, nonpartisan, and partisan actors, and how this is operationalized through use of a toy model and historical examples. Section V does the same for four “representation norms” that will be employed in the second half of the dissertation, specifically operationalized as distance measures of voter satisfaction. Section VI outlines the remaining substantive chapters of the dissertation.
II. Political Background

Under the U.S. Constitution and a series of apportionment cases decided by the Supreme Court in the 1960’s, all states must redraw their boundaries for both state legislative and U.S. congressional districts following the national census every ten years. Congressional maps are always drawn with single-member districts; many states retain multi-member districts for state legislative seats, although states have also moved increasingly toward single-member districts since passage of the 1965 Voting Rights Act (VRA) and subsequent 1982 amendments (Issacharoff 2007). Redistricting for both state legislative and congressional seats is done through the normal legislative process in a majority of states. A few states use a modified legislative process, such as allowing the Governor to propose the first map, or establishing a commission to draw the boundaries in the case where the legislative process fails (McDonald 2004). Courts also regularly intervene in districting when legislators cannot agree on a map or a constitutional issue arises.

However, in recent decades a number of states have passed the redistricting process mostly or completely on to a nonpartisan or bipartisan commission. Twelve states used a commission for drawing state legislative lines in the post-2000 cycle, while seven used a commission to draw congressional boundaries.¹ The specific procedures and memberships of these committees vary widely, and these variations have a strong influence on the resulting maps (see McDonald 2004). The most unique process for legislative districting can be found in Iowa, where lines are drawn by bureaucrats from the Legislative Services Bureau. This Bureau is not only apolitically hired, but members are forbidden from taking into account incumbents’

¹ The states are: Arizona, Hawaii, Idaho, Maine, Montana, New Jersey, and Washington. Note that of these states, only Arizona, New Jersey, and Washington have more than two congressional seats.
residency and past voting practices in drawing the lines. After being drawn by the Bureau, the plan must be approved by the state legislature and Governor. As these were under divided control in 2001, this did not interfere with the non-partisan nature of the map-drawing process. Moreover, the Iowa legislature has exhibited a strong norm against interfering with the Bureau’s recommendations. Indeed, the Republican-controlled legislature in 2001 approved a congressional map moving all four Republican incumbents into districts with other incumbents.

During the 2000s, legislatures in at least 20 states considered proposals to move toward a commission system, but only four state houses approved such bills, and none were ultimately enacted into law (Karch 2007). But reformers have had more success through voter initiatives and referenda. Recently, a California referendum (Proposition 11) passed in 2008, giving a commission authority over state legislative districts, while setting additional criteria for the drawing of congressional maps. This commission’s authority was expanded to include congressional districting through passage of an additional referendum in 2010. The same year, voters in Florida passed two constitutional amendments restricting the factors that the state legislature could consider in drawing congressional and legislative district boundaries. After a series of lawsuits, these amendments were upheld by the Eleventh Circuit Court of Appeals in January 2012.

While still the exception in the United States, the use of nonpartisan redistricting is the norm in Europe and other democracies. Handley (2008) found that 73% of 60 countries surveyed used boundary commissions to draw legislative lines; among nations with single-member districts, only the U.S. and France allowed for substantial legislative involvement in the districting process.
III. Legal Background

Section II of Article 1 of the Constitution requires "The House of Representatives shall be composed of Members chosen every second year by the People of the several States.... Representatives...shall be apportioned among the several States which may be included within this Union, according to their respective Numbers....The actual Enumeration shall made...within every subsequent Term of ten Years." In conformity with this section, seats in the U.S. Congress have been reapportioned among the states following each decennial national census, with one exception. But it is only within the past fifty years that the federal government and court system have taken on a significant role in regulating the districting decisions within the states, both at the congressional and state legislative level.

Prior to the 1960’s, states often refrained from redrawing districts unless absolutely necessary (i.e. they gained or lost a congressional seat). As populations shifted from rural to urban areas over the course of the late 19th and early 20th centuries, this frequently led to severely malapportioned districts, with primarily rural districts having much smaller populations than urban districts, retaining the balance of political power for the rural minority. Additionally, many states houses (particularly state senates) were organized around county lines, with each county receiving equal representation regardless of population.

But these methods of redistricting were overturned by a series of Supreme Court decisions beginning with Baker v. Carr in 1962 (holding that the districting of state legislatures

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2 In one history’s most blatant instances of ignoring the clear language of the Constitution, Congress, unable to agree on a method of reapportionment (and concerned about growing political power in more urban states) did not reapportion itself following the 1920 census (see Eagles 2010). A subsequent law passed in 1929 provided for automatic reapportionment in future decades.
is a justiciable question), leading into *Reynolds v. Sims* (holding that state senate districts must be roughly equal in population) and *Wesberry v. Sanders* (holding that congressional districts must be equal in population) in 1964. Chief Justice Earl Warren justified the new standard in his majority opinion in *Reynolds* by asserting that "Legislators represent people, not trees or acres. Legislators are elected by voters, not farms or cities or economic interests."

With respect to state legislative districts, courts have generally found that minor population deviations (generally assumed to be less than 10% maximum deviation) do not amount to a *prima facie* Equal Protection claim (see *Gaffney v. Cummings* (1973)). However, the Court has demanded almost exact population equality when it comes to congressional districts, holding that “there are no de minimus population variations, which could be proactically avoided, but which nonetheless meet the standard of Art. 1, § 2, without justification.” (*Karcher v. Daggett* at 461). Under this demanding standard, the U.S. District Court in *Vieth v. Pennsylvania* (2002) struck down a map in Pennsylvania with a maximum population deviation of 19 people.³

While strictly enforcing the equal population requirement for congressional districts, the Court has been much less willing to pass judgment on districts drawn for the political gain of a single party. In *Davis v. Bandemer* (1986), upholding a Republican-drawn map of the Indiana state legislature, the Court held that partisan gerrymanders could represent a justiciable denial of equal protection, but also failed to agree on a standard under which to evaluate such claims. But the next major partisan redistricting case, *Vieth v. Jubilier* (2004), came close to reversing even this thin holding. In *Vieth*, a case involving a Pennsylvania map discussed in further detail in Chapter 3, a four-justice conservative plurality said that partisan maps were entirely non-

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³ Pennsylvania Republicans later corrected these population deviations, and the new map was eventually upheld in *Vieth v. Jubelirer*, discussed below and in Chapter 3.
justiciable. Justice Kennedy, casting the deciding vote, concurred that no justiciable standard for judging partisan maps existed, but did not completely foreclose the possibility that such a standard could arise in the future. Most recently, in *LULAC v. Perry* (2006), challenging the 2003 redistricting by Republicans in Texas, the Court struck down a single district on VRA grounds, but explicitly rejected the argument that partisan gerrymanders were unconstitutional merely by virtue of being done middecade. With no justiciable standard suggested by the Court, parties appear largely unfettered in their efforts to draw district lines to suit their own partisan purposes for the foreseeable future, constrained mainly by state law, the equal population requirement, and the Voting Rights Act.

Much of the recent jurisprudence related to congressional and legislative redistricting concerns the application of the Voting Rights Act (VRA) and its interaction with the Equal Protection Clause. The relevant amendments and case law involving the VRA are summarized in Chapter 4. It is worth noting that while federal courts have never interpreted the constitution as requiring consideration of “traditional districting principles” such as compactness and respect for existing political subdivision, they have spoken favorably of such criteria as possibly providing a defense against claims that a gerrymander is impermissible on other grounds. In the context of race-conscious districting, the Court held in *Miller v. Johnson* (1995) that “a plaintiff must prove that the legislature subordinated traditional race-neutral districting principles, including but not limited to compactness, contiguity, and respect for political subdivisions or communities defined by actual shared interests, to racial considerations” to make out an equal protection claim (*Miller at 916*). In *Shaw v. Reno*, Justice Stevens’ concurrence explained:

“‘traditional districting principles,’ which include “compactness, contiguity, and respect for political subdivisions,” are “important not because they are constitutionally required … but because they are objective factors that may serve
to defeat a claim that a district has been gerrymandered on racial lines.” *(Shaw* at 647).

Stevens then applied this same principle to a case of partisan gerrymandering in his dissent in *Vieth*, proposing a standard for judging such claims:

“In my view, when partisanship is the legislature’s sole motivation—when any pretense of neutrality is forsaken unabashedly and all traditional districting criteria are subverted for partisan advantage—the governing body cannot be said to have acted impartially.” *(Vieth* at 318)

So while the Court has not mandated the use of any nonpartisan institutions or procedures, it does look upon them favorably. If the Court were to ever agree upon a standard upon which to judge partisan gerrymanders (likely only in the event of significant change in its composition), it appears that the use of nonpartisan standard, such as those recently adopted by referenda in Florida, would play a major role.

**IV. Three Regimes of Gerrymandering**

The model in this paper distinguishes between three different gerrymandering “regimes”, and generates predictions and evidence about how maps drawn under each of these regimes will respond to changes in national partisan trends. These regimes represent my conceptions for how various institutions will tend to draw district lines to achieve particular goals, conceptions to be tested empirically:

- **Bipartisan Gerrymander**: A map is drawn to protect incumbents of both parties. Districts will tend to be ideologically homogenous, with few competitive elections, and a diverse group of legislators elected. These maps will typically be seen when state government is under split partisan control.
• *Nonpartisan Gerrymander:* A neutral committee draws a map not designed to favor either party. Incumbency may or may not be considered in drawing the boundaries, but in general, districts will not be drawn with the goal of electing a certain representative or type of representative. Instead, districts will be internally heterogeneous and competitive elections will be common.  

• *Partisan Gerrymander:* One party controls the map-drawing process. They “pack” members of the opposed party into a small number of ideologically homogenous districts, creating some safe incumbents. But they also create a large number of districts that favor their own party. How homogenous and “safe” these districts are will depend on how “aggressive” the gerrymander is. If the map-drawers create many districts that tilt only slightly in favor of the majority party, they risk having the map “backfire” and losing many seats in the event of a modestly averse partisan tide.

When maps are drawn by legislatures or committees, I posit that the partisan composition of that body will determine which “regime” the map should resemble, possibly influenced by other institutional factors. However, the paper offers no general supposition when maps are drawn by courts; although an ostensibly nonpartisan institution, the resulting maps are influenced by many factors, including the circumstances and issues which lead the process into court, the state’s judicial selection systems, and the personal partisan leanings of the judges.

To more fully explain the difference between the three procedural gerrymandering regimes that serve as the primary dependent variable in this project, examples of each regime is shown in both a “toy state” of 25 voters, and a short case study from the 2001 redistricting cycle.  

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4 In some instances, the creation of balanced districts is a stated goal of nonpartisan actors: the Arizona Proposition creating that state’s districting commission requires “competitive districts are to be favored” as long as they comply with other constitutional requirements (Adams 2005). In other cases, it is a side effect of other provisions: the Legislative Services Bureau responsible for districting in Iowa is not permitted to incorporate incumbency or voting data in creating their proposals.
The Bipartisan Gerrymander

In further detailing each of these gerrymandering regimes, let us begin with a simple toy state. Consider a state with 25 voters, to be apportioned into 5 legislative districts of equal population. As shown in Figure 1, assume that the most liberal voters are on the left side of the state, and the most conservative are on the right side of the state; the 10 most liberal voters identify as Democrats, while the 10 most conservative identify as Republicans. Each district elects one representative, and these five representatives make up the legislature.

As shown in Figure 2, districts are drawn “vertically” so that the most liberal voters are all in one district, all of the independent voters in one district, etc.

The resulting legislature contains an even split of both parties, with all ideologies represented. Note that substantively competitive elections between candidates of different ideologies are unlikely, and the results are not sensitive to partisan swings; if one or two voters in any given district were to change their ideology or cast an unexpected vote, the outcome of the election would not change. Thus, as

5 In the simulation model, this configuration would be attained by $\gamma = d = 5$ (all districts ideologically packed). Details of this Gerrymandering model are described in Chapter 2.
discussed above, this regime creates safe districts, little electoral competition, but a balanced and diverse legislature.

Figure 2. Bipartisan Gerrymander in Toy State

Bipartisan Example: California 2001

An excellent example of the “bipartisan gerrymander” would be the California congressional districts implemented in 2001. During the 1990’s, a court-ordered plan kept the partisan balance close in California for most of the decade, but leftward trends finally caught up to Republicans in the final election before reapportionment: Democrats defeated four Republican incumbents in the 2000 election to take a 32 to 20 seat advantage into the redistricting year. California gained one seat (total of 53) in the 2000 census, and Democrats held control of all branches of state government; many expected the party to use this power to significantly expand their majority.

But the Democrats did not use this opportunity to draw an aggressively partisan map. Instead, they felt pressure from both the right and the left to be much more cautious. If they drew a map to gain as many seats as possible, they risked a Republican-backed ballot proposition to change the redistricting process, and the prospect of serious primary challenges from state legislators forced to retire due to legislative terms limits. Thus, leaders of the state congressional delegations of both parties reached an agreement to draw a map that would ensure the reelection
of almost every incumbent, and designated the new seat for an Hispanic Democrat. Over the objections of almost half the Democrats in the state legislature, the plan passed with roughly even support from both parties.

The map worked exactly as expected. In the 2002 general election, every incumbent won with at least 58% of the vote,⁶ and the Democrats held a 33 to 20 advantage in the delegation. And over the course of the decade, these seats have remained safe for incumbents. Out of over 250 congressional elections to take place in California since the implementation of the map, the incumbent party has been defeated only once, and after two consecutive cycles of strong Democratic partisan tides, the Democrats had gained only one additional seat, and held a 34 to 19 advantage in 2009. And even in the face of the Republican tide in 2010, Democrats held on to all 34 of these seats.

But while almost all incumbents hold safe seats, the California delegation is notable for its diversity. As of 2011, among the 53 incumbents are nine Hispanics, four African-Americans, three Asian-Americans, and 19 women. It includes not only congressional leaders of both parties, but also several members who are not afraid to represent lone voices for unpopular causes.⁷ So by drawing a map to protect incumbents, it could be argued that California has nurtured diversity of representation and vitality of debate within the Congress, while stifling political competition at the electoral level.

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⁶ One incumbent, Rep. Gary Condit, was defeated in a primary due to scandal accusations, but the Democrats held the seat in the general election.

⁷ Rep. Barbara Lee (CA-09) was the only member of Congress to vote against the use of force in Afghanistan following the attacks of September 11, 2001, while Pete Stark (CA-13) is the only open atheist member of Congress.
The Nonpartisan Gerrymander

Let us return to our example state with 25 voters. Now consider that the districts are drawn “horizontally”, with one voter from every ideological persuasion in each district, as shown in Figure 3. This might represent the “nonpartisan gerrymander”, where partisanship is not considered in the drawing of the map. The result is five districts with even partisan balance. In such a case, we might expect one of two results. If parties converge ideologically, we would expect every district to elect a moderate, as in Figure 3a. But if parties maintain distinct ideologies, we would expect a series of close elections with unpredictable results, as shown in Figure 3b (the lighter numbers represent losing candidates).

Such districts would create intense electoral competition, and be very sensitive to partisan swings. If just one voter in each district switched parties, the ideology of every elected representative might change. Under such a regime, we would expect a lot of close elections, and a lot of partisan turnover. What we would not expect, however, is a particularly diverse legislature. Note that with “horizontal” districts, voters on either end of the ideological spectrum have almost no hope of ever electing one of their own into office.

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This configuration would be attained in the Gerrymandering model by $\gamma = 0$ (no packed districts).
Figure 3a/3b. Nonpartisan Gerrymander with non-separating/separating parties

Nonpartisan Example: Iowa 2001

As mentioned above, Iowa is unique among all states in that its congressional map is drawn by a completely nonpartisan Legislative Services Bureau. As shown in Figure 4, the map implemented in Iowa in 2011 looked starkly different from the typical maps in other states. In contrast to the irregular, snaking, and intertwined districts common in maps drawn to implement a particular political result, the Iowa districts look remarkably unremarkable: the four districts largely appear to be drawn by bisecting the state East/West and then bisecting the state North/South, while keeping the boundaries coincident with rectangular county lines. But the boring shapes hide intense competition within: of the five congressional districts created in 2001, one drawn along Iowa’s western border is heavily Republican, but the other four are all ideologically balanced.
Indeed, Iowa has seen several of the most hotly contested congressional races during the most recent decade. In 2002, the first cycle after implementation of the map, Republicans retained a four-to-one advantage in the delegation, although no incumbent of either party received more than 57% of the vote.\(^9\) And helped by a national tide, Democrats turned two seats in 2006 to take control of a majority of the delegation.

Moreover, the ideological composition of the Iowa delegation has proven to be very unpredictable. In 2002, two of Iowa’s representatives, Leonard Boswell (D-IA-03) and Jim Leach (R-IA-02) were among the most centrist members of the House. But the unexpected defeat of Leach and the retirement of the strongly conservative Jim Nussle (R-IA-01) led to the election of two new Democrats ranked by the National Journal as among the most liberal quintile of Congress. So it appears that contentious elections in Iowa have yielded winners that will leave a large portion of voters in each district unhappy, although which portion that is changes

\(^9\) Contrast this to California, where every incumbent received at least 58% in the same election year.
from year to year. But unlike the remarkably diverse California delegation, every representative elected in Iowa is (and always has been) a white male. Given the demographics of the state (it is 90% non-Hispanic white), it is unsurprising that Iowa has never elected a racial minority. But curiously, Iowa is also the only state with more than one district that has never elected a woman to Congress. The sample size here is obviously very small and confounded by other variables, but one wonders whether the moderate and closely divided nature of the Iowa district map has discouraged “riskier” candidates (such as women and minorities) from running.

_Are Nonpartisan Maps Drawn to Be More Competitive?_

Chapter 3 will discuss in detail whether maps drawn by nonpartisan institutions tend to generate more competitive elections. But we can also quickly test whether the demographics of such maps show more partisan balance. Table 1 below shows a regression where each data point is a congressional district, including all seats from the 1970’s through the 2000’s. I have calculated a measure of “District Level Presidential Competition”, which is the amount by which presidential results in each district deviate from the national average. So a lower number indicates more of a swing district at the national level. This is the dependent variable in Table 1, which includes a dummy variable for districts drawn by nonpartisan institutions; see Appendix A in Chapter 3 for the coding here. The regression is run both including and excluding the South with the same result. The coefficient for nonpartisan districts is negative and significant, indicating that nonpartisan maps tend to draw more swing districts, suggesting support for this basic assumption. I have included a variable for state-level presidential competition (defined and used throughout Chapter 3); the positive coefficient on this variable indicates that districts with closer partisan balance tend to occur more in swing states. But controlling for state-level
partisanship, nonpartisan commissions do also draw more balanced districts, for which the electoral effects are explored throughout the rest of the dissertation.

Table 1. Effect of Nonpartisan Redistricting on Presidential-Level Competitiveness of Congressional Districts

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<td></td>
<td>South</td>
<td>South</td>
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<tr>
<td>abs(Statewide Pres. Vote)</td>
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<td><strong>.305</strong></td>
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<td></td>
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<td>(.028)</td>
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<tr>
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<td></td>
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<td>(.299)</td>
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<tr>
<td>n</td>
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<td>1740</td>
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<tr>
<td>R-squared</td>
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<td>.079</td>
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Notes: Dependent variable is absolute value of average presidential vote in district relative to nation (lower values indicate swing district) Standard errors are in parentheses. p < .05*, .01**

The Partisan Gerrymander

We finally turn to what many would consider the most normatively troubling regime: the partisan gerrymander, where one party controlling the government tries to maximize the number of seats by “packing and cracking” minority party voters. Returning to our 25-voter state example, Figure 5 represents a modest partisan gerrymander by the Democratic Party; note that the Republicans have been “packed” into two safe, homogenous conservative districts. The moderates, meanwhile, have been spread across the other three districts in a way such that the median voter in each district is a Democrat. As shown in Figure 5, the anticipated legislature would include three Democrats and two Republicans.

10 The Gerrymandering model would achieve the configuration in Figure 5 using γ = 2; a more aggressive gerrymander, in which Democrats also attempted to win district 4, could also be achieved using γ = 1.
Note, however, that while the two Republican seats in Figure 5 are fairly invulnerable to modest shifts in party identification or public opinion, a change in one or two votes in one or two of the Democratic districts could easily cause the Democrats to lose their majority. So the map potentially creates opportunities for competitive elections depending on electoral trends, and these competitive elections will typically come at the expense of the majority party. Further, if the geographic distribution of voters was changed or districts did not have to be contiguous, the Democrats could construct an even more “aggressive” gerrymander composed of one solidly Republican seat, three seats with Democratic majorities, and one moderate/toss-up seat. Such a map would be even more vulnerable to a partisan tide adverse to the majority party. The greater the gain from the gerrymander in good times, the greater the backfire in bad times.

![Figure 5. Democratic Partisan Gerrymander](image)

**Figure 5. Democratic Partisan Gerrymander**

*Partisan Examples: Pennsylvania and Maryland, 2001*

Prior to the reapportionment resulting from the 2000 census, both Maryland and Pennsylvania had balanced congressional delegations: four representatives from each party in Maryland, and eleven Republicans compared to ten Democrats in Pennsylvania. In 2001, the Maryland state government was completely controlled by Democrats, and the Pennsylvania

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11 For example, imagine the same map as in Figure 5, but with the fifth column inhabited entirely by Independents, and the third column inhabited entirely by Republicans. Districts 1 through 3 would still be Democrat-majority, but District 5 would be moderate.
government completely controlled by Republicans; mapmakers in both states set out to use the redistricting process to their party’s advantage.

In Maryland, statehouse Democrats “packed” Republicans in the state’s Appalachian Western frontier into the 6th District and created a safe 1st District for the moderate Republican Wayne Gilchrest, while targeting the remaining two GOP-held seats. They added a swath of voters from majority-African American Prince George’s Country to liberal Republican Connie Morella’s 8th District, and transformed the retiring Bob Ehrlich’s 2nd District into a monstrosity winding around and through Baltimore City (shown in Figure 6). The plan was a success: Morella was defeated, the 2nd District picked up by the Democratic Baltimore County Executive, and the ruling party achieved a six-to-two congressional advantage in the 2002 election. In 2008, Democrats received an additional unexpected gift when Gilchrest was defeated in the primary election by a very conservative but weak challenger, handing the Democrats a seventh seat in one of the most shocking turnovers of the Democratic wave during that election cycle; however, this seat subsequently returned to the GOP in 2010.

Figure 6. Maryland’s 2nd Congressional District, 2002-2010
Republicans in Pennsylvania, faced with losing two seats due to reapportionment, primarily sought to increase their advantage by packing incumbent Democrats together. The final plan was delayed by a series of inter-chamber disagreements and court challenges, but ultimately a map was adopted designed to give Republicans a thirteen-to-six advantage by eliminating a district in each of Pittsburgh and Philadelphia and placing six Democrats in districts with other incumbents. Two Democrats chose to retire and one lost in a primary, but one unexpectedly defeated a Republican Congressman, resulting in a twelve-to-seven advantage for the Republicans following the 2002 election. Still, this was a result national Republican leaders were extremely pleased with.

But in drawing such a bold map, the governing party did not anticipate the partisan shifts that their state would undergo over the course of the decade, particularly as voters in suburban Philadelphia increasingly identified as Democrats under the governorship of former Philadelphia Mayor Ed Rendell. For while the Republicans held twelve seats in 2003, few of them could be called “safe”; in fact, President Bush received 52% of the vote or less in seven of these twelve seats in the 2000 election. So the Republicans, who were relying on the moderate party brand remaining viable in many of the suburban swing seats, were swept deeply under the Democratic tide of 2006. That year, four incumbents were defeated, some by scandal and others simply by changing demographics. After another incumbent lost in 2008, the Republican Party’s twelve-to-seven surplus had become a twelve-to-seven deficit. But the Republican wave of 2010 restored the map to a five seat GOP advantage.

In the context of the model, one might see Maryland as an example of a “moderate” partisan gerrymander while Pennsylvania is an example of a more “aggressive” one. Maryland Democrats were able to take advantage of the strong Democratic lean of their state overall to
craft six safe districts for their party that would hold up even in the face of the Republican wave of 2010, rather than attempting to hold a seventh seat that would endanger the safety of their remaining districts. All six of these districts had a Partisan Voting Index (PVI)\textsuperscript{12} of D+7 or greater in 2010, indicating that they voted at least 7\% more Democratic than the national average in recent presidential elections. But Republicans in Pennsylvania, attempting to win more than two-thirds of the seats in an evenly matched state, gambled on assembling swing districts that they hoped to win merely by running moderates or popular incumbents. Pennsylvania districts three through eight, all intended as Republican seats, were drawn with respective PVIs of R+2, R+3, R+10, D+2, D+4, and D+3. Given the inherent gamble in this sort of map it is unsurprising that things did not go as planned for Pennsylvania Republicans when tides turned against them.

The stories of Maryland and Pennsylvania exemplify the potential upside and downside of the partisan gerrymander. Maryland’s gerrymander bore fruit immediately and has remained stable given the enduring Democratic partisan advantage throughout the state. In Pennsylvania, Republicans saw short term gains, but adverse tides led to deep costs. Had the mapmakers not been so willing to take risks, dividing pockets of moderates into Republican-held districts in order to eliminate as many Democratic seats as possible, some of their doomed incumbents may have survived the massacres of 2006 and 2008.

\textit{Aggressive vs. Moderate Partisan Gerrymanders}

As defined through the dissertation, “aggressive” partisan gerrymanders attempt to win as many seats as possible for the gerrymandering party under a certain assumption about national

\textsuperscript{12} Partisan Voting Index, developed by Charlie Cook, is a measure of the relative partisan voting propensity of a state or congressional districts, expressed as percentage points more Republican or Democratic than the national average. A district with PVI R+5 would tend to vote 55\% Republican in a tied national election. Note that this measure is half the analogous measure of “Statewide Presidential Ideology” introduced in Chapter 3 and used throughout the dissertation.
political conditions, while “moderate” gerrymanders attempt to win a small number of seats, but reinforce those seats against the possibility of more adverse national conditions (or other adverse events in particular seats, such as retirements or scandal). Partisans drawing maps sometimes can choose either of these tactics, or a tactic somewhere in between. But Chapter 3 will show evidence that partisan maps are frequently highly aggressive, to the ultimate detriment of the gerrymandering party, unless constrained by additional factors such as VRA compliance.

Figure 7. Distribution of Congressional District by Republican PVI Advantage in Four Republican Gerrymanders in the 2000s

Figure 7 above gives a visual representation of the gerrymanders in four Republican-controlled states during the 2000’s (the Texas line represents the map drawn by the GOP in 2003). The x-axis in this figure represents how heavily-Republican a congressional district is (measured by Cook PVI), while the y-axis represents the share of congressional districts in each
state with that level of partisanship. We can generalize about the aggressiveness of each map by looking at where the peak share of congressional districts lies. So in Pennsylvania, where the bulk of congressional districts lies between D+2 and R+4, is a very aggressive map; Republicans in Pennsylvania drew several swing districts that they were counting on factors like incumbency and continued close national elections to hold. Ohio, with its peak around R+2, was also very aggressive, but slightly less so than Pennsylvania. Florida, with a peak around R+5, is a more moderate gerrymander, with many districts reinforced from mild swings toward the Democratic party. Finally, the map drawn in Texas has its peak around R+14; although drawn by Republican, most of the districts in this map are so heavily conservative that they look like wasted votes from the perspective of maximizing Republican seats. Some of the rationale behind the Florida and Texas maps is discussed in further detail in Chapter 4 in the context of VRA compliance.

V. Four Representation Norms

To test the effects of districting on various aspects of democratic representation, we must also typologize and operationalize these representational norms. This section defines four measures of utility that a voter might derive from their representatives, each of which is measured in the simulation model. These four measures are: (a) substantive (policy median); (b) compositional; (c) personal; and (d) discursive. Each is described below, within the context of both the literature on gerrymandering and representation, and the claims that parties have made to these representation norms in the courts.
Substantive (Policy Median) Representation

A voter might best feel that they are only fully represented by their government if their preferences are ultimately enacted into policy; in a majoritarian system of government, this might be defined at the electoral stage as having their interests represented by the median legislator, who has the power to determine party control of the body. In the case of a state legislative body, it might be very appropriate to judge a gerrymander by the composition, and the resulting legislator, of its median district. In such an instance, we might think of this as the probability that a voter’s interests will be in majority control of the legislature.

In the case of a congressional map, where a single state elects only a small portion of the legislature, it might not be as sensible to assign particular importance to the median district or legislator. Nevertheless, scholars such as McDonald (2010) have suggested judging the constitutionality of a partisan gerrymander by its median district election result, even in the case of congressional maps. Gilligan and Matsusaka (2006) also argue that the fairness of districting scheme be assessed by the distance of the median legislator from the median voter. Additionally, Krehbiel, Meirowitz, and Romer (2005), in simulation results that provide a foundation for the model in this paper, use average distance from the median delegation member as one of two welfare measures. Along these lines, the simulation model measures “policy median representation” as the distance between a voter and the ideologically median member of the legislature.

Compositional Representation

As an alternative to the policy median norm of representation, the compositional measure of representation judges a map by the entire composition of its resulting legislature. The
“compositional” norm of representation contrasts with the “policy median” norm in that it does not hold any particular member as pivotal, but rather considers the ideology of every member of the legislature equally in assessing how well a voter is represented.

We can observe the desire for compositional representation in the recent debate over majority-minority districting. For those advocating districts be drawn where a racial minority will have an effective majority, it is not enough that Democrats have majority control of the chamber or the delegation; it also matters what sort of Democrats are elected, and electing members that more closely reflect the ideologies of minority constituents can be worth sacrificing some probability of majority control. We see this debate among liberals in Georgia v. Ashcroft (2003). In Ashcroft, Georgia Democrats, including African-American leaders, drew a state legislative map that reduced the number of districts with large black majorities, but dramatically increased the number of districts with substantial black “influence” (30%-50% black voting age population). The hope was that by spreading black voters around, African Americans might not maximize their “symbolic” representation (in terms of the number of black legislators), but would maximize their “substantive” representation (by electing more Democrats who would vote in their interests). The U.S. Attorney General and Georgia Republicans charged that this was a violation of VRA § 5, as reducing the number of clear majority-minority districts constituted retrogression.

The Court found for the State of Georgia (and thus the state Democrats) by a 5-4 vote, with the five conservative justices siding with the Democrats, and the four liberal justices siding with the Republicans. There was thus a disagreement between liberal politicians and liberal judges as to whether “influence districts” constituted sufficiently equal representation for minorities. Perhaps mostly succinctly representing the deep ambivalence of the black
community in cases, Georgia Congressman John Lewis, a civil rights leader, supported the Georgia plan and testified in its favor in the Ashcroft case, but went on in 2006 to advocate for a VRA amendment which would overturn the Court’s ruling upholding the map (Issacharoff 2007).

The simulation model measures “compositional representation” as the average distance between a voter and every individual member of the legislature.

**Personal Representation**

In addition to the shape of the legislature as a whole, we might also think it is important for a voter to feel “personally” represented by the person or persons representing the district in which the voter lives. The contrast between “personal representation” and “virtual representation” dates to the early stages of the American revolution. Arguing against the claim of “taxation without representation”, members of the British parliament countered that although American colonists had no direct power to elect members of Parliament, their interests were still “virtually represented” by other members who voted in line with American interests. Regardless of whether the British were in fact looking out for the American colonies, the modern question here is whether the voter gains anything by having one or more representatives under his direct electoral control, personally assigned to represent his or her interests, or whether it is merely important that the voter have someone in the legislature defending those interests.

The fact that single-member districts allow for such direct “actual” representation (that can be responsive through individual constituent services, for example), may be an advantage of the American system over systems more balanced toward national proportional representation.

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13 The implications of this case on interpretations of the VRA amendments are discussed further in Chapter 4.
In the gerrymandering context, we might ask, should a voter care that their individual representative disagrees with them on most issues, as long as there are a sufficient number of agreeable members elected from other districts? Scholars advocating for “safe districts” in fact use the satisfaction of voters with their own representation as a crucial metric in their argument (see Buchler 2005, Brunell 2008).

One can see this inherent trade-off within the context of majority-minority districting by comparing *Gomez v. Watsonville* (1988) to *Voinovich v. Quilter* (1993). *Gomez* provides an example where minority plaintiffs were seeking personal representation, despite the fact that reasonable virtual (proportional) representation had been achieved. In *Gomez*, Hispanics represented 37 percent of the voting age population, and the City of Watsonville drew two majority-Hispanic districts (out of six), but still left the majority of the Hispanic population spread throughout the remainder of the majority-white districts. The plaintiffs demanded a map in which more Hispanics would be moved into the majority-Hispanic districts, not because the existing map diluted the overall vote strength of the group, but because it didn’t allow enough individual voters to elect a member of their group. Moving more Hispanics into majority-Hispanic districts probably would not have increased the total number of Hispanics in the city council (in fact, it may have made the members in the other districts less responsive to Hispanics), but it would have allowed more Hispanics to feel that their personal representative (not just those in other districts) represented their interests.

By contrast, the *Voinovich* plaintiffs complained that an Ohio state legislative map packed too many African-Americans into overwhelmingly black districts. This map also achieved sufficient proportionality, but here, plaintiffs wanted to trade-off feeling actually represented by a member of their group for increased influence on the overall composition of the
legislature. To the Voinovich plaintiffs, being a member of a very safe majority-black district did not represent a democratic or expressive good, but simply a wasted vote. It would seem that these plaintiffs were more content than those in Gomez to feel only “virtually” represented.14

The simulation model will measure “personal representation” as the ideological distance between a voter and the legislator in that voter’s district.

**Discursive Representation**

This is probably the least studied of the dimensions in the context of districting. I am using the term “Discursive Representation” as propounded by Dryzek and Niemeyer in their 2008 APSR article with that title; it is similar to “the politics of presence” as discussed by Canon and other works on racial representation. While the “compositional” measure of representation assumes that each additional marginal legislator contributes equally in their ability to represent an interest, we might also imagine that a single voice within a deliberative body can be uniquely powerful. Indeed, Dryzek and Niemeyer argue “there is no need for proportionality in discursive representation”. But unlike “personal” representation, there is no need for a voter’s interests to be represented discursively by the legislator they elect from their own district; this voice just needs to be present somewhere in the body.

The relevance of this dimension to the representation of racial minorities is probably best exemplified by drawing examples from the United State Senate, which has varied in recent years between have zero and one African-American members. Canon (1999) recounts an instance where Carol Moseley Braun, as the lone black member of the Senate, was able to convince 74 colleagues to vote against renewing a patent on a Confederate flag insignia, defeating a measure that would have sailed through in a nongermane amendment were it not for her passion.

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14 The Courts ultimately rejected the plaintiffs’ claims in both Gomez and Voinovich.
Moseley Braun’s 1998 defeat left the Senate without a black member, a loss that became particularly relevant on January 6, 2001. During the counting of electoral votes, twenty Representatives, most of them members of the Congressional Black Caucus, rose to file objections to the electoral votes of Florida. However, such objections had to be sponsored by both a representative and a senator, and no senator was willing to sign on as a cosponsor. Vice President Al Gore was forced to rule each of these objections out of order. Thus, while the presence of a single African-American senator might not have been able to affect the ultimate outcome of this election, it is almost certain that the “discourse” within the Congress would have taken a very different turn.

In this simulation model “discursive” representation is measured by the ideological distance between a voter and whichever legislator is ideologically closest to that voter, regardless of district.

Other Concepts of Representation

Theorists have put forth several concepts of what it means to be “represented” that the model, and thus dissertation, does not attempt to address. Drawing one example from the gerrymandering scholarship, this simulation model does not specifically engage the debate over “descriptive” or “symbolic” representation in one very important way: it only measures vote preferences along one continuous, ideological dimension. Much of the literature on descriptive representation implies that a second dimension, such as the race of the representative, must be considered not merely as an instrument for representation along the first dimension. As such, no single one of the four representation norms is an exact substitute for this concept of descriptive representation. Rather, three norms (compositional, personal, and discursive) all encompass
various facets of what might be valued as descriptive representation in contrast to the strict policy median definition, which comes closest to most formal definitions of “substantive” representation.

Specifically, descriptive representation demands that a particular voice be included in the governing body, whether or not that voice is ultimately decisive in policy outcomes. Under discursive representation, that voice can come from anywhere in legislature, and can be but a single voice among many. Under compositional representation, a single voice still has value, but gains proportionate value as its numbers grow (and loses value as its opponent’s numbers grow). And under personal representation, it is important that the voter have a direct electoral connection to the voice that he or she elects; that is, that the voter is personally empowered. So the model is informative on the debate between substantive and descriptive representation, despite not clearly representing either side in a single measure.

Other scholars such as Pitkin (1967) and Mansbridge (2003) have also developed typologies of representational definitions; this typology differs in only attempting to describe the ways that a voter might feel represented by a given legislature in a single time period. Thus, whereas Mansbridge defines “retrospective” and “gyroscopic” representations as methods in which voters might represent themselves by casting judgment on past legislative performance, the simulation model does not model performance, and assumes all legislators accurately represent their own ideologies. Pitkin includes such concepts as “symbolic” representation that do not map cleanly onto a model of ideological distance; nevertheless, one could imagine a minor modification to the model also measuring “symbolic representation” if the extent to which a legislator symbolically represents the voter can be assigned a distribution. In this case, the voter could also be “symbolically” represented along each of the four dimensions below.
We might also imagine that they are norms of representation that one might advocate as a disinterested observer looking at a regime from overheard. For example, one might believe that “proportionality”, that every voter’s interest be represented in proportion to their voting strength, is itself a democratic good. However, the model merely measures the success of a regime in satisfying actual voters, and it is much tougher to imagine a real voter sincerely having this preference. Such a voter who valued proportionality would prefer to elect a legislator they actually disagreed with if their own preferred interests were already overrepresented in the legislature in other districts, a preference I have yet to observe even anecdotally. It may be true that a purely proportional system, such as one that seems likely from the bipartisan gerrymander under low polarization, will satisfy real voter preferences in the aggregate better than other regimes. But to use proportionality (or another top-down standard) as itself a measure of voter welfare seems to beg the underlying utilitarian question.

VI. Outline of Dissertation

As discussed above, the dissertation makes use of simulations to predict various interacted effects of districting regimes, using a model which is common to all of the substantive chapters. Chapter 2 details the specifications of this model. The model distills the three regimes described in this introduction into a single gerrymandering parameter, and uses Monte Carlo simulation to test how parameter affects party composition and voter welfare under different tides and polarization conditions. The remainder of the dissertation, composed of four chapters, is broadly divided into two halves, the first half looking at the effect of districting on partisan composition, and the second addressing voter welfare.
Chapter 3 asks how the party composition of legislatures is influenced by the interaction of redistricting and national partisan tides. The chapter utilizes simulation results, a large-N data set of congressional election results over four decades, and case studies of three specific wave elections over the same period. The chapter finds evidence that partisan congressional gerrymanders frequently “backfire” in the face of adverse partisan tides, and that these backfires also explain the “pseudo-paradox” that close national elections tend to produce fewer close individual congressional elections.

Chapter 4 amends the research question in the previous chapter to incorporate the effects of the VRA amendments requiring majority-minority districts in many states, particularly in the South. The chapter examines the distribution of black populations among Southern congressional districts before and after passage of the amendments, and finds that deep South states were significantly constrained toward drawing maps that resemble Republican gerrymanders. The empirical section of the chapter finds evidence in case studies that recent trends in Southern states do mirror the predictions of the model: deep South states look like Republican gerrymanders, regardless of which party actually drew the lines, while border South states follow the pattern found in the rest of the country in Chapter 3.

The final two chapters, split between simulation and empirical results, explore the relationship of districting institutions to the four representation norms, operationalized as measures of voter welfare. Chapter 5 presents a wide range of results from the model, most importantly showing that nonpartisan maps produce very poor results on two of four measures (personal and discursive), while partisan maps only produce very poor results on one measure (policy median), and even on this measure, can be redeemed under strong tides. The chapter also generates predictions about the conditions under which party polarization will increase voter
welfare (in contrast to the general trend that polarization harms most welfare measures), and the conditions under which majority-minority districting is most helpful to ideologically discrete minority voters.

Chapter 6 provides preliminary empirical support for the voter welfare predictions from the model. Evidence is drawn from the 2008 Cooperative Congressional Election Study, with survey respondents placed on a common ideological scale with legislators to generate the four welfare measures empirically. Comparing average voter welfare across different states following the 2006 and 2008 congressional elections, the evidence supports the prediction that nonpartisan maps perform well on the policy median measure, but poorly with respect to personal representation. Additionally, evidence supports the prediction that aggressive partisan maps respond well to national tides. The chapter concludes by discussing how the information presented in that chapter, and the dissertation as a whole, can prove useful to mapmakers, courts, and practitioners in the future.