

IN THE SUPREME COURT OF PENNSYLVANIA

NO. 159 MM 2017

League of Women Voters of Pennsylvania, Carmen Febo San Miguel, James Solomon, John Greiner, John Capowski, Gretchen Brandt, Thomas Rentschler, Mary Elizabeth Lawn, Lisa Isaacs, Don Lancaster, Jordi Comas, Robert Smith, William Marx, Richard Mantell, Priscilla McNulty, Thomas Ulrich, Robert McKinstry, Mark Lichty, Lorraine Petrosky,

Petitioners,

v.

The Commonwealth of Pennsylvania; the Pennsylvania General Assembly; Thomas W. Wolf, In His Capacity as Governor of Pennsylvania; Michael J. Stack III, In His Capacity As Lieutenant Governor of Pennsylvania and President of the Pennsylvania Senate; Michael C Turzai, In His Capacity As Speaker of the Pennsylvania House of Representatives; Joseph B. Scarnati III, In His Capacity As Pennsylvania Senate President Pro Tempore; Robert Torres, In His Capacity As Acting Secretary of the Commonwealth of Pennsylvania; Jonathan M. Marks, In His Capacity As Commissioner of the Bureau Of Commissions, Elections, and Legislation of the Pennsylvania Department of State,

Respondents.

**BRIEF OF *AMICUS CURIAE* THE BRENNAN CENTER FOR JUSTICE
AT NEW YORK UNIVERSITY SCHOOL OF LAW
IN SUPPORT OF PETITIONERS**

On Consideration from the Commonwealth Court of Pennsylvania
Civ. No. 261 MD 2017

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INTEREST OF AMICUS CURIAE

Amicus curiae the Brennan Center for Justice at New York University School of Law (“Brennan Center”) is a not-for-profit, non-partisan think tank and public interest law institute that seeks to improve the systems of democracy and justice. The Brennan Center was founded in 1995 to honor the extraordinary contributions of Justice William J. Brennan, Jr. to American law and society. Through its Democracy Program, the Brennan Center seeks to bring the ideal of representative self-government closer to reality, including through work to protect the right to vote and ensure fair, transparent, and constitutional redistricting practices. The Brennan Center conducts empirical, qualitative, historical, and legal research on electoral practices and redistricting, works on efforts to reform the redistricting process, and has participated in a number of redistricting and voting rights cases before the United States Supreme Court and in other jurisdictions throughout the United States.

The Brennan Center has a particular interest in this case because the Brennan Center has long been concerned with the growth of extreme partisan gerrymandering and the negative impacts it has on American democracy. The 2011 Pennsylvania congressional map (the “Congressional Map”) at issue in this case is a particularly egregious example of an extreme partisan gerrymander, easily ranking as one of the worst of the decade in a study released by the Brennan Center last year that analyzed congressional plans under multiple quantitative measures.

In addition to its scholarship and advocacy, the Brennan Center has actively participated in partisan-gerrymandering suits brought in federal courts around the country, including as an amicus in the pending cases of *Gill v. Whitford*, No. 16-1161 (U.S. S. Ct.) (argued Oct. 3, 2017), *Harris v. Cooper* No. 16-166 (U.S. S. Ct.), and *Benisek v. Lamone*, No. 1:13-cv-3233 (D. Md.). The Brennan Center is particularly well-situated to comment on the unique aspects of federal adjudication of partisan-gerrymandering claims. Here, many concerns that the federal courts have held about partisan-gerrymandering claims simply do not apply.

No one other than the *amicus* or its counsel paid for the preparation of this *amicus curiae* brief or authored this brief, in whole or in part. This brief does not purport to convey the position of New York University School of Law.

I. INTRODUCTION

This case involves a particularly harmful form of gerrymandering: the type of gerrymandering that occurs when a political party uses its control over the redistricting process to give itself a large, durable majority and to insulate that majority from future changes in voter preferences. The Pennsylvania Legislature's careful manipulation of Congressional district lines following the 2010 census did exactly that. After gaining control of the redistricting process in the 2010 elections, Pennsylvania Republicans locked in an outsized partisan advantage in Pennsylvania's Congressional delegation so enduring that it requires an unprecedented wave election to dent it. The 2011 map, indeed, is easily one of the most egregious partisan gerrymanders of the decade. As Petitioners have explained in their well-reasoned arguments before the Commonwealth Court, this gerrymandering subverts basic commitments of Pennsylvania's Constitution.

The Brennan Center fully supports Petitioners' arguments. It submits this amicus brief to emphasize three points.

First, Pennsylvania's Congressional Map is *extreme*. That is significant for this Court's analysis. Extreme gerrymanders like Pennsylvania's current Congressional Map—where one party has locked-in a nearly unbreakable electoral advantage—are rare. Because they are not common and arise from readily observable circumstances, they also are not difficult for courts to identify. Qualitative evidence, including (most

importantly) a single political party's control of the redistricting process, provides courts with clear and uncomplicated means of limiting their scrutiny to those maps that are likely to have been subjected to extreme partisan manipulations. Multiple robust quantitative measures of partisan bias in redistricting—including tools that have far advanced in sophistication since the last time this Court considered partisan gerrymandering in *Erfer v. Com.*, 794 A.2d 325 (Pa. 2002)—can confirm courts' suspicions of partisan manipulation. In this case, the qualitative and quantitative evidence combine to clearly flag the current Congressional Map as an extreme partisan gerrymander.

Second, this Court's task is made easier for another reason. Most partisan-gerrymandering cases have arisen in federal courts under federal law. While federal courts have long (and nearly unanimously) recognized that extreme partisan gerrymandering violates the federal constitution, particular concerns that preoccupy those courts—the political question doctrine, federalism, and docket concerns—have led those courts, to date, to impose severe limits on partisan-gerrymandering claims. Most notably, a plurality opinion by the United States Supreme Court has suggested that the federal political question doctrine makes partisan-gerrymandering claims nonjusticiable under federal law, because of a supposed absence of “discernable” and

“manageable” standards for adjudicating such claims. *Vieth v. Jubelirer*, 541 U.S. 267, 281 (2004) (plurality op.). But Pennsylvania law is different.¹ This Court applies the “political question” doctrine in a far more limited manner than federal courts do. This Court so held just months ago. *William Penn Sch. Dist. v. Pennsylvania Dep’t of Educ.*, 170 A.3d 414, 436–39 (Pa. 2017). Under Pennsylvania law, the political question doctrine does not apply here at all. Likewise, other federal concerns that have led courts to limit partisan-gerrymandering claims, whatever their overall legitimacy in the federal context, neither apply to nor constrain this Court.

Third, this Court should consider the severe consequences of a failure to act. The partisan entrenchment caused by extreme gerrymanders like the current Congressional Map undermines popular faith in democracy and subverts voters’ confidence in the meaningfulness of elections. Absent intervention by this Court, the problem is likely to grow worse because gerrymanders are growing ever more sophisticated, durable, and extreme. This Court should, in keeping with its responsibility to protect the legitimacy of democracy in Pennsylvania, rule the Congressional Map unconstitutional under the Commonwealth’s constitutional Equal Protection Guarantee, its Free and Equal Elections Clause, and its guarantees of Free

¹ As shown by Petitioners and explained below, this conclusion of the *Vieth* plurality also was incorrect. There are, in fact, easily discernable and manageable standards for adjudicating partisan gerrymandering claims.

Expression and Association.

II. PENNSYLVANIA’S CONGRESSIONAL MAP IS EASILY IDENTIFIABLE AS AN EXTREME, UNCONSTITUTIONAL PARTISAN GERRYMANDER

Although good-faith political give-and-take often comes into play in redistricting, this case involves something different: an extreme partisan gerrymander, in which mapdrawers carefully crafted “district lines to subordinate adherents of one political party and entrench a rival party in power.” *Ariz. State Legislature v. Ariz. Indep. Redistricting Comm’n*, 135 S. Ct. 2652, 2658 (2015). Courts have long recognized that these extreme partisan gerrymanders are “incompatible with democratic principles.” *Id.* (quoting *Vieth*, 541 U.S. at 292 (plurality op.)).

Fortunately, while extreme gerrymanders are pernicious, they also are rare and easily detected. As a result, judicial action to stamp out extreme gerrymanders can be focused and limited. Petitioners have offered a legal formulation that points to the problem of entrenchment posed by extreme gerrymanders. *See, e.g.*, Petrs.’ Post-Trial Proposed Conclusions of Law ¶¶ 42, 49-52 (explaining that “a congressional districting map violates equal protection if the map reflects ‘intentional discrimination against an identifiable political group’ and ‘there was an actual discriminatory effect on that group,’” including, *inter alia*, a lasting Republican majority stemming from a “large and durable” “disadvantage to Democrat voters”). Petitioners’ standard is compatible with certain basic, objective, empirically grounded indicia that can further

structure judicial action in redistricting cases. When these indicia are present—as they are here, in spades—the Court can move confidently to root out an extreme, unconstitutional, and anti-democratic partisan gerrymander without worrying that it is unduly interfering in the legislative process.

A. Courts Can Use Basic Indicia to Identify Extreme Partisan Gerrymanders

Flagging extreme partisan gerrymanders does not require a search for a perfect mathematical test. Indeed, often the evidence will be so clear, there will be no need for resort to mathematical proofs. In particular, two straightforward, objective indicia that correlate strongly with extreme, intentional, and durable partisan gerrymanders (and that are present in Pennsylvania’s Congressional Map) make this Court’s task of identifying unconstitutional gerrymanders easier: (i) single-party control of the redistricting process, and (ii) a recent history of competitive statewide elections. *See* Anthony J. McGann, et al., *Gerrymandering in America* 148, 150, 157-58, 173-74 (2016).² These criteria are intuitive indicators that a political party has the motive and opportunity to successfully engage in an extreme partisan gerrymander. Empirical data confirm that they in fact correlate very strongly with unconstitutional state action. Were these factors not present, it would be highly unlikely that an unconstitutional

² For the Court’s convenience, a copy of the relevant portions of *Gerrymandering in America* is attached as Appendix A.1.

gerrymander could occur.

The first factor—single-party control—is a logical and virtually necessary precondition for any party to engage in an extreme partisan gerrymander. The incentive to excessively gerrymander districts means little if a party lacks the means to do so. *See* McGann, *supra*, at 147. And a bid to aggressively gerrymander is more likely to succeed when a single party controls the process. *See id.* at 147-48; *cf.* Michael P. McDonald, *A Comparative Analysis of Redistricting Institutions in the United States, 2001-02*, 4 *State Pol. & Pol’y Q.* 371, 377 (2004)³ (explaining that “[w]hen there is unified party control of state government, or when one party has a veto-proof majority in the state legislature, the process is streamlined and a plan is usually adopted quickly”). Indeed, under single-party control of the redistricting process, there is little or no opportunity for the minority party to influence the outcome.

The second criterion—a recent history of close statewide elections—also correlates with extreme gerrymanders. *See* McGann, *supra*, at 148-49. Close competition provides a powerful incentive for a party to undertake a severe, enduring gerrymander. *See id.* Absent gerrymandering, the normal ebb and flow of politics in

³ For the Court’s convenience, a copy of *A Comparative Analysis of Redistricting Institutions in the United States* is attached as Appendix A.2.

a closely divided state like Pennsylvania would likely see power shift between the parties over the course of a decade; to the contrary, a party in a state without a history of close statewide elections has relatively little to gain through an intensive partisan gerrymander. *See, e.g., id.* at 147 (explaining that “[w]hen a party is overwhelmingly popular in terms of federal elections in a state, adopting a biased plan brings no benefit and may even be counterproductive”).

While in some cases there will be no need to resort to statistical evidence, social science measures can help supplement intuitive assessments. To identify the markers of extreme partisan gerrymandering and to determine its magnitude, the Brennan Center studied congressional election results from this decade’s races. Specifically, the Brennan Center analyzed this decade’s congressional maps for the extent and the durability of their “partisan bias”—the degree of systematic advantage one party receives over another in turning votes into seats. Laura Royden & Michael Li, Brennan Ctr. for Justice, *Extreme Maps* 1, 3 (2017),⁴ <https://perma.cc/V45Q-RKP2> (hereinafter, “*Extreme Maps*”). According to the Brennan Center’s analysis, at a national level, *all* of the Congressional districting maps of this decade that show extreme partisan bias share the two objective factors discussed above. *Id.* at 1, 2, 6, 9, 15.

⁴ For the Court’s convenience, a copy of *Extreme Maps* is attached as Appendix A.3.

These findings confirm the intuition that single-party control is virtually a precondition for there to be extreme partisan bias. *Extreme Maps, supra*, at 15. Crucially, this is not a problem limited to one party. While this case involves a gerrymander by Republicans, extreme partisan gerrymandering could equally be a problem in Pennsylvania if the Democratic Party were to control all levers of the redistricting process in upcoming years.

The existence of large levels of bias in states where either Republicans or Democrats had sole control of the congressional redistricting process strongly suggests that much of that bias stems from deliberate manipulation of maps. *Extreme Maps, supra*, at 8. By contrast, maps drawn by commissions, courts, and split-control state governments exhibited much lower levels of partisan bias. And none had high levels of bias persisting across all three of the elections since the 2011 round of redistricting under multiple measures of such bias. *Id.* at 2, 8, 23-24. This strongly suggests that the maps' partisan bias in sole-control states is not happenstance, but rather the result of deliberate effort. *Id.* at 8.

The data confirm that a state's recent history of competitiveness is also highly correlated with extreme partisan gerrymandering. All of the most biased maps are in states with a recent history of closely contested statewide elections, or—in the case of Texas—a closely divided state legislature as recently as 2010. *Extreme Maps, supra*, at 2, 14. Partisan bias was likewise more durable in such states across the three

elections studied. *See id.* at 22, 25, 28.

The fact that these two factors—single-party control and competitive statewide elections—correlate very strongly with extreme partisan gerrymandering makes claims of unconstitutional partisan gerrymandering relatively easy to adjudicate. These two criteria are easily measured and helpful guideposts for courts. The first factor is objective and readily identifiable—either a single party controls the districting process, or not. The second factor likewise can be demonstrated in a variety of straightforward ways, such as a recent string of closely contested races for statewide elected offices or close parity in registration throughout much of the state. When these two criteria are satisfied, and especially when combined with other quantitative and qualitative evidence, a court need not be concerned that it is intruding into the ordinary political process by invalidating a biased plan.⁵

B. Pennsylvania’s Congressional Map Is Extremely, Durably, and Unusually Biased

Given Pennsylvania Republicans’ single-handed control over the redistricting process that created the Congressional Map and Pennsylvania’s recent history of close state-wide elections, any court would rightly be suspicious of the Congressional Map.

⁵ This is not to say that these are the only relevant metrics that courts should consider in determining whether an unconstitutional partisan gerrymander has occurred. Other types of activities that are both readily identifiable and easily distinguished from “normal politics”—such as a redistricting process conducted in secret, or departures from normal legislative or redistricting processes—may also be helpful for flagging extreme gerrymanders meriting closer judicial scrutiny.

Empirical data confirm those suspicions. Indeed, under multiple robust quantitative methods, Pennsylvania’s Congressional Map is an extreme and unusual gerrymander that entrenches a single political party in power.

To assess the extent and the durability of partisan bias in current congressional maps and identify aggressive seat maximization attempts, the Brennan Center calculated partisan bias for the 2012, 2014, and 2016 elections using three prominent, robust quantitative metrics. *Extreme Maps, supra*, at 1, 3, 4. Under each of these three metrics—the efficiency gap, the seats-to-votes curve, and the mean-median district vote share⁶—the Congressional Map displayed a level of bias that is both extreme and unusual. *Id.* at 7, 10, 13.

Under the Brennan Center’s efficiency gap analysis, in elections since 2010, only three states had a gap of more than two Congressional seats (the presumptive measure for unconstitutionality proposed by the efficiency gap’s creators) in every election since 2010—Pennsylvania, North Carolina, and Michigan. *Extreme Maps, supra*, at 7, 22-23. Pennsylvania, uniquely amongst the states, had an average efficiency gap of ***three to four seats*** over the last three elections. *Id.* Its average efficiency gap in this period was 3.43. *Id.* No other state in the union had an average

⁶ All three measures are well-established means of measuring partisan bias in redistricting. The Brennan Center’s *Extreme Maps* publication, included in Appendix A.3 to this brief, discusses each quantitative measure in detail. *Extreme Maps, supra*, at 17-21.

efficiency gap at this level—the next-worst state over this time period was North Carolina, with an average efficiency gap of 2.69, *i.e.* between 2-3 Congressional seats. *Id.* The efficiency gap in Pennsylvania is significant and enduring—it has lasted for three full electoral cycles, despite different candidates and different political conditions in each cycle. *Id.*⁷

The Congressional Map is also egregious under a seats-to-vote-curve methodology. Pennsylvania’s map produced a skew of ***more than four seats in 2012, more than three seats in 2014, and more than three seats in 2016.*** *Extreme Maps, supra*, at 10, 25-27. The only states with even similar skews were, once again, North Carolina and Michigan. North Carolina’s maps — an original map passed by the legislature in 2011, followed by a remedial map adopted in 2016 after the original map was struck down by the United States District Court for the Middle District of North Carolina as a racial gerrymander — had a skew just shy of three seats in each year studied, and Michigan’s skew landed between two and three seats in each election. *Id.*

The mean-median district vote share test further confirms the extremity of the

⁷ Below, petitioners presented strong evidence of a significant, enduring efficiency gap in all of Pennsylvania’s post-2010 elections, one inconsistent with both Pennsylvania’s prior results and the country as a whole. *See Op. Below, Commonwealth Court Findings of Fact* at pp. 84-89. The Commonwealth Court found this evidence of a severe efficiency gap in Pennsylvania to be “credible.” *Id.*

Congressional Map. *Extreme Maps, supra*, at 13, 28-30. Only six states have had statistically significant skews in all three Congressional elections since the 2010 census—Florida, Michigan, North Carolina, Ohio, Virginia, and Pennsylvania. *Id.* Once again, even among this relative handful of states, Pennsylvania stands out. Pennsylvania is second only to Ohio in the extremity of its mean-median difference. *Id.*

The Congressional Map's poor performance under any and all metrics of partisan bias confirms what the qualitative indicia discussed above suggest: The Congressional map is heavily and unusually biased in favor of the party that controlled the redistricting process—hard-wired to confer a systematic advantage in winning and keeping Congressional seats.

C. The Congressional Map's Extreme Partisan Gerrymandering Is Unconstitutional And Anti-Democratic

The Congressional Map's extreme partisan bias is a quantitative way to diagnose a thoroughly unconstitutional and anti-democratic reality: The Congressional Map has been engineered to give one party a large legislative majority and to insulate that majority from future changes in voter preferences. As the Commonwealth Court found, Republicans won 13 out of 18 congressional seats in each of the three elections held under the Congressional Map, with Democrats winning the remaining 5 seats. *Op. Below, Commw. Ct. Findings of Fact*, at pp. 46-50. The Republicans' thirteen-to-five advantage was unresponsive to material shifts in the electorate's voting behavior.

Indeed, whether the Republicans received 49.2% of the two-party statewide congressional vote (2012), 55.5% of that vote (2014), or 54.1% of that vote (2016), they maintained the same thirteen-seat majority, with not a single district switching hands. *Id.* at 46-51. As the quantitative measures of partisan bias show, those results are the fruit of a redistricting process that artfully packed and cracked Democrats to give Republicans a structural advantage in converting their votes into seats, allowing them to establish and entrench a lasting legislative majority, regardless of how Pennsylvania voters actually vote.

This state of affairs is contrary to fundamental constitutional and democratic values, including—but not limited to—the values of legislative accountability and representativeness.

First, extreme partisan gerrymandering undermines the congressional delegation’s accountability to the people. As the United States Supreme Court explained in *Reynolds v. Sims*, 377 U.S. 533 (1964), the “right to vote freely for the candidate of one’s choice is the essence of a democratic society, and any restrictions on that right strike at the heart of representative government.” *Id.* at 555. Our “democracy ... is premised on responsiveness,” *McConnell v. FEC*, 540 U.S. 93, 297 (2003) (Kennedy, J., concurring), and the franchise is meant to ensure that representative government is comprised of “bodies which are collectively responsive to the popular will,” *Reynolds*, 377 U.S. at 555. That responsiveness is why the

United States Supreme Court has long been deferential to the “pull, haul, and trade” of politics as a means of ensuring electoral accountability. *League of United Latin Am. Citizens v. Perry*, 548 U.S. 399, 507 (2006) (Roberts, C.J., concurring in part and dissenting in part) (quoting *Johnson v. De Grandy*, 512 U.S. 997, 1020 (1994)). However, by locking in legislative majorities that can withstand even severe swings in public sentiment, extreme partisan gerrymanders undercut the mechanisms of accountability, rendering the “pull, haul, and trade” of politics futile and judicial intervention essential.

Second, severe partisan gerrymandering undermines the representativeness of the congressional delegation. When the governing majority of the day permanently entrenches itself in power, the legislature no longer “think[s], feel[s], reason[s], [or] act[s] like” the people at large. *Bethune-Hill v. Virginia State Bd. of Elections*, 114 F. Supp. 3d 323, 341 (E.D. Va. 2015) (quoting John Adams, *Thoughts on Government Applicable to the Present State of the American Colonies; In a Letter from a Gentleman to his Friend* (April, 1776)). States that may have vibrant political cultures with diverse perspectives are left with one-note delegations. The policies legislators enact into law bear little resemblance to the fuller conversations among voters in homes and public spaces throughout the state. Simply put, foundational democratic commitments to representativeness demand at the very least that there not be a gross disconnect between a legislature and the people it purports to represent. That kind of

gross disconnect is the product of entrenchment, and tolerating it ignores the foundational precept that “the voters should choose their representatives, not the other way around.” *Ariz. State Legislature*, 135 S. Ct. at 2677.

In sum, a number of basic qualitative and quantitative factors combine to show that the Congressional Map is, by any and all accounts, an egregious, unusual, and constitutionally intolerable partisan gerrymander. Political factors that frequently correlate with partisan attempts to maximize legislative power through the redistricting process created the motive and opportunity for Pennsylvania Republicans to claim a supermajority of congressional seats. As both electoral results and easy-to-apply quantitative tests confirm, they succeeded mightily in their plan, locking in a durable thirteen-to-five advantage in Pennsylvania’s congressional delegation. This legislative entrenchment is fundamentally contrary to basic commitments of our constitutional democratic tradition—violating not only the constitutional rights on which plaintiffs have rightfully built their case, but also deeply rooted American commitments to legislatures that are representative of their electorate and accountable to their constituents.

III. CONCERNS THAT HAVE LED FEDERAL COURTS TO AVOID ADJUDICATION OF PARTISAN GERRYMANDERING CLAIMS DO NOT APPLY TO THIS COURT

In seeking to defend the extreme, partisan-entrenching gerrymander of Pennsylvania’s Congressional Map, Legislative Respondents rely primarily on federal

cases. *See* Legislative Respondents’ Proposed Findings of Fact And Conclusions Of Law, at pp. 101-109. In particular, they rely upon the United States Supreme Court’s 2004 plurality opinion in *Vieth*. But the concerns of the United States Supreme Court in *Vieth* do not apply to this Court.

In *Vieth*, four Justices of the United States Supreme Court, while acknowledging that extreme partisan gerrymanders may violate the federal constitution, found that partisan gerrymandering cases were nonjusticiable under the federal “political question” doctrine—because, according to the *Vieth* plurality, partisan gerrymandering cases lacked “discernable” and “manageable” standards for judicial review. 541 U.S. at 279-281.

As shown by Petitioners, and shown immediately above, the fundamental premise of the *Vieth* plurality is—whatever its status in 2004—false. There are, in fact, easily “discernable” and “manageable” standards of judicial review for distinguishing extreme partisan gerrymanders that entrench an artificial majority from ordinary politics and an abundance of evidentiary tools for identifying when such gerrymanders occur. For that reason alone, Legislative Respondents’ reliance on the *Vieth* plurality fails.

Beyond this, *Vieth* and similar federal cases fail to apply here for another reason. The federal political question doctrine—the doctrinal basis for the *Vieth* plurality’s holding—simply does not apply to this Court in the same way it does in the

federal courts.

In Pennsylvania, as this Court held just months ago, the “political question” doctrine *only* renders a case nonjusticiable when the Pennsylvania Constitution “explicitly or implicitly” demonstrates “*the clear intent* to entrust the legislature with *the sole prerogative to assess the adequacy of its own effort[s]*.” *William Penn Sch. Dist.*, 170 A.3d at 439 (emphasis added). As this Court explained, the political question doctrine applies under Pennsylvania law only when there is a clear constitutional commitment to allow the legislative branch *sole* authority for *interpreting* the scope and nature of its powers—not merely for executing the laws. *Id.* (“we will abstain from reviewing cases *only* where ‘the determination whether the action taken is within the power granted by the Constitution *has been entrusted exclusively and finally to the political branches of government for ‘self-monitoring.’*”) (quoting *Sweeney v. Tucker*, 375 A.2d 698, 706 (Pa. 1977)) (emphasis in original). Without a clear Constitutional commitment to exclusive “self-monitoring” by the Legislature, this Court remains “circumspect” about application of the political question doctrine. *William Penn Sch. Dist.*, 170 A.3d at 439. This reflects a broader distinction between Pennsylvania and federal law. Under Pennsylvania law, the “political question” doctrine is applied solely as a “prudential concern,” not a constitutional matter, and this Court has a strict “constitutional duty” to resolve disputes that “involve[] only an interpretation of the laws of the Commonwealth.” *Id.*

at 438 (quoting *Council 13, AFSCME ex rel. Fillman v. Rendell*, 986 A.2d 63, 76 (Pa. 2009)).

Here, there is no evidence whatsoever that the Pennsylvania Constitution intended to limit the interpretation of the constitutionality of partisan Congressional districting solely to the Legislature. Neither Legislative Respondents nor any other party has even suggested that the Pennsylvania Constitution contains such an exclusive reservation of interpretative power to the Legislature. There is not a shred of textual evidence in the Pennsylvania Constitution indicating that the Legislature is to be the sole arbiter of the constitutionality of its Congressional redistricting. Indeed, in connection with redistricting of the Commonwealth’s legislative bodies, the Pennsylvania Constitution expressly envisions a role for this Court. Pa. Const. art. II, § 17(d) (providing for automatic Supreme Court review of redistricting plans); § 17(h) (allowing the Supreme Court, when a redistricting plan is not filed by the Legislative Reapportionment Commission, to redistrict the Commonwealth itself).

By contrast, in the *Vieth* plurality, the four justices who agreed to that opinion relied exclusively on the notion that, under federal law, a purported “lack of judicially discoverable and manageable standards,” alone—not an express or implied Constitutional delegation of interpretation of the laws to another branch of government—made partisan-redistricting claims a political question. 541 U.S. at 278 (noting that only the issue of manageable adjudicatory standards “is at issue here,” and

citing *Baker v. Carr*, 369 U.S. 186, 217 (1962) for the “discoverable and manageable standards” element).

Notably, in any event, a majority of the United States Supreme Court has never held that “manageability” alone is a sufficient basis for rendering a claim a nonjusticiable political question (as opposed to being one of many factors to be considered in connection with identifying when an issue is a political question). See Brief for Constitutional Law Professors as *Amici Curiae* in Support of Appellees at 2-10, *Gill v. Whitford*, --- S. Ct. ---- (No. 16-1161), <https://perma.cc/22BJ-ZL7P>. Treating difficulty in judicial manageability as itself sufficient to create a nonjusticiable political question conflicts with many other United States Supreme Court precedents, including *Baker v. Carr*, the leading federal political-question doctrine case. *Id.* at 3, 10-16.

Beyond the substantial, material differences between Pennsylvania’s political question doctrine and the federal political question doctrine, other federal concerns that have (perhaps) limited receptiveness of the federal courts to partisan-gerrymandering claims also do not apply to this Court.

First, the federal courts face unique concerns over federalism, in particular their ability to regulate the legislative practices of diverse, sovereign states. *E.g. Growe v. Emison*, 507 U.S. 25, 34 (1993) (noting that the federal constitution gives states “primary responsibility” for “apportionment of their federal congressional ...

districts”). Such federalism concerns may have led federal courts to seek to avoid adjudicating partisan-gerrymandering claims arising from the actions of state legislatures. This Court, by contrast, faces no such concerns. It is, of course, the final authority on Pennsylvania law. It has the responsibility to state the law of the Commonwealth. *William Penn Sch. Dist.*, 170 A.3d at 439. Regulating the activity of the Pennsylvania Legislature under Pennsylvania law is not an anomalous function of this Court. It is this Court’s daily business.

Second, the United States Supreme Court has expressed concern that recognition of partisan gerrymandering claims would lead to excessive burdens on its docket. *See Davis v. Bandemer*, 478 U.S. 109, 147 (1986) (O’Connor, J., dissenting) (“the losing party or the losing group of legislators in every reapportionment will now be invited to fight the battle anew in federal court”). However, under the standards proposed above and by Petitioners, there would not be any explosion of partisan-gerrymandering claims. The Petitioners target extreme partisan gerrymanders that are pernicious and deeply damaging, but also rare and easy to spot using the combination of the common-sense factors and robust quantitative evidence described above.

In short, as a state court, this Court is not subject to the constraints that have caused the federal courts to limit partisan-gerrymandering claims. It is free to recognize the harm that extreme partisan gerrymandering poses for Pennsylvania’s democracy.

IV. THE COURT CAN ENHANCE THE LEGITIMACY OF PENNSYLVANIA'S DEMOCRACY AND ITS INSTITUTIONS BY CURBING THIS EXTREME PARTISAN GERRYMANDER

By taking decisive action now to declare the Congressional Map unconstitutional, the Court has an opportunity to place important outer limits on legislative practices that have eroded popular confidence in the legitimacy of our democratic institutions. In the process, the Court can help restore the public's belief in the power of its votes and the accountability of its legislators.

In recent decades, the absence of meaningful judicial controls on redistricting has permitted extreme partisan gerrymandering to run rampant, at substantial cost to democracy. The hard-wiring of Pennsylvania's map to favor one party undermines the accountability and representativeness of the state's congressional delegation by locking in a slate of representatives who do not mirror the shifting interests of the state's electorate and who are safe from accountability in all but extraordinary wave elections. Elections, in short, are rendered meaningless.

Unfortunately, if left unchecked, the problem is likely only to grow worse after the next redistricting cycle because of the increasingly powerful tools at the disposal of mapdrawers. As a coalition of prominent political scientists explained in a recent filing before the U.S. Supreme Court, more robust pools of voter data, combined with increased computing power and state-of-the-art redistricting software, will permit would-be gerrymanders to craft maps that even more durably biased than this cycle's

map. *See* Br. of *Amici Curiae* Political Science Professors in Support of Appellees and Affirmance at 2, *Gill v. Whitford*, --- S. Ct. ---- (No. 16-1161), <https://perma.cc/H5QU-943M> (explaining that “gerrymandering techniques that were only theoretical in the 2010 redistricting cycle could become commonplace in the 2020 redistricting cycle and beyond”). These new maps will only amplify the problems voters have endured this decade.

The collateral effects of extreme gerrymandering are substantial, helping to fuel a growing popular distrust in the political process. As Petitioners’ expert Christopher Warshaw showed in the proceedings below, both Democrats and Republicans in states with large “efficiency gaps” in favor of the opposing party (*i.e.*, states with likely partisan-entrenching gerrymanders) have significantly less trust in their representatives in Congress than do either Democrats or Republicans in states without extreme partisan gerrymandering. *See* Christopher Warshaw, *An Evaluation of the Partisan Bias in Pennsylvania’s Congressional District Plan and its Effects on Representation in Congress* (Nov. 27, 2017) at pp. 26-27, <https://perma.cc/YT4E-K9H8>. Put differently, extreme partisan gerrymandering is a direct threat to the legitimacy of Pennsylvania’s democracy. Voters subject to an extreme partisan gerrymander cannot and do not believe that their elected politicians are truly accountable to them.

By contrast, all indications are that voters will embrace the Court’s intervention

to curb gerrymandering. Unsurprisingly, rigging maps to ensure outcomes is extremely unpopular with voters—regardless of their partisan affiliation. In a recent nationwide Harris Poll, “majorities across party lines affirm[ed] a desire to see the power to influence district boundaries out of the hands of those with a vested interest in the results.” The Harris Poll #80, *Americans Across Party Lines Oppose Common Gerrymandering Practices* (Nov. 7, 2013), http://www.theharrispoll.com/politics/Americans_Across_Party_Lines_Oppose_Common_Gerrymandering_Practices.html. The poll found that “over seven in ten Americans believe (71 percent) that those who stand to benefit from redrawing congressional districts should not have a say in how they are redrawn.” *Id.* Only 2 percent of adults conclude that line-drawing should be done by “state legislatures, with (the) majority party having the most say in the process.” *Id.* Meanwhile, support for courts intervening to fix this problem is strong. A recent survey by Lake Research Partners and WPA Intelligence shows that a supermajority of those polled (71 percent) support judicial limits on partisan gerrymanders. *Partisan Redistricting – New Bipartisan Poll* (Sept. 11, 2017), <https://perma.cc/R79Q-73AF>.

By invalidating the Congressional Map and sending the Legislature back to the drawing board, the Court will be taking a stand for all of Pennsylvania’s voters, affirming the value of their ballots and promoting popular faith in the redistricting process. And, in doing so, the Court will fulfill its core responsibility to protect the

Commonwealth's representative democracy.

V. CONCLUSION

For the foregoing reasons, *amicus curiae* respectfully requests that this Court rule that Pennsylvania's current Congressional Map violates the Pennsylvania Constitution.

Dated: January 5, 2018

Respectfully submitted,

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CERTIFICATE OF WORD COUNT COMPLIANCE

Pursuant to Pa. R.A.P. 2135, the text of this *amicus curiae* brief consists of 5,571 words as counted by the Microsoft Word word-processing program used to generate this petition.

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APPENDIX A.1

Gerrymandering in America

This book considers the causes and consequences of partisan gerrymandering in the U.S. House. The Supreme Court's decision in *Vieth v. Jubelirer* (2004) made challenging a district plan on grounds of partisan gerrymandering practically impossible. Through a rigorous scientific analysis of U.S. House district maps, the authors argue that partisan bias increased dramatically in the 2010 redistricting round after the *Vieth* decision at both the national and state levels. From a constitutional perspective, unrestrained partisan gerrymandering poses a critical threat to a central pillar of American democracy – popular sovereignty. State legislatures now effectively determine the political composition of the U.S. House. The book answers the Court's challenge to find a new standard for gerrymandering that is both constitutionally grounded and legally manageable. It argues that the scientifically rigorous partisan symmetry measure is an appropriate legal standard for partisan gerrymandering, as it is a necessary condition of individual equality and can be practically applied.

Anthony J. McGann is a professor in the School of Government and Public Policy at the University of Strathclyde. His research examines the theory and practice of democratic institutions with a focus on electoral systems and the behavior of political parties. He has published *The Logic of Democracy* and *The Radical Right in Western Europe* (with Herbert Kitschelt). His articles have been featured in the *American Journal of Political Science*, *British Journal of Political Science*, *Journal of Theoretical Politics*, *Public Choice*, *Comparative Political Studies*, *International Studies Quarterly*, *Electoral Studies*, *Journal of Conflict Resolution*, *Party Politics*, and *Legislative Studies Quarterly*, among others.

Charles Anthony Smith is an associate professor at the University of California, Irvine. His books include *The Rise and Fall of War Crimes Trials: From Charles I to Bush II* (Cambridge University Press) and *Understanding the Political World, Twelfth Edition* (with James Danziger). He has published articles in the *American Journal of Political Science*, *Law & Society Review*, *Political Research Quarterly*, *Justice System Journal*, *International Political Science Review*, *Judicature*, *Journal of Human Rights*, *Election Law Journal*, *Studies in Law, Politics and Society*, *Human Rights Review*, and *Journal of International Relations and Development*, among others.

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Alex Keena is a PhD candidate in political science at the University of California, Irvine who studies political institutions and electoral politics. His dissertation investigates the effects of constituency population size on political representation in Congress.

Gerrymandering in America

*The House of Representatives, the Supreme Court,
and the Future of Popular Sovereignty*

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Political Explanations of Partisan Bias

Our argument from the beginning of the book has been that partisan bias can only be explained in political terms. In short, we argue that pro-Republican bias can be found only where the Republicans control the districting process. Furthermore, the degree of partisan bias we observe has increased very significantly in the 2010 districting round following *Vieth v. Jubelirer* (2004), even in states where state legislatures had already drawn biased districts in the previous round.

In this chapter, we test these claims. In Chapter 3, we saw that the degree of partisan bias increased sharply in the districting round following the 2010 Census. We also identified the states where this bias is greatest. In the previous chapter, we considered whether this increase in bias could be explained by demographic factors, such as the urban concentration of Democratic voters or the need to draw majority-minority districts. We found that these factors cannot explain the pattern of bias we observe. Here we return to the story we laid out in Chapter 1. In the 2000 districting round, there were various complaints of partisan gerrymandering. In response to one of these complaints in the case of Pennsylvania, the Supreme Court in *Vieth v. Jubelirer* (2004) gave a clear signal that the courts would not intervene in partisan gerrymandering cases. Following this, state governments pursued partisan advantage in the 2010 districting round to a far greater degree than they had in the previous round.

If this story is accurate, there are two things that we would expect to observe. First, the pattern of partisan bias should follow a political logic. We should find partisan bias in those states where the state government has the ability to pass partisan districting plans and has an incentive to

do so. That is to say, we would expect to find bias where one party has control over the entire districting process and where drawing biased districts brings it an advantage (we will see that this is not always the case). Second, we would expect bias to increase between 2000 and 2010 in states where one party has control. That is to say, we expect bias to increase in states where the Republicans controlled the process in both 2000 and 2010, not just in states where the Republicans gained control in 2010.

In terms of the state-by-state pattern of partisan bias, we would expect districting plans to be biased when one party has both the *motive* and *opportunity* pass a plan that advantages it. To have opportunity, the party needs to have complete control of the districting process. This is typically the case when the districting plan is simply passed by the state legislature (possibly subject to gubernatorial veto), and one party controls both chambers and the governorship. As for motive, it might seem that a party would also have an incentive to adopt a biased plan. As we will see, however, this is not the case. When a party is overwhelmingly popular in terms of federal elections in a state, adopting a biased plan brings no benefit and may even be counterproductive. In states that are not electorally competitive, we would not expect to find biased districts, even though one party controls the districting process.

The second thing we expect to observe is that partisan bias increases between 2000 and 2010 where one party controls the process in 2010. Our argument is that state legislatures pushed partisan advantage further after *Vieth*. As we have seen, partisan bias did indeed increase between the 2000 and 2010 districting rounds. However, an alternative explanation is that this was simply the result of the Republicans having control of more states in 2010. Indeed, the Republicans did do extremely well in 2010 and controlled the districting process in more states than in 2000. Furthermore, the Democrats lost control of the districting process in some states, such as California, where districting by the state legislature was replaced by districting by a commission. If our story is true, however, this cannot account for all of the increase in partisan bias. We would expect partisan bias to increase in those states that the Republicans controlled in both 2000 and 2010. Furthermore, in states where the Republicans gained control in 2010, we would expect the level of partisan bias to be higher than we observed in Republican-controlled states in the 2000 round.

The political logic we have proposed to explain the state-by-state pattern of partisan bias raises another question. For motive and opportunity

both to be present, it is necessary for one party to control all branches of state government and for the state to be electorally competitive in federal government. This may seem like an unlikely scenario – if the state is electorally competitive, divided government should be likely. However, this scenario is actually very common. Various reasons could be suggested for this. After all, there is no reason to assume that federal and state elections should follow the same patterns – the issues and candidates are different. However, we will suggest that there are institutional reasons that make this disconnect between the state and federal politics more likely. Voter turnout in state elections is lower than at federal elections. Furthermore, elections for many state posts are held when voter turnout is likely to be lower – that is, in nonpresidential years or even odd-numbered years.

DOES POLITICS EXPLAIN WHERE WE FIND PARTISAN BIAS?

We have argued that partisan bias is the result of partisan choices at the state level. If this is the case, then we should only see partisan bias in states where one party has both the *motive* and *opportunity* to bring about a biased plan (see Butler and Cain 1992). We will start by considering the opportunity to create a biased plan, as this is relatively simple. A party has the opportunity to draw districts to its advantage if it completely controls the districting process. If the consent of both parties is required to pass a districting plan, we would not expect either of them to agree to a plan that strongly advantages the other. For one party to control the districting process, two conditions are usually necessary. First, districting must be done through the normal legislative process. If districting is done through an independent or bipartisan commission, one-party control is very unlikely, as these institutions are set up specifically to prevent this. Second, one party must control all the political institutions (the “veto points”) necessary to pass a districting plan. If districting is treated as normal legislation, then this will require that the party control both houses of the state legislature and the governorship in states where the governor has a veto. McDonald (2004) finds that these expectations are borne out by the results of the 2000 redistricting cycle. With a few exceptions, he demonstrates that the type of institution and its political orientation can predict the direction of bias of the maps.

It may seem that there would always be a motive for a party to draw biased districts if it has an opportunity to do so. This, however, would be mistaken. Generally speaking, it only benefits a party to draw biased districts – that is, biased in the sense of being asymmetric – when the

elections in the state are relatively competitive. Consider the logic of gerrymandering that we laid out in Chapter 3. You create bias by packing your opponents into a small number of districts, where they win by overwhelming margins. You sacrifice these districts to use up your opponents' support so that your party can win a larger number of districts. However, if your party wins (say) 65% of the vote, there is no need to sacrifice any districts. If you just draw every district to be a microcosm of the state (politically speaking), your party will win every district 65–35. Furthermore, this districting plan will be unbiased – if the other party won 65% of the vote, they would win all the seats also. Indeed, drawing a biased districting plan would be thoroughly counterproductive to your party's interest – it would mean concentrating your opponents and possibly giving them an unnecessary seat. The Democrats in Massachusetts and the Republicans in Oklahoma can win every seat in their respective states without having to create biased plans. They simply draw a responsive districting plan and rely on the winner-take-all nature of first-past-the-post elections that gives a strong advantage to the larger party.

Of course, it is not always possible to take full advantage of being the dominant party in terms of the statewide vote. It may be impossible to make every district a political microcosm of the state because the other party is geographically concentrated. Ingenious mapmaking may be able to break up inconvenient concentrations of voters, but there are presumably limits when it comes to large urban areas, rivers, and mountains. If there are large concentrations of minority voters, it may be necessary to draw them as a majority-minority district in order to comply with the Voting Rights Act. Ironically, the very factors that may disadvantage the Democratic Party in competitive states may actually prevent the Republican Party from adopting the optimal districting strategy in states where they are dominant in national elections. It is not obvious what the optimal districting strategy is in a state where one party dominates the statewide vote, but the minority party has concentrations that cannot be "cracked" for some reason. The majority party might create more bias by concentrating its opponents into the district the minority party controls, but it gains little from this – it expects to win the other districts anyway.

We should note that just because a districting plan is unbiased, it is not necessarily uncontroversial. As we noted in Chapter 3, districting plans can be assessed in terms of both their bias and their responsiveness. Even if a districting plan is unbiased (i.e., it treats each party the same if it wins a certain percentage of the vote), parties can still seek advantage by

manipulating the responsiveness of the districting plan. If you are the larger party, you benefit from a districting plan that is as responsive as possible, as responsive plans reward the larger party more and may allow it to win every seat. If you are the smaller party, you would probably prefer an unresponsive plan in which both parties are guaranteed as many safe seats as possible. As already noted, an ideally responsive plan is one in which every district is a microcosm of the state. Such plans are by definition unbiased. However, drawing such plans in a state where party support is not evenly spread may require some oddly shaped districts. For example, the Democrats in Massachusetts have long separated Boston into several districts that also take in some rural areas. This serves to “homogenize” the state politically. The Republicans in Utah pursued a similar strategy in the 2010 districting round, dividing the greater Salt Lake City area among all four congressional districts. Such districting practices may be described as gerrymanders by some people.¹ The problem is that there are perfectly legitimate reasons why some states have different levels of responsiveness than others (states that are politically homogenous will typically be more responsive than states where there are large concentrations of the voters of each party), and there is no “correct” level of responsiveness. The ability to gain an advantage by changing the level of responsiveness is an inescapable consequence of having first-past-the-post elections.

We can summarize our expectations in Table 5.1. We expect to find partisan bias when a political party has both the motive and opportunity to create a biased districting plan. A party has the *opportunity* to pass a bias plan when there is single-party control of the redistricting process. If districting requires the approval of another party, it is unlikely that it will agree to a plan that is stacked against it. A party only has a *motive* to create biased plans when the state is relatively competitive in national elections. If national elections are completely one sided, the party may well do better just by drawing unbiased but highly responsive districts. We would expect bias only where we have both single-party control of districting and competitive national elections.

¹ In the case of Utah, the political effect of the districting plan was to take a relatively safe Democratic seat and turn it into a very competitive seat. Prior to 2012, the Republicans won two seats to the Democrats’ one. The districting plan was extremely unresponsive (responsiveness = 0.66). In the 2010 round, Utah gained one additional seat. The new districts were far more responsive than the old (responsiveness = 2.78). However, the political effect was that the previously safe Democratic seat was now very competitive. The Republicans took this seat in 2014.

TABLE 5.1. *Expected Bias in Terms of Political Control of Redistricting and Electoral Competitiveness*

	<i>Motive for Bias: Competitiveness in National Elections</i>	<i>No Motive for Bias: Noncompetitive in National Elections</i>
<i>opportunity for bias:</i> single-party control over congressional redistricting	HIGH BIAS	LOW BIAS
<i>no opportunity for bias:</i> nonpartisan or bipartisan congressional redistricting	LOW BIAS	LOW BIAS

Opportunity for Bias: Who Determines Redistricting?

Before we can consider whether we observe the patterns of bias we predict, we need to determine who controls the redistricting process in each state. As we discussed in Chapter 2, the Constitution gives state legislatures responsibility for the “Times, Places and Manner of holding Elections” to the House of Representatives (Article 1§4), although Congress is permitted to overrule them. In practice, this means that state governments decide how congressional districts are drawn (in the next chapter, we consider why Congress has rarely intervened in this). For the majority of states, congressional district maps are drawn by the state legislature and approved by the governor. In Virginia, for instance, congressional redistricting begins in the General Assembly, where a bill must be approved by a majority of both the House of Delegates and the Senate and subsequently signed by the governor. In Maryland, the process is similar except that the governor draws the map, and the state legislature must vote to approve it before it becomes law. These approaches to drawing new congressional districts tend to follow the normal legislative procedure; the proposed district map is treated as a bill that must be approved by the state’s lawmaking bodies before becoming law. In delegating the responsibility of redistricting to lawmakers, these states treat redistricting as a political process and thus expose congressional district boundaries to potential partisan manipulation.

Other states cede the task of redistricting to independent commissions outside the normal legislative processes. In 2008, California voters approved a state referendum to adopt the California Citizens Redistricting Commission to draw congressional maps for the 2010 redistricting cycle. Similarly, other states such as New Jersey and Arizona delegate

the task of redistricting to independent, bipartisan, or nonpartisan commissions. In general, this approach to redistricting serves to neutralize or insulate a state's political forces from influencing the map drawing and thus reduces the potential for partisan manipulation of the process.

Several states employ a combination of both a commission and the legislature in drawing the maps. In Iowa, a nonpartisan state agency draws the maps, which are subsequently sent for approval by the state legislature. (Traditionally, the legislature's approval is routine and uncontested.) Similarly, in Indiana, the state legislature is given a strict deadline for completing maps; if it fails to approve a plan, an independent commission is convened to draw the districts. Other states subject their redistricting maps to judicial review, either to ensure that racial gerrymandering has not occurred or to satisfy a state constitutional requirement. In Kansas, for instance, the state Supreme Court reviews the maps after a plan has been passed by the legislature. If the legislature cannot agree on a plan, the task falls to a court to do so.

Although there are many subtle nuances and unique differences in how the states approach redistricting, we can broadly group these methods into five categories in terms of who is normally responsible for drawing the congressional maps: (1) the legislature and governor, (2) an independent commission, (3) a commission with the legislature's approval, (4) the legislature with a commission as a backup, or (5) the legislature with a court's approval or with the court as a backup. There is also a sixth category that we must consider: states with only one U.S. House seat allocated to them. In these low-population states with "at-large" districts, such as Alaska and Wyoming, redistricting is rendered unnecessary because the state as a whole is considered one single district. In Table 5.2, we have arranged states according to these six categories.

Of course, this only considers states' congressional redistricting processes in terms of *procedural ideal* – that is, which institutions are tasked with drawing the congressional maps under normal circumstances and contingency plans ("backups") for drawing maps in the event of political gridlock, disagreement, or a failure to meet a deadline for completion. What we are really interested in is who actually controlled the redistricting process – that is, the *realized outcome*. Whether a contingency plan was implemented and a backup institution took control of the process is important for discerning whether there was partisanship influence over the creation of the district boundaries. What matters, then, is who actually drew the maps that were implemented during the 2012 U.S. House elections.

TABLE 5.2. *How Congressional District Maps Are Drawn*

Normal Legislative Process	Independent or Bipartisan Commission	Mixed	No Congressional Redistricting
Alabama	Arizona	<i>Commission, then</i>	Alaska
Arkansas	California	<i>approved by</i>	Delaware
Colorado	Hawaii	<i>Legislature:</i>	Montana
Georgia	Idaho	Iowa	North Dakota
Illinois	New Jersey	Maine	South Dakota
Kentucky	Washington	<i>Legislature, Commission</i>	Vermont
Louisiana		<i>as a backup:</i>	Wyoming
Maryland ²		Connecticut	
Massachusetts		Indiana	
Michigan		Texas	
Minnesota		<i>Legislature, with Court</i>	
Mississippi		<i>Approval:</i>	
Missouri		Florida	
Nebraska		Texas	
Nevada			
New Hampshire			
New Mexico			
New York			
North Carolina ³			
Ohio			
Oklahoma			
Oregon			
Pennsylvania			
Rhode Island			
South Carolina			
Tennessee			
Utah			
Virginia			
West Virginia			
Wisconsin			

In Indiana, for example, the task of congressional redistricting normally falls first to the state legislature and governor; if they cannot approve a plan within a strict time limit, an independent commission is convened to draw the maps. In 2011, the Republican-led Indiana General Assembly was successful in quickly passing a plan after the release

² In Maryland, the governor draws the maps, and the legislature votes to approve them.

³ In North Carolina, the governor does not hold a veto over the congressional redistricting plans; the legislature alone draws and approves the maps.

of 2010 U.S. Census data, which Governor Mitch Daniels subsequently approved. Ultimately, the backup commission was not necessary. In this regard, the would-be commission played no role in the actual drawing of the district maps; its sole effect was to hasten the legislature to adopt a map quickly at the risk of losing control over the process. As such, we can classify the Indiana congressional redistricting process in terms of two relevant characteristics: (1) the legislature and governor produced and approved the plan, and (2) the process was entirely controlled by Republicans.

Consider also the cases of Florida and Kansas, states that require judicial review of the congressional maps after they are passed by the state legislature and approved by the governor. In Florida, the state Supreme Court quickly approved the legislature's congressional district plans in advance of the 2012 elections, while in Kansas, Republican lawmakers in the state House and state Senate were unable to agree on a single plan. Consequently, the Kansas Supreme Court intervened to draw the maps, which were implemented in advance of the 2012 U.S. House elections. In the case of Florida, it is clear that the Republican-controlled legislature drew the congressional map, which was signed into law by Republican Governor Rick Scott. Conversely, in Kansas, the legislature played no effective role in the final design of the congressional district plans, despite the fact that Republicans controlled both chambers of the Kansas Legislature in addition to the governor's mansion.

As for the rest of the states, Table 5.3 lists the outcome of the 2010 redistricting process in terms of who actually drew the plans and their political affiliations (if any).⁴

Note that for our purposes, we have omitted states with only two congressional seats, such as Idaho and Maine, from our sample.⁵ We do so because it is not possible to draw a biased plan in a state with two districts.⁶ What is clear from our analysis is that, for the majority of states, a single political party controlled the congressional redistricting

⁴ Here we do not consider whether a state's districting plans were subject to the mandatory preclearance requirements of the Voting Rights Act – only whether a state's plans were actually struck down by a federal court and the state was ordered to draw new plans for the 2012 House elections.

⁵ These states are Hawaii, Idaho, Maine, New Hampshire, and Rhode Island.

⁶ It is not possible to create bias in a two-district state with two parties, but it is possible to manipulate responsiveness. If you “pack” your opponent's supporters in one district, you necessarily pack your supporters in the other district, assuring symmetry. However, if you are the larger party, you will favor drawing both districts to be competitive, whereas the smaller party will favor creating one safe seat for each party.

TABLE 5.3. *Who Actually Drew the Maps? Outcome of 2010 Redistricting Cycle*

Single-Party Government		Divided Government	Other Than Legislature
<i>Republicans:</i>	<i>Democrats:</i>	Kentucky	<i>Commission:</i>
Alabama	Arkansas	Oregon	Arizona
Florida	Illinois		California
Georgia	Maryland		Iowa
Indiana	Massachusetts		New Jersey
Louisiana	West Virginia		Washington
Michigan			<i>Court:</i>
Missouri ⁷			Colorado
Nebraska			Connecticut
North Carolina			Kansas
Ohio			Minnesota
Oklahoma			Mississippi ⁸
Pennsylvania			Nevada
South Carolina			New Mexico
Tennessee			New York
Utah			Texas ⁹
Virginia			
Wisconsin			

process and drew the new maps. Conversely, in only a handful of states, this process was controlled by the courts or an independent commission. Moreover, among the partisans, Republican-led governments vastly outnumbered Democratic governments.

Testing the Political Explanation of Where We Find Partisan Bias

We can now consider whether the states where we observe partisan bias are the same as those predicted by the political explanation we

⁷ In Missouri, the Republican legislature overrode a veto from the Democratic governor to pass its maps. In this regard, Republicans controlled the process, so we classify this as "single-party government."

⁸ In Mississippi, a deadlocked legislature was not able to pass a redistricting plan. As such, a state court implemented the previous district map for the 2012 U.S. House elections.

⁹ The Texas plans have been subject to a number of legal challenges which, at the time of this publication, are yet unresolved. Notwithstanding, for the 2012 U.S. House elections, a U.S. district court implemented an interim district map, PlanC235, which reflected a compromise between Republican state officials and various parties challenging the legislature's map. After the 2012 elections, the Texas legislature formally adopted PlanC235, which was signed into law by Governor Perry and will be used for subsequent U.S. House elections.

summarized in Table 5.1. That is to say, does partisan bias occur only where a party has both the motive and opportunity to pass a biased plan?

Taking the data from the previous section, we classify a state as having the opportunity for political gerrymandering if it meets two conditions. First, districting must be carried out by the state legislature (possibly with a gubernatorial veto). If the districting is done by an independent or bipartisan commission or by the courts, then neither party has the opportunity to draw districts in its favor without challenge by the other party. Second, one party must control all the branches of the government responsible for drawing the districting. That is to say, it must control both houses of the state legislature and (in most states) the governorship. Again, if both parties are required to sign off on a districting plan, it is hard to see how one party can secure a plan that is overwhelmingly in its favor.

A motive for political gerrymandering is present if the state is electorally competitive at the federal level. We define competitiveness in federal elections in terms of popular vote performance in the 2008 presidential election. States with point spreads of less than 25% we consider competitive; all others we consider noncompetitive.¹⁰ While it may be said that this represents somewhat of an arbitrary threshold, for our purposes, it serves as a fairly conservative and simple test for competitiveness. After all, it would be difficult to argue that a state with a presidential point spread exceeding 25% ought to be considered competitive by any definition.¹¹

As we can see from Table 5.4, we find almost exactly the pattern we would expect (and predicted in Table 5.1). With very few exceptions, high

¹⁰ The exception to this is Illinois. We have classified Illinois as competitive, even though the point spread in the 2008 presidential election was greater than 25%. However, this may have been due to the fact that the senator from Illinois, Barack Obama, was one of the candidates. In general, Illinois is quite competitive in federal elections and, indeed, has had a Republican senator since 2010.

¹¹ In most cases, "competitiveness" is not a dichotomous concept. That different states are comparably more competitive than others in federal elections may suggest that competitiveness is better understood as continuous (perhaps using the presidential point spread or some other measure). However, for our purposes, it makes more sense to treat competitiveness as dichotomous. From the perspective of state lawmakers, there is no middle ground regarding motive to gerrymander; there is either room to grow or there is not. If there is any possibility at all to create more partisan bias in a congressional plan, a motive to gerrymander is present. Thus, only in those extreme cases in which one party dominates federal elections such that it could not reasonably extend its advantages any further through districting is motive not present. We operationalize these cases by including those states with lopsided presidential point spreads.

TABLE 5.4. *States with Partisan Bias Grouped by Motive and Opportunity*

	Competitive in National Elections – <i>Motive for Bias</i>	Noncompetitive in National Elections – <i>No Motive for Bias</i>
Partisan control – <i>opportunity for bias</i>	<i>Biased:</i> Alabama, Florida, Georgia, Indiana, Louisiana, Michigan, Missouri, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, Wisconsin <i>Unbiased:</i> Illinois, Nebraska West Virginia	<i>Biased:</i> Maryland <i>Unbiased:</i> Arkansas, Massachusetts, Oklahoma, Utah
Nonpartisan/bipartisan control – <i>no opportunity for bias</i>	<i>Biased:</i> Texas <i>Unbiased:</i> Arizona, Iowa, Kansas, Nevada, New Jersey	<i>Biased:</i> Kentucky, Mississippi <i>Unbiased:</i> California, Colorado, Connecticut, Minnesota, New Mexico, New York, Oregon, Washington

levels of partisan bias occur if and only if both motive and opportunity are present. That is to say, we see high levels of partisan bias when one party controls the redistricting process and the state is electorally competitive at the federal level. Of the eighteen states where we find statistically significant levels of partisan bias, fourteen are in the top left quadrant, where opportunity and motive are present. In the other three quadrants (where either motive or opportunity or both are lacking), there are only one or two states with significant evidence of partisan bias and many more states where there is no evidence of partisan bias. Thus, with only a few exceptions, the presence of partisan control of the districting process and electoral competitiveness at the electoral level seem to be both necessary and sufficient conditions for partisan bias. We see partisan bias when a party is able to draw the districts in its favor and has a reason to do this and not otherwise.

We can even explain a couple of the exceptions. Both Texas and Mississippi are classified as not having an opportunity to gerrymander because the districting plans for these states in the 2010 cycle were imposed by

the state courts and not by the state legislature. However, in both these cases, the baseline for negotiating districts was set by the previous districts that were drawn by a one-party-controlled legislature. In the case of Mississippi, a court ordered that the previous districts be used in the 2012 elections, which had been drawn by a Republican-controlled state legislature (in the 2014 elections, new districts drawn by the state legislature were used). In the case of Texas, the court imposed districts, but these were based on the districts passed by the Republican-controlled legislature with some accommodations to those challenging them. Once again, the previous districting plan was drawn by a one-party-controlled legislature.

Thus we find that politics does indeed predict where we find partisan gerrymandering. Partisan bias is not something that just happens in more or less random states, perhaps for demographic reasons or because of the need to provide adequate representation to minority voters. Rather, it occurs – indeed it almost *only* occurs – where one party has the power and the incentive to make it happen.

DID STATE LEGISLATURES DISTRICT FOR PARTISAN ADVANTAGE MORE AFTER 2010?

We have shown that we find partisan bias precisely where we would expect it – in states where one party controls the districting process and where it makes sense for this party to draw biased districts. However, we are not just telling a story about where we should find partisan bias but about how it changes over time. We have argued that in the 2010 redistricting round, states pursued partisan advantage to a far greater extent than they had previously. If this is the case, we would expect states to produce more biased districting plans in 2010 than in 2000, even in those states where the political conditions already favored biased districting in 2000. That is to say, we expect partisan bias to increase over time, even after controlling for political factors.

Thus we have to test the alternative hypothesis that partisan bias increased simply because the Republicans were in a stronger position at the state level in 2010 than they were in 2000, and they were able to translate this advantage into favorable districting outcomes. This explanation seems plausible, as the Republicans did indeed do extremely well in 2010. Alternatively, certain Democratic-leaning states moved from legislative control of the redistricting process to some other method. If states that were previously biased toward the Democrats became unbiased,

this could increase the bias nationally by removing pro-Democratic gerrymanders that counterbalanced pro-Republican gerrymanders. Again, this explanation appears plausible because some of the states in question (California, New York) are very large. We can test these different explanations by carefully comparing the patterns of change among states and how much difference each made to the national bias.

We can break down the states that contributed to the increased bias toward the Republican Party into three groups. First, there are the states that were already biased in 2002 but became more biased in 2012. Then there are states that were biased toward the Democrats in 2002 but ceased to be biased in 2012. Finally, there are states that only became biased toward the Republicans in 2012, having previously been either unbiased or bias toward the Democrats. We can do the same thing for states that changed in a way that decreased bias toward the Republicans (that is, increased bias toward the Democrats).

If states did indeed gerrymander more aggressively after *Vieth v. Jubelirer* (2004), then we would expect to see more bias in states that were already biased. In these states, the state legislature had already chosen to district in a biased manner. The increased bias cannot be explained by other factors such as change of party control. The situation in the states that became biased in 2012 (but were not previously) is more complex. Certainly some of the change in bias in some of these cases is due to a change of party control of the districting process. However, it may also be partly due to these states pursuing partisan advantage more aggressively than was possible in the previous round. For example, consider a state legislature that was controlled by the Democrats in 2000 but was won by the Republicans in 2010. The Republican-controlled legislature reverses the previous Democratic gerrymander. However, they go further and gerrymander far more effectively than the Democrats did in 2000. We can also consider the effect of various states with districting biased in favor of the Democrats ceasing to be biased.

We classify the various states that contributed to a change in bias in Table 5.5. There are nine states where pro-Republican bias increased from an already biased plan. These tend to be relatively large states and account for 131 House districts. There are only four states that were biased toward the Democrats and became unbiased in 2012. However, these include California, New Jersey, and New York, so the total number of districts is ninety-seven. There are seven states that became biased toward the Republicans in 2012 but had not been previously. These are mostly smaller states and account for fifty-five districts.

TABLE 5.5. *Changes in Bias by State 2002–2012*

States Increasing Bias toward Republicans		
Increased Republican bias in state already biased to Republicans 2002–2010	States that became unbiased, but were biased toward Democrats 2002–2010	States that became biased toward Republican in 2012
Alabama, Georgia, Michigan, Missouri, Ohio, Pennsylvania, South Carolina, Texas, Virginia	California, New Jersey, New York, Oregon	Indiana, Kentucky, Louisiana, Mississippi, North Carolina, Wisconsin, Tennessee
Total 2012 districts: 131	Total 2012 districts: 97	Total 2012 districts: 55
Contribution to change in national bias: (asymmetry): –2.8%	Contribution to change in national bias: (asymmetry): 0.5%	Contribution to change in national bias: (asymmetry): –3.7%
States increasing bias toward Democrats		
Increased Democratic bias in state already biased to Democrats 2002–2010	States that became unbiased, but were biased toward Republican 2002–2010	States that became biased toward Democrats in 2012
	Oklahoma, Utah	
	Total 2012 districts: 9	
	Contribution to change in national bias: (asymmetry): –0.75%	

In order to test the relative importance of the various groups of states in increasing bias, we need a way to quantify the relative contribution of each group. We did this by first calculating what bias would be using the 2002 districts but accounting for the reapportionment of districts among states that occurred in 2012. (It turns out that this increases bias toward the Republican Party by 0.75% – the states that gained districts tended to be those in which there was already pro-Republican bias.) Then we recalculate bias in the same way, except that we use the 2012 districts for only those states in which we are interested. Thus we can calculate the contribution to the increase in bias from (say) the states that were already Republican biased, but bias increased.

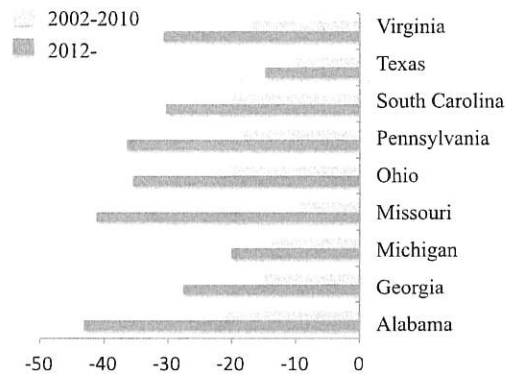


FIGURE 5.1. Increasing bias (asymmetry) in selected states 2002–2010 and 2012.

If it is true that states gerrymander more aggressively after *Vieth v. Jubelirer* (2004), we should see the already-biased states adding to the national bias. This is exactly what we observe. The national bias toward the Republicans increased from 3.4% to 9.4%. The states where bias increased from already-biased districting plans account for an increase of 2.8%. Thus we can conclude that the increase in bias is not just the result of the Republicans doing better in 2010 than in 2000. Even where there was already a biased districting plan in 2000, in 2012, this became more extreme. Figure 5.1 graphs this. We see that the bias in many of these states almost doubled. In 2002, only two states had bias barely above 20%; in 2012, many states had bias in the upper 30s and 40s.

The increase in bias at the national level cannot be explained by the Democrats failing to preserve gerrymanders in states that were biased in their favor in 2002 (such as California and New York). In fact, the 2012 districts in these states actually reduce national bias toward the Republicans relative to the 2002 districts by 0.5%. This seems paradoxical until we consider redistricting in the largest of these states, California. The 2002 districts exhibited substantial bias toward the Democrats, but it was an incumbent-protection gerrymander with very low responsiveness (0.76). Indeed, the Democrats won thirty-four seats in *both* 2008 and 2010, despite winning 62% of the two-party vote in the former and only 55% in the latter. Given that the Democrats are dominant in terms of votes in California, this lack of responsiveness was very inefficient in terms of maximizing Democratic seats. In 2008, a voter initiative, Proposition 11, replaced redistricting by the General Assembly with a citizens' commission. As we have seen, the new districting plan for the 2012 election was unbiased but far more responsive (its responsiveness

was 1.9 instead of 0.76). While the Democrats lost the bias that was in their favor, the increased responsiveness more than compensated for it. As a result, the Democrats won thirty-eight seats in 2012. It should be noted, however, that these extra seats come at a cost of less security for Democratic incumbents: increased responsiveness and lack of bias mean that for every percentage point the Republican Party gains in votes, it will get approximately one extra seat. Thus eliminating pro-Democratic bias in California had little effect on national bias – the bias toward the Democrats was being used to protect incumbents, not to advantage the Democratic Party nationally.

The states that were biased toward the Republicans in 2012 but were not previously add an estimated 3.7% to national bias. It is hard to break down exactly how much of this is the result of change of party control of the redistricting process and how much is the result of the party that controls the process being willing to gerrymander more aggressively post *Vieth v. Jubelirer* (2004). Consider the cases of North Carolina and Tennessee. In both cases, the 2002 districting plans had a pro-Democratic bias of around 10%. (In the case of North Carolina, this is not quite significant at the 5% level, but it is very close.) In 2010, the Republicans took control of all the relevant decision points in both states (state legislature in North Carolina, state legislature and governor in Tennessee). As expected, the new 2012 districts were biased toward the Republicans instead of the Democrats. However, a 10% bias in favor of the Democrats was not replaced by a 10% Republican bias. Rather, the bias in favor of the Republicans was 27.8% in Tennessee and 36.3% in North Carolina. As was the case with the states that were already biased toward the Republicans, these states districted for partisan advantage far more thoroughly post *Vieth v. Jubelirer* (2004).

Thus we can see that in the 2010 districting round, states districted for partisan advantage more aggressively than they did previously, even when we take into account who had political control of the districting. We may consider why this should be the case. One theory would be that before *Vieth*, the threat that the courts might overturn an egregious gerrymander deterred states from pushing partisan advantage too far. However, the Supreme Court decision in *Vieth v. Jubelirer* (2004) sent a decisive signal that the courts would not intervene in partisan gerrymandering cases. Free from the threat of having their districting plans overturned, state governments drew districts for maximum partisan advantage. If this was the case, we would expect to see the states that were already drawing biased plans in the 2000 districting round go even further, districting for

the maximum possible partisan advantage. In states that the Republican Party controlled in 2010 but not in 2000, we would expect plans more biased than those typically seen in the 2000 round. This is what we observe.

One objection to this theory might be that even prior to *Vieth*, there was little threat that the courts would overturn a districting plan on the grounds that it was a partisan gerrymander. It has been widely argued that the standards for partisan gerrymandering set out in the plurality opinion in *Davis v. Bandemer* (1986a) were very hard to meet. Indeed, Justice Scalia in his opinion on *Vieth* argued that the *Bandemer* standard had been ineffective, since no districting plans had been overturned by it. The logic here is questionable – it might be that the possibility of a plan being overturned after *Bandemer* deterred states from adopting egregious gerrymanders, so no plans needed to be overturned. Nevertheless, there was considerable controversy at the time of the *Bandemer* ruling as to whether it would have any effect. Some (for example, Lowenstein 1990) argued that the standard made a successful challenge almost impossible. Grofman (1990, 32), on the other hand, argued that while the standard was high enough to deter frivolous suits, it would allow the courts to discipline the most egregious gerrymanders.

An alternative explanation would be that states gradually learned over two districting cycles that the courts were very unlikely to overturn districting plans on grounds of partisan gerrymandering. Immediately after *Davis v. Bandemer* (1986a), there may have been considerable uncertainty as to how the District Courts would interpret it. However, as more and more cases were brought and none of them succeeded, states might have concluded that there was little risk of a successful legal challenge. As they conclude this, we would expect them to push partisan districting further. In this scenario, we would expect states to district aggressively for partisan advantage in the 2010 cycle, even in a counterfactual world where the Supreme Court refused to hear *Vieth* and let the District Courts decision (to not overturn the Pennsylvania districting plan) stand.

Alternatively, we could explain the increase in partisan bias in terms of a change in the attitudes of the parties that controlled the districting process. For example, it could be argued that the change resulted from the increasing polarization of the Republican Party. Whereas in the past, it could be argued, the Republican Party was happy to engage in bipartisan bargaining, a new, more ideological Republican Party now sought complete control of Congress. There is indeed a very considerable literature suggesting that both political parties have become more polarized

(see, for example, McCarty et al. 2006; Layman et al. 2006; Theriault 2008). There seems to be consensus that the political parties have become more polarized, but there is considerable debate on whether this reflects ideological polarization on the part of the public or is simply an elite phenomenon (see Fiorina et al. 2006, 2008; Abramowitz and Saunders 2008; Levendusky 2009).

We cannot discount that the increasing polarization of the Republican Party played a role in the increase in partisan bias we observe. The polarization of parties in Congress did continue to increase through the 2000s (Poole and Rosenthal 2007, 104–109). Furthermore, districting plans have to be passed by the party that controls the districting process at the state level. However, we would note that the parties were already very polarized by the mid-1990s, before the increase in partisan bias in the 2010 districting cycle. Party polarization seems to have increased from 1975 and increased most rapidly in the early 1990s (McCarty et al. 2006; Poole and Rosenthal 2007). According to Poole and Rosenthal (2007, 104–109), by 1994, there was already virtually no overlap between the two parties in the House or Senate (here overlap is defined as the number of members who are ideologically closer in terms of DW-NOMINATE scores to the centroid of the other party than that of their own party). Similarly, they find that the ideological distance between the two parties in the House and Senate increased by around a third between 1975 and 1994 (again using DW-NOMINATE scores), although this distance does continue to increase after 1994.

Of course, we could always explain the increase in partisan bias by some other change in the attitudes of Republican-controlled state legislatures. Perhaps they became more interested in national partisan advantage after 2000. After all, partisan districting could not happen without the participation of parties at the state level. However, what still needs to be explained is the number of states that had already crossed the line in adopting biased districting plans in 2000 and then went on in 2010 to adopt plans that are far more biased. It seems strange to argue that these state legislatures were sufficiently ruthless in 2000 to district for partisan gerrymandering but not ruthless enough to push this all the way. This would suggest that there was something deterring them from districting for maximum partisan advantage in the 2000 districting round.

Whatever the exact sequence of causes that led to partisan bias increasing almost threefold in the 2010 districting round – and it was probably a result of several factors – the basic facts remain the same. State legislatures controlled by one party pushed partisan advantage in districting

far further than they did in the previous districting round. This could not have happened if the Supreme Court had acted to prohibit partisan gerrymandering. It does not really matter whether the states pursued partisan advantage in districting without restraint because the Supreme Court had signaled that it would not intervene or whether the states were going to aggressively gerrymander anyway and the Supreme Court did not hinder them. In either case, the high bias we observe could not have happened without the choices of state legislatures to pursue partisan advantage and the choice of the Supreme Court not to prevent them.

WHY ARE SO MANY STATE GOVERNMENTS DOMINATED BY ONE
PARTY WHILE COMPETITIVE AT FEDERAL ELECTIONS?

As the previous analysis demonstrates, much of the state level variation in bias can be explained in terms of two variables, which we term “motive” and “opportunity.” A party has the opportunity to draw a partisan districting plan when it completely controls the districting process. This usually involves controlling both chambers of the state legislature and the governorship. However, there is only an incentive to produce a districting plan with partisan bias in states that are electorally competitive at the federal level. We would expect this combination to be unlikely – if a state is electorally competitive, we would expect one-party domination of the state government to be infrequent. However, it turns out not to be uncommon at all in recent years. We now turn to the question of why this might be the case.

There is, of course, no reason the outcomes of state and national elections should be the same. After all, different issues and candidates are involved, while state races tend to receive less publicity and media attention than national races do. However, there are institutional reasons that make this configuration (competitive national elections, where state government is dominated by one party) more likely. We observe differential voter turnout rates in state and national elections. Furthermore, the timing of elections in many states increases this differential. Specifically, we argue that the common practice of holding state-level elections in off years leads to systematically lower rates of voter participation compared to state-level elections that run concurrently with presidential-year elections and thus explains why electoral outcomes in many states vary in state and national elections. In most states, a smaller subset of the electorate turns out to vote for state-level offices, which may contribute to one-party dominance at the state level despite partisan competitiveness in

national elections – the conditions that provide lawmakers with a motive to create biased congressional district plans.

In order to defend this assertion, we first need to demonstrate that (1) the scheduling of elections influences voter turnout rates – in other words, that there actually is a voter turnout effect in off-year elections – and (2) that this effect is indeed present in the states with the highest levels of asymmetry (where motive and opportunity interact). Although we cannot definitively prove that differential voter turnout rates lead to divergent patterns of electoral competitiveness at the state and national levels, meeting these two burdens will provide us with a plausible explanation for this phenomenon and resolve our theoretical dilemma.

We begin by asking: Is there actually an off-year turnout effect in state-level elections?¹² In order to address this question, we analyze voter participation in state gubernatorial elections. This approach to estimating the off-year effect is intuitive for two reasons: first, all states have a governor who is chosen democratically through regular popular elections. Second, because the governor is the highest elected official in state governance, gubernatorial races are typically the most salient of all state-level elections. Consequently, voter turnout is likely to be at its highest in these races, and any off-year turnout effect will be minimal compared to lower state-level elections. In other words, if we observe an off-year turnout effect in gubernatorial elections, then we can be confident that this effect also impacts voter participation in smaller, less salient state elections to an equal or greater extent.

With regard to gubernatorial election-year scheduling, the states can be grouped into three categories. First, a number of states hold gubernatorial elections every four years concurrently with presidential elections. We dub these states “presidential-year” states. A second group consists of states with off-year gubernatorial elections. In these states, governors serve four-year terms and are elected in even-numbered, nonpresidential years. Our last group, “odd-year” states, includes the five states that hold gubernatorial elections in odd-numbered years, either the year before or

¹² The topic of voter turnout has received a considerable amount of attention within the research on public choice. For instance, Taagepera et al. (2013) demonstrate that much of the variation in voter turnout in democratic elections can be explained in terms of the effective number of parties. This suggests that the two-party system is one factor that may contribute to historically low levels of voter turnout in U.S. elections relative to other democracies. Others (Grofman et al. 1999; Citrin et al. 2003; Martinez and Gill 2005; Hansford and Gomez 2010) have explored the consequences of voter turnout in terms of electoral outcomes.

TABLE 5.6. *Predicted Influence of Gubernatorial Election Years on Voter Turnout*

States with presidential-year elections	HIGH VOTER TURNOUT
States with off-year elections	↑
States with odd-year elections	LOW VOTER TURNOUT

after a presidential election.¹³ How do these groups differ with regard to voter turnout?

We would expect scheduling to have an effect on turnout in elections due to the salience of elections. This approach assumes that elections with higher publicity and popular interest will incur greater voter turnout levels and that national elections are on average more salient than state-level elections. Thus, states that hold gubernatorial elections concurrently with presidential elections (which tend to be the most salient elections in American politics and generally have the highest levels of voter turnout) are more likely to yield systematically higher levels of voter turnout compared to other states, as they benefit from the salience of the presidential race.¹⁴ This approach parallels the contributions of Reif and Schmitt (1980), who explain voter turnout levels in terms of the saliency of elections and the perceived importance of the election with regard to voters.¹⁵ In this regard, we expect off-year state elections that run concurrently with national midterm elections to yield lower turnout than presidential-year states but higher turnout than odd-year states, in which there are typically no national elections held. Our theoretical expectations are summarized in Table 5.6.

Now that we have outlined our expectations for the effects of election timing on voter turnout, we can test these predictions. We do so by

¹³ The one exception to this classification scheme is Vermont, where the governor serves two-year terms. For our purposes, we consider Vermont both a presidential-year state and an off-year state.

¹⁴ This is commonly referred to as the “coattails” theory (see Chubb 1988): voter turnout in state and local elections is increased by popular candidates running in high-profile national races.

¹⁵ Reif and Schmitt (1980) conceptualize national elections as “first-order elections” because the issues are perceived by voters as being more consequential and significant. They consider local and regional elections “second-order elections” because they are less salient and are perceived as less important to voters. Although Reif and Schmitt (1989) directly apply these concepts to the European context, Percival and colleagues (2007) demonstrate that they are useful for understanding differential turnout in U.S. state elections.

looking at the gubernatorial elections in all fifty states, and we consider voter turnout in the past five gubernatorial elections for each state. For presidential-year states, this period spans elections held between 1996 and 2012; for off-year states, the range is 1994 to 2010; and for odd-year states, we look at elections between 1993 and 2011. We calculate voter turnout in terms of ballots cast and voting-age population (VAP).¹⁶ Although states commonly publish their own voter turnout rates, the methodologies for doing so vary widely from state to state.¹⁷ Our approach to estimating voter turnout may lack the precision of several state measures, but it provides us with an objective, standardized measurement for voter turnout that allows us to make direct comparisons between different states. Thus, for each state gubernatorial election, we calculate turnout as such:

$$\text{Voter turnout} = \text{ballot cast in gubernatorial election} / \text{state VAP}$$

Table 5.7 lists the mean voter turnout rates of each of our groups of states spanning the past five elections (see Appendix for an expanded table of the results from each state). The results of this analysis confirm our expectations: *when* state gubernatorial elections are held affects *how many* voters will participate. As is evident, mean voter turnout increases to its maximum in gubernatorial elections that run concurrently with presidential elections and drops to the lowest levels in odd-numbered years. Among the ten states with presidential-year gubernatorial elections, participation was the highest, averaging roughly 57%. The participation rate drops below 50% to roughly 42% in the states with odd-year elections, and we observe the lowest voter turnout in the five states with odd-year gubernatorial elections, where an average of just 37% of the adult population cast votes.¹⁸ This represents a 26% drop in participation from presidential to off years and a 35% drop in participation to odd-year elections.

One possible objection to these results is that we may not be getting an accurate picture of the voter turnout effect insofar as we treat all states as equals. Or perhaps the states with off-year elections share certain

¹⁶ Our VAP estimates are borrowed from the U.S. Census Bureau's biannual Current Population Survey. For states with odd-year elections, we calculate VAP by averaging the VAP estimates for the year before and the year after.

¹⁷ For instance, many states calculate voter turnout as the portion of ballots cast to registered voters. This poses obvious problems with consistency, as the definition of "registered voter" and the criteria for voter registration varies by state.

¹⁸ These differences are statistically significant at the $p = .0001$ level.

TABLE 5.7. *Participation Rates of Voting Age Population in Gubernatorial Elections, 1993–2012*

States with off-year gubernatorial elections	Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, ¹⁹ Wisconsin, Wyoming	Mean turnout rate 1994–2010 42%
States with presidential-year gubernatorial elections	Delaware, Indiana, Missouri, Montana, North Carolina, North Dakota, Utah, Vermont, Washington, West Virginia	Mean turnout rate 1996–2012 57%
States with odd-year gubernatorial elections	Kentucky, Louisiana, Mississippi, New Jersey, Virginia	Mean turnout rate 1993–2011 37%

structural features unrelated to election year scheduling, such as geographic proximity or candidate selection processes that serve to repress voter participation. If this were the case, we would be forced to have less confidence in the significance of apparent off-year effect we observe. To counter these objections, we turn to the case of Vermont – the only state that elects governors to two-year terms. That Vermont holds gubernatorial elections in both presidential and off years provides us with a natural experiment for gauging the impact of election-year scheduling on voter turnout within a state and a method for allaying our skepticism. After all, the conditions that influence voter turnout in Vermont are equally present during both off-year and presidential-year gubernatorial elections; the sole difference is that during off-year elections, there is not a high-profile presidential election running concurrently. Figure 5.2 plots the gubernatorial election turnout rates in Vermont for the past ten elections (five off-year elections; five presidential-year elections). Without

¹⁹ Vermont is the only state with two-year terms for governor.

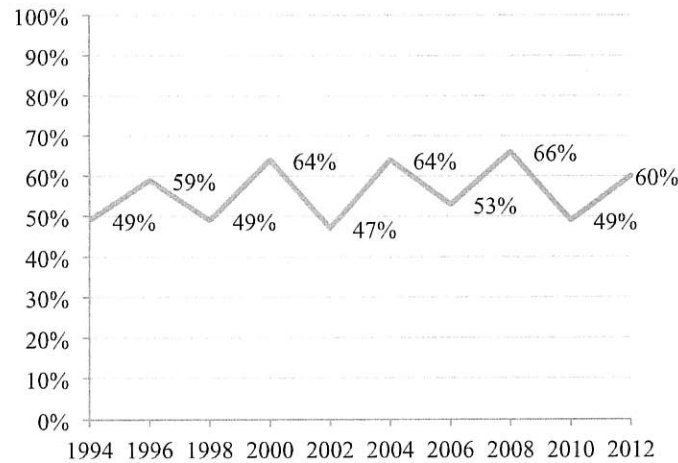


FIGURE 5.2. Participation in Vermont gubernatorial elections, 1994–2012.

exception, voter turnout in gubernatorial races held during presidential election years is higher than in off years. In presidential years, participation averaged roughly 63%, whereas in off years, voter turnout dropped to 49% on average. This decrease of 22% from presidential years to off years is largely consistent with the nationwide average decrease of 26% we observed in our analysis of all fifty states. In short, as Figure 5.2 demonstrates, the wide swings in voter turnout that alternate between presidential and off-year elections provide further evidence for the off-year election effect.

As a second objection to our conclusions, one could argue that our results (Table 5.7) might be skewed by historical anomalies and thus do not signify the presence of an off-year effect in gubernatorial elections. After all, recent historical spikes in voter participation, such as heightened interest in the 2008 presidential race, might serve to increase presidential-year gubernatorial participation rates above their typical levels and thus exaggerate the magnitude of the off-year turnout effect we observe. But this trend cannot simply be dismissed as a historical anomaly. As Figure 5.3 illustrates, for the last twenty years, mean voter turnout has been universally higher in the group of states with presidential-year gubernatorial elections when compared to the groups with off-year and odd-year elections. As is evident, there is a spike in average voter turnout coinciding with the 2008 presidential election, but this increase is negligible and does not represent a statistical outlier that skews the results. As for the off-year and odd-year elections, the data shows definitively that voter turnout has remained stable and consistently low for the past twenty years.

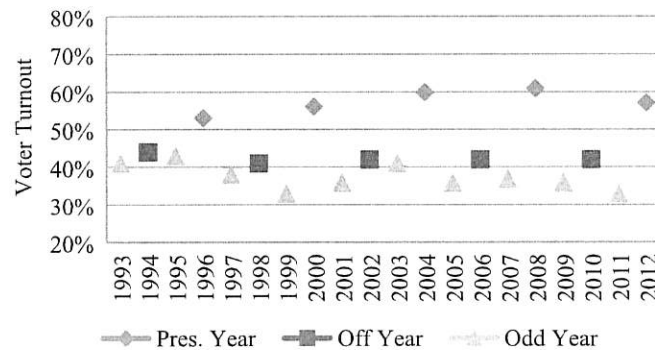


FIGURE 5.3. Voter participation in gubernatorial elections, 1993–2012.

Even when the off-year turnout effect is at its minimum during the election years between 1994 and 1996, the effect is still considerable. Voter turnout in both the off-year and odd-year elections of 1994 and 1995, at 44% and 43%, respectively, were considerably lower than the 1996 presidential-year election average participation rate of 53%.

In sum, our analysis demonstrates that the off-year effect is indeed present in state gubernatorial elections, a result that supports our contention that differential turnout rates in presidential-year and off-year state elections may contribute to the phenomenon of one-party dominance in state elections despite competitiveness in national elections.

In most states where the districting process is controlled by the state legislature, it is necessary to get the districting plan agreed on by both house of the legislature and the governor. Therefore, we need to consider the scheduling of the state legislative elections. In general, the electoral schedules of most state legislatures share common set of features. With the exception of Nebraska, state legislatures are divided into two houses – a lower house and a senate – and typically hold elections in even-numbered years. In most of the lower houses, members serve two-year terms and are elected biannually. State senates are typically composed of representatives with four-year terms and hold “staggered” election schedules, with half of the chamber elected every two years. This pattern holds for a majority of states, but there are a number of exceptions. In both Alabama and Maryland, for instance, legislatures from both houses are elected to four-year terms in even-numbered, nonpresidential years (off years). Conversely, in Georgia, representatives from both houses serve two-year terms and face reelection in even-numbered years. A few states – Louisiana, Mississippi, West Virginia, and Virginia – hold legislative elections in odd-numbered years. Table 5.8 lists the twenty-four states where state legislators

TABLE 5.8. *State Legislatures Tasked with Redistricting: When the Map-Drawers Were Elected*

State		Term Years	Election Schedule	Mapmakers Last Elected
Alabama	Lower	4	off years	2010
	Upper	4	off years	2010
Arkansas	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Florida	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Georgia	Lower	2	even years	2010
	Upper	2	even years	2010
Illinois	Lower	2	even years	2010
	Upper	2-4	staggered, even	2008, 2010
Indiana	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Kentucky	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Louisiana	Lower	4	odd years	2007
	Upper	4	odd years	2007
Maryland	Lower	4	off years	2010
	Upper	4	off years	2010
Massachusetts	Lower	2	even years	2010
	Upper	2	even years	2010
Michigan	Lower	2	even years	2010
	Upper	4	off years	2010
Missouri	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Nebraska	Unicam	4	staggered, even	2008, 2010
North Carolina	Lower	2	even years	2010
	Upper	2	even years	2010
Oklahoma	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Ohio	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Oregon	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Pennsylvania	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
South Carolina	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Utah	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Tennessee	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Virginia	Lower	2	odd years	2011
	Upper	4	staggered, odd	2009, 2011
West Virginia	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010
Wisconsin	Lower	2	even years	2010
	Upper	4	staggered, even	2008, 2010

participated in drawing the congressional district maps that were implemented during the 2012 U.S. House elections. For each state, we have also included the year during which the legislatures who drew the maps were elected to their chamber. As is evident, the vast majority of state legislators from lower houses were elected in 2010 – an off-year election – and many others were elected during odd-year elections. With regard to state senates, the majority of the representatives were selected in 2010, while a smaller portion was chosen in 2008. In the case of Louisiana, its representatives in both chambers were selected in 2007. If the off-year turnout effect is indeed present in state legislative races, as we have argued, then it is clear that most of the legislators in most states were chosen by a different subset of their districts' electorate than they would have faced in an election held during a presidential year.

Thus we find that different results at the state and federal level is not that surprising. Even though the eligible electorate is the same, the subset of voters who participate is not. In most states, the gubernatorial election is held in off years, when there is not a presidential election. Most state senates are elected for four-year terms with staggered elections. Thus half the state senate is elected in an off-year. State lower-house elections are typically held every two years, so the election that determines who gets to draw the congressional maps alternates between being off year and presidential year every ten years. Thus even in a typical state, many of the elections that determine who gets to draw congressional maps have rather low turnout. Furthermore, in certain states, election timing increases this effect. For example, there are states that elect governors in odd years and where state senators are all elected in off years. Thus the voters that determine who gets to draw the congressional map will often be fewer in number than those that vote in the congressional elections.

CONCLUSION

In this chapter, we have asked whether we can explain where we find partisan bias in terms of political variables. The answer is an overwhelming yes. As we saw in the previous chapter, the patterns of partisan bias we observe cannot be explained by geographic factors such as the urban concentration of Democratic voters or the need to draw majority-minority districts. Rather, partisan bias is a matter of choice by state legislatures. And now we confirm that this choice is a political one. To put it bluntly, we find partisan bias where one party controls the entire districting process and not otherwise. In the 2010 districting round, this party was in

the vast majority of cases the Republican Party (Maryland was the only case of a statistically significant Democratic gerrymander). If we take into account whether a party has an incentive to draw biased districts, we can predict partisan bias even better – there is no point for parties that are completely dominant, like the Democrats in Massachusetts or the Republicans in Oklahoma, to draw biased districts, because they win all the seats anyway.

The pattern of changes in partisan bias over time is also consistent with our expectations. States where the Republican Party controlled the entire districting process districted for partisan advantage far more aggressively than in previous districting rounds. We find that partisan bias increases sharply in those states where there was already partisan bias in the 2000 round. In those states that became biased in the 2010 districting round, the level of partisan bias is typically far greater than typically found in the 2000 round. Thus we can conclude that the increase in bias in the 2010 round is not just a result of the Republican Party doing very well in the 2010 elections and controlling more states than it did in 2000 – bias increased strongly in those states the Republicans controlled in both 2000 and 2010. A number of explanations for this are possible. Perhaps it was due to the fact that the Supreme Court had signaled in *Vieth v. Jubelirer* (2004) that it would not intervene in partisan gerrymandering cases. As a result, state legislatures did not have to worry about the threat of legal oversight and pushed partisan advantage to its limits. Alternatively, the Republican Party in various states may have become more determined to pursue national political advantage through redistricting. Or perhaps there was a combination of factors. In any case, state legislatures chose to pursue partisan advantages more aggressively than before, and the Supreme Court chose not to prevent them.

Two other things require mentioning here. First, partisan bias occurs in states where one party controls state government in states that are competitive at the federal level. In other words, a party is using its dominance at the state level to influence or even dominate federal elections to the House of Representatives. This has profound constitutional implications. The United States Constitution is built on the compromise that the House of Representatives represents the people of the United States directly, while the Senate represents the interests of the states. However, now we see parties leveraging their dominance of state government to take control of congressional delegations. This is a fundamental challenge to the Compromise.

Second, we see parties leveraging their dominance in state elections (in which fewer people vote) to influence congressional elections (in which more people vote). That is to say, the balance of power in the House of Representatives is being determined indirectly by the outcome of state elections in which comparatively few people vote. That is to say, we are shifting power from elections in which more people vote to elections in which fewer people vote. Furthermore, those who do vote in the state-level election will probably have little idea that they are determining the makeup of the federal House for the next ten years. This has profound consequences for the practice of democracy in the United States. These questions are considered in depth in the next chapter.

APPENDIX 5A – VOTER TURNOUT (AS A PERCENTAGE OF VAP)
IN STATE GUBERNATORIAL ELECTIONS, 1993–2012

TABLE 5.A1. *Voter Turnout (as a Percentage of VAP) in State Gubernatorial Elections, 1993–2012*

State	Election Schedule	t ₁	t ₂	t ₃	t ₄	t ₅
Alabama	Off year	38	40	42	36	42
Alaska	Off year	54	55	53	51	51
Arizona	Off year	38	30	32	35	36
Arkansas	Off year	40	38	41	37	37
California	Off year	39	36	32	34	37
Colorado	Off year	41	45	44	45	48
Connecticut	Off year	47	41	40	43	43
Delaware	Presidential year	51	57	60	61	57
Florida	Off year	40	35	41	35	38
Georgia	Off year	30	32	33	32	36
Hawaii	Off year	44	48	44	36	39
Idaho	Off year	52	43	43	42	41
Illinois	Off year	36	39	38	37	39
Indiana	Presidential year	50	50	54	58	53
Iowa	Off year	48	46	48	47	50
Kansas	Off year	46	40	41	42	41
Kentucky	Odd year	34	19	36	33	25
Louisiana	Odd year	51	41	44	42	31
Maine	Off year	56	45	48	53	56
Maryland	Off year	38	40	44	43	43
Massachusetts	Off year	48	41	45	46	46
Michigan	Off year	45	42	42	51	43
Minnesota	Off year	52	61	59	57	53
Mississippi	Odd year	43	38	44	35	42

(continued)

TABLE 5.A1 (continued)

State	Election Schedule	t ₁	t ₂	t ₃	t ₄	t ₅
Missouri	Presidential year	55	58	64	65	60
Montana	Presidential year	62	62	65	67	63
Nebraska	Off year	50	46	38	46	37
Nevada	Off year	35	33	32	32	37
New Hampshire	Off year	37	36	45	40	45
New Jersey	Odd year	43	40	35	36	37
New Mexico	Off year	40	40	37	39	40
New York	Off year	39	37	33	33	32
North Carolina	Presidential year	48	52	56	62	62
North Dakota	Presidential year	58	64	66	65	60
Ohio	Off year	41	41	38	47	45
Oklahoma	Off year	43	36	41	35	38
Oregon	Off year	53	45	48	49	49
Pennsylvania	Off year	40	34	38	43	41
Rhode Island	Off year	50	42	41	48	42
South Carolina	Off year	35	38	37	34	39
South Dakota	Off year	63	49	58	58	53
Tennessee	Off year	39	24	39	40	34
Texas	Off year	33	27	30	27	28
Utah	Presidential year	50	52	56	51	48
Vermont	Off year	49	49	47	53	49
Vermont	Presidential year	59	64	64	66	60
Virginia	Odd year	38	35	36	36	34
Washington	Presidential year	55	57	61	61	59
West Virginia	Presidential year	44	46	53	51	46
Wisconsin	Off year	43	46	43	51	50
Wyoming	Off year	60	51	50	50	46

APPENDIX A.2

A Comparative Analysis of Redistricting Institutions in the United States, 2001–02

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ABSTRACT

Legislative redistricting is among the most intensely fought battles in American politics. Through redistricting, political parties seek to control government, incumbents seek job security, and minority groups seek representation. I explore how the various United States redistricting institutions, and the political actors who operate within them, determined the outcomes of the 2001–02 redistricting cycle. I categorize these institutions into two types: redistricting that follows the normal legislative process and that which takes place through a commission. For those states that use the legislative process, when one party controls state government, redistricting results in a partisan gerrymander. When there is divided state government, a bipartisan compromise results from the legislative process. Commission systems differ on membership and voting rules, suggesting two types of commissions: partisan and bipartisan. A partisan commission reliably produces a partisan map, while a bipartisan commission results in a bipartisan compromise.

LEADING INTO THE 2001–02 round of legislative redistricting in the United States, the Republican National Party sought to gain control of state governments to affect redistricting outcomes (Hirsch 2003). Some state legislatures spent months in special session, at a cost of millions of dollars, struggling with redistricting. Millions more were spent on redistricting lawsuits in attempts to alter adopted maps (Galloway 2001; Wagster 2001; Riskind 2002; Copelin 2003). These intense battles over redistricting demonstrate that decision-makers recognize the importance of the process in affecting future political outcomes.

Despite this frenzied activity for political advantage, academic research has found only inconsistent evidence of the electoral consequences of legislative redistricting. While redistricting in response to the equal population court mandates of the 1960s is credited with erasing a Republican congress-

sional electoral advantage (Erikson 1972; Gelman and King 1994b; Cox and Katz 2002), Tufte (1973) and Ferejohn (1977) debated the consequences of these redistrictings on incumbency advantage. King (1989) found an electoral benefit to political parties in control of the 1971–72 redistricting cycle, while other scholars found no appreciable gains (Glazer, Grofman, and Robbins 1987; Squire 1985). Scholars have found that parties that drew the 1981–82 maps were either better off (Cain 1984; Squire 1995) or worse off (Campagna and Grofman 1988). Any gains made by parties through redistricting appear to dissipate after two or three elections (Basehart and Comer 1991; Niemi and Winsky 1992). Some posit that the increased power of incumbency explains the minimal electoral impact of redistricting, since incumbents can withstand all but the most dramatic changes to their districts (Squire 1995; Born 1985).

Thus, redistricting is a political activity where scholarly analyses and political practices seem to diverge. The purpose of this article is to help explain this divergence by demonstrating the conditional nature of redistricting effects. I take an informal game theoretic approach to analyzing the various redistricting institutions, which are categorized broadly into two types: redistricting that follows the normal legislative process and redistricting performed by a commission. With some notable exceptions, in states that use the legislative process for redistricting, unified government results in partisan redistricting. The type of divided government—a divided legislature or a unified legislature pitted against a governor of another party—structures the bipartisan compromise in state legislative redistricting, but not in congressional redistricting. Among commission systems, membership and voting rules produce two types of commissions—partisan and bipartisan—leading to two types of redistricting plans: partisan gerrymanders and bipartisan compromises.

REDISTRICTING ACTORS AND THEIR MOTIVATIONS

Redistricting affects the careers of politicians and the representation of political parties and racial groups. Incumbents, parties, and racial groups have roles in the redistricting process, therefore understanding their motivations and how they interact is important to understanding how the redistricting process operates in practice and shapes electoral outcomes.

Incumbents

Incumbent legislators wish to be re-elected. This axiom guides modern inquiry into legislator behavior, from their campaign strategies to their poli-

cymaking activities (Mayhew 1974). To become an incumbent, a legislator usually must first win an election. Having successfully won an election, a risk-averse incumbent will not lightly change the circumstances that resulted in that victory.

However, the requirement that electoral districts must have equal populations may result in radical changes to a district during redistricting. Migration between states results in the reallocation of congressional districts through reapportionment. This may force the collapse of districts in states that lose congressional representation and the creation of new districts in states that gain representation. Perhaps more important, migration within a state can result in the shift of districts from the slower to the faster growing regions. Like falling dominoes, a population imbalance in one district affects adjacent districts, rippling across a state. Incumbents, especially those who represent districts deviating greatly from the ideal equal population size, fear redistricting because of the changes it can bring to their districts and the negative effect this can have on their chances of re-election.

Indeed, incumbents may suffer an electoral penalty following redistricting in congressional (Campagna and Grofman 1990) and state legislative districts (King 1989). Redistricting can upset district-based campaign organizations and the carefully cultivated name recognition and trust that incumbents build with their constituents (Desposato and Petrocik 2003). These must be built anew with unfamiliar constituents through early and frequent campaigning in annexed areas (Boatright 2004). Radical change may force incumbents who no longer fit their districts into early retirement, an election defeat, or even the purchase of a new home in a friendlier district (Butler and Cain 1992). Perhaps, worse, an incumbent may be paired with another popular incumbent whose existing district contains the core voters in the new district.

On the other hand, redistricting can help incumbents. If incumbents must lose constituents through redistricting, they wish to jettison those least likely to support them. Crafty incumbents may even orchestrate maps that exclude the homes of potential challengers; the odd, finger-like projections in some district boundaries may be attributed to this strategic behavior (Brown 2001; Johnson 2001). If incumbents must gain constituents, they want areas with a strong presence of their party. Here, incumbents of different parties in adjacent districts find themselves with a shared interest and may willingly swap voters to increase their respective margins of victory.

Political Parties

Political parties want to win elections in more than a single district. A successful partisan gerrymander wastes the votes of its opponent party, so that the

latter receives fewer legislative seats than its share of the vote. Two tools used to dilute opposition votes are stacking and cracking (Cain 1984). Stacking places many opposition party supporters into a few districts, thereby wasting opposition votes in overwhelming victories. Cracking spreads opposition party supporters across districts favoring the gerrymandering party, thereby dissipating opposition votes in districts that they cannot win. The gerrymandering party's goal is to place just enough of its supporters in their districts so that their candidates win comfortably, without wasting their own supporters' votes (Cain 1984; Owen and Grofman 1988).

The political geography of a state, the number of districts, and the legislative body to be redistricted help determine the success of partisan gerrymandering. Partisan gerrymandering can have little effect in a politically homogenous state since almost any map would naturally favor the dominant party; more opportunities to group voters strategically exist in heterogeneous states. The more districts in a legislative body, the greater the ability to group voters strategically. Thus, partisan gerrymandering can be more potent in state legislative than in congressional districting, except in the current California and Texas state senates, which have fewer districts than those states' congressional delegations. Furthermore, while the partisan stakes of state legislative redistricting are the control of the state legislature, a state can affect partisan control of Congress only at the margins. Thus, with greater opportunities to affect electoral outcomes and more at stake, state legislative redistricting is often more contentious among the parties than congressional redistricting.

Partisan gerrymanders can wreak havoc on the opposition party's incumbents since the advantages of incumbency can be nullified by placing little of an incumbent's old district in his or her new district (Desposato and Petrocik 2003). Often, the opposition party can find two of its incumbents living in a new district. On the other hand, those opposition incumbents who are not paired with another incumbent may end up being electorally safer since efficient partisan gerrymanders tend to produce extremely safe opposition districts. In this respect, incumbent protection and partisan gerrymanders can produce districts with a similar partisan composition (Owen and Grofman 1988).

The redistricting goals of a political party and its incumbents can be at odds. Optimal partisan gerrymanders set that party's strength at an efficient level in districts it expects to win which, although safe, is at a lower level of safety than that desired by incumbents (Cain 1984). The electoral fortunes of incumbents elected from marginal districts can improve by moving

more of their party's supporters into their districts. However, incumbents in extremely safe districts may oppose their party leaders who want to shift supporters out of their districts to shore up adjacent marginal districts. Parties accommodate their incumbents, attempting to maximize simultaneously their respective goals when forging the details of a redistricting plan (Gelman and King 1994b).

Racial Minorities

Redistricting can affect racial representation through similar techniques of stacking and cracking used in partisan gerrymandering. Historically, in the few stacked minority districts, intimidation and constitutional restrictions on minority voting preserved white electoral dominance (Kousser 1999). Ultimately, the federal government mandated, through the Voting Rights Act of 1965 and subsequent extensions, protections for minority voters and the drawing of special "minority-majority" electoral districts—so called because they contain a majority of members of a minority group—to facilitate minority representation. These districts are overwhelmingly Democratic (except for Cuban-American districts) since minority-majority districts must often contain a supermajority of minorities, who tend to vote Democratic and their neighbors who are of similar partisan affiliation (Brace et al. 1988).

Since minority-majority districts tend to be overwhelmingly Democratic, they waste Democratic votes and are an effective Republican gerrymander. Scholars who study racial gerrymandering debate the degree of damage to Democrat interests this causes, with some finding substantial effects (Bullock 1996; Lublin 1997; Lublin and Voss 2000; Swain 1995; Thernstrom and Thernstrom 1997), others finding minimal effects (Grofman and Handley 1998; Petrocik and Desposato 1998), and one finding a benefit to Democrats when cracking Democrats is an optimal Republican strategy (Schotts 2001).

REDISTRICTING INSTITUTIONS

Redistricting in the United States is conducted by the states through a patchwork of state laws and constitutional provisions, overlaid with federal guidelines that apply to drawing all electoral districts. First, I discuss the national government's rules constraining redistricting, emphasizing the federal government's encroachment on the states' redistricting prerogatives. Second, I describe the various state redistricting institutions, focusing on how these processes can structure outcomes.

Universal Districting Principals and the Role of the National Government

Two basic principals govern all redistricting in the United States: all parts of a district must be contiguous and a district must be reasonably compact in shape. While contiguity is an objective criterion, compactness is subjective, and there are many ways to define it (Niemi et al. 1990). The courts have not set a standard more specific than what the United States Supreme Court called "bizarreness" of shape in *Miller v. Johnson*, 515 U.S. 900 (1995). Many states establish additional rules in state statutes or constitutions, such as requiring that districts respect the integrity of existing political or geographical entities to the extent practicable (for a partial listing of criteria, see Barabas and Jerit 2004). These traditional criteria constrain redistricting, and their violation is often an indicator of biasing redistricting for political advantage, but even applying these seemingly neutral principals may inadvertently or intentionally produce second-order bias that favors one interest over another (Parker 1990).

Another basic institutional constraint on redistricting is the number of districts into which a political entity is to be divided. Congressional seats fluctuate with the apportionment of congressional seats to the states. Some state constitutions set the specific number of state legislative seats, while others set a minimum or a maximum or allow the redistricting process to decide the issue. Consensus is easier to achieve when the number of districts increases, while contentious battles may result when the number decreases.

Beginning with the 1962 United States Supreme Court decision *Baker v. Carr*, 369 U.S. 186, the national government has been active in mandating redistricting guidelines for all levels of government. In *Baker*, the Court interpreted the equal protection clause of the 14th Amendment to require states to equalize all the districts in a given governmental body.¹ Prior to *Baker*, states typically redistricted infrequently even though many state constitutions mandated a timely redistricting schedule. Nearly all states defined state legislative districts in terms of geography, for example, requiring a minimum number of state representatives to be elected from counties or cities. As population migrated from rural to urban areas, a growing imbalance in district populations and representation resulted (Johnston 2002).² After *Baker*, states were required to redraw their legislative and congressional districts to correct existing imbalances, with redistricting becoming a regularized event at the start of each decade with the release of new population numbers from the United States Census.

Another innovation of the 1960s was the Voting Rights Act of 1965,

which introduced new players in the redistricting process: the United States Department of Justice and the federal courts. States covered by Section 5 of the Voting Rights Act must get approval for, or "preclear," their districting plans with the Department of Justice or the Federal District Court for the District of Columbia before they are implemented. Failing preclearance, these jurisdictions may try again.

If no districting plan is forthcoming, either because the political process breaks down or a plan cannot be precleared, courts (either state or federal, depending on circumstances) must provide a new districting plan before candidate filing opens for the next election. Thus, the reversionary outcome of redistricting has changed from maintaining the status quo to a plan drawn by a court (Cox and Katz 2002). Finally, the redistricting process may not end with the adoption of a plan, as losers frequently sue in court for changes, claiming plans violate state and federal redistricting criteria.

Fifty State Processes

State laws and constitutions determine redistricting processes in the United States. States primarily use one of two methods to redistrict: the ordinary legislative process or a specially appointed commission. Some states use a mixture of these two processes. A few states have complicated processes that do not fit neatly into one of these two classifications, and not all states use the same method for both congressional and state legislative redistricting. A listing of the types of the redistricting processes each state uses is in Table 1, and a detailed summary of commission processes used in 20 states is in Table 2.

The Legislative Process. The most common form of redistricting in the states follows the normal state legislative process. The legislature passes a plan to the governor for his or her signature and can override the governor's veto by a supermajority vote. Thirty-eight states use the legislative process for congressional redistricting, and 26 states use it for state legislative redistricting. To understand the outcomes of redistricting through the legislative process, one must consider party control of that process.

When there is unified party control of state government, or when one party has a veto-proof majority in the state legislature, the process is streamlined and a plan is usually adopted quickly. As a Republican state legislator facing the unified Alabama Democratic government put it, "They're going to run us over" (Poovey 2001, 1). There is little reason for a party in complete control to accommodate the minority party. The chair of the Texas Republican Party put it this way: "We weren't overly sensitive to protecting anyone

Table 1. Survey of Legislative Redistricting Processes Used in the United States, 2001–02

Type of Process	States
Legislative Process	
<i>Congress (38)</i>	AL, AK, AR, CA, CO, DE, FL, GA, IL, KS, KY, LA, MA, MI, MN, MS, MO, NE, NV, NH, NM, NY, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WV, WI, WY
<i>State Legislature (26)</i>	AL, CA, DE, GA, IN, KY, LA, MA, MI, MN, NE, NV, NH, NM, NY, ND, RI, SC, SD, TN, UT, VT, VA, WV, WI, WY
Legislative Process/Commission	
<i>Congress (2)</i>	CT ^a , IN
<i>State Legislature (7)</i>	CT ^a , IL, MS ^b , OH, OK, OR ^c , TX
Commission	
<i>Congress (7)</i>	AZ, HI, ID, ME ^d , MT, NJ, WA
<i>State Legislature (12)</i>	AK, AZ, AR, CO, HI, ID, ME ^d , MO ^e , MT, NJ, PA, WA
Other	
<i>Congressional (3)</i>	IA ^f , MD ^g , NC ^h
<i>State Legislative (5)</i>	FL ^h , IA ^f , KS ^h , MD ^g , NC ^h
No Congressional Redistrictingⁱ (7)	
	AK, DE, MT, ND, SD, VT, WY

Notes: Full citations and hyperlinks to the relevant state constitutions and statutes are available at <http://elections.gmu.edu/redistricting.htm>.

^a In Connecticut, the legislature must adopt a districting plan with a two-thirds vote. If this vote cannot be achieved, a commission convenes to propose districts to the legislature that can be adopted with only a majority vote. If the commission fails to produce a plan that wins a majority vote, the state Supreme Court draws the districts.

^b In Mississippi and North Carolina, the governor does not have a veto over the redistricting plan.

^c In Oregon, the commission is composed solely of the Secretary of State. The state Supreme Court must approve any redistricting plan.

^d In Maine, a commission proposes a districting plan to the legislature, where it must be approved by a two-thirds vote, followed by the governor's approval. If this fails, the state Supreme Court draws the districts.

^e Missouri uses two separate commissions for its Senate and House state legislative redistricting. The House commission has 20 members and the Senate has 10, with equal numbers being selected by each party. Plans are adopted by a seven-tenths vote of the commission. If a commission fails to adopt a plan, the state Supreme Court forms a commission to draw a plan of its own.

^f In Iowa, nonpartisan staff in the Legislative Service Bureau propose districting plans to the legislature. The legislature is offered three plans in succession, any of which may be adopted by a majority vote of the legislature, thus ending the process. If each of these plans fails to receive majority support, the regular legislative process is used.

^g In Maryland, the governor proposes a districting plan to the legislature, who can approve it with a majority vote. The legislature may adopt a different plan with a two-thirds vote. If the legislature fails to act, the governor's plan becomes law.

^h In Florida and Kansas, the legislature adopts a plan that it then proposes to the state Supreme Court. The court may reject the legislature's map and draw its own plan.

ⁱ For the seven states with no congressional redistricting, the process that would be used if the state had more than one district is listed in the table.

in particular, and particularly not Democrats. We make no bones about that. We're the Republican Party" (Root 2001, 6).

But even under unified governments, there can be political tensions and considerations regarding state legislators, governors, racial interests, and the potential for court action that complicate the process and highlight the motivations of the political actors involved. Two examples from the 2001–02 redistricting cycle illustrate this point. In Georgia, under unified Democratic government, tension developed between Democratic state legislators, who crafted a districting plan to aid in their re-election, and Governor Barnes, who was determined to advance the broader interests of the party (Galloway 2001). The special redistricting session was extended for two months after Barnes vetoed the first state legislative map sent to him. In neighboring Alabama, racial interests stymied the adoption of a Democratic congressional plan by a unified Democratic state government (Rawls 2002). At issue was an increase in the percentage of African Americans in one district above a level agreeable to conservative Democrats. At the eleventh hour, the legislature acted rather than allow a Republican-friendly federal court to draw the districts.

When partisan control of a state government is divided, either a bipartisan compromise is struck or redistricting is settled in court. Many unified state legislatures respect a norm that the respective chambers should be allowed to draw their maps (Butler and Cain 1992, 154). When divided control of a legislature exists, a frequent compromise is the continuation of this norm, allowing the different chambers to draw their own districting plans. This situation typically requires the majority party to accommodate the minority party's incumbents in each chamber. As Janet Massaro of the League of Women Voters of New York commented on state legislative redistricting in her state, "Republicans in the Senate and Democrats in the Assembly have consolidated their strength by shaping the new districts to serve the interests of their party and of incumbents" (McCarthy 2002, C1). When a state government is divided between a legislature controlled by one party and a governor of another party, compromise can still occur between the minority and majority leadership in the legislature. Often, governors are willing to accept a bipartisan compromise forged within the legislature out of deference to and respect for the legislative leaders of the governor's party.

The norm that legislators should draw their own districts often extends to a state's congressional delegation. Members of Congress do not play a formal role in the redistricting process, but they often play an informal role by proposing plans for congressional districts. Especially under unified party control of the redistricting process, the state's congressional delegation cau-

cus of that party can be intimately involved in redistricting (Boatright 2004). Under divided government, a compromise often entails the congressional delegation drawing and advocating a bipartisan incumbent protection plan for itself. Sometimes personalities or progressive ambitions muddy the waters. In 2001, Democratic Massachusetts House Speaker Finneran threatened to draw United States Representative Meehan (D-MA) out of his district due to his sponsorship of campaign finance reform (Beardsley 2001). In California, state legislator Vargas (D-San Diego) crafted a map that would increase his chances of defeating his old primary foe, United States Representative Filner (D-CA) (Associated Press 2001).

The potential for court action may structure any redistricting plan or compromise. In 2001–02, Illinois faced not only a divided state government, but also the loss of a congressional seat due to apportionment. Expectations were high that if legislative action failed, a Republican-friendly federal court would do congressional redistricting (Kieckhefer 2001). Rather than risk court action and the adoption of a Republican map, the Democratically controlled state House passed a bipartisan incumbent protection plan negotiated between United States Representatives Hastert (R) and Lipinski (D) that made a concession to Republicans by collapsing a Democratic seat.

On the other hand, expectations of court action may prevent a compromise from developing. The courts may choose among competing plans that parties or organized groups propose or they may draw a plan of their own. The parties often anticipate that the relevant court will adopt a map based on the party of the judges involved, if elected, or of those who nominated them, if appointed. In 2001, Texas Republicans balked at negotiations with Democrats in the divided legislature. After a complicated maze of lawsuits, congressional redistricting landed in a Republican-friendly federal court. But, the Republicans' dream of big gains in Texas was shattered when the judges adopted a plan protecting all incumbents (Selby 2001). As a consolation, Texas's two new congressional districts were drawn to favor Republicans.³

Commissions. Twenty states use a commission at some stage of congressional or state legislative redistricting. A commission plays a primary role in congressional redistricting in seven states and in state legislative redistricting in 12 states. A commission is used as a backup if the legislative process breaks down in congressional redistricting in two states and state legislative redistricting in seven states. Table 2 lists details of the commissions in these 20 states, such as the year a commission was adopted, its membership, and its decision rule in adopting a map. Some states use different processes for congressional and state legislative redistricting. Indiana is the only state to

Table 2. Redistricting Commissions in the United States, 2001–02

State	Process (Number of Members/Decision Rule)	Year Adopted	
		Congress	State Legislature
Alaska	Odd/Majority vote	—	1998
Arizona	Even/Majority selects tiebreaker	2000	2000
Arkansas	Odd/Majority vote	—	1936
Colorado	Odd/Majority vote	—	1974
Connecticut	Even/Majority selects tiebreaker	1980	1976
Hawaii	Even/Majority selects tiebreaker	1968	1968
Idaho	Even/Supermajority vote/Supreme Court review	1994	1994
Illinois	Even/Random tiebreaker	—	1970
Indiana	Odd/Majority vote	1969	—
Maine	Odd/Unanimous vote	1964	1964
Mississippi	Odd/Majority vote	—	1977
Missouri	Even/Supermajority vote	—	1945 (Senate) 1966 (House)
Montana	Even/Majority or Supreme Court selects tiebreaker	1972	1972
New Jersey	Even/ Majority selects tiebreaker (Congress), Supreme Court selects tiebreaker (state legislature)	1966	1966
Ohio	Odd/Majority vote	—	1851
Oklahoma	Odd/Majority vote	—	1964
Oregon	Odd (1 person, Secretary of State)	—	1952
Pennsylvania	Even/Supreme Court selects tiebreaker	—	1968
Texas	Odd/Majority vote	—	1948
Washington	Even/Supermajority vote	1983	1983

Notes: — denotes that the regular legislative process is used. Full citations and hyperlinks to the relevant state constitutions and statutes are available at <http://elections.gmu.edu/redistricting.htm>.

use a commission for congressional redistricting and the legislative process for state legislative redistricting. In 11 states, a commission is used for state legislative redistricting and the legislative process is used for congressional redistricting. Seven states use a commission for both.

There are two general types of commission sequencing, the Ohio model and the Texas model. The Ohio model gives the commission sole redistricting authority. The 1851 Ohio constitution placed state legislative redistricting in the hands of a three-member Apportionment Board composed of the governor, the state auditor, and the secretary of state (Barber 1981). Today, 11 states use a commission vested with sole responsibility for congressional or state legislative redistricting. The selection mechanism for commissioners and the rules under which they operate have evolved as subsequent states established such commissions.

The Texas model uses a commission to serve as a backup if the legislative process fails. Texas voters amended the Texas constitution in 1948 to form a commission to draw state legislative districts (Claunch, Chumlea, and

Dickson 1981). This commission was designed to avoid gridlock, with five members who were partisan elected officials, adopting a map on a majority vote. This model is used by eight other states, each of which adopted its system in the 1960s and 1970s (Table 2). Under the Texas model, when the state government is unified, redistricting is likely to be completed through the regular legislative process. When that process breaks down, as under divided government, the Texas model concentrates control of redistricting into the hands of a few partisan commissioners, often party leaders or their appointees, who are able to act outside of the prying eyes and mixed influences of state legislators.

Two factors are key to determining the type of redistricting plan adopted by a commission: the selection of its members and the decision rule used to adopt the plan. A commission will either have: 1) an odd number of members and adopt a plan on a majority vote, 2) an even number of members and adopt a plan on a majority vote, or if a majority cannot form, with a tiebreaker being selected, 3) an even number of members and tiebreaker selected at the outset by majority vote of the commission's members, and adopt a plan on a majority vote, or 4) an even number of members and adopt a plan by a supermajority vote.

In the nine states with a commission composed of an odd number of members and requiring a majority vote to adopt a plan, legislative leaders or statewide party officials are either commission members or designate its members. With an odd number of commissioners, one party controls the majority and can adopt its favored districting plan.

This process does not always lead to a commission that reflects the values and party of the majority of people in the state. In 2001, Democratic Governor Knowles of Alaska appointed two commissioners, who, along with the two members selected by the Democratic legislative leadership, gave the Democrats majority control of the Apportionment Board, even though the Republicans had near supermajority control of the legislature. In the eyes of the Republicans, the Board adopted a redistricting plan favored by the Democrats, which they successfully challenged in state court (Pemberton 2002).

In Illinois, New Jersey (for the state legislature), and Pennsylvania, an equal number of partisans are initially appointed to the commission, but if it cannot adopt a plan by a majority vote, a tiebreaker is selected. This late-tiebreaker rule is designed to induce the commissioners from the two political parties to compromise; in practice, compromise usually occurs only if the tiebreaker commissioner forces the parties to negotiate. If the tiebreaker makes unreasonable demands, the partisan commissioners may seek a bipartisan

compromise. Often, commissioners have strong common prior beliefs about the likely partisanship of the tiebreaker, and therefore balk at compromise during initial negotiations. Once chosen, the tiebreaker then sides with one of the parties and a partisan plan is adopted. This has been the outcome in Illinois for all redistricting cycles since 1980, and it demonstrates that under the highest degree of uncertainty, where a randomly chosen partisan is the tiebreaker, the parties prefer commission gridlock to compromise. New Jersey's state Supreme Court traditionally selects political scientists, who apply neutral criteria to their decisions (Butler and Cain 1992, 100–1). But because they are selected near the end of the process, these neutral tiebreakers are at an informational and resource disadvantage and must often adjudicate between the plans offered by the partisan commissioners rather than designing their own.

In Arizona, Connecticut, Hawaii, and New Jersey (for Congress), an equal number of partisans serve on the commission and choose a tiebreaking member at the beginning of the process by a majority vote. The commission then adopts a redistricting plan by a majority vote. This process tends to foster bipartisan compromise and an incumbent-protection redistricting plan (Butler and Cain 1992, 152). The commission may adopt a bipartisan compromise even without the tiebreaking member's vote. Arizona's commission is exceptional in that party influence is reduced through a complicated membership selection procedure and by the fact that the commission draws its plans without knowledge of incumbents' homes. For these reasons, I classify it as a neutral, or nonpartisan, commission. In Montana, if the commission cannot select a tiebreaker, then the selection of a tiebreaker falls to the state Supreme Court. In practice, the strategic decisionmaking of the partisan members is similar to that on commissions where tiebreakers are chosen after a stalemate is reached in that they let the court choose the tiebreaker.

Idaho, Maine, Missouri, and Washington commissions have an even number of partisan members and require a supermajority vote to adopt a redistricting plan. These states' commissions explicitly require bipartisan compromise among their members to adopt a map (Butler and Cain 1992, 151).

While Maine has a bipartisan commission, its commission is not the sole actor in redistricting. Maine's constitution requires a unanimous vote of the commission, followed by a two-thirds vote in the state legislature and the governor's approval, with a state Supreme Court backup if gridlock occurs. The commission's unanimity requirement strongly encourages a bipartisan compromise, which is then usually approved by the legislature, where a supermajority vote is also needed to adopt the plan.

Some recently created redistricting commissions operate under additional rules constraining their membership or actions, mostly designed to reduce partisan politics in the process. For example, Arizona's Proposition 106, passed in 2000, outlines elaborate qualifications for commissioners aimed at making them less tied to the parties. Recently, other states have adopted Hawaii's constitutional prohibition on its commission from drawing districts to favor a political party or particular incumbent officeholder. Arizona's and Washington's constitutions go even further, requiring their commissions to draw competitive districts where practicable.

Odds and Ends. A handful of states cannot be classified as using the legislative process or a commission for redistricting. In North Carolina, the legislature has sole redistricting authority. Maryland turns the legislative process on its head, with the governor proposing congressional and state legislative redistricting plans to the legislature. In Florida and Kansas, the legislature proposes a state legislative redistricting plan to the state Supreme Court, which may reject the plan in favor of one of its own.

Iowa is often referred to as a commission state, but I do not classify it as such because its commission exists only under state statute, and the legislature can assume redistricting authority through the same statute. Iowa's commission is not appointed solely for redistricting; it is a nonpartisan legislative support staff agency called the Legislative Service Bureau (LSB). In this respect, Iowa's commission is modeled on bureaucratic boundary commissions in other countries, where technicians draw district boundaries (Rallings et al. 2004). In Iowa, a temporary advisory redistricting commission composed of partisan members is convened to answer queries from the LSB. The LSB proposes a sequence of three redistricting plans to the legislature, any of which may be adopted by majority vote. The first two plans may only be amended for technical reasons, but the third plan may be amended in any way through the normal legislative process. However, in the history of this convoluted process, adopted in 1970, the legislature has never failed to adopt at least the third proposal from the LSB, fearing that to do otherwise would invite the perception that politics had contaminated the process (Butler and Cain 1992, 102; Glover 2001).

The Courts. Behind all these redistricting processes in the United States is the threat of court action. Various criteria found in federal and state constitutions and statutes often serve as the basis for a court challenge to a redistricting plan. In 2001, state legislative plans in Alaska, Arizona, Idaho, and North Carolina were successfully challenged, as were congressional plans in

Mississippi and Georgia. If the redistricting process breaks down, a court must step in and provide a plan that at least balances population before the subsequent election. Five states explicitly require state Supreme Court review of adopted redistricting plans: Alaska, Colorado (for the state legislature), Florida, Idaho, and Kansas.

REDISTRICTING OUTCOMES

Much of the scholarly literature on redistricting assumes that control of the branches of the state government will determine the nature of the redistricting outcome (Erikson 1972; Abramowitz 1983; Born 1985; Niemi and Winsky 1992). The preceding section shows that this is an unwarranted assumption. Other scholars examine the intent behind the redistricting, rather than the partisan control of it, to gauge effects (Basehart and Comer 1991; Gelman and King 1994b). This approach avoids miscoding cases, such as Hawaii, as having a partisan process when, in fact, it is bipartisan. However, since this method is focused on outcomes, it tells little of how redistricting institutions may shape these outcomes.

My discussion of redistricting processes suggests that the redistricting plan that a state adopts is a function of its redistricting institutions and the players who work in it. A listing of the 2001–02 processes and the predicted and realized outcomes for the 93 instances of redistricting—state legislative and congressional redistricting in the 50 states, minus the seven states with only one congressional district—is presented in Table 3. This table shows that the outcome can be reliably predicted from an understanding of the institutions and the players. The seven exceptions to the prediction are bolded in Table 3 and discussed below, as they illustrate how other political considerations that are difficult to generalize about can affect the redistricting process.

The third column of Table 3 lists the redistricting process used in each state, as discussed in the previous section. The fourth column lists the control of the process based on the circumstances during the 2001–02 redistricting. First, consider states that used the legislative process. Where one party controlled the process, either through unified state government or a supermajority in the legislature that could override a veto from a governor of a different party, a state is coded by D or R, with “supermajority” signifying that a legislative party could override a gubernatorial veto. Where the two parties controlled different branches of the legislature, a state is coded as “Divided Leg.” Divided government due to split control between the legislative and executive branches is coded as “Divided Govt.” Most commissions

Table 3. United States Redistricting Processes, Predicted Outcomes, and Realized Outcomes, 2001–02

State	Body	Process	Control ^a	Predicted Outcome ^a	Realized Outcome ^a
AK	Cong.	—N/A—			
	Leg.	Partisan Comm.	D	D	D ^b
AL	Cong.	Leg. Process	D	D	D
	Leg.	Leg. Process	D	D	D
AR	Cong.	Leg. Process	D (supermajority)	D	D
	Leg.	Partisan Comm.	D	D	D
AZ	Cong.	Bipartisan Comm.	N	N	N
	Leg.	Bipartisan Comm.	N	N	Court: N, N ^c
CA	Cong.	Leg. Process	D	D	I
	Leg.	Leg. Process	D	D	I
CO	Cong.	Leg. Process	Divided Leg.	I or Court	Court: N
	Leg.	Partisan Comm. + Court	D	D	D ^b
CT	Cong.	Leg. Process + Bipartisan Comm.	Divided Govt.	I	I
	Leg.	Leg. Process + Bipartisan Comm.	Divided Govt.	I	I
DE	Cong.	—N/A—			
	Leg.	Leg. Process	Divided Leg.	I or Court	I
FL	Cong.	Leg. Process	R	R	R
	Leg.	Legislature + Court	R	R	R
GA	Cong.	Leg. Process	D	D	D ^d
	Leg.	Leg. Process	D	D	D
HI	Cong.	Bipartisan Comm.	Bipartisan Comm.	I	I
	Leg.	Bipartisan Comm.	Bipartisan Comm.	I	I
IA	Cong.	Neutral Comm. + Leg. Process	Divided Govt.	N	N
	Leg.	Neutral Comm. + Leg. Process	Divided Govt.	N	N
ID	Cong.	Bipartisan Comm. + Court	Bipartisan Comm.	I or Court	I
	Leg.	Bipartisan Comm. + Court	Bipartisan Comm.	I or Court	I
IL	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Leg. Process + Partisan Comm.	Divided Leg.+ D Comm.	D	D
			D	D	D
IN	Cong.	Partisan Comm.	D	D	D
	Leg.	Leg. Process	Divided Leg.	I	I
KS	Cong.	Leg. Process	R	R	R
	Leg.	Legislature + Court	R	R	R
KY	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Leg. Process	Divided Leg.	I or Court	I
LA	Cong.	Leg. Process	Divided Govt.	I or Court	I
	Leg.	Leg. Process	Divided Govt.	I or Court	I
MA	Cong.	Leg. Process	D (supermajority)	D	D
	Leg.	Leg. Process	D (supermajority)	D	D
MD	Cong.	Gov. + Legislature	D	D	D
	Leg.	Gov. + Legislature	D	D	D
ME	Cong.	Bipartisan Comm. + Leg. Process	Bipartisan Comm.	I or Court	Court: N
	Leg.	Bipartisan Comm. + Leg. Process	Bipartisan Comm.	I or Court	House: I Senate, Court: N
MI	Cong.	Leg. Process	R	R	R
	Leg.	Leg. Process	R	R	R
MN	Cong.	Leg. Process	Divided Govt.	I or Court	Court: N
	Leg.	Leg. Process	Divided Govt.	I or Court	Court: N

Table 3. Cont.

State	Body	Process	Control ^a	Predicted Outcome ^a	Realized Outcome ^a
MO	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Bipartisan Comm.	I	I or Court	Court: R
MS	Cong.	Leg. Process	D	D	Court: R
	Leg.	Legislature + Partisan Comm.	D	D	D
MT	Cong.	—N/A—			
	Leg.	Partisan Comm.	D ^c	D	D
NC	Cong.	Legislature	D	D	D
	Leg.	Legislature	D	D	D (Court: R) ^f
ND	Cong.	—N/A—			
	Leg.	Leg. Process	R	R	R
NE	Cong.	Leg. Process	R	R	R
	Leg.	Leg. Process	R	R	R
NH	Cong.	Leg. Process	Divided Govt.	I or Court	Court: I
	Leg.	Leg. Process	Divided Govt.	I or Court	Court: I
NJ	Cong.	Bipartisan Comm.	Bipartisan Comm.	I	I
	Leg.	Partisan Comm.	N	N	N
NM	Cong.	Leg. Process	Divided Govt.	I or Court	Court: I
	Leg.	Leg. Process	Divided Govt.	I or Court	Senate: I House, Court: I
NV	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Leg. Process	Divided Leg.	I or Court	I
NY	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Leg. Process	Divided Leg.	I or Court	I
OH	Cong.	Leg. Process	R	R	I
	Leg.	Partisan Comm.	R	R	R
OK	Cong.	Leg. Process	Divided Govt.	I or Court	Court: R
	Leg.	Leg. Process + Partisan Comm.	Divided Govt.+ R Comm.	R	R
OR	Cong.	Leg. Process	Divided Govt.	I or Court	Court: N
	Leg.	Leg. Process + Partisan Comm.	Divided Govt.+ D Comm.	D	D
PA	Cong.	Leg. Process	R	R	R
	Leg.	Leg. Process + Partisan Comm.	R	R	R
RI	Cong.	Leg. Process	D (supermajority)	D	I
	Leg.	Leg. Process	D (supermajority)	D	I
SC	Cong.	Leg. Process	Divided Govt.	I or Court	Court: I
	Leg.	Leg. Process	Divided Govt.	I or Court	Court: I
SD	Cong.	—N/A—			
	Leg.	Leg. Process	R	R	R
TN	Cong.	Leg. Process	Divided Govt.	I or Court	I
	Leg.	Leg. Process	Divided Govt.	I or Court	I
TX	Cong.	Leg. Process	Divided Govt.	I or Court	Court: I
	Leg.	Leg. Process + Partisan Comm.	Divided Govt.+ R Comm.	R	R
UT	Cong.	Leg. Process	R	R	R
	Leg.	Leg. Process	R	R	R
VA	Cong.	Leg. Process	R	R	R
	Leg.	Leg. Process	R	R	R

Table 3. Cont.

State	Body	Process	Control ^a	Predicted Outcome ^a	Realized Outcome ^a
VT	Cong.	—N/A—			
	Leg.	Leg. Process	Divided Leg.	I or Court	I ^g
WA	Cong.	Bipartisan Comm.	Bipartisan Comm.	I or Court	I
	Leg.	Bipartisan Comm.	Bipartisan Comm.	I or Court	I
WI	Cong.	Leg. Process	Divided Leg.	I or Court	I
	Leg.	Leg. Process	Divided Leg.	I or Court	Court: N
WV	Cong.	Leg. Process	D	D	D
	Leg.	Leg. Process	D	D	D
WY	Cong.	—N/A—			
	Leg.	Leg. Process	R	R	R

Notes: ^a D = Democratic control/partisan gerrymander, R = Republican control/partisan gerrymander, N = neutral, I = bipartisan control/incumbent protection plan. Bold entries denote deviation from prediction.

^b Alaska's and Colorado's state Supreme Courts ordered their Democratically controlled commissions to redraw districts to uphold state constitutional requirements, which enhanced Republican prospects.

^c Arizona's 2002 state legislative interim districting plan was drawn by a special master when the United States Department of Justice failed to preclear the commission-approved plan. The commission drew a new plan for 2004, was ordered by a state court to draw yet another plan, and the status of the competing plans is pending appeal at the time of publication.

^d Georgia's 2001 congressional districting plan was successfully challenged in federal court, and a new plan was drawn by the state government for 2004. A legal appeal of this plan is pending at the time of publication.

^e Montana's commission failed to select a tiebreaker; the state Supreme Court selected a Democrat.

^f A North Carolina state judge found the legislature's districting plan unconstitutional, remanded redistricting to the legislature, found a second plan unconstitutional, and adopted his own (partisan Republican) interim state legislative plan for 2002. The state legislature met in special session and adopted a new (partisan Democrat) plan for 2004.

^g Vermont's bipartisan compromise was brokered through an ad hoc bipartisan commission.

are coded as "Partisan" and "Bipartisan," with Arizona's and Iowa's unique systems coded as "Neutral." Where a commission was used in conjunction with the legislative process, I denote the sequence with a "+." In the last two columns, predicted and realized partisan outcomes are coded as Democratic (D) or Republican (R) partisan gerrymanders, incumbent protection plans (I), or neutral (N) plans without obvious benefit to either political party, (most often the consequence of "Court" action). See the Appendix for a discussion of the bases of these codings.

Partisan Gerrymanders

When one party controlled the 2001–02 redistricting process, either because it controlled the legislative process or a partisan commission, that party usually produced a redistricting plan favoring itself. In only seven of 44 cases did a party that controlled redistricting not produce a partisan gerrymander. In New Jersey, the selection of a neutral tiebreaker to the commission shaped the neutral outcome for state legislative redistricting. But in four states that used the legislative process—California, Rhode Island, Mississippi (for Congress),

and Ohio (for Congress)—the party that controlled the redistricting process did not produce a plan favoring itself. In these states, circumstances outside the regular legislative process affected the outcome.

In Democratically controlled California, Democrats compromised with Republicans to pass an incumbent protection plan for Congress and the state legislature, thus avoiding threatened lawsuits and a redistricting initiative Republicans vowed to put on the 2002 ballot (Lawrence 2001). In Democratically controlled Mississippi, the legislature could not agree on a congressional plan in the face of the loss of a seat to reapportionment. The Democratic proposal added more African Americans to a district than some conservative Democratic legislators preferred and split communities of interest (Wagster 2001). The resulting court battles led to a federal court adopting a Republican-favored plan. In Ohio, Republican leaders' efforts to take advantage of their control of state government went awry, resulting in a missed legislative deadline and the need for Democratic votes to adopt a plan by a supermajority (Riskind 2002).

In Rhode Island, even though the Democrats held a supermajority in the state legislature, the political parties struck a bipartisan compromise due to a 1994 constitutional amendment mandating the downsizing of the legislature. An ad hoc partisan redistricting commission was convened, whose plans were nearly unanimously approved by the legislature, although the governor declined to sign the bill. The few nay votes came from Democratic legislators who believed their leadership intended to "punish dissidents" (Fitzpatrick 2002, A1).

These anomalous outcomes in four states demonstrate the pitfalls of navigating the legislative process. In contrast, wherever a partisan commission was convened, a partisan map was adopted. Partisan commissions are run by party leaders and typically hold their meetings behind closed doors, minimizing interference in accomplishing their partisan purpose. The partisan commission that does not fit with this prediction is in New Jersey, where the state Supreme Court chose a neutral tiebreaker when the commission stalemated rather than a partisan member, as is typically done elsewhere. The state legislative tiebreaker selected the party's plan that scored best on neutral criteria, which happened to be a Democratic one.

Bipartisan Redistricting Compromises

Three scenarios are predicted to produce bipartisan redistricting compromises: split partisan control of legislative chambers, split control of the legislative and executive branches, and where a bipartisan commission is convened. If no compromise occurs in such a case, redistricting becomes a matter for the

courts, since a plan must still be enacted to ensure equal population among districts after each census.

In states that use the legislative process for redistricting, when the state legislature is divided, a common compromise for a state legislative plan is to allow the respective chambers to draw their own districts. The governor will usually not veto such a compromise. In six of seven states, this situation resulted in a bipartisan compromise for the state legislative plan.

When control of state government is divided, with one party controlling the legislature and the other controlling the governor's office, the norm of allowing the legislature to redistrict itself is not followed. If compromise is to occur, it must be between the minority and majority leaders and it likely entails safeguarding incumbents in the legislature. In the six states with divided government that used the legislative process for state legislative redistricting in 2001–02, a bipartisan compromise was struck only in Louisiana and for the New Mexico Senate (the New Mexico House plan was decided in court). The lower rate of bipartisan compromise in this divided government situation suggests the difficulty of the minority legislative party in accepting a bipartisan, incumbent protection compromise that could secure its minority status for a decade.

The norm of self-redistricting appears to extend to congressional redistricting, where the bipartisan compromise occurs among the state's congressional delegation, not between chambers of the legislature. Therefore, such a compromise may occur in either divided government situation, and among the 17 divided government states in 2001–02, a bipartisan compromise for a congressional redistricting plan was reached in 10 cases.

In seven of the eight states that used a bipartisan commission for either congressional or state legislative redistricting, a bipartisan compromise was forged. The exception was Missouri, where separate commissions for state Senate and House redistricting both failed to reach a compromise, and redistricting fell to a panel of state judges. The relative success of bipartisan commissions over divided government situations may lie in the ability of legislative leaders to compromise in private, without interference from their legislative caucuses.

Odds and Ends

Finally, there is the case of Iowa, whose process is difficult to classify. The Iowa commission draws incumbent- and partisan-blind maps, which, in 2001, resulted in 64 of 150 state legislators being placed in a district with another incumbent (Glover 2001). Four of Iowa's five congressional districts were considered to be competitive according to election handicappers, such

as the *Cook Political Report* or *Congressional Quarterly*. Despite the political upheaval, the Republican-controlled legislature adopted the plans proposed by the LSB, fearing that a veto by the Democratic governor of a plan drawn solely by the legislature would send redistricting into the courts, turning public opinion against Republicans who had short-circuited the process.

CONCLUSION

Redistricting is an intense battle for partisan gain, electoral security, and minority representation. With so much at stake, these actors behave in a purposive fashion. The redistricting institutions and political actors operating within them structure the type of congressional and state legislative plans that are eventually produced for a state. Despite the wide variety of redistricting institutions in the states, there are generally three outcomes: a partisan gerrymander, a bipartisan incumbent protection plan, or action by the courts. For those few states that an analysis of their institutions does not correctly predict their redistricting outcomes, other ad hoc strategic calculations by the players were at work. Even though the academic literature is mixed on the electoral consequences of redistricting, I have provided ample evidence that incumbents and parties work strategically within the constraints of the redistricting process to produce plans they believe to be most favorable to them, given existing conditions.

APPENDIX: DATA COLLECTION

For space considerations, throughout this article, I have asserted facts and events that unfolded in the states in the 2001–02 round of redistricting without full attribution. A full record of my data collection efforts is publicly available at <http://elections.gmu.edu/redistricting.htm>. This Web site includes citations and direct links to specific state constitutional provisions and statutes regarding redistricting. Also included are links to news stories on redistricting in each state. Although many of these links to media Web sites are still active, some are now defunct or may be viewed only through paid archives. At a minimum, they can be obtained through a particular media outlet's off-line archives. I am grateful to the community of persons, too many to name, who frequented the Web site and provided links to news stories throughout the 2001–02 redistricting cycle.

ENDNOTES

1. *Baker v. Carr* first allowed court consideration of an equal population standard. This standard was officially applied to state legislative and congressional districts in *Reynolds v. Sims*, 377 U.S. 533 (1964), and *Wesberry v. Sanders*, 376 U.S. 1 (1964), respectively.

2. Among the most severe cases of imbalance was the Connecticut House of Representatives, where in 1950, the smallest district contained 261 people while the largest contained over 177,000 (Davis 1981).

3. When Republicans gained unified control of Texas state government following the 2002 elections, they revisited redistricting in a contentious series of showdowns with Democratic legislators, ultimately resulting in a new congressional map favoring Republicans (Copelin 2003).

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APPENDIX A.3

BRENNAN

CENTER

FOR JUSTICE

TWENTY
YEARS

EXTREME MAPS

by Laura Royden and Michael Li

ABOUT THE BRENNAN CENTER FOR JUSTICE

The Brennan Center for Justice at NYU School of Law is a nonpartisan law and policy institute that seeks to improve our systems of democracy and justice. We work to hold our political institutions and laws accountable to the twin American ideals of democracy and equal justice for all. The Center's work ranges from voting rights to campaign finance reform, from ending mass incarceration to preserving Constitutional protection in the fight against terrorism. Part think tank, part advocacy group, part cutting-edge communications hub, we start with rigorous research. We craft innovative policies. And we fight for them — in Congress and the states, the courts, and in the court of public opinion.

ABOUT THE BRENNAN CENTER'S DEMOCRACY PROGRAM

The Brennan Center's Democracy Program works to repair the broken systems of American democracy. We encourage broad citizen participation by promoting voting and campaign finance reform. We work to secure fair courts and to advance a First Amendment jurisprudence that puts the rights of citizens — not special interests — at the center of our democracy. We collaborate with grassroots groups, advocacy organizations, and government officials to eliminate the obstacles to an effective democracy.

ABOUT THE BRENNAN CENTER'S PUBLICATIONS

Red cover | Research reports offer in-depth empirical findings.

Blue cover | Policy proposals offer innovative, concrete reform solutions.

White cover | White papers offer a compelling analysis of a pressing legal or policy issue.

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EXECUTIVE SUMMARY

Every decade, states redraw congressional maps after the decennial census. Redistricting allows districts to be rebalanced, ensuring in theory that all districts are both equally populated and representative. But redistricting also provides an enormous opportunity for politicians: the chance to redraw a district map means the opportunity to gerrymander and to manipulate a map to create a more favorable set of districts for themselves and for their party.

Congressional maps were last redrawn en masse after the 2010 Census, and accusations of gerrymandering in states nationwide soon followed. Complaints about redistricting abuses ran the gamut from allegations that some maps had been drawn to favor incumbents to outrage at the sprawling and unnatural shapes of districts in others.

This report focuses on one of the most egregious of these abuses: the manipulation of district lines to give the party drawing the map a share of seats grossly at odds with statewide election results, thus ensuring that one party is overrepresented and the other underrepresented in a delegation.

To gauge where this type of gerrymandering is taking place and its magnitude, this report used election results in states with six or more congressional districts to assess the extent and the durability of “partisan bias” — the degree of systematic advantage one party receives over another in turning votes into seats. For this analysis, this report used multiple quantitative measures of partisan bias to examine the 2012, 2014, and 2016 congressional elections. It also looked at the relationship between the body that drew the maps and the degree of bias observed. It is among the first analyses to use 2016 electoral data to examine maps, and the first report of its kind to measure maps using multiple measures of bias and to identify the handful of single-party controlled states that are responsible for nearly all of the bias in this decade’s maps.

Our key findings include:

This decade’s congressional maps are consistently biased in favor of Republicans.

- In the 26 states that account for 85 percent of congressional districts, Republicans derive a net benefit of at least 16-17 congressional seats in the current Congress from partisan bias. This advantage represents a significant portion of the 24 seats Democrats would need to pick up to regain control of the U.S. House of Representatives in 2018.

Just seven states account for almost all of the bias.

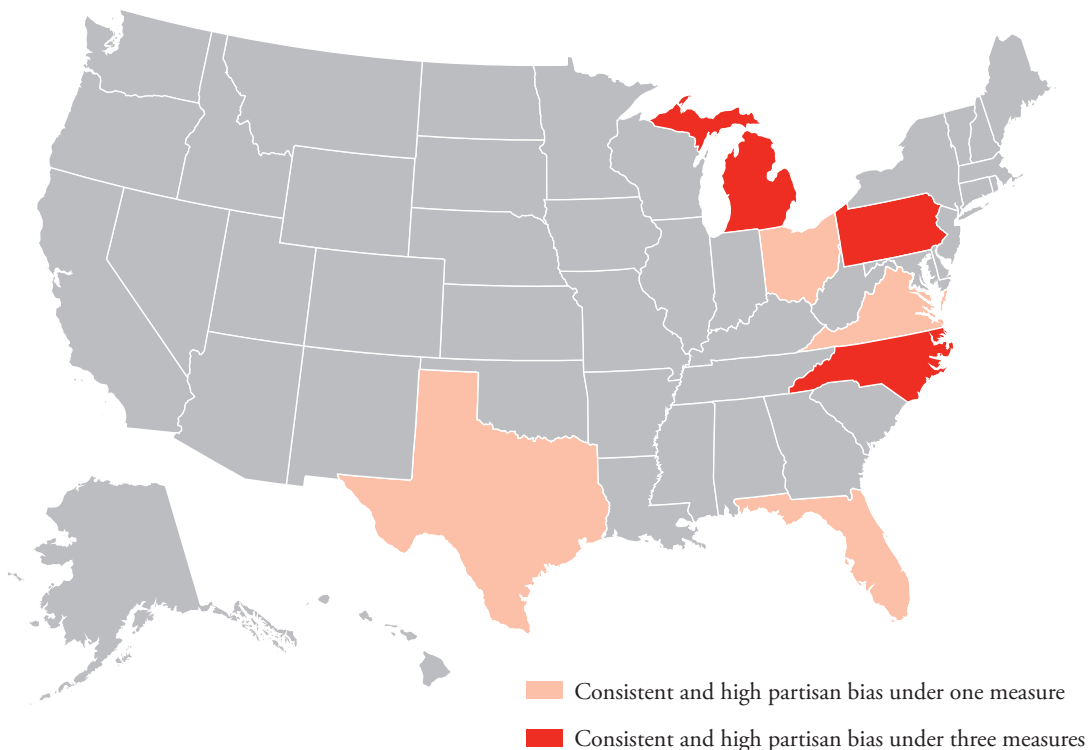
- Michigan, North Carolina, and Pennsylvania consistently have the most extreme levels of partisan bias. Collectively, the distortion in their maps has accounted for seven to ten extra Republican seats in each of the three elections since the 2011 redistricting, amounting to one-third to one-half of the total partisan bias across the states we analyzed.
- Florida, Ohio, Texas, and Virginia have less severe partisan bias but jointly account for most of the remaining net extra Republican seats in the examined states.

Single-party control of the redistricting process is closely linked with biased maps.

- The seven states with high levels of partisan bias are all states where one political party had sole control of the redistricting process. Court-ordered modifications to maps in Florida, Texas, and Virginia — all originally drawn under sole Republican control — have reduced but not entirely curbed these states' partisan bias.
- States where Democrats had sole control of redistricting have high partisan bias within state congressional delegations, but the relatively small number of districts in these states creates a much smaller effect on partisan bias in the House overall.
- By contrast, maps drawn by commissions, courts, and split-control state governments exhibited much lower levels of partisan bias, and none had high levels of bias persisting across all three of the elections since the 2011 round of redistricting.

There is strong evidence that the bias in this decade's congressional maps is not accidental. With the exception of Texas, all of the most biased maps are in battleground states. These states routinely have close statewide elections and a fairly even distribution of partisanship across most of the state — two factors that do not naturally suggest that there should be a large and durable underrepresentation of one political party.

States with Consistent and High Partisan Bias in Current Congressional Maps



INTRODUCTION

Partisan gerrymandering has long been a problematic facet of American politics.¹ When a political party gains full control of the redistricting process, it can manipulate district boundaries to create maps that systematically advantage the party in control and lock in an advantage for the party in future elections. By carefully designing maps to benefit itself, a political party can entrench an unfair majority in a state legislature or congressional delegation for the entire decade. Political parties thus have a clear incentive to gerrymander in order to gain more favorable districts and additional seats. Technology and a growing flood of money into the redistricting process are, by broad consensus, only making the situation worse.²

In the face of powerful incentives for partisan map-drawers to manipulate maps, voters often have been left without a remedy. Voters in some states have been able to use ballot initiatives to impose fairer rules or processes, but such options are available only in about half the states.³ Courts, likewise, have been reluctant to wade into the “political thicket” to police partisan gerrymandering and resolve these problems, in part because of a perceived difficulty of deciding when a map goes too far.⁴

New quantitative measures of gerrymandering may offer a path forward. By providing ways to measure the extent of manipulation, these measures offer courts powerful new diagnostic tools. One promising approach looks at measuring partisan bias, or the gains one party receives based on the district map. Under this approach, district and/or statewide vote shares are used to determine whether one party had a systematic advantage in turning its votes into seats. In other words, partisan bias looks at whether each party is winning its fair share of seats, or if one party is more easily and unfairly winning extra seats.

This report examines partisan bias in the congressional maps drawn by states with six or more districts after the 2010 Census, using congressional results from the 2012, 2014, and 2016 elections — a mix of pro-Republican and pro-Democratic cycles — to analyze maps under three of the quantitative measures that have been used by courts or social scientists to gauge partisan bias or skew.⁵ In addition to measuring the degree of bias, this report also attempts to gauge the role that this bias plays in the composition of the current Congress. Lastly, it looks at whether the existence of extreme bias correlates with other qualitative factors suggesting that the observed bias may, in substantial part, stem from legislators’ deliberate choices.

Gerrymandering to Aggressively Maximize Seat Share

The term “gerrymandering” is often used loosely to refer to a broad range of redistricting abuses — including, but not limited to, the fracturing of communities of interest, the protection of incumbents, the targeting of political foes, and/or the lack of competition in districts. This report uses the term “gerrymandering” narrowly and specifically, considering only the pernicious and increasingly common type of aggressive gerrymander in which a party draws maps to maximize and lock in a disproportionately large share of seats. This flavor of gerrymandering is growing with the aid of technology and the availability of more robust data, and is one that several Justices on the Supreme Court have signaled is most likely to give rise to constitutional problems.⁶ With this type of gerrymandering comes an increase in partisan bias — in order to maximize the seats a party receives, that party must create a structural advantage within the map to help turn votes into seats more easily.

Measuring Partisan Bias and Gerrymandering

To assess the extent of extreme partisan bias and potential gerrymandering in states' maps, we calculated asymmetry scores for maps for the 2012, 2014, and 2016 elections using three prominent quantitative tests designed to measure the type of partisan bias associated with aggressive seat maximization:

The efficiency gap looks at the number of “wasted votes” in a state’s elections. In any election, nearly 50 percent of votes are wasted: all votes cast for a losing candidate, and any votes cast for a winning candidate beyond the threshold needed to win (50 percent of the total + 1 vote). In a hypothetical map with perfect partisan symmetry, both parties would waste the same number of votes. A large difference between the parties’ wasted votes suggests gerrymandering could be at play, giving one party an advantage by disproportionately wasting the other’s votes. The efficiency gap was brought to prominence by Nicholas Stephanopoulos and Eric McGhee in *Partisan Gerrymandering and the Efficiency Gap*⁷ and was subsequently referenced in *Whitford v. Gill*, where a three-judge panel ruled that Wisconsin’s state assembly map was an unconstitutional partisan gerrymander.⁸ As of this writing, *Whitford* has been appealed to the Supreme Court.

The seats-to-votes curve compares the share of seats won by a party to historical averages based on that party’s statewide vote share. Using results from the past four decades of congressional elections, the relationship between a party’s average share of the statewide vote and its share of seats in a statewide congressional delegation can be modeled by fitting a curve to the plotted data. Statewide vote shares from recent elections can then be placed on this curve to find the “expected” seat share, and comparing the expected seat share to the actual seat share reveals the degree to which current maps deviate from historical norms. As with the efficiency gap, large discrepancies between actual seat share and expected seat share illustrate partisan bias in a plan. Seats-to-votes curves have been used for decades by prominent political scientists such as Gary King,⁹ Edward Tufte,¹⁰ and recently by Nicholas Goedert.¹¹

The mean-median district vote share difference compares a party’s mean district vote share to its median vote share. The difference between the mean and median is a common analysis long used by statisticians in many academic fields to measure skew; here, a state’s mean and median district vote shares are used to examine whether states have skewed election results that were unlikely to have arisen by chance in the absence of gerrymandering. This approach was proposed by Michael D. McDonald and Robin Best in *Unfair Partisan Gerrymanders in Politics and Law: A Diagnostic Applied to Six Cases*¹² and further quantified by Sam Wang in *Three Tests for Practical Evaluation of Partisan Gerrymandering*.¹³

We selected these three tests due to their current prominence in social science research, their ability to detect the type of aggressive seat maximization this report focuses on, and their diversity as quantitative approaches to measuring partisan bias.

After calculating the asymmetry scores, we grouped states by their respective map-drawing processes to gauge whether there was a noticeable relationship between partisan control of the redistricting process and the degree of extreme partisan bias.

We categorized a state’s map as extremely biased if the state had a large efficiency gap, one party in the state received both a considerably larger number of congressional seats than expected based on its vote share,

and that party's wins showed the type of statistically significant skew present in gerrymandered maps; all factors needed to be present and persistent across all three elections this cycle. Subsequent graphs in this report show the average partisan bias for each measure. A few states' averages are past the cutoff used for determining extreme partisan bias but are not classified as heavily biased. This is because while their average may be above the cutoff, each election's result this cycle was not; these states may exhibit high partisan bias for one election, but the bias is not persistent across the entire cycle and thus does not meet our standards for extreme bias.

Both the efficiency gap and the seats-to-votes curve analyses produce skews measured in terms of seats for each state. For these measures, we attempt to gauge the overall net effect that partisan bias has on the composition of the House. Recognizing that neither measure cleanly produces a certain number of seats across states, we present this overall net effect as a range rather than a single number. We generate this range by rounding each state's partisan bias to the nearest whole seat; we round states whose fractional biases are sufficiently far away from a whole seat — those between 0.25 and 0.75 — both up and down, yielding an overall range of extra seats. For example, if a state had an efficiency gap of 2.34 seats, we would round it down to two seats for the lower bound of the range and up to three seats for the upper bound. We then add these ranges together, first by map-drawing body and then collectively.

Consistent with prior social science research on partisan bias, all states with fewer than six congressional districts were excluded.¹⁴ This leaves 370 seats in the remaining 26 states, or 85 percent of the total seats in the House of Representatives.

More information about this report's calculations, the chosen partisan bias measures, and state categorization are contained in the methodology section. The appendix contains full tabulated results.

ANALYSIS

A. Efficiency Gap Analysis

Under the efficiency gap analysis, three states had a gap of at least two seats — the standard for presumptive unconstitutionality proposed by Stephanopoulos and McGhee¹⁵ — in every election since 2012: Michigan, North Carolina, and Pennsylvania. Republicans had sole control of the map-drawing processes in all three states, and all of the seat gaps favor Republicans.

By contrast, no states where Democrats had sole control of the redistricting process had persistent seat gaps of an equal magnitude, though maps in Massachusetts did have a two-seat bias in favor of Democrats in 2014 (a strongly pro-Republican year both in Massachusetts and nationwide).

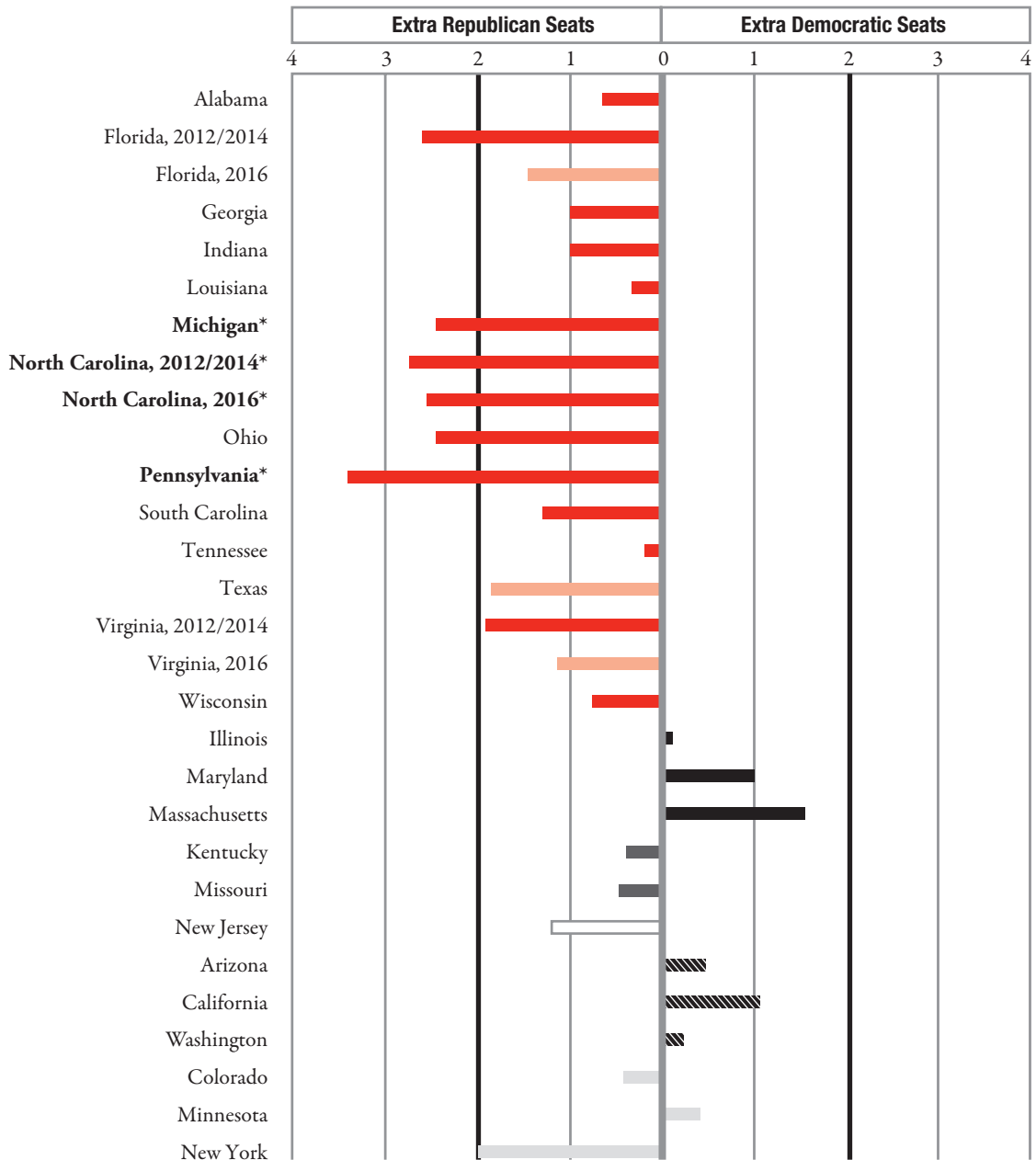
States where the parties had joint control over redistricting had gaps of well under one seat in all three years. States where commissions or courts drew redistricting maps generally also had low seat gaps; California's seat gap of 4.32 seats favoring Democrats in the pro-Republican year of 2014 is a notable exception, but its seat gaps were modest in the other two election cycles.

Maps originally drawn by Republican-controlled legislatures but later modified by courts had gaps smaller than maps drawn solely by Republicans but worse than their court-drawn counterparts. Texas, whose map was partially redrawn by a court prior to the 2012 elections, still displayed a seat gap in favor of Republicans of between two to three seats in 2012 and 2016. Both Florida and Virginia — whose maps were court-modified prior to the 2016 election — saw their gaps drop noticeably in 2016, but both still had sizeable seat gaps of more than one seat in favor of Republicans.

Stephanopoulos and McGhee measure the efficiency gap for congressional plans in terms of seats to better understand a state's effect on the overall balance of the House of Representatives; one additional Republican House seat in California has the same impact on partisan balance in the House as one additional Republican seat in Louisiana does. But congressional plans' efficiency gaps can also be measured as a percentage of the state's total seat share. Doing so reduces the bias against large states — measured as percentages, a hypothetical gap of two seats in California's fifty-three districts would be much less indicative of a badly drawn map than a gap of two seats in Louisiana's six districts, for example, despite their equal effect on the balance of power in the House as a whole.

Measuring state efficiency gaps as a percentage yields broadly similar results. North Carolina and Pennsylvania have the worst skews, with both of North Carolina's maps (the initial legislature-enacted plan and the redrawn plan in 2016) hovering around 20 percent in favor of Republicans and Pennsylvania's average just shy of that. Maryland and Massachusetts have notably high Democratic skews, with average percentages of 12 percent and 17 percent respectively, but their small number of total districts results in small seat gaps. The ten most extreme percentage skews occur in states where a single party controlled the redistricting process, underscoring the strong relationship between skewed maps and single-party control.

Average Efficiency Gap, 2012-2016



■ Sole Republican control
 ■ Sole Democratic control
 ■ Split control
 Political commission
▨ Independent commission
■ Court drawn
■ Court-modified Republican map

* States with high bias for the 2012, 2014, and 2016 elections.
 See Appendix for full results.

Efficiency Gap Analysis of 2012, 2014, and 2016 Elections*

Map-Drawing Body	2012 Efficiency Gap	2014 Efficiency Gap	2016 Efficiency Gap
Sole Republican Control	25-30 extra Republican seats	14-21 extra Republican seats	11-17 extra Republican seats
Sole Democratic Control	1-4 extra Democratic seats	3-4 extra Democratic seats	2-3 extra Democratic seats
Split Control	1-2 extra Republican seats	0-1 extra Republican seats	0-1 extra Republican seats
Political Commission	2 extra Republican seats	1 extra Republican seat	0-1 extra Republican seats
Independent Commission	1-2 extra Democratic seats	4-6 extra Democratic seats	1-2 extra Republican seats
Court Drawn	2-3 extra Republican seats	1 extra Democratic seat – 2 extra Republican seats	2-4 extra Republican seats
Court Modified	2 extra Republican seats	0-1 extra Republican seats	5-6 extra Republican seats
Net	26-37 extra Republican seats	4-19 extra Republican seats	17-29 extra Republican seats
Partisan Balance of 370 Analyzed Congressional Districts	197 Republicans 173 Democrats	205 Republicans 165 Democrats	201 Republicans 169 Democrats

* In 26 states accounting for 85 percent of congressional districts.

The Brennan Center’s efficiency gap analysis finds a large skew in favor of Republicans, accounting for 26-37 extra seats in 2012, 4-19 extra seats in 2014, and 17-29 extra seats in 2016, out of the 370 seats analyzed. Democrats needed 17 more seats in 2012 and 24 more seats in 2016 to gain a majority, both of which fall within the range of seats won by Republicans in those years due to partisan bias.

Some of this bias is likely the result of political geography and other pertinent structural factors — which the efficiency gap cannot differentiate from intentional gerrymandering — but the existence of large levels of bias in states where Republicans had sole control of the redistricting processes strongly suggests that a sizeable portion of the pro-Republican bias likely stems from deliberate manipulation of maps.

B. Seats-to-Votes Curve Analysis

Comparing states' actual seat counts to the expected seat counts from the seats-to-votes curve, there are again three states with a persistent skew of at least two seats across all three elections: Michigan, North Carolina, and Pennsylvania, all favoring Republicans.¹⁶

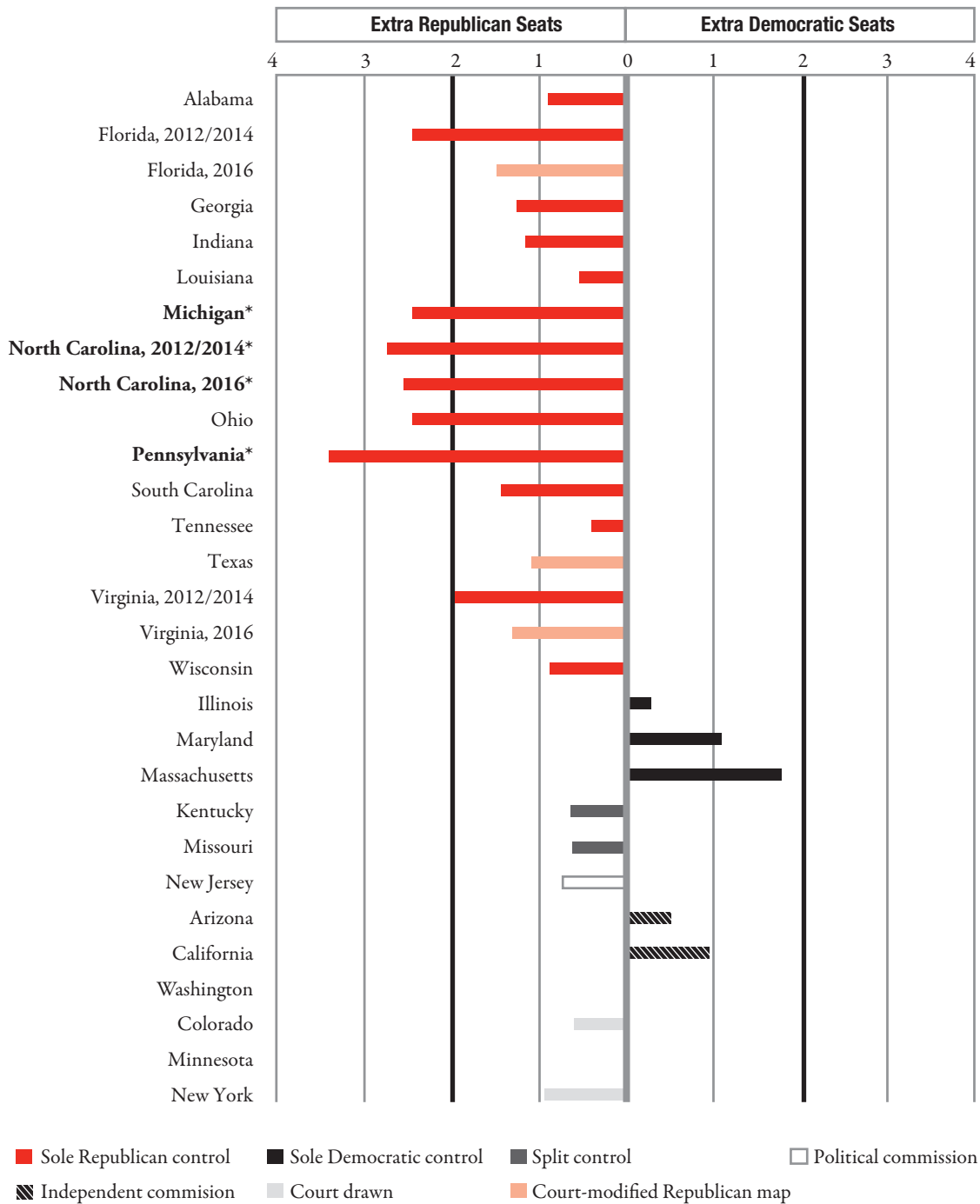
Partisan bias in maps in states where Republicans had sole control of the redistricting process netted them between 13 and 19 extra seats in the 2016 election. Michigan, North Carolina, and Pennsylvania were collectively responsible for around half of these extra seats. Pennsylvania's map was the worst offender, producing a skew of more than four seats in 2012, more than three seats in 2014, and more than three seats in 2016. North Carolina's maps — the original map passed by the legislature in 2011, followed by a remedial map adopted in 2016 after the original map was struck down by the United States District Court for the Middle District of North Carolina as a racial gerrymander — similarly had a skew just shy of three seats in each year studied, and Michigan's skew landed between two and three seats in each election.

As with the efficiency gap, states where Democrats had sole control of the redistricting process had much lower seat skews, with the largest skews coming from Massachusetts with skews of around two seats favoring Democrats.

States where the parties shared control of redistricting had nominal seat skews — Missouri's skew just above one seat in favor of Republicans in 2012 was the only skew that was greater than one. Commission-drawn and court-drawn maps also had small skews. As with the efficiency gap analysis, California was an exception in 2014 with a nearly four-seat Democratic skew, but it had a Democratic-leaning skew of less than one seat in 2012 and a Republican-leaning skew of one seat in 2016. Among court-modified maps, Texas had a pro-Republican skew of two seats in 2016, while Florida and Virginia continued to have skews of more than one seat under their modified maps for 2016.

The seats-to-votes analysis, like the efficiency gap, can also be measured as a percentage skew instead of a seat skew, and doing so again produces roughly the same outcome. North Carolina and Pennsylvania still have the most extreme skews, with average Republican-leaning skews greater than 20 percent. Massachusetts and Maryland have notably high Democratic skews, with respective averages near 20 percent and 14 percent, both of which result in modest seat skews due to the comparatively small number of districts in both states. The correlation between single-party controlled redistricting and skewed maps remains strong: the eleven most skewed states all had map-drawing processes controlled solely by one party.

Average Seat Skew, 2012-2016



* States with high bias for the 2012, 2014, and 2016 elections.
See Appendix for full results.

Seats-to-Votes Curve Analysis of 2012, 2014, and 2016 Elections*

Map-Drawing Body	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Sole Republican Control	25-32 extra Republican seats	13-20 extra Republican seats	13-19 extra Republican seats
Sole Democratic Control	2-4 extra Democratic seats	3-4 extra Democratic seats	2-3 extra Democratic seats
Split Control	2 extra Republican seats	0-2 extra Republican seats	0-2 extra Republican seats
Political Commission	1-2 extra Republican seats	0-1 extra Republican seat	Even balance of seats
Independent Commission	1-2 extra Democratic seats	3-5 extra Democratic seats	1 extra Republican seat
Court Drawn	2 extra Republican seats	0-2 extra Republican seats	1-3 extra Republican seats
Court Modified	1 extra Republican seat	0-1 extra Republican seats	4-6 extra Republican seats
Net	25-36 extra Republican seats	4-20 extra Republican seats	16-29 extra Republican seats
Partisan Balance of 370 Analyzed Congressional Districts	197 Republicans 173 Democrats	205 Republicans 165 Democrats	201 Republicans 169 Democrats

* In 26 states accounting for 85 percent of congressional districts.

Similar to the efficiency gap, the seats-to-votes analysis reveals a national skew in favor of Republicans. This analysis finds partisan bias accounts for 25-36 extra Republican seats in 2012, 4-20 extra Republican seats in 2014, and 16-29 extra Republican seats in 2016, out of the 370 seats analyzed. The number of additional seats Democrats would have needed to win to flip the House in 2012 and 2016 — 17 and 24, respectively — is within this range of partisan skew for both years.

Although the seats-to-votes curve better accounts for the historical impact of political geography than the efficiency gap, the analysis still cannot easily separate the effects of political geography or other similar factors from intentional gerrymandering. But as with the efficiency gap, the strong seat skew stemming from states with Republican-controlled redistricting processes suggests gerrymandering is a strong contributor to the current Republican majority in the House.

C. Mean-Median Difference Analysis

Unlike the prior two tests, the mean-median difference does not produce a skew in terms of seats but instead looks at how closely a state's district results resemble typical gerrymandering. By definition, seat-maximizing gerrymanders attempt to skew election results in favor of one party. Mathematically, this means gerrymanders aim to make the favored party's median vote share significantly higher (and thus more favorable) than its mean, in order to give the favored party more seats. Gerrymandering cannot change the mean vote share — the statewide mean will be the same regardless of how the districts are divided — but a few extremely skewed districts that have been packed and cracked could shift the median considerably. By comparison, states that have not been gerrymandered should have roughly even mean and median district vote shares. The difference between a state's mean district vote share and its median district vote share can thus be used to determine how likely it is that a state's map has been gerrymandered.

This analysis examines a state's results and calculates a significance level to gauge whether the difference between the mean and the median falls into the “zone of chance” — meaning the difference between the two can reasonably be expected to have resulted by chance under a non-gerrymandered map — or whether the difference is outside of this zone. If the difference falls outside, it is considered to be statistically significant, meaning there is less than a five percent chance — a standard cutoff for similar statistical analyses¹⁷ — the state's results could have resulted by chance in the absence of gerrymandering. This extreme result suggests partisan intent was most likely present in the map-drawing process and districts have been gerrymandered.

The mean-median district vote share difference test highlights similar patterns as the two prior tests among the analyzed states.

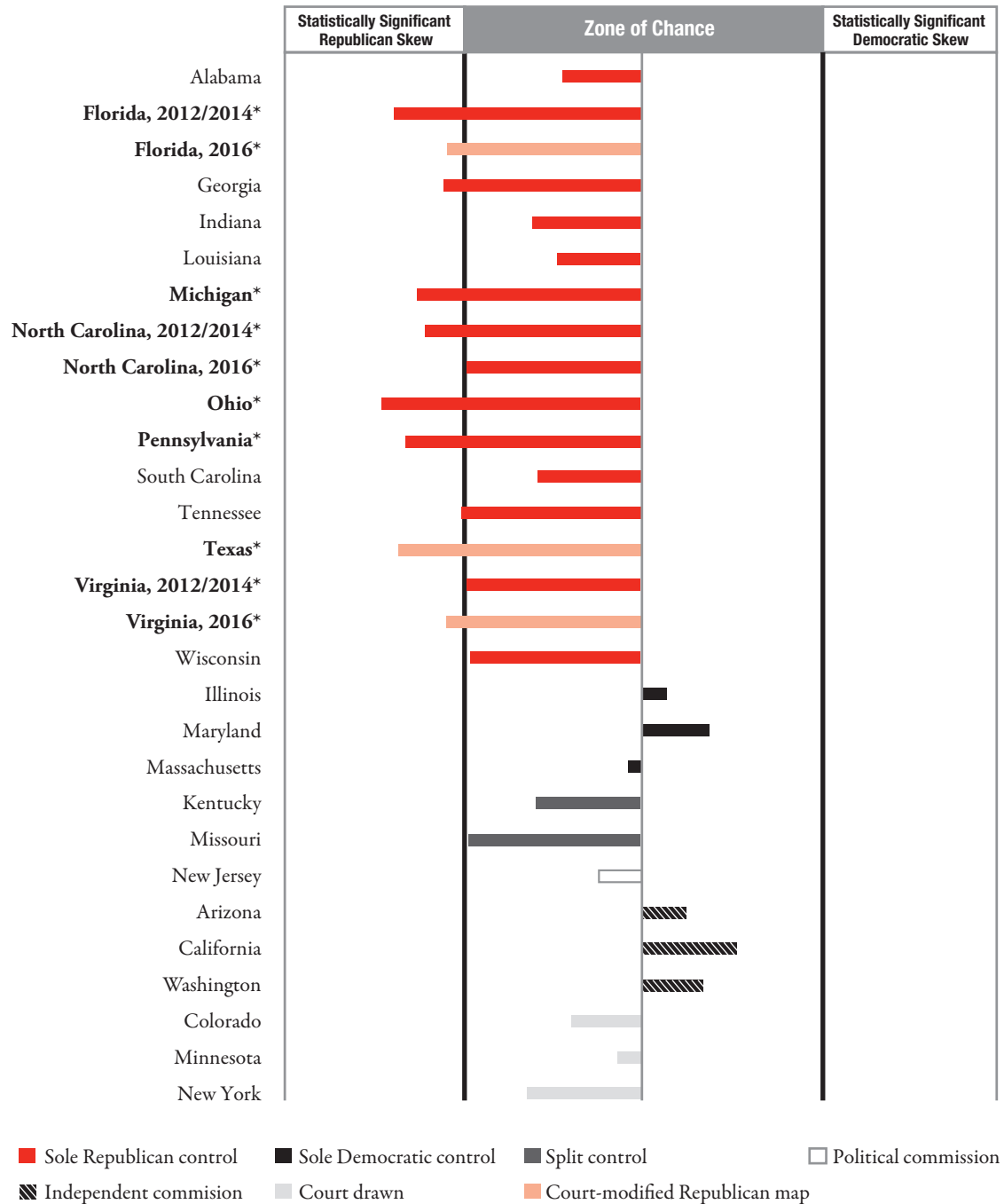
Six states where Republicans had sole control of redistricting have statistically significant skews in all three elections: Florida, Michigan, North Carolina, Ohio, Pennsylvania, and Virginia. Three more states — Georgia, Tennessee, and Wisconsin — show statistically significant skews in at least one election.

No Democratic-controlled states, commission-drawn states, or court-drawn states have statistically significant skews in any election. One split-control state, Missouri, has a statistically significant skew in 2016 only.

All states with court-modified maps (Texas in all three elections, and Florida and Virginia in 2016) show statistically significant skews. Florida and Virginia's results do not show a substantial change across the three elections, suggesting that court-modified plans have not sufficiently corrected the partisan imbalance in the original maps.

All states with statistically significant partisan skews favor Republicans. The Republican median district vote share is higher than the mean Republican vote share in each of these states, giving them a structural advantage in turning votes into seats.

Average Significance Level, 2012-2016



* States with statistically significant results for the 2012, 2014, and 2016 elections. See Appendix for full results.

CONCLUSION

Partisan bias is distorting the composition of the U.S. House, and a handful of states are principally responsible for driving it. The result in this decade's maps has been a persistent and consequential seat advantage in favor of Republicans that will likely endure for the remainder of the decade.

To be sure, not all of this partisan bias stems from gerrymandering. Other neutral factors could be contributing to at least some of the measured partisan bias, but we find little evidence supporting the notion that the most commonly discussed neutral factors, such as the creation of minority districts or clustering, are driving the extreme partisan bias in this decade's seven worst states. By contrast, there is notable evidence in those states that points strongly at gerrymandering as a major contributor.

Minority Districts. Pro-Republican bias is sometimes attributed to minority districts concentrating Democratic voters and thus leaving the surrounding districts more conservative. But this thesis does not seem to be borne out in the congressional maps of the 2010 cycle — and in fact, the maps drawn this decade provide important counter-evidence. States like Virginia, for example, which saw the court-ordered creation of an additional minority opportunity district, actually saw a decrease rather than an increase in partisan bias. Similarly, the creation of additional Latino or minority coalition opportunity districts in Texas — as urged by plaintiffs in litigation there — could likely significantly reduce or even virtually eliminate partisan bias in the current Texas congressional map. In the other states with high levels of partisan bias, minority districts do not plausibly seem to be responsible for increased partisan bias in other high bias states, since none of those states saw an increase in minority districts this cycle.

Clustering. Political geography and an increase in “clustering” of voters are similarly often posited as causes of a pro-Republican bias — the argument being that Democrats live in cities surrounded by other Democrats, whereas Republicans spread out more evenly and in lower concentrations throughout more rural areas. This type of residential sorting almost certainly does contribute to partisan bias at times. New York, for example, has a slight pro-Republican bias at least partially stemming from the relatively large number of overwhelmingly Democratic districts in New York City, and, in the case of New York at least, it is nearly impossible to imagine a reasonable alternative map that could completely curb this effect.

However, this thesis also does not seem to be a plausible explanation for the bias in the seven worst states of this decade, since none are as starkly clustered. To the contrary, the worst states — and in particular, the three worst — tend to have fairly even statewide distributions of partisans. This suggests that such deeply biased maps are unlikely to result from neutral line-drawing in these states, and also points to a tempting opportunity for one party to gerrymander to gain a disproportionate seat share in such a state. If a party can carefully divide these partisans into districts, it can engineer a large number of districts that it will narrowly win. With the aid of computer technology, these districts can be drawn carefully enough to ensure that they stick. This is the heart of aggressive, seat-maximizing gerrymandering, and looks likely to be occurring in this decade's extremely biased states. It is, in short, almost certainly no coincidence that the worst degrees of partisan bias are observed (with the exception of Texas) in closely contested and hard fought battleground states.

Single-Party Control. Although there is little evidence supporting the role of minority districts and clustering in driving partisan bias, there is a notable correlation with single-party control of the redistricting process. Indeed, all of the states we found to have extreme partisan bias had maps drawn solely by one party.

The correlation is clear enough that it suggests that single-party control is virtually a necessity for extreme partisan bias. There are undoubtedly instances where a party with the power to block an unfavorable map cuts a bad deal and gives away its leverage: the decision of the Democratic-controlled Virginia Senate in 2011 to give the Republican-controlled Virginia House of Delegates free rein to redraw the state house map in exchange for Democratic free rein to redraw the state senate map and the subsequent Republican takeover of the Virginia Senate is a recent example. But these are few and far between — in general, creating high levels of partisan bias requires single-party control, as our analysis in this report confirms.

In the end, this report shows that there is both reason for worry and for optimism.

On the troubling side, there is clear evidence that aggressive gerrymandering is distorting the nation's congressional maps, resulting in both large and remarkably durable levels of partisan bias. The rise of extreme gerrymandering, enabled by more accurate political data and better map-drawing software, seems poised to continue if left unchecked, allowing parties to manipulate maps to lock in a guaranteed artificial advantage for themselves. The threat to democracy is both real and alarming.

But on the bright side, robust and relatively easy-to-apply quantitative tools now exist to help citizens and courts gauge when maps have likely been distorted — and to better understand how and why this distortion is occurring. Further research will undoubtedly build on and improve these methods. Along with this increased knowledge and awareness, perhaps an opportunity to police and prevent redistricting abuses will come as well.

METHODOLOGY

A. Data Sources and General Notes on Calculations

We used district-level election results compiled publicly by Dave Wasserman at Cook Political Report in his National House Popular Vote Trackers.¹⁸ All calculations were done using two-party vote shares and excluding third-party results.

For districts without both a Democrat and Republican running in the general election, we estimated the vote share both parties would have received in a contested two-party election based on the prior election's House results, the most recent district-level Presidential results using totals calculated and compiled by Daily Kos Elections for both 2012 and 2016,¹⁹ a district's Cook Partisan Voter Index, and the winning candidate's incumbency status.

B. State Categorization

Each state was placed in one of the following categories based on its map-drawing process:

1. States whose maps were drawn under **Republican control**, typically where the governor and legislature control the redistricting process and are all Republican-held. States with Democratic governors are also included if the Republican-controlled legislature had a veto-proof majority, as are states with a Republican-controlled legislature where the governor did not have veto power. These states are Alabama, Florida (2012, 2014), Georgia, Indiana, Louisiana, Michigan, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia (2012, 2014), and Wisconsin.
2. States whose maps were drawn under **Democratic control**, where the governor and state legislature control the redistricting process and are all Democrat-held. These states are Illinois, Maryland, and Massachusetts.
3. States whose maps were drawn under **split control**, where the governor and legislatures were not all held by the same party. These states are Kentucky and Missouri.
4. States whose maps were drawn by an **independent commission**. These states are Arizona, California, and Washington.
5. States whose maps were drawn by a **political commission**. These commissions are separated from independent commissions because of the stronger partisan ties and roles of their members. The only state in this category is New Jersey.
6. States whose maps were **court-imposed**, which typically results from a legislative deadlock. This category includes states whose maps were chosen by a court or drawn by a court (or a court-appointed panel or special masters). These states are Colorado, Minnesota, and New York.
7. States whose maps were **court-modified**, which typically results from a court decision overturning or changing part of a map but leaving the bulk of the map intact. These states are Florida (2016), Texas, and Virginia (2016).

C. Efficiency Gap

Background

The efficiency gap, developed by University of Chicago law professor Nick Stephanopoulos and Public Policy Institute of California research fellow Eric McGhee, looks at the number of “wasted votes” in a state’s elections. In any election, nearly 50 percent of votes are wasted: all votes cast for a losing candidate, and any votes cast for a winning candidate beyond the threshold needed to win (50 percent of the total + 1 vote). In a hypothetical map with perfect partisan symmetry, Stephanopoulos and McGhee propose that both parties would waste the same number of votes. On the other hand, a large difference between the parties’ wasted votes suggests a partisan gerrymander could be present, giving one party an advantage by disproportionately wasting the other’s votes.

When one party draws a gerrymander, it does so to win the most number of seats. A gerrymandering party seeks to disproportionately waste the opposing party’s votes and ensure more of its own votes go toward electing winning candidates, giving it a structural advantage in turning votes into seats and maximizing the number of seats it wins without necessarily winning more votes. This is typically done by *packing* and *cracking* the opposing party’s voters. Some of the opposing party’s voters are packed into a few highly concentrated districts and the remaining ones are cracked among other districts with just too few in each district to realistically win. This maximizes the number of wasted votes in both types of districts: the opposing party’s winning districts are oversaturated, wasting a considerable number of votes above 50 percent, and the losing districts have as many wasted losing votes as possible without making the district competitive.

Stephanopoulos and McGhee propose that measuring these wasted votes can quantitatively demonstrate the structural advantage given to one party. The efficiency gap, which can be calculated either in terms of seats or in percentage of votes, assumes a completely neutral or fair plan would have a gap of zero. But in reality all plans will have at least a slight gap. Stephanopoulos and McGhee propose two standards for determining when a plan is biased enough to be presumptively unconstitutional: a seat gap of more than two seats for congressional maps, and a percent gap of more than 8 percent for state legislative maps.

Methodology

We calculated the efficiency gap from the two-party vote total of every state with six districts or more. All votes for the losing candidate were considered wasted, as were all votes for the winning candidate over 50 percent + 1 of the two-party vote total. In order to prevent high turnout districts from skewing state results, we first normalized district results by calculating the efficiency gap in terms of a percent for each district — subtracting the number of wasted Republican votes from the number of wasted Democratic votes and dividing by the two-party vote total in the district — and then averaged those percentages to find each state’s overall percentage gap. This calculated percentage gap was then multiplied by the number of districts in the state to find the seat gap.

Discussion & Caveats

The efficiency gap is appealing as a gerrymandering standard because of its simplicity: it is both easy to calculate (requiring only raw vote totals) and easy to understand (producing a disparity in terms of seats). People without strong backgrounds in statistics or redistricting can easily understand the measure, making it a compelling standard.

But with this simplicity comes possible drawbacks. The efficiency gap rests on the assumption that for every 1 percent increase in vote share, a party should increase its seat share by 2 percent. For close states (where the winning party receives around 50 percent - 60 percent of the vote) this 1:2 ratio has historically been close to actual results for most maps, but much less accurate when the winning party receives more than 60 percent of the vote. This makes the efficiency gap arguably a fairly accurate measure for closely contested states but often much less of one for states dominated by one political party, though some suggest this may not be the case based on historical data.

The efficiency gap will show particularly odd results if one party wins more than 75 percent of the total vote. Receiving more than 75 percent of the vote means that more of the dominant party's votes are wasted than the minority party's — simply because the minority party has so few votes that can even be wasted — and the efficiency gap will show that the map is disadvantaging the dominant party. While mathematically correct, this of course does not mean that such a map is disadvantaging the dominant party and this quirk should be taken into consideration. Such lopsided election results are rare on the state level however, typically occurring only in small, uncompetitive states such as Vermont or Wyoming.

As with other measures that take into account seats won, the efficiency gap can also be quite sensitive over time, fluctuating wildly between elections under the same map. States with even a few close districts can see significant swings — sometimes up to multiple seats in the seat gap results — in subsequent elections whose raw vote totals are only slightly different if even one district flips parties, and this volatility can make the efficiency gap problematic to use long-term over a series of years or decades. The instability is more pronounced in smaller states, where a single election can produce a large percentage shift in the state's efficiency gap. Sensitivity testing can be used to assess how plans would perform under different electoral circumstances. For this report, we attempt to limit this instability by using the seat gap instead of percentage gap, which takes into consideration the number of districts in a state, and by eliminating states with fewer than six districts.

D. Seats-to-Votes Curve

Background

Partisan gerrymandering gives one party an unfair advantage in turning their votes into seats. But determining when an unfair advantage exists requires understanding what a fair translation of votes into seats looks like. Proportional representation would suggest a 1:1 ratio, but in reality not even the fairest maps have such a flat ratio. Applying a seats-to-votes curve analysis based on past election results allows us to generate this baseline.

Aptly named, a seats-to-votes curve plots party's average statewide vote share against that party's share of seats won in the state's congressional delegation. Plotting these results from many elections creates a large data set that can be used to find a reliable, well-fitting curve. Statewide vote shares from recent elections can then be placed on the curve to find the "expected" seat share. Comparing the expected seat shares to the actual seat shares reveals the degree to which current maps deviate from historical norms.

Methodology

To generate the seats-to-votes curve, we used U.S. House election results from 1972-2010 for states with more than six districts. We plotted each state's mean Democratic vote share against the share of seats won by Democratic candidates in the same year, and fit a logistic-based curve to the data. A logistic-based curve was chosen to fit the data set's natural S-shaped curve. We then compared the actual Democratic seat shares in election results from 2012, 2014, and 2016 to the Democratic seat shares predicted by the seats-to-votes curve based on the statewide Democratic vote share. As with the efficiency gap, large differences between the expected and actual seat shares suggest one party was substantially more successful in turning its votes into seats than expected from historical results, with partisan gerrymandering being the likely explanation.

Discussion & Caveats

A seats-to-votes curve analysis has the benefit of being based on actual election results. Current results are compared to actual historical results, instead of suppositions about what "fair" districting would look like or what a "fair" seats to votes ratio would be. Using past election returns as a baseline incorporates geographic clustering, party waves, and other electoral factors into the model, providing a more accurate depiction of when recent results are unexpected or abnormal.

The flip side, of course, is that some of the election results used as data points to build the curve are themselves impermissible (and sometimes later overturned) gerrymanders. Their inclusion could normalize gerrymandered results in the analysis, but the sheer number of data points included in this analysis (433 statewide election results, most of which are not extreme gerrymanders) should prevent the gerrymanders from having a material influence on the curve.

The seats-to-votes curve is more accurate for states dominated by one party than the efficiency gap is, and expected seat ratios align much more closely in those extreme cases with historical election results than with the efficiency gap. Even still, the seats-to-votes analysis suffers from the same instability as the efficiency gap, particularly in small states. Fewer districts means less granularity in the results for seat share: New Hampshire's two districts can only yield a seat share of 0 percent, 50 percent, or 100

percent, regardless of the vote share, whereas California's 53 districts create possibilities for seat share increases in increments of less than 2 percent. This effect from fewer districts often results in extreme percentage differences in small states, even if the seat share is the fairest possible realistic result. As with the efficiency gap, excluding small states and using the seat skew curbs this problem.

E. Mean-Median District Vote Share Difference

Background

In his *Stanford Law Review* article *Three Tests for Practical Evaluation of Partisan Gerrymandering*, Princeton University professor Sam Wang proposes comparing a party's mean and median vote share across districts to detect partisan asymmetry and presumptive gerrymanders.

Comparing a data set's mean and median is a common statistical analysis used to assess how skewed a set is and detect asymmetries. If the set is balanced or fair, the distribution of values should be fairly symmetric and its mean (the average of the values) should be very close to its median (the midpoint of the data set when sorted). But as a data set becomes more skewed and extreme values are added only on one side, the mean and median begin to diverge, as the mean will shift significantly more towards the skewed tail than the median will. Looking at the difference between the two can determine the extent to which a data set is skewed.

By definition, partisan gerrymanders attempt to skew election results in favor of one party. Mathematically, this means gerrymanders aim to make the favored party's median vote share significantly higher (and thus more favorable) than its mean, to give the favored party more seats. Gerrymandering tactics like cracking (spreading opponents across districts to dilute their power) and packing (heavily concentrating opponents in a few districts) lead to the favored party winning several closer districts (with 50-60 percent of the vote) and the opposing party winning only a few extreme districts (with 70-80 percent of the vote). This gerrymandering cannot change the mean vote share — the statewide mean will be the same regardless of how the districts are divided — but the extremely skewed districts could shift the median considerably.

The mean vote share provides a better view of the ideal two-party seat share, whereas the median vote share better demonstrates how seats are actually allocated under a map. An ideal map with perfect proportional representation would have a mean-median difference of close to zero, and a more extreme map would have a larger one. For instance, if one party has a mean statewide vote share of 40 percent but a median vote share of 60 percent, they will have won over half of the districts with much less than half of the vote, and the mean-median difference of 20 percent indicates that the extreme skew is likely resulting from gerrymandering.

Wang's test goes one step further and looks at the statistical significance of the difference, in order to determine whether such a difference was likely to arise by chance. His formula takes the standard deviation of the vote shares and the number of districts into account. Standard deviation measures the overall spread/variation in the vote share — a higher standard deviation means the values are more spread out, and a lower one means the values are closer together. Here, a lower standard deviation increases the likelihood of a statistically significant difference, as it indicates the vote shares in districts are clumped closer together (as one would expect to see in a gerrymandered state) instead of ranging

wildly as a random distribution might produce. As a result, some states' results may actually become less statistically significant even when the mean-median difference increases, as long as the standard deviation increases as well. Similarly, a higher number of districts also increases the likelihood of a statistically significant result, as one would expect to see more extreme variation in states with smaller districts that could be heavily affected by a single election.

Methodology

We calculated the mean Democratic vote share and the median Democratic vote share for every state with more than six districts, and then subtracted the mean from the median. To determine statistical significance, we use the standard Wang proposes to calculate a significance level:

$$\text{Significance level} = \frac{[\text{mean-median difference}] \times \sqrt{\text{number of districts}}}{0.756 \times [\text{standard deviation}]}$$

The result is significant when the significance level is ≥ 1.75 .

Discussion & Caveats

The mean-median difference helps to reveal intent quantitatively, something that is often discussed as a key part of gerrymandering but can be hard to prove. Both the efficiency gap and the seats-to-votes analysis calculate the effects of gerrymandering, estimating how many seats were won unfairly. The mean-median difference, on the other hand, pinpoints plans that were unlikely to have arisen from fair maps and were likely to have been crafted with partisan intent. It also has the benefit of being a fairly stable standard for small states, as the standards for statistical significance change with the number of districts to prevent instability in a few districts in small states from skewing results.

The mean-median difference is most reliable for states with close two-party vote shares, and becomes much less valuable for states where one party dominates. In his article, Wang proposes using a slightly different statistical analysis, the chi-square test, for states where a single party is dominant. For consistency and to best identify the specific type of aggressive seat maximization described earlier, we employ the mean-median difference for all states in this report.

The mean-median difference test also does not say how many more seats the gerrymandering party won (i.e., a mean-median difference of 10 percent does not mean that the favored party won 10 percent more seats). It simply looks for the difference and the statistical significance of the difference, which suggests whether the difference was likely to arise from chance or whether the district results suggest deliberate gerrymandering to provide one party with substantially more — but still reliably won — seats.

APPENDIX: FULL RESULTS

A. Efficiency Gap

Efficiency gap results displayed below include both the magnitude of the seat gap and the party advantaged by the gap. Values above the threshold of two seats that we use for presumptive unconstitutionality are displayed in bold.

Sole Republican control: 11-13 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Alabama	7	R: 0.97	R: 0.41	R: 0.70
Florida	27	R: 3.46	R: 1.78	Court-modified
Georgia	14	R: 0.81	R: 0.87	R: 1.38
Indiana	9	R: 1.77	R: 0.63	R: 0.67
Louisiana	6	R: 0.61	R: 0.32	R: 0.03
Michigan	14	R: 2.84	R: 2.48	R: 2.09
North Carolina	13	R: 2.77	R: 2.74	R: 2.56
Ohio	16	R: 3.93	R: 1.77	R: 1.60
Pennsylvania	18	R: 4.17	R: 2.87	R: 3.25
South Carolina	7	R: 1.55	R: 1.19	R: 1.20
Tennessee	9	R: 0.51	R: 0.16	D: 0.02
Virginia	11	R: 2.34	R: 1.52	Court-modified
Wisconsin	8	R: 1.17	R: 0.62	R: 0.50
Total	159	25-30 extra Republican seats	14-21 extra Republican seats	11-17 extra Republican seats

Sole Democratic control: 3 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Illinois	18	D: 0.56	R: 0.18	R: 0.04
Maryland	8	D: 0.54	D: 1.57	D: 0.86
Massachusetts	9	D: 1.35	D: 2.04	D: 1.20
Total	35	1-4 extra Democratic seats	3-4 extra Democratic seats	2 extra Democratic seats

Split control: 2 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Kentucky	6	R: 0.69	R: 0.32	R: 0.11
Missouri	8	R: 0.89	R: 0.19	R: 0.38
Total	14	1-2 extra Republican seats	0-1 extra Republican seats	0-1 extra Republican seats

Political commission: 1 state

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
New Jersey	12	R: 1.92	R: 1.09	R: 0.64
Total	12	2 extra Republican seats	1 extra Republican seat	0-1 extra Republican seats

Independent commission: 3 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Arizona	9	D: 1.10	D: 0.38	R: 0.11
California	53	D: 0.17	D: 4.32	R: 1.35
Washington	10	D: 0.29	D: 0.38	D: 0.03
Total	72	1-2 extra Democratic seats	4-6 extra Democratic seats	1-2 extra Republican seats

Court drawn: 3 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Colorado	7	R: 0.59	R: 0.22	R: 0.38
Minnesota	8	R: 0.07	D: 0.63	D: 0.64
New York	27	R: 1.78	R: 1.38	R: 2.86
Total	42	2-3 extra Republican seats	1 extra Democratic seat – 2 extra Republican seats	2-4 extra Republican seats

Court modified: 1-3 states

State	CDs	Efficiency Gap in Seats, 2012	Efficiency Gap in Seats, 2014	Efficiency Gap in Seats, 2016
Florida	27	Map was Republican-drawn until 2016		R: 1.45
Texas	36	R: 1.95	R: 0.50	R: 3.18
Virginia	11	Map was Republican-drawn until 2016		R: 1.13
Total	74	2 extra Republican seats	0-1 extra Republican seat	5-6 extra Republican seats

B. Seats-to-Votes Curve

Seats-to-votes curve results displayed below include both the magnitude of the seat skew and the party advantaged by the skew. Values above the threshold of two seats that we use for presumptive unconstitutionality are displayed in bold.

Sole Republican control: 11-13 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Alabama	7	R: 1.18	R: 0.67	R: 0.86
Florida	27	R: 3.61	R: 1.27	Court modified
Georgia	14	R: 1.17	R: 1.03	R: 1.56
Indiana	9	R: 1.88	R: 0.72	R: 0.83
Louisiana	6	R: 0.73	R: 0.54	R: 0.31
Michigan	14	R: 2.99	R: 2.47	R: 2.06
North Carolina	13	R: 2.95	R: 2.81	R: 2.83
Ohio	16	R: 4.01	R: 1.70	R: 1.67
Pennsylvania	18	R: 4.56	R: 3.04	R: 3.58
South Carolina	7	R: 1.68	R: 1.32	R: 1.27
Tennessee	9	R: 0.74	R: 0.25	R: 0.19
Virginia	11	R: 2.46	R: 1.62	Court modified
Wisconsin	8	R: 1.25	R: 0.67	R: 0.69
Total	159	25-32 extra Republican seats	13-20 extra Republican seats	13-19 extra Republican seats

Sole Democratic control: 3 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Illinois	18	D: 0.79	D: 0.20	R: 0.13
Maryland	8	D: 0.69	D: 1.61	D: 0.97
Massachusetts	9	D: 1.67	D: 2.14	D: 1.57
Total	35	2-4 extra Democratic seats	3-4 extra Democratic seats	2-3 extra Democratic seats

Split control: 2 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Kentucky	6	R: 0.92	R: 0.57	R: 0.40
Missouri	8	R: 1.06	R: 0.29	R: 0.49
Total	14	2 extra Republican seats	0-2 extra Republican seats	0-2 extra Republican seats

Political commission: 1 state

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
New Jersey	12	R: 1.53	R: 0.44	R: 0.19
Total	12	1-2 extra Republican seats	0-1 extra Republican seats	Even balance of seats

Independent commission: 3 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Arizona	9	D: 1.12	D: 0.34	D: 0.09
California	53	D: 0.26	D: 3.62	R: 1.04
Washington	10	R: 0.04	D: 0.17	R: 0.08
Total	72	1-2 extra Democratic seats	3-5 extra Democratic seats	1 extra Republican seat

Court drawn: 3 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Colorado	7	R: 0.82	R: 0.38	R: 0.54
Minnesota	8	R: 1.12	D: 0.57	D: 0.58
New York	27	R: 0.14	R: 0.83	R: 1.81
Total	42	2 extra Republican seats	0-2 extra Republican seats	1-3 extra Republican seat

Court modified: 1-3 states

State	CDs	Seat Skew, 2012	Seat Skew, 2014	Seat Skew, 2016
Florida	27	Republican-drawn		R: 1.47
Texas	36	R: 0.91	R: 0.26	R: 2.06
Virginia	11	Republican-drawn		R: 1.30
Total	74	1 extra Republican seat	0-1 extra Republican seats	4-6 extra Republican seats

C. Mean-Median Share Difference

Mean-median difference results displayed below include both the magnitude of the significance level and the party advantaged by it. Values above the threshold of 1.75 that we use for statistical significance are displayed in bold.

Sole Republican control: 11-13 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Alabama	7	R: 0.69	R: 0.68	R: 0.94
Florida	27	R: 1.86	R: 2.98	Became court-modified in 2016
Georgia	14	R: 2.38	R: 2.04	R: 1.38
Indiana	9	R: 0.46	R: 1.48	R: 1.26
Louisiana	6	R: 0.79	R: 0.65	R: 1.01
Michigan	14	R: 1.87	R: 2.38	R: 2.32
North Carolina	13	R: 2.47	R: 1.77	R: 1.75
Ohio	16	R: 2.59	R: 2.47	R: 2.60
Pennsylvania	18	R: 2.41	R: 2.08	R: 2.49
South Carolina	7	R: 1.57	R: 1.04	R: 0.50
Tennessee	9	R: 1.76	R: 1.86	R: 1.73
Virginia	11	R: 2.05	R: 1.85	Became court-modified in 2016
Wisconsin	8	R: 1.68	R: 1.58	R: 1.82

Sole Democratic control: 3 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Illinois	18	R: 0.66	D: 0.34	D: 1.04
Maryland	8	D: 0.78	D: 0.84	D: 0.44
Massachusetts	9	R: 0.63	R: 0.32	D: 0.46

Split control: 2 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Kentucky	6	R: 0.97	R: 0.95	R: 1.27
Missouri	8	R: 1.48	R: 1.62	R: 2.00

Political commission: 1 state

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
New Jersey	12	R: 0.76	R: 0.59	D: 0.07

Independent commission: 3 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Arizona	9	D: 1.06	D: 1.35	R: 1.15
California	53	D: 0.45	D: 0.79	D: 1.51
Washington	10	D: 0.73	D: 0.46	D: 0.59

Court drawn: 3 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Colorado	7	R: 0.48	R: 0.72	R: 0.87
Minnesota	8	R: 0.23	D: 0.06	R: 0.58
New York	27	R: 0.57	R: 1.45	R: 1.34

Court modified: 1-3 states

State	CDs	Significance Level, 2012	Significance Level, 2014	Significance Level, 2016
Florida	27	Was Republican-drawn until 2016		R: 1.90
Texas	36	R: 2.89	R: 2.49	R: 1.82
Virginia	11	Was Republican-drawn until 2016		R: 1.85

ENDNOTES

- 1 “How to Rig an Election,” *The Economist*, April 25, 2002, accessed April 18, 2017, <http://www.economist.com/node/1099030>.
- 2 Olga Pierce, Jeff Larson, and Lois Beckett. “The Hidden Hands in Redistricting: Corporations and Other Powerful Interests,” *ProPublica*, September 23, 2011, accessed April 18, 2017, <https://www.propublica.org/article/hidden-hands-in-redistricting-corporations-special-interests>.
- 3 National Conference of State Legislatures. “Initiative and Referendum States,” Last modified December 2015, <http://www.ncsl.org/research/elections-and-campaigns/chart-of-the-initiative-states.aspx>.
- 4 The U.S. Supreme Court last considered the constitutionality of partisan gerrymandering a decade ago in *Vieth v. Jubelirer*, 541 U.S. 267 (2004) and *League of United Latin American Citizens v. Perry*, 548 U.S. 399 (2006) but deadlocked on whether such claims were justiciable and, if so, what the legal test for such claims should be.
- 5 For the purposes of this report, we use “bias” and “skew” interchangeably to refer to the gains one party receives based on a systematic advantage turning its votes into congressional seats, as explained in the previous section.
- 6 See *Vieth*, 541 U.S. 267 (2004) and *LULAC*, 548 U.S. 399 (2006).
- 7 Nicholas O. Stephanopoulos and Eric M. McGhee, “Partisan Gerrymandering and the Efficiency Gap,” *University of Chicago Law Review* 82 (2015): 831-900.
- 8 *Whitford v. Gill*, No. 15-CV-421-BBC, 2016 WL 6837229 (W.D. Wis. Nov. 21, 2016).
- 9 Gary King and Robert X. Browning, “Democratic Representation and Partisan Bias in Congressional Elections,” *American Political Science Review* 81 no. 4 (1987): 1251.
- 10 Edward R. Tufte, “The Relationship between Seats and Votes in Two-Party Systems,” *The American Political Science Review* 67 no. 2 (1973): 540-554.
- 11 Nicholas Goedert, “Gerrymandering or geography? How Democrats won the popular vote but lost the Congress in 2012,” *Research & Politics* 1 no. 1 (2014): 1.
- 12 Michael D. McDonald and Robin E. Best, “Unfair Partisan Gerrymanders in Politics and Law: A Diagnostic Applied to Six Cases,” *Election Law Journal* 14 no. 4 (2015): 312.
- 13 Samuel S-H Wang, “Three Tests for Practical Evaluation of Partisan Gerrymandering,” *Stanford Law Review* 68 (2016): 1263-1321.

- 14 Stephanopoulos and McGhee analyze all states that had at least eight districts at some point between 1972 and 2012, including the decades in which some of these states had fewer than eight districts. In examining our initial results, we found that states with six and seven districts had consistent results with larger states, and the volatility and instability associated with analyses of smaller states only became prominent in states with five or fewer districts. Goedert generally uses six districts as a cutoff as well. The excluded states are: Alaska, Delaware, Montana, North Dakota, South Dakota, Vermont, and Wyoming, which each have only one congressional district; Hawaii, Idaho, and Iowa, where a commission drew maps; Connecticut and Nevada, where courts drew maps; Mississippi, New Hampshire, and New Mexico, where Democrats and Republicans shared control of redistricting; Arkansas, Oregon, Rhode Island, and West Virginia, where Democrats controlled redistricting; Kansas, Maine, and Utah, where Republicans controlled redistricting; and Nebraska, which had a Republican governor and whose legislature is officially non-partisan but is generally described as having a Republican majority.
- 15 Stephanopoulos and McGhee, “Partisan Gerrymandering and the Efficiency Gap,” 831.
- 16 For consistency, we use Stephanopoulos and McGhee’s standard for presumptive unconstitutionality as our cutoff under the seats-to-votes curve analysis as well.
- 17 Robert M. Craparo, “Statistical Significance,” in *Encyclopedia of Measurement and Statistics*, ed. Neil J. Salkind. (Thousand Oaks: Sage Publications, 2007), 889–891. Statistical significance occurs not at a set cut off for the difference between the mean and the median, as it also depends on the number of districts in a state and the standard deviation of the district vote shares in an election. As such, some elections with high differences may not be statistically significant. The test is described in more detail in the methodology appendix.
- 18 David Wasserman’s spreadsheet of 2012 House results is available at <http://bit.ly/2pUatCy>, his spreadsheet of 2014 House results is available at <http://bit.ly/2pETQKc>, and his spreadsheet of 2016 House results is available at <http://bit.ly/2p5ELy2>.
- 19 David Nir, “Daily Kos Elections’ Presidential Results by Congressional District for the 2016 and 2012 Elections,” *Daily Kos*. November 19, 2012, accessed April 21, 2017. <http://www.dailykos.com/story/2012/11/19/1163009/-Daily-Kos-Elections-presidential-results-by-congressional-district-for-the-2012-2008-elections>.

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