# BRENNAN CENTER FOR JUSTICE

## TWENTY YEARS

# MINORITY REPRESENTATION: NO CONFLICT WITH FAIR MAPS

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## Introduction

*The Conventional Narrative About Majority-Minority Districts and Partisan Bias*

The Voting Rights Act requires states, under some situations, to create legislative and congressional districts where minorities are a majority of the district's population.[1] Majority-minority districts are intended to remedy vote dilution and ensure minorities have a fair chance to participate in the political process.[2] This prescription worked: beginning in the 1990s majority-minority districts are credited with increasing minority representation in legislatures and Congress. [3]

Yet from the start, some conventional wisdom took hold about how majority-minority districts resulted in unfair maps. The widespread belief became that majority-minority districts, particularly in the South, gave Republicans a big and unfair advantage.[4] According to this narrative, heavily concentrating reliably Democratic voters in majority-minority districts "bleached" the surrounding districts. These bleached districts, which had a history of electing white Democrats, then flipped and began electing Republicans. Some political commentators have even argued that majority-minority districts were a significant factor in the 54-seat swing in House seats in the 1994 election, giving the GOP control of the chamber for the first time in 42 years.[5]

Insofar as it goes, there is some truth in the narrative. The lack of minority-majority districts before 1990 had preserved the incumbency of many white Democrats even as southern white voters were shifting en masse towards the Republican Party. Ben Ginsberg, general counsel to the Republican National Committee in 1990 and one of the principal architects of the GOP strategy to urge creation of majority-minority districts, recalled, "We began looking at the data, and we saw that white Southern Democrats had dominated the redistricting process literally since the Civil War, and that had created underrepresentation for two groups—Republicans and minority voters."[6]

Rep. Bobby Scott, an African-American Democrat first elected to Congress after Virginia's 3rd Congressional district was redrawn as a majority-minority district, told *The New Yorker's* Jeffrey Toobin in 1993 that before the 1990s the strategy for preserving artificially large Democratic majorities was "to keep African-American percentages at around thirty-five or forty per cent. That was enough for the white Democrats to keep winning these districts, but not enough to elect any black Democrats. The white Democrats called these 'influence districts.'"[7]

But while Republicans derived some level of benefit from rapid growth in majority-minority districts after 1990 in the South, the question is whether that advantage means that creating majority-minority districts to comply with the Voting Rights Act is inherently at odds with the goal of partisan fairness. Some have argued that is the case. For example, the Republican National Congressional Committee has argued in recent court filings that "a [proposed] test for partisan gerrymandering creates conflicts between districting and Section 2 of the Voting Rights Act."[8] In other words, you can have one or the other but not both.

With the Supreme Court set to take up the constitutionality of partisan gerrymandering, it is an apt time to test the thesis of inherent tension.[9]

It turns out the answer is an emphatic no. The authors reviewed three decades of redistricting in twenty states with majority-minority districts and found that the creation of these districts did not result in biased maps. In fact, if anything, majority-minority districts tended to reduce overall partisan bias.

*Methodology and Key Findings*

This study considered election results from the last three decades, the 1990s, 2000s, and 2010s. Only states with six or more congressional districts in at least one of these decades were included. The authors assessed "partisan bias," or whether one party had an advantage in turning converting its vote totals into seats. In total, this data set included election results from twenty states. We also used statewide election results to examine how proposed but un-adopted maps in Texas that would have further increased minority representation fare in terms of partisan bias.

What we found was that the assumed "tension" between Voting Rights Act compliance and maps with low partisan bias does not bear up on closer examination. To the contrary:

- The empirical evidence shows that majority-minority districts do not result in maps that unfairly favor either party.

- Majority-minority districts increased nationwide by nearly 60 percent in the 1990s. Despite this growth, states that maintained or created majority-minority districts had low, and in most cases negligible, rates of partisan bias. The one exception is Texas, where congressional maps exhibit durably high rates of bias in favor of Democrats. This result was due to successful efforts to pack white Republicans into districts and spread out both white and non-white Democrats out to maximize Democratic seat share.

- The first decades of this century also show no correlation between minority-majority districts consistently high rates of partisan bias. In fact, in several states partisan bias actually declined.

- On the other hand, there is evidence from this decade that creating new majority-minority districts could, in fact, help reduce the high partisan bias in some of this decade's maps, particularly in states with racially polarized voting. Similarly, there is evidence from at least one state this decade and several states in earlier decades that undoing racial gerrymandering can materially improve partisan fairness levels.

### A. Backgrounder: Understanding the Problem of Partisan Bias

As a starting point, it is useful to understand the redistricting abuse measured by partisan bias.

Redistricting abuses run the gamut from allegations about incumbent protection to the failure to keep communities together. Here, we focus on one of the most egregious and sinister 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.

In measuring the fairness of a map, then, the question is not whether any particular district favors one party or the other, nor is it about the geographic shape of any single district. Instead, the question is whether any political party is receiving – and more importantly locking in – a disproportionate and unfair share of seats overall across a map. This systematic advantage that one party receives over another in turning votes into seats from a map is known as "partisan bias" and used in this report to examine the fairness of maps.

Take North Carolina, for example. North Carolina routinely is a battleground state when it comes to statewide elections. In 2016, Donald Trump won the state's electoral votes at the same time that Democrat Roy Cooper narrowly won the governorship. But since 2016, Republicans have had a secure lock on 10 out of 13 congressional seats in the state. In fact, since 2012, exactly one seat has changed hands, and most races have not been remotely close.[10] Such an extreme disparity between statewide and congressional level results suggests a problem caused by high partisan bias in the congressional map.

To assess whether the advantage such as the sizeable pro-GOP one seen in North Carolina's map is problematic, political and social scientists have developed various tests to gauge whether the outcome is statistically likely to be random. The three we use in this study are:

- **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*[11] and was subsequently referenced in a lawsuit called *Whitford v.Gill*, where a three-judge panel ruled that Wisconsin's state assembly map was an unconstitutional partisan gerrymander.[12] The case has been appealed to the Supreme Court, which will hear arguments in the case on October 3, 2017.

- **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 the 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 illustrates partisan bias in a plan. Seats-to-votes curves have been used for decades by prominent political scientists such as Gary

King and Edward Tufte, and recently by Bernie Grofman and Nicholas Goedert.[13]

- **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 to measure skew in many academic fields; 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*[14] and further quantified by Sam Wang in *Three Tests for Practical Evaluation of Partisan Gerrymandering.*[15]

### B. Majority-Minority Districts and Partisan Bias: The Historical Evidence

1. The 1990s

The 1990s are a particularly robust period for testing the thesis that creation of majority-minority districts contributes to high pro-Republican bias, as the decade's redistricting saw majority-minority congressional districts increase sizably from 32 to 51. This rapid growth was driven not only by demographic change but by an interpretation of the Voting Rights Act that decade, later curtailed by the Supreme Court, that led mapdrawers to believe that they needed to maximize the number of majority-minority districts.[16]

All told in the redistricting cycle of the 1990s, twenty states adopted congressional plans (or had a court-adopted plan) that contained at least one majority-minority district. These include five states where majority-minority districts were created for the first time and eight states where the number of majority-minority districts increased as a result of redistricting.[17] Fourteen of nineteen of the new majority-minority districts were in the South.[18]

| State | Majority-minority districts in 1990 | Majority-minority districts immediately post-redistricting | Majority-minority districts as percentage of total |
|---|---|---|---|
| Alabama | 0 | 1 (+1) | 14.3% |
| California | 5 | 7 (+2) | 13.4% |
| Florida* | 0 | 5 (+5) | 21.7% |
| Georgia* | 2 | 3 (+1) | 27.3% |
| Hawaii | 1 | 2 (--) | 100.0% |
| Illinois | 3 | 4 (+1) | 20.0% |
| Louisiana* | 1 | 2 (+1) | 28.6% |
| Maryland | 1 | 2 (+1) | 20.0% |
| Michigan | 2 | 2 (--) | 12.5% |
| Mississippi | 1 | 1(--) | 20.0% |
| Missouri | 1 | 1(--) | 11.1% |
| New Jersey | 1 | 1 (--) | 7.7% |
| New York* | 4 | 5 (+1) | 12.9% |
| North Carolina* | 0 | 2 (+2) | 16.7% |
| Ohio | 1 | 1 (--) | 5.3% |
| Pennsylvania | 1 | 2 (+1) | 9.5% |
| South Carolina | 0 | 1 (+1) | 16.7% |
| Tennessee | 1 | 1 (--) | 11.1% |
| Texas* | 5 | 7 (+2) | 23.3% |
| Virginia* | 0 | 1 (+1) | 9.1% |
| **Total** | 32 | 51 | |

\* Map redrawn at least in part later in the decade as a result of litigation.

Despite this rapid growth, states with majority-minority districts in the 1990s exhibit almost non-existent partisan bias. Indeed, only Texas has high partisan bias under multiple measures for each election of the decade.[19] And, in the case of Texas, the bias ran in favor of Democrats, not Republicans – counter to what the "bleaching" thesis would predict. Rather, the plan's massive pro-Democratic advantage came through "creatively drawn lines in unlikely places . . . [in] which white urban Democrats, long dependent on black

votes, were given districts where Democratic rural counties were substituted for urban black neighborhoods."[20]

In fact, despite seeing a greater increase in majority-minority congressional districts than any other part of the country, southern states had an average net efficiency gap of just 0.01 Democratic seats per election and an average absolute efficiency gap of 1.19 seats over the course of the decade. Southern states had equally low levels of partisan bias under the seats-to-votes and mean-median tests. See Appendices.

**Figure 1**



PARTISAN BIAS IN SOUTHERN STATES, 1992-2000
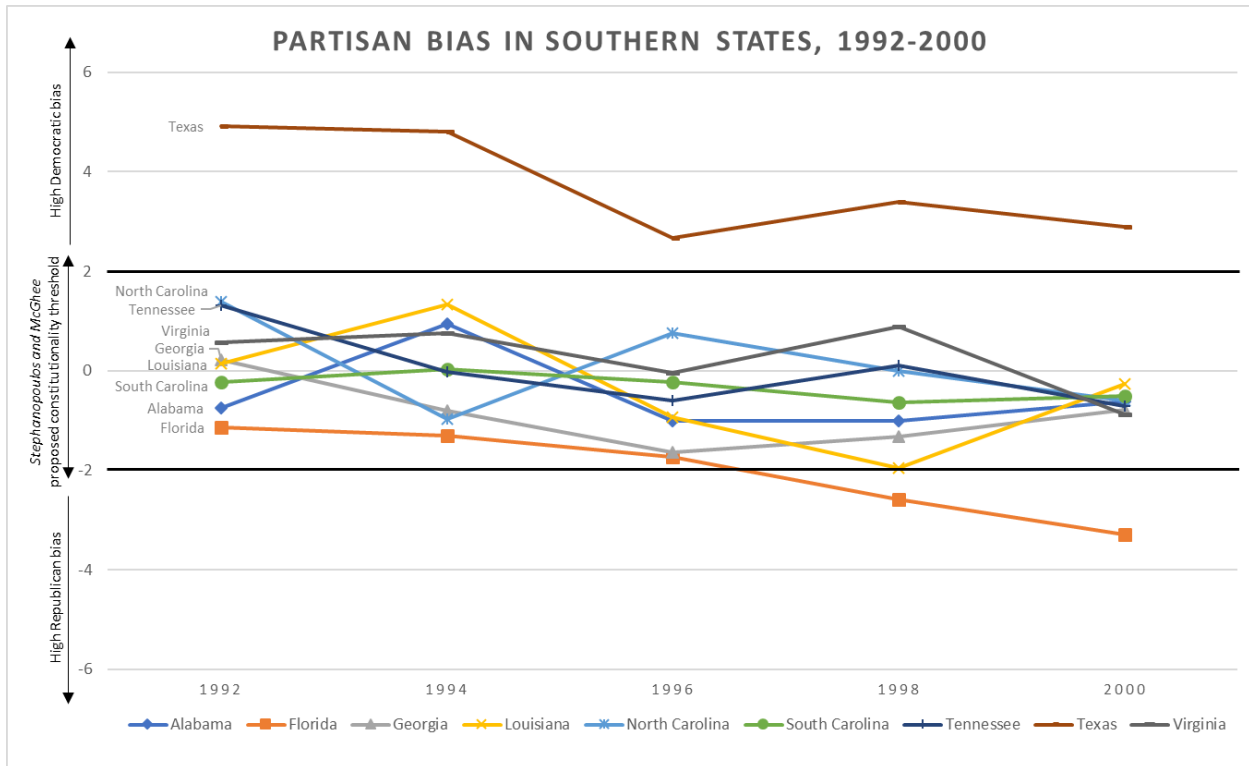
Of southern states, only Florida had a significant pro-Republican high efficiency gap for any part of the 1990s. However, the emergence of this gap after 1996 does not appear easily connected with the existence of majority-minority districts. The state's two Latino majority districts, for instance, were heavily Cuban-American and elected Republicans rather than Democrats throughout this period – if anything suggesting that those districts might generate pro-Democratic rather than pro-Republican bias if the conventional narrative is correct.[21] Moreover, the gap emerges only after one of Florida's three majority African-American districts was redrawn in 1996, as a result of litigation, in a way that *decreased* its African-American percentage from 51 percent to 40 percent.[22]

Non-southern states that maintained or expanded the number of majority-minority districts in the 1990s also experienced low levels of partisan bias.[23] (Figure 2) Notably, no non-southern state had a persistently high efficiency gap in favor of a single party in each of the decade's elections. A number of the maps, in fact, exhibit significant electoral volatility over the course of their lifecycle, going from having somewhat of a Democratic skew to having somewhat of a Republican skew (or vice versa) over the course of the decade. As with southern states, non-southern states with majority-minority districts also had low rates of partisan bias under the seats-to-votes and mean-median measures. See Appendices.

**Figure 2**



PARTISAN BIAS IN NON-SOUTHERN STATES, 1992-2000
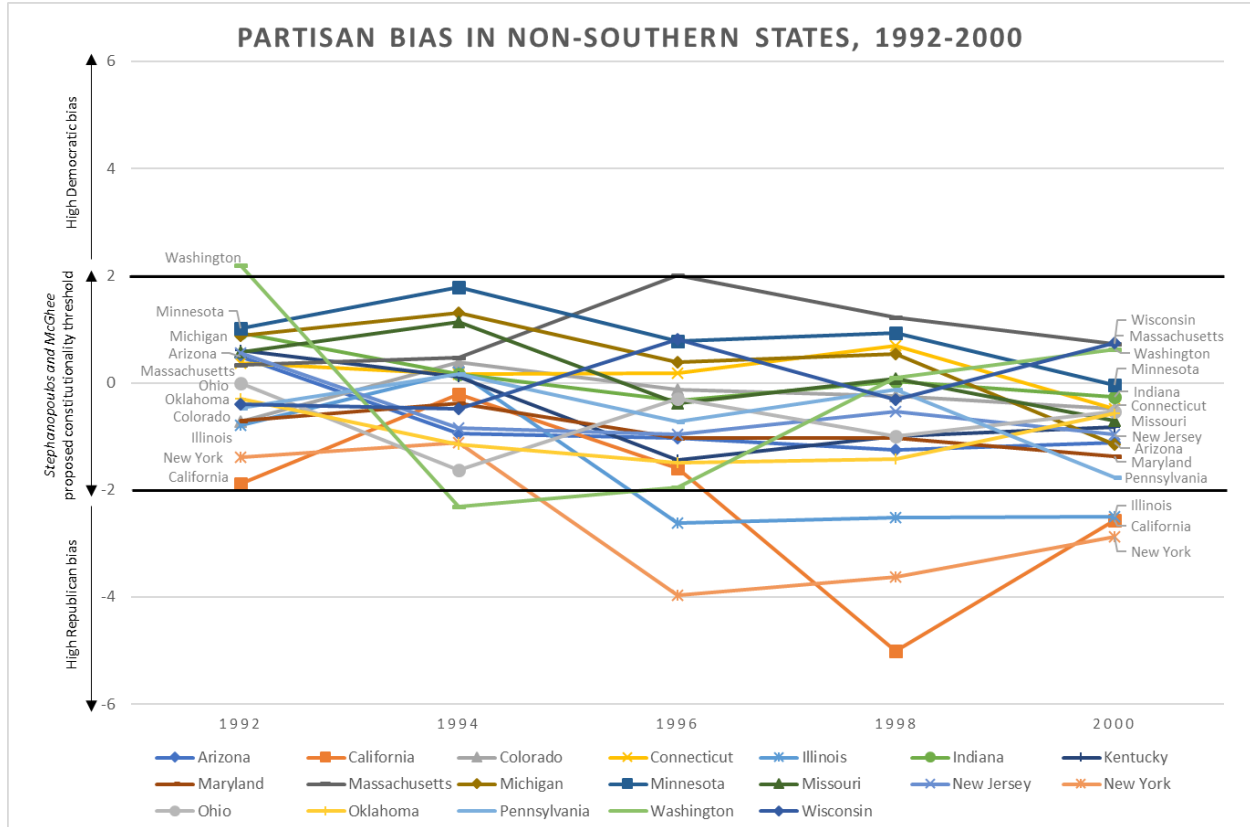
Only three maps (those of California, Illinois, and New York) eventually developed a significant skew in favor of one party or the other. But, in all three cases, the larger Republican skews come late in the decade when all three states' voters became significantly more Democratic but Republicans nevertheless managed to hold onto a high percentage of their seats.

However, it is hard to find a connection between majority-minority districts and the emergence of that bias. In all three states, majority-minority congressional districts with one exception, were located in heavily Democratic urban areas (New York City, Chicago, and Los Angeles) where neighboring districts remained reliably Democratic.[24] Unlike in the South, there was no realignment of white voters. The only majority-minority district not in these regions was California's 20th Congressional District in the state's Central Valley, but it too was surrounded mostly by districts that continued to elect Democrats.[25] Notably, in the case of New York, the increased pro-Republican bias observed later in the decade coincides with a court ordered redrawing of a Latino majority district that decreased Latino percentages "from about 57% to about 45%, altering five adjoining districts which became even more Democratic."[26]

Rather, the emergence of high levels of bias in California, New York, and Illinois appears to be mainly the product of Republicans to hold onto a number of white majority districts elsewhere in the states (e.g., upstate New York or downstate Illinois) despite improved Democratic performance. For example, in 1998, Republicans won five congressional districts in California with less 52 percent or less of the vote and many Republican won seats in New York had no Democratic candidate despite strong Democratic performance in the district overall.[27]

2. The 2000s

i. *A slowdown in new majority-minority districts*

In contrast to the 1990s, the redistricting cycle of the 2000s saw almost no growth in the number of majority-minority congressional districts. In fact, several districts that once were majority-minority in both southern and non-southern states were allowed to fall below 50 percent, although they continued to perform in electing minority-preferred candidates.

Three factors helped contribute to this slowdown. The first was concerns about running afoul of the Supreme Court's racial gerrymandering decisions, which struck down districts if they were drawn "predominately" on the basis of race and otherwise unjustified.[28] This put practical limits on the ability of mapdrawers to creatively join far-flung minority communities to create a majority district. But the bigger limitation was likely practical – in many, though not all, states the growth of majority-minority districts in the 1990s had been so thorough that most politically feasible majority-minority congressional districts had already been created. Likewise, for African Americans, improved voter turnout and political effectiveness in many states meant that African Americans increasingly could elect their community's preferred candidates in districts that were less than majority African American.

The only places where new majority-minority districts were created in the redistricting cycle of the 2000s were California, Arizona, and Florida where new congressional maps each included one additional performing Latino majority district.[29] No state that did not already have a majority-minority district created one for the first time in the decade of the 2000s.[30]

ii. *Continued low levels of partisan bias in the twenty states with majority-minority congressional districts*

As with the maps of the 1990s, there is no apparent linkage between the creation or maintenance of majority-minority congressional districts and a persistent rate of high partisan bias.

No non-southern state, for example, had a durably high efficiency gap in favor of either party, and many maps show significant electoral volatility. (Figure 3)

Among non-southern states, Illinois had the highest levels of bias, skewing in favor of Republicans at a significant level in three out of five elections. Yet this was due not to majority-minority districts – which did not change appreciably – but to an incumbent protection plan negotiated between Democratic and Republican leaders that resulted in a high number of non-compact and uncompetitive districts in suburban and rural Illinois.[31]

Incumbent protection also appears responsible for the high Republican bias that California experienced in 2006 and 2008 – both Democratic wave years.[32]

## **Figure 3**
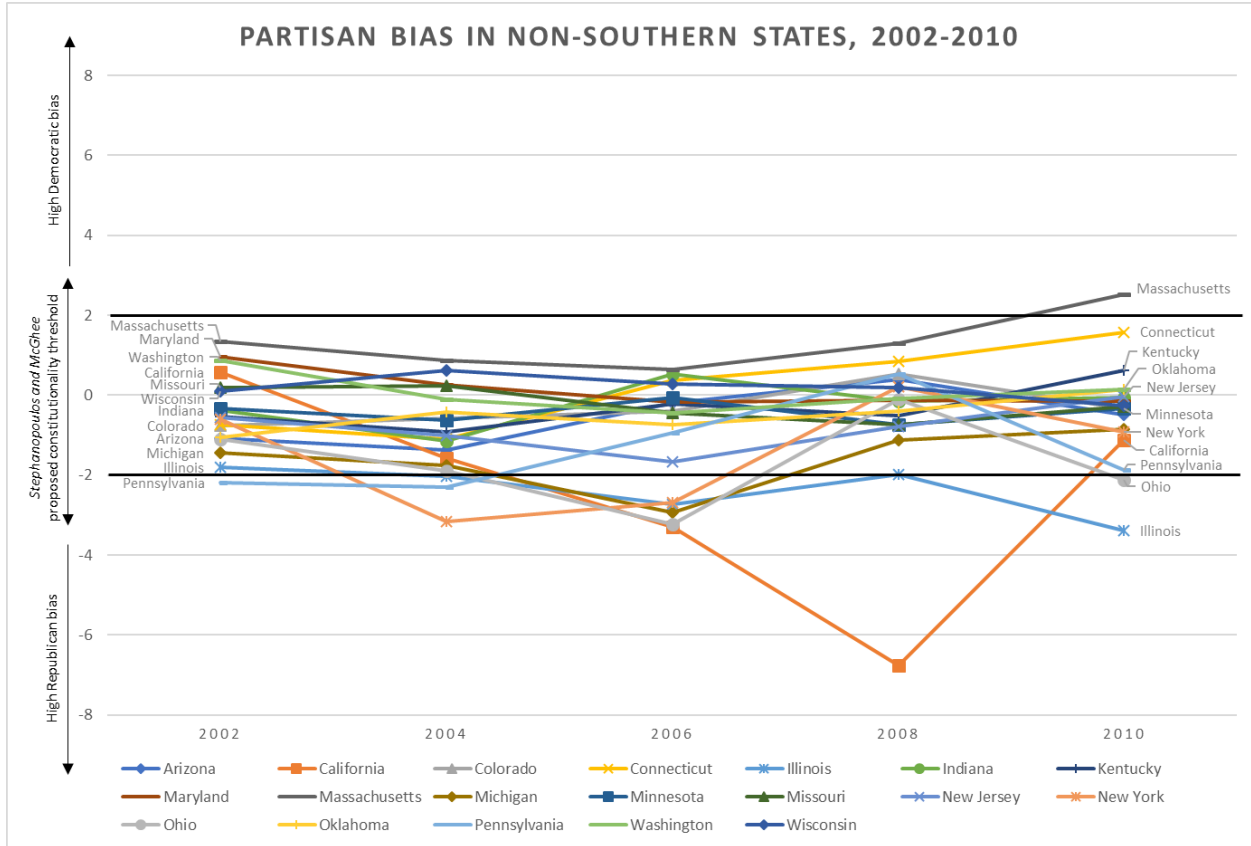


Southern states, similarly, continued to exhibit low rates of partisan bias despite a high percentage of majority-minority districts and an increase in racially polarized voting as the southern realignment reached its fruition.

As shown in <u>Figure 4</u>, elections in most states in the region, in fact, continued to produce skews that moved from one party to the other over the course of the decade.

## Figure 4



**PARTISAN BIAS IN SOUTHERN STATES, 2002-2010**
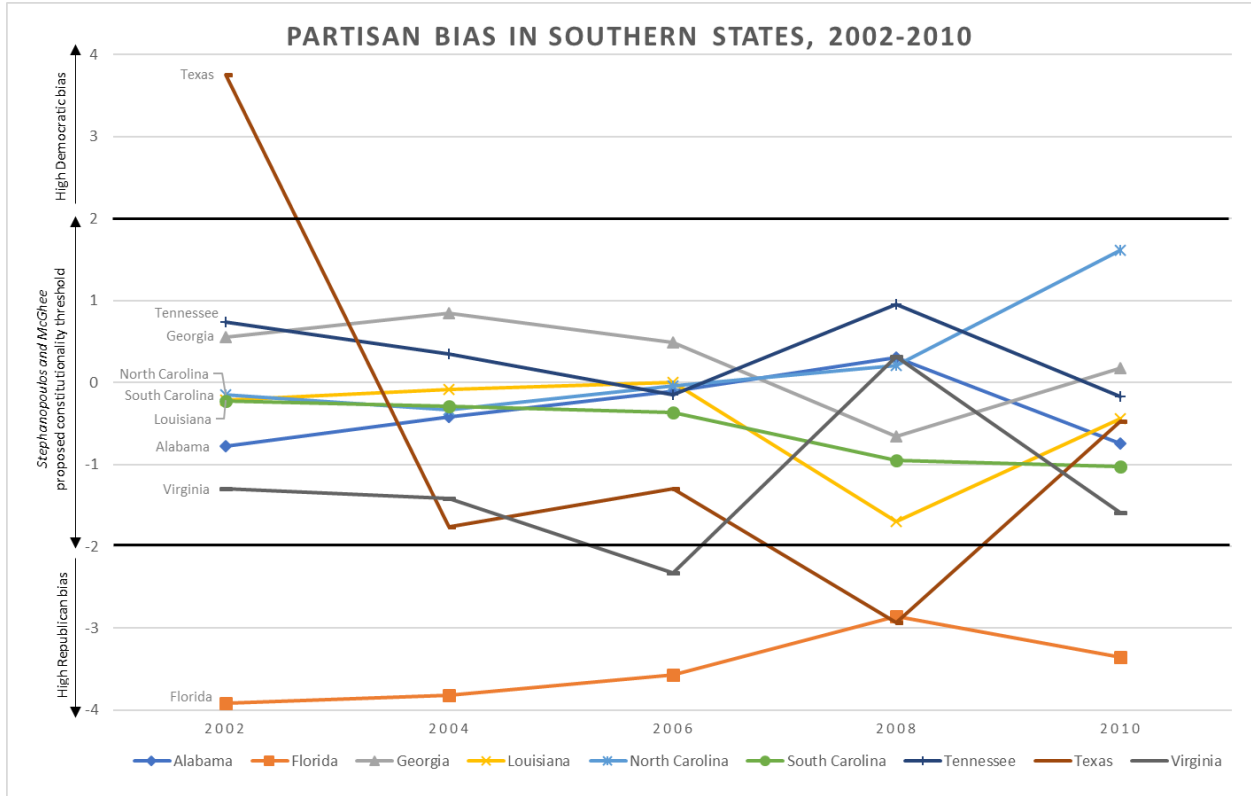
The one exception among southern states is Florida, which had a significant pro-Republican bias in all five elections of the decade, under a map drawn for the first time since Reconstruction under sole Republican control.

But the bias observed in Florida in the 2000s does not fit in neatly with the conventional narrative, given that the congressional map adopted that decade made only modest changes to the configurations of the three African-American majority districts (and, in fact, decreased the African-American percentage in one district), while the state's three Latino majority districts continued to overwhelmingly elect Republicans rather than Democrats.[33] Rather, as in Illinois and California, bias in favor of Republicans was largely the product of the way that white majority districts were redrawn.

3. The 2010s

   i.    *Slow growth in majority-minority congressional districts continues*

The 2010s, like the 2000s, saw no significant growth in the number of majority-minority congressional districts.

By the start of the decade, a number of historically African-American districts had fallen below 50 percent – in some cases substantially – as a result of Latino and Asian population growth and gentrification. Outside the South, most of these districts simply were redrawn with African-American citizen voting age percentages less than 50 percent and have continued to perform as African-American districts.

In the South, however, Republican mapdrawers intentionally decided to push African-American percentages above 50 percent wherever possible – diluting African-American political effectiveness and leading to allegations of racial gerrymandering in congressional maps of North Carolina, Virginia, and Texas.[34]

The growth of Latino majority districts in the 2010s also was modest. Only California saw a net increase in the number of performing Latino majority congressional districts from seven to eight, though Texas added a court-ordered coalition district that could emerge as a Latino opportunity district in the future.[35]

As in the 2000s, no state that did not already have a majority-minority congressional district created one for the first time.

   ii.    *Continued low rates of partisan bias in the twenty states with majority-minority congressional districts*

Thirteen of the twenty states with majority-minority congressional districts – including California, where the number of majority-minority districts increased slightly – continue to experience low to negligible levels of durable partisan bias this decade. California, where maps were drawn for the first time by an independent redistricting commission, even shows signs of a declining level of partisan bias from prior decades despite adding a Latino majority congressional district.

However, seven states with majority-minority congressional districts did see a statistically significant increase in partisan bias this decade, reversing the low rates of bias that these states had all experienced in earlier decades. In all seven instances, the bias ran in favor of Republicans.

However, there does not seem to be a clear or obvious connection between majority-minority districts and this increase in partisan bias. None of these states increased the number of majority-minority districts this decade and, of the seven, only Texas had an increase in coalition districts. Moreover, in non-southern states like Pennsylvania and Michigan, majority-minority districts are located in heavily Democratic areas where the surrounding districts continue to be reliably Democratic. Instead, the high partisan bias this decade in Pennsylvania, Michigan, and Ohio appears to be driven by ruthless packing and cracking of white Democrats in places like the suburbs of Philadelphia.[36]

Majority-minority districts in Virginia and North Carolina this decade do, by contrast, appear partially related to sudden emergence of high levels of bias: the aggressive overpacking of African-American districts, subsequently found to be racial gerrymanders, contributed to the pro-Republican bias throughout the states.[37] This included transforming a non-majority African-American district that had historically and

consistently elected African-American preferred candidates into a majority black district – despite protests that it was not necessary to do so and would dilute African-American political power statewide. Similarly, as shown in Part C, high levels of partisan bias in Texas in favor of Republicans this decade seem to stem both from the packing of African-American districts and, more crucially, the failure of the state to create additional Latino majority districts.

### C. The Counterfactual Evidence: The Failure to Create Minority Districts in Texas as the Driver of Partisan Bias

If, in the 1990s, the creation of majority-minority districts in the South helped create fairer representation of both minorities and Republicans by reducing high levels of pro-Democratic partisan bias, there is evidence today that creating more minority electoral opportunities would similarly reduce the high pro-Republican bias that has emerged this decade in southern states like Texas.

With the growth of racially polarized voting, minorities today are often the only large and geographically concentrated blocks of reliable Democrats in southern states. As a practical matter, a would-be gerrymanderer would find it hard to engineer a large and durable pro-Republican advantage without either packing or cracking minorities.

Conversely undoing the packing and cracking of minority communities by increasing minority electoral opportunities – whether through majority-minority districts or through coalition districts – would be expected to reduce high pro-Republican bias, not unlike the reduction of pro-Democratic bias in the 1990s.

Texas this decade provides a robust testing ground for both theses because its legislature enacted a highly aggressive congressional plan in 2011 that created no additional minority opportunity districts, despite Latinos and African Americans collectively comprising nearly 90 percent of the state's population gain between 2000 and 2010. By comparing the partisan bias of this plan, the subsequent court-modified plan, and plans offered by minority advocates, we can assess the relationship between fairness for minority communities and partisan fairness.

For this analysis, we looked at four congressional plans:

- **Plan C185** – the plan originally adopted by the Texas Legislature in 2011 but never used because of court-ordered modifications to address vote dilution and Voting Rights Act problems.

- **Plan C235** – the 2012 court-drawn interim plan which was adopted by the Texas Legislature in 2013 on a permanent basis without any changes. Plan C235 created an African-American and Latino coalition district in the Dallas-Fort Worth area and made adjustments to TX-23 along the border to improve its performance as a Latino district. It did not, however, make changes to other parts of the map.

- **Plan C213** – a plan proposed by the Texas Latino Redistricting Task Force.

- **Plan C286** - a demonstration plan offered by some of the Latino and African-American plaintiffs in litigation over the Texas congressional plan.

Under the four plans, the number of performing majority-minority, coalition, and crossover districts range from 10 to 13 out of Texas' 36 congressional districts:[38]

| Plan | African-American majority | African-American plurality | Latino majority – (performing) | Coalition | Total (%) |
|---|---|---|---|---|---|
| C185 (state original) | 1 | 2 | 7 | 0 | 10 (27.8%) |
| C235 (court modified plan) | 1 | 2 | 7 | 1 | 11 (30.6%) |
| C213 (Latino Task Force) | 0 | 3 | 8 | 2 | 13 (36.1%) |
| C286 (Rodriguez plaintiffs plan) | 1 | 2 | 8 | 2 | 13 (36.1%) |

By calculating the partisan bias scores for actual plans with plans proposed by minority groups, we were able to measure the effect that increasing minority representation would have on partisan bias. What we found bears out the thesis that disadvantaging minority voters was central to enabling the Texas Legislature to draw a map with a significant advantage in favor of Republicans (just as disadvantaging minorities previously was central to drawing maps that favored Democrats). As the number of minority opportunity districts increases in the various plans, levels of partisan bias decrease. The plans with a greater number of minority electoral opportunities were, in short, also the fairest plans from a partisan perspective.

Under the efficiency gap, the state's original plan (Plan C185) gave Republicans a significantly high share of seats in all three elections since 2012. The court-modified plan (Plan C235), which increased the total number of minority seats by one, reduced the rate of pro-Republican bias, but still had a bias of nearly three seats in both 2012 and 2016. By contrast, the two plans offered by minority groups – which each would have added two additional minority seats to the court-drawn plan – would have had negligible partisan bias.

| Plan | 2012 | 2014 | 2016 |
|---|---|---|---|
| C185 (state original) | 3.72 extra R | 2.07 extra R | 3.64 extra R |
| C235 (court modified) | 2.98 extra R | 1.35 extra R | 2.96 extra R |
| C213 (minority proposal) | 0.19 extra D | 0.93 extra D | 0.22 extra D |
| C286 (minority proposal) | 0.08 extra R | 0.59 extra D | 0.08 extra R |

In short, the maps with the highest levels of minority representation were also the maps with the lowest partisan bias. In other words, increasing minority representation in Texas is consistent with reducing partisan unfairness.

**Appendix 1: Partisan Bias in States with Six or More Congressional Districts (1992-2000)**

## Efficiency Gap: 1990s

Efficiency gap results displayed below include both the magnitude of the seat gap and the party advantaged by the gap. States with persistent results above the threshold of two seats that Stephanopoulos and McGhee propose for presumptive unconstitutionality are displayed in bold.

| State | CDs | 1992 | 1994 | 1996 | 1998 | 2000 | Average |
|---|---|---|---|---|---|---|---|
| Alabama | 7 | R: 0.75 | D: 0.94 | R: 1.00 | R: 1.00 | R: 0.62 | R: 0.48 |
| Arizona | 6 | D: 0.48 | R: 0.94 | R: 1.03 | R: 1.26 | R: 1.12 | R: 0.77 |
| California | 52 | R: 1.89 | R: 0.21 | R: 1.59 | R: 5.00 | R: 2.56 | R: 2.25 |
| Colorado | 6 | R: 0.72 | D: 0.38 | R: 0.12 | R: 0.24 | R: 0.49 | R: 0.24 |
| Connecticut | 6 | D: 0.36 | D: 0.16 | D: 0.18 | D: 0.69 | R: 0.49 | D: 0.18 |
| Florida | 23 | R: 1.14 | R: 1.30 | R: 1.74 | R: 2.58 | R: 3.29 | R: 2.01 |
| Georgia | 11 | D: 0.22 | R: 0.80 | R: 1.64 | R: 1.32 | R: 0.78 | R: 0.86 |
| Illinois | 20 | R: 0.80 | D: 0.19 | R: 2.62 | R: 2.52 | R: 2.50 | R: 1.65 |
| Indiana | 10 | D: 0.93 | D: 0.17 | R: 0.33 | D: 0.02 | R: 0.27 | D: 0.10 |
| Kentucky | 6 | D: 0.61 | D: 0.11 | R: 1.45 | R: 1.00 | R: 0.82 | R: 0.51 |
| Louisiana | 7 | D: 0.15 | D: 1.33 | R: 0.94 | R: 1.95 | R: 0.26 | R: 0.34 |
| Maryland | 8 | R: 0.70 | R: 0.39 | R: 1.03 | R: 1.04 | R: 1.37 | R: 0.91 |
| Massachusetts | 10 | D: 0.34 | D: 0.47 | D: 2.00 | D: 1.22 | D: 0.73 | D: 0.95 |
| Michigan | 16 | D: 0.88 | D: 1.31 | D: 0.39 | D: 0.53 | R: 1.16 | D: 0.39 |
| Minnesota | 8 | D: 1.02 | D: 1.78 | D: 0.78 | D: 0.93 | R: 0.05 | D: 0.89 |
| Missouri | 9 | D: 0.57 | D: 1.14 | R: 0.39 | D: 0.07 | R: 0.71 | D: 0.14 |
| New Jersey | 13 | D: 0.56 | R: 0.85 | R: 0.96 | R: 0.53 | R: 0.97 | R: 0.55 |
| New York | 31 | R: 1.39 | R: 1.12 | R: 3.96 | R: 3.63 | R: 2.87 | R: 2.59 |
| North Carolina | 12 | D: 1.38 | R: 0.97 | D: 0.75 | R: 0.01 | R: 0.59 | D: 0.11 |
| Ohio | 19 | R: 0.00 | R: 1.63 | R: 0.30 | R: 0.99 | R: 0.54 | R: 0.69 |
| Oklahoma | 6 | R: 0.30 | R: 1.15 | R: 1.50 | R: 1.42 | R: 0.58 | R: 0.99 |
| Pennsylvania | 21 | R: 0.47 | D: 0.16 | R: 0.73 | R: 0.13 | R: 1.77 | R: 0.59 |
| South Carolina | 6 | R: 0.22 | D: 0.03 | R: 0.23 | R: 0.64 | R: 0.50 | R: 0.31 |
| Tennessee | 9 | D: 1.31 | R: 0.02 | R: 0.60 | D: 0.10 | R: 0.71 | D: 0.02 |
| **Texas** | **30** | **D: 4.91** | **D: 4.80** | **D: 2.67** | **D: 3.40** | **D: 2.90** | **D: 3.74** |
| Virginia | 11 | D: 0.58 | D: 0.75 | R: 0.05 | D: 0.89 | R: 0.87 | D: 0.26 |
| Washington | 9 | D: 2.20 | R: 2.32 | R: 1.95 | D: 0.10 | D: 0.63 | R: 0.27 |
| Wisconsin | 9 | R: 0.40 | R: 0.48 | D: 0.81 | R: 0.31 | D: 0.75 | D: 0.07 |

## Seats-to-Votes Curve: 1990s

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

| State | CDs | 1992 | 1994 | 1996 | 1998 | 2000 | Average |
|---|---|---|---|---|---|---|---|
| Alabama | 7 | R: 0.72 | D: 1.01 | R: 0.98 | R: 1.07 | R: 0.66 | R: 0.48 |
| Arizona | 6 | D: 0.62 | D: 1.22 | R: 0.87 | R: 1.09 | R: 0.87 | R: 0.20 |
| California | 52 | R: 1.76 | D: 3.46 | R: 0.23 | R: 4.12 | R: 0.88 | R: 0.70 |
| Colorado | 6 | R: 0.82 | D: 0.29 | R: 0.11 | R: 0.22 | R: 0.45 | R: 0.26 |
| Connecticut | 6 | D: 0.15 | R: 0.03 | D: 0.09 | D: 0.56 | R: 0.58 | D: 0.04 |
| Florida | 23 | R: 1.35 | D: 0.26 | R: 1.51 | R: 2.85 | R: 3.17 | R: 1.73 |
| Georgia | 11 | D: 0.26 | D: 2.33 | R: 1.79 | R: 1.24 | R: 0.65 | R: 0.22 |
| Illinois | 20 | R: 0.71 | D: 2.34 | R: 2.67 | R: 2.23 | R: 2.03 | R: 1.06 |
| Indiana | 10 | D: 0.91 | D: 3.19 | R: 0.30 | D: 0.07 | R: 0.25 | D: 0.72 |
| Kentucky | 6 | D: 0.54 | D: 1.94 | R: 1.56 | R: 1.11 | R: 0.98 | R: 0.24 |
| Louisiana | 7 | D: 0.03 | D: 1.40 | R: 1.12 | R: 2.06 | R: 0.38 | R: 0.43 |
| Maryland | 8 | R: 0.43 | R: 0.00 | R: 0.69 | R: 0.68 | R: 0.97 | R: 0.55 |
| Massachusetts | 10 | D: 0.46 | D: 0.52 | D: 2.32 | D: 1.79 | D: 1.43 | D: 1.30 |
| Michigan | 16 | D: 0.96 | D: 2.38 | D: 0.57 | D: 0.76 | R: 0.82 | D: 0.77 |
| Minnesota | 8 | D: 0.95 | D: 2.70 | D: 0.80 | D: 0.95 | D: 0.02 | D: 1.08 |
| Missouri | 9 | D: 0.46 | D: 1.05 | R: 0.38 | D: 0.13 | R: 0.64 | D: 0.12 |
| New Jersey | 13 | D: 0.98 | D: 1.70 | R: 0.48 | R: 0.03 | R: 0.37 | D: 0.36 |
| New York | 31 | R: 0.30 | D: 1.18 | R: 1.85 | R: 1.59 | R: 1.04 | R: 0.72 |
| North Carolina | 12 | D: 1.43 | D: 3.15 | D: 0.81 | R: 0.17 | R: 0.76 | D: 0.89 |
| Ohio | 19 | R: 0.24 | D: 2.22 | R: 0.38 | R: 0.88 | R: 0.42 | D: 0.06 |
| Oklahoma | 6 | R: 0.26 | D: 1.75 | R: 1.65 | R: 1.61 | R: 0.73 | R: 0.50 |
| Pennsylvania | 21 | R: 0.64 | D: 1.11 | R: 0.75 | R: 0.06 | R: 1.62 | R: 0.39 |
| South Carolina | 6 | R: 0.32 | D: 0.94 | R: 0.28 | R: 0.63 | R: 0.48 | R: 0.15 |
| Tennessee | 9 | D: 1.25 | D: 1.78 | R: 0.64 | R: 0.00 | R: 0.81 | D: 0.32 |
| **Texas** | **30** | **D: 5.26** | **D: 7.42** | **D: 2.85** | **D: 3.45** | **D: 3.73** | **D: 4.54** |
| Virginia | 11 | D: 0.55 | D: 1.74 | D: 0.20 | D: 0.68 | R: 0.94 | D: 0.45 |
| Washington | 9 | D: 2.03 | D: 3.51 | R: 2.10 | R: 0.09 | D: 0.53 | D: 0.78 |
| Wisconsin | 9 | R: 0.42 | D: 0.48 | D: 0.82 | R: 0.32 | D: 0.81 | D: 0.27 |

## Mean-Median Difference: 1990s

Mean-median difference results displayed below include both the magnitude of the significance level and the party advantaged by it. States with persistent results above the threshold of 1.75 that Wang uses for statistical significance are displayed in bold.

| State | CDs | 1992 | 1994 | 1996 | 1998 | 2000 | Average |
|-------|-----|------|------|------|------|------|---------|
| Alabama | 7 | D: 0.66 | D: 0.62 | D: 0.46 | R: 0.84 | R: 1.11 | R: 0.04 |
| Arizona | 6 | R: 0.28 | R: 0.47 | R: 1.14 | R: 0.80 | R: 1.26 | R: 0.79 |
| California | 52 | R: 1.34 | R: 0.32 | R: 1.47 | R: 0.54 | R: 1.32 | R: 1.00 |
| Colorado | 6 | R: 0.88 | R: 1.89 | R: 0.85 | R: 0.44 | R: 0.91 | R: 0.99 |
| Connecticut | 6 | R: 0.13 | R: 0.06 | R: 0.83 | D: 0.42 | R: 0.41 | R: 0.20 |
| Florida | 23 | R: 2.82 | R: 1.93 | R: 2.92 | R: 1.27 | R: 1.68 | R: 2.12 |
| Georgia | 11 | R: 0.05 | R: 1.32 | R: 1.36 | R: 1.24 | R: 1.48 | R: 1.09 |
| Illinois | 20 | D: 0.31 | D: 0.10 | R: 1.67 | R: 1.73 | R: 1.23 | R: 0.84 |
| Indiana | 10 | D: 0.93 | D: 0.87 | R: 0.49 | R: 0.57 | R: 0.49 | D: 0.05 |
| Kentucky | 6 | D: 1.18 | D: 0.83 | D: 0.54 | D: 1.12 | D: 0.23 | D: 0.78 |
| Louisiana | 7 | R: 0.06 | D: 1.11 | R: 0.83 | R: 0.05 | R: 1.68 | R: 0.30 |
| Maryland | 8 | R: 0.41 | R: 0.77 | R: 1.19 | R: 0.61 | R: 0.43 | R: 0.68 |
| Massachusetts | 10 | D: 1.00 | D: 0.30 | D: 0.33 | D: 0.51 | R: 0.50 | D: 0.33 |
| Michigan | 16 | D: 0.19 | D: 0.89 | D: 0.44 | D: 0.68 | D: 1.10 | D: 0.66 |
| Minnesota | 8 | R: 0.06 | D: 0.33 | D: 0.36 | D: 0.47 | R: 0.17 | D: 0.18 |
| Missouri | 9 | D: 0.08 | D: 1.18 | D: 1.36 | D: 0.90 | R: 0.68 | D: 0.57 |
| New Jersey | 13 | D: 0.98 | R: 1.97 | R: 0.89 | R: 0.59 | R: 1.28 | R: 0.75 |
| New York | 31 | R: 1.61 | D: 0.58 | R: 0.58 | R: 0.13 | D: 0.68 | R: 0.21 |
| North Carolina | 12 | D: 0.86 | R: 0.03 | D: 0.08 | R: 0.05 | R: 1.30 | R: 0.09 |
| Ohio | 19 | R: 0.19 | R: 0.38 | R: 0.76 | R: 2.64 | R: 0.58 | R: 0.91 |
| Oklahoma | 6 | D: 0.48 | R: 0.27 | D: 0.40 | D: 1.22 | R: 0.62 | D: 0.24 |
| Pennsylvania | 21 | R: 0.79 | R: 0.22 | D: 0.33 | D: 0.15 | R: 1.73 | R: 0.45 |
| South Carolina | 6 | D: 0.76 | R: 1.09 | R: 1.17 | R: 1.14 | R: 1.20 | R: 0.77 |
| Tennessee | 9 | D: 0.51 | R: 0.23 | R: 1.68 | R: 1.58 | R: 2.61 | R: 1.12 |
| Texas | 30 | D: 2.64 | D: 2.32 | D: 1.51 | D: 3.44 | D: 2.60 | D: 2.50 |
| Virginia | 11 | D: 0.55 | D: 1.12 | D: 2.04 | D: 0.67 | R: 2.40 | D: 0.39 |
| Washington | 9 | R: 0.59 | R: 0.24 | R: 0.83 | D: 0.20 | D: 0.34 | R: 0.23 |
| Wisconsin | 9 | R: 0.58 | R: 0.65 | D: 0.93 | R: 0.44 | D: 0.57 | R: 0.03 |

**Appendix 2: Partisan Bias in State with Six or More Congressional Districts (2002-2010)**

## Efficiency Gap: 2000s

Efficiency gap results displayed below include both the magnitude of the seat gap and the party advantaged by the gap. States with persistent results above the threshold of two seats that Stephanopoulos and McGhee propose for presumptive unconstitutionality are displayed in bold.

| State | Districts | 2002 | 2004 | 2006 | 2008 | 2010 | Average |
|---|---|---|---|---|---|---|---|
| Alabama | 7 | R: 0.78 | R: 0.42 | R: 0.11 | D: 0.30 | R: 0.75 | R: 0.35 |
| Arizona | 8 | R: 1.07 | R: 1.37 | R: 0.20 | D: 0.39 | R: 0.48 | R: 0.55 |
| California | 53 | D: 0.57 | R: 1.58 | R: 3.30 | R: 6.75 | R: 1.13 | R: 2.44 |
| Colorado | 7 | R: 0.77 | R: 0.58 | R: 0.40 | D: 0.52 | R: 0.33 | R: 0.31 |
| Connecticut | 5 | R: 0.73 | R: 1.09 | D: 0.37 | D: 0.85 | D: 1.58 | D: 0.20 |
| **Florida** | **25** | **R: 3.92** | **R: 3.82** | **R: 3.57** | **R: 2.85** | **R: 3.35** | **R: 3.50** |
| Georgia | 13 | D: 0.55 | D: 0.84 | D: 0.49 | R: 0.66 | D: 0.17 | D: 0.28 |
| Illinois | 19 | R: 1.80 | R: 2.03 | R: 2.74 | R: 1.99 | R: 3.39 | R: 2.39 |
| Indiana | 9 | R: 0.37 | R: 1.14 | D: 0.52 | R: 0.14 | R: 0.06 | R: 0.24 |
| Kentucky | 6 | R: 0.53 | R: 0.92 | R: 0.21 | R: 0.51 | D: 0.61 | R: 0.31 |
| Louisiana | 7 | R: 0.21 | R: 0.09 | D: 0.00 | R: 1.70 | R: 0.44 | R: 0.49 |
| Maryland | 8 | D: 0.97 | D: 0.26 | R: 0.18 | R: 0.12 | R: 0.15 | D: 0.16 |
| Massachusetts | 10 | D: 1.35 | D: 0.88 | D: 0.65 | D: 1.30 | D: 2.53 | D: 1.34 |
| Michigan | 15 | R: 1.44 | R: 1.76 | R: 2.93 | R: 1.13 | R: 0.86 | R: 1.62 |
| Minnesota | 8 | R: 0.34 | R: 0.62 | R: 0.05 | R: 0.74 | R: 0.33 | R: 0.42 |
| Missouri | 9 | D: 0.18 | D: 0.23 | R: 0.45 | R: 0.73 | R: 0.29 | R: 0.21 |
| New Jersey | 13 | R: 0.56 | R: 1.00 | R: 1.67 | R: 0.79 | R: 0.03 | R: 0.81 |
| New York | 29 | R: 0.60 | R: 3.16 | R: 2.68 | D: 0.21 | R: 0.92 | R: 1.43 |
| North Carolina | 13 | R: 0.15 | R: 0.33 | R: 0.04 | D: 0.21 | D: 1.61 | D: 0.26 |
| Ohio | 18 | R: 1.09 | R: 1.90 | R: 3.22 | R: 0.11 | R: 2.11 | R: 1.69 |
| Oklahoma | 5 | R: 1.06 | R: 0.42 | R: 0.73 | R: 0.39 | D: 0.15 | R: 0.49 |
| Pennsylvania | 19 | R: 2.18 | R: 2.31 | R: 0.94 | D: 0.52 | R: 1.86 | R: 1.35 |
| South Carolina | 6 | R: 0.23 | R: 0.29 | R: 0.37 | R: 0.95 | R: 1.03 | R: 0.57 |
| Tennessee | 9 | D: 0.74 | D: 0.35 | R: 0.15 | D: 0.95 | R: 0.17 | D: 0.35 |
| Texas | 32 | D: 3.76 | R: 1.76 | R: 1.30 | R: 2.93 | R: 0.48 | R: 0.54 |
| Virginia | 11 | R: 1.30 | R: 1.42 | R: 2.33 | D: 0.32 | R: 1.59 | R: 1.26 |
| Washington | 9 | D: 0.87 | R: 0.11 | R: 0.44 | R: 0.08 | D: 0.15 | D: 0.08 |
| Wisconsin | 8 | D: 0.11 | D: 0.61 | D: 0.29 | D: 0.19 | R: 0.26 | D: 0.19 |

## Seats-to-Votes Curve: 2000s

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

| State | Districts | 2002 | 2004 | 2006 | 2008 | 2010 | Average |
|---|---|---|---|---|---|---|---|
| Alabama | 7 | R: 0.92 | R: 0.57 | R: 0.24 | D: 0.15 | R: 0.91 | R: 0.50 |
| Arizona | 8 | R: 0.70 | R: 1.00 | D: 0.07 | D: 0.74 | R: 0.19 | R: 0.21 |
| California | 53 | D: 2.22 | R: 0.55 | R: 2.51 | R: 5.17 | D: 0.31 | R: 1.14 |
| Colorado | 7 | R: 0.76 | R: 0.62 | R: 0.47 | D: 0.57 | R: 0.27 | R: 0.31 |
| Connecticut | 5 | R: 0.80 | R: 1.12 | D: 0.41 | D: 1.00 | D: 1.54 | D: 0.21 |
| *Florida* | **25** | **R: 4.11** | **R: 4.15** | **R: 3.84** | **R: 2.78** | **R: 2.86** | **R: 3.55** |
| Georgia | 13 | D: 0.68 | D: 0.90 | D: 0.69 | R: 0.62 | D: 0.18 | D: 0.37 |
| Illinois | 19 | R: 1.48 | R: 1.36 | R: 2.03 | R: 1.41 | R: 2.63 | R: 1.78 |
| Indiana | 9 | R: 0.43 | R: 1.21 | D: 0.47 | R: 0.15 | R: 0.07 | R: 0.28 |
| Kentucky | 6 | R: 0.74 | R: 1.06 | R: 0.34 | R: 0.67 | D: 0.33 | R: 0.49 |
| Louisiana | 7 | R: 0.08 | D: 0.04 | R: 0.15 | R: 1.55 | R: 0.56 | R: 0.46 |
| Maryland | 8 | D: 1.15 | D: 0.44 | D: 0.10 | D: 0.36 | D: 0.08 | D: 0.43 |
| Massachusetts | 10 | D: 1.75 | D: 1.51 | D: 1.39 | D: 1.74 | D: 2.59 | D: 1.80 |
| Michigan | 15 | R: 1.44 | R: 1.58 | R: 2.85 | R: 1.06 | R: 0.48 | R: 1.48 |
| Minnesota | 8 | R: 0.38 | R: 0.62 | D: 0.01 | R: 0.66 | R: 0.25 | R: 0.38 |
| Missouri | 9 | D: 0.14 | D: 0.18 | R: 0.39 | R: 0.85 | R: 0.27 | R: 0.24 |
| New Jersey | 13 | D: 0.16 | R: 0.68 | R: 1.27 | R: 0.51 | D: 0.49 | R: 0.36 |
| New York | 29 | D: 0.94 | R: 1.39 | D: 0.07 | D: 2.54 | D: 1.21 | D: 0.67 |
| North Carolina | 13 | R: 0.14 | R: 0.42 | R: 0.17 | D: 0.09 | D: 1.47 | D: 0.16 |
| Ohio | 18 | R: 1.25 | R: 2.08 | R: 3.25 | R: 0.18 | R: 2.11 | R: 1.77 |
| Oklahoma | 5 | R: 1.14 | R: 0.52 | R: 0.77 | R: 0.48 | R: 0.07 | R: 0.60 |
| Pennsylvania | 19 | R: 2.07 | R: 2.45 | R: 1.09 | D: 0.30 | R: 2.06 | R: 1.48 |
| South Carolina | 6 | R: 0.32 | R: 0.31 | R: 0.38 | R: 1.03 | R: 1.13 | R: 0.63 |
| Tennessee | 9 | D: 0.71 | D: 0.29 | D: 0.02 | D: 0.87 | R: 0.32 | D: 0.32 |
| Texas | 32 | D: 4.18 | R: 1.10 | R: 0.39 | R: 2.10 | D: 0.49 | D: 0.22 |
| Virginia | 11 | R: 1.46 | R: 1.44 | R: 2.38 | D: 0.20 | R: 1.62 | R: 1.34 |
| Washington | 9 | D: 0.67 | R: 0.27 | R: 0.49 | R: 0.23 | R: 0.03 | R: 0.07 |
| Wisconsin | 8 | R: 0.11 | D: 0.58 | D: 0.30 | D: 0.04 | R: 0.26 | D: 0.11 |

## Mean-Median Difference: 2000s

Mean-median difference results displayed below include both the magnitude of the significance level and the party advantaged by it. States with persistent results above the threshold of 1.75 that Wang uses for statistical significance are displayed in bold.

| State | Districts | 2002 | 2004 | 2006 | 2008 | 2010 | Average |
|---|---|---|---|---|---|---|---|
| Alabama | 7 | R: 1.13 | R: 0.84 | R: 1.69 | D: 0.32 | D: 0.52 | R: 0.57 |
| Arizona | 8 | R: 1.69 | R: 1.76 | R: 0.68 | D: 0.45 | R: 0.19 | R: 0.77 |
| **California** | **53** | **D: 3.23** | **D: 3.70** | **D: 3.18** | **D: 4.46** | **D: 2.84** | **D: 3.48** |
| Colorado | 7 | R: 0.36 | R: 0.81 | D: 0.04 | D: 1.19 | R: 0.20 | R: 0.03 |
| Connecticut | 5 | R: 1.28 | R: 1.50 | R: 1.04 | D: 0.14 | D: 0.81 | R: 0.58 |
| Florida | 25 | R: 2.52 | R: 1.23 | R: 2.40 | R: 3.19 | R: 1.36 | R: 2.14 |
| Georgia | 13 | D: 0.65 | R: 0.51 | R: 3.11 | R: 2.61 | R: 2.54 | R: 1.62 |
| Illinois | 19 | R: 2.19 | R: 1.25 | R: 1.43 | R: 0.32 | R: 1.68 | R: 1.37 |
| Indiana | 9 | D: 1.01 | D: 0.75 | D: 0.79 | D: 1.66 | R: 0.80 | D: 0.68 |
| Kentucky | 6 | R: 0.08 | R: 0.76 | D: 0.59 | R: 0.89 | R: 1.31 | R: 0.49 |
| Louisiana | 7 | R: 0.67 | D: 0.06 | R: 1.32 | 0.51 | R: 0.27 | R: 0.34 |
| Maryland | 8 | D: 0.69 | D: 1.49 | D: 0.75 | D: 1.27 | D: 0.45 | D: 0.93 |
| Massachusetts | 10 | R: 0.18 | R: 1.05 | R: 0.86 | R: 0.96 | R: 1.82 | R: 0.97 |
| Michigan | 15 | R: 2.20 | R: 2.63 | R: 1.93 | R: 1.14 | R: 1.16 | R: 1.81 |
| Minnesota | 8 | D: 0.50 | D: 0.20 | D: 0.58 | D: 1.63 | R: 0.30 | D: 0.52 |
| Missouri | 9 | R: 2.04 | R: 2.33 | R: 2.54 | R: 0.51 | R: 1.54 | R: 1.79 |
| New Jersey | 13 | D: 1.94 | D: 0.96 | D: 1.87 | D: 1.41 | D: 0.40 | D: 1.32 |
| New York | 29 | D: 1.08 | D: 1.63 | D: 0.45 | R: 1.03 | R: 0.74 | D: 0.28 |
| North Carolina | 13 | R: 0.92 | R: 1.26 | D: 0.53 | D: 2.64 | D: 2.64 | D: 0.73 |
| Ohio | 18 | R: 2.79 | R: 2.48 | R: 1.79 | R: 0.58 | R: 0.64 | R: 1.66 |
| Oklahoma | 5 | R: 0.42 | R: 1.00 | R: 1.19 | R: 0.83 | R: 1.22 | R: 0.93 |
| Pennsylvania | 19 | R: 2.05 | R: 2.94 | R: 1.51 | D: 0.23 | R: 1.13 | R: 1.48 |
| South Carolina | 6 | R: 1.43 | R: 1.55 | R: 1.67 | R: 0.62 | R: 0.31 | R: 1.12 |
| Tennessee | 9 | D: 0.85 | D: 0.83 | D: 2.38 | D: 0.93 | R: 0.84 | D: 0.83 |
| **Texas** | **32** | **D: 2.54** | **R: 3.11** | **R: 3.31** | **R: 2.50** | **R: 2.42** | **R: 1.76** |
| Virginia | 11 | R: 1.06 | R: 2.19 | R: 1.65 | R: 0.23 | R: 0.52 | R: 1.13 |
| Washington | 9 | D: 1.00 | D: 1.24 | D: 0.96 | D: 1.30 | R: 0.25 | D: 0.85 |
| Wisconsin | 8 | D: 0.72 | R: 0.78 | D: 0.71 | D: 0.56 | D: 0.05 | D: 0.25 |

**Appendix 3: Partisan Bias in States with Six or More Congressional Districts (2012-2016)**

## Efficiency Gap: 2010s

Efficiency gap results displayed below include both the magnitude of the seat gap and the party advantaged by the gap. States with persistent results above the threshold of two seats that Stephanopoulos and McGhee propose for presumptive unconstitutionality are displayed in bold.

| State | CDs | 2012 | 2014 | 2016 | Average |
|---|---|---|---|---|---|
| Alabama | 7 | R: 0.97 | R: 0.41 | R: 0.70 | R: 0.69 |
| Arizona | 9 | D: 1.10 | D: 0.38 | R: 0.11 | D: 0.46 |
| California | 53 | D: 0.17 | D: 4.32 | R: 1.35 | D: 1.05 |
| Colorado | 7 | R: 0.59 | R: 0.22 | R: 0.38 | R: 0.40 |
| Connecticut | 5 | D: 0.95 | D: 1.47 | D: 1.15 | D: 1.19 |
| Florida | 27 | R: 3.46 | R: 1.78 | R: 1.45 | R: 2.23 |
| Georgia | 14 | R: 0.81 | R: 0.87 | R: 1.38 | R: 1.02 |
| Illinois | 18 | D: 0.56 | R: 0.18 | R: 0.04 | D: 0.11 |
| Indiana | 9 | R: 1.77 | R: 0.63 | R: 0.67 | R: 1.02 |
| Kentucky | 6 | R: 0.69 | R: 0.32 | R: 0.11 | R: 0.37 |
| Louisiana | 6 | R: 0.61 | R: 0.32 | R: 0.03 | R: 0.32 |
| Maryland | 8 | D: 0.54 | D: 1.57 | D: 0.86 | D: 0.99 |
| Massachusetts | 9 | D: 1.35 | D: 2.04 | D: 1.20 | D: 1.53 |
| **Michigan** | **14** | **R: 2.84** | **R: 2.48** | **R: 2.09** | **R: 2.47** |
| Minnesota | 8 | R: 0.07 | D: 0.63 | D: 0.64 | D: 0.40 |
| Missouri | 8 | R: 0.89 | R: 0.19 | R: 0.38 | R: 0.49 |
| New Jersey | 12 | R: 1.92 | R: 1.09 | R: 0.64 | R: 1.22 |
| New York | 27 | R: 1.78 | R: 1.38 | R: 2.86 | R: 2.01 |
| **North Carolina** | **13** | **R: 2.77** | **R: 2.74** | **R: 2.56** | **R: 2.69** |
| Ohio | 16 | R: 3.93 | R: 1.77 | R: 1.60 | R: 2.43 |
| Oklahoma | 5 | R: 0.75 | R: 0.31 | R: 0.37 | R: 0.48 |
| **Pennsylvania** | **18** | **R: 4.17** | **R: 2.87** | **R: 3.25** | **R: 3.43** |
| South Carolina | 7 | R: 1.55 | R: 1.19 | R: 1.20 | R: 1.31 |
| Tennessee | 9 | R: 0.51 | R: 0.16 | D: 0.02 | R: 0.22 |
| Texas | 36 | R: 1.95 | R: 0.50 | R: 3.18 | R: 1.88 |
| Virginia | 11 | R: 2.34 | R: 1.52 | R: 1.13 | R: 1.66 |
| Washington | 10 | D: 0.29 | D: 0.38 | D: 0.03 | D: 0.23 |
| Wisconsin | 8 | R: 1.17 | R: 0.62 | R: 0.50 | R: 0.76 |

## Seats-to-Votes Curve: 2010s

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

| State | CDs | 2012 | 2014 | 2016 | Average |
|---|---|---|---|---|---|
| Alabama | 7 | R: 1.18 | R: 0.67 | R: 0.86 | R: 0.90 |
| Arizona | 9 | D: 1.12 | D: 0.34 | D: 0.09 | D: 0.52 |
| California | 53 | D: 0.26 | D: 3.62 | R: 1.04 | D: 0.95 |
| Colorado | 7 | R: 0.82 | R: 0.38 | R: 0.54 | R: 0.58 |
| Connecticut | 5 | D: 0.15 | D: 1.43 | D: 1.19 | D: 1.22 |
| Florida | 27 | R: 3.61 | R: 1.27 | R: 1.47 | R: 2.12 |
| Georgia | 14 | R: 1.17 | R: 1.03 | R: 1.56 | R: 1.25 |
| Illinois | 18 | D: 0.79 | D: 0.20 | R: 0.13 | D: 0.29 |
| Indiana | 9 | R: 1.88 | R: 0.72 | R: 0.83 | R: 1.14 |
| Kentucky | 6 | R: 0.92 | R: 0.57 | R: 0.40 | R: 0.63 |
| Louisiana | 6 | R: 0.73 | R: 0.54 | R: 0.31 | R: 0.53 |
| Maryland | 8 | D: 0.69 | D: 1.61 | D: 0.97 | D: 1.09 |
| Massachusetts | 9 | D: 1.67 | D: 2.14 | D: 1.57 | D: 1.79 |
| **Michigan** | **14** | **R: 2.99** | **R: 2.47** | **R: 2.06** | **R: 2.51** |
| Minnesota | 8 | R: 1.12 | D: 0.57 | D: 0.58 | D: 0.01 |
| Missouri | 8 | R: 1.06 | R: 0.29 | R: 0.49 | R: 0.61 |
| New Jersey | 12 | R: 1.53 | R: 0.44 | R: 0.19 | R: 0.72 |
| New York | 27 | R: 0.14 | R: 0.83 | R: 1.81 | R: 0.93 |
| **North Carolina** | **13** | **R: 2.95** | **R: 2.81** | **R: 2.83** | **R: 2.86** |
| Ohio | 16 | R: 4.00 | R: 1.70 | R: 1.67 | R: 2.46 |
| Oklahoma | 5 | R: 1.01 | R: 0.75 | R: 0.79 | R: 0.89 |
| **Pennsylvania** | **18** | **R: 4.56** | **R: 3.04** | **R: 3.58** | **R: 3.73** |
| South Carolina | 7 | R: 1.68 | R: 1.32 | R: 1.27 | R: 1.42 |
| Tennessee | 9 | R: 0.74 | R: 0.25 | R: 0.19 | R: 0.39 |
| Texas | 36 | R: 0.91 | R: 0.26 | R: 2.06 | R: 1.08 |
| Virginia | 11 | R: 2.46 | R: 1.62 | R: 1.30 | R: 1.79 |
| Washington | 10 | R: 0.04 | D: 0.17 | R: 0.08 | D: 0.02 |
| Wisconsin | 8 | R: 1.25 | R: 0.67 | R: 0.69 | R: 0.87 |

## Mean-Median Difference: 2010s

Mean-median difference results displayed below include both the magnitude of the significance level and the party advantaged by it. States with persistent results above the threshold of 1.75 that Wang uses for statistical significance are displayed in bold.

| State | CDs | 2012 | 2014 | 2016 | Average |
|---|---|---|---|---|---|
| Alabama | 7 | R: 0.69 | R: 0.68 | R: 0.94 | R: 0.77 |
| Arizona | 9 | D: 1.06 | D: 1.35 | R: 1.15 | D: 0.42 |
| California | 53 | D: 0.45 | D: 0.79 | D: 1.51 | D: 0.92 |
| Colorado | 7 | R: 0.48 | R: 0.72 | R: 0.87 | R: 0.69 |
| Connecticut | 5 | D: 1.36 | D: 1.44 | D: 1.13 | D: 1.31 |
| **Florida** | **27** | **R: 1.86** | **R: 2.98** | **R: 1.90** | **R: 2.25** |
| Georgia | 14 | R: 2.38 | R: 2.04 | R: 1.38 | R: 1.93 |
| Illinois | 18 | R: 0.66 | D: 0.34 | D: 1.04 | D: 0.24 |
| Indiana | 9 | R: 0.46 | R: 1.48 | R: 1.26 | R: 1.07 |
| Kentucky | 6 | R: 0.97 | R: 0.95 | R: 1.27 | R: 1.06 |
| Louisiana | 6 | R: 0.79 | R: 0.65 | R: 1.00 | R: 0.81 |
| Maryland | 8 | D: 0.78 | D: 0.84 | D: 0.44 | D: 0.69 |
| Massachusetts | 9 | R: 0.63 | R: 0.32 | D: 0.46 | R: 0.16 |
| **Michigan** | **14** | **R: 1.87** | **R: 2.38** | **R: 2.32** | **R: 2.19** |
| Minnesota | 8 | R: 0.23 | D: 0.06 | R: 0.58 | R: 0.25 |
| Missouri | 8 | R: 1.48 | R: 1.62 | R: 2.00 | R: 1.70 |
| New Jersey | 12 | R: 0.76 | R: 0.59 | D: 0.07 | R: 0.43 |
| New York | 27 | R: 0.57 | R: 1.45 | R: 1.34 | R: 1.12 |
| **North Carolina** | **13** | **R: 2.47** | **R: 1.77** | **R: 1.75** | **R: 2.00** |
| **Ohio** | **16** | **R: 2.59** | **R: 2.47** | **R: 2.60** | **R: 2.55** |
| Oklahoma | 5 | D: 0.41 | R: 1.01 | R: 0.59 | R: 0.40 |
| **Pennsylvania** | **18** | **R: 2.41** | **R: 2.08** | **R: 2.49** | **R: 2.33** |
| South Carolina | 7 | R: 1.57 | R: 1.04 | R: 0.50 | R: 1.04 |
| Tennessee | 9 | R: 1.76 | R: 1.86 | R: 1.73 | R: 1.78 |
| **Texas** | **36** | **R: 2.89** | **R: 2.49** | **R: 1.82** | **R: 2.40** |
| **Virginia** | **11** | **R: 2.05** | **R: 1.85** | **R: 1.85** | **R: 1.92** |
| Washington | 10 | D: 0.73 | D: 0.46 | D: 0.59 | D: 0.59 |
| Wisconsin | 8 | R: 1.68 | R: 1.58 | R: 1.82 | R: 1.69 |

[1] Thornburg v. Gingles, 478 U.S. 30, 47 (1986), Bartlett v. Strickland, 556 U.S. 1, 22-5 (2009).

[2] Ibid.

[3] Lisa Handley, Bernard Grofman, and Wayne Arden, "Electing Minority-Preferred Candidates to Legislative Office: The Relationship Between Minority Percentages in Districts and the Election of Minority-Preferred Candidates" in *Race and Redistricting in the 1990s*, ed. Bernard Grofman (New York: Agathon Press, 1998), 13-38.

[4] Steven Hill, "How the Voting Rights Act Hurts Democrats and Minorities," *The Atlantic*, June 17, 2013, https://www.theatlantic.com/politics/archive/2013/06/how-the-voting-rights-act-hurts-democrats-and-minorities/276893/.

[5] Steven A. Holmes, "Did Racial Redistricting Undermine Democrats?," *New York Times*, November 13, 1994, http://www.nytimes.com/1994/11/13/us/the-1994-election-voters-did-racial-redistricting-undermine-democrats.html.

[6] Michael Kelly, "Segregation Anxiety," *New Yorker*, November 20, 1995, 46, 48. http://www.newyorker.com/magazine/1995/11/20/segregation-anxiety.

[7] Jeffrey Toobin, "The Great Election Grab," *New Yorker*, December 8, 2003, http://www.newyorker.com/magazine/2003/12/08/the-great-election-grab.

[8] Brief of Amicus Curiae The National Republican Congressional Committee in Support of Appellants, Gill v. Whitford, No. 16-1161 (U.S. filed March 24, 2017), 39-41.

[9] Gill v. Whitford, No. 16-1161 (U.S. filed March 24, 2017).

[10] North Carolina's 11th Congressional District changed hands in 2012 from Democrat to Republican.

[11] Nicholas O. Stephanopoulos and Eric M. McGhee, "Partisan Gerrymandering and the Efficiency Gap," *University of Chicago Law Review* 82 (2015): 831.

[12] Whitford v. Gill, No. 15-CV-421-BBC, 2016 WL 6837229 (W.D. Wis. Nov. 21, 2016).

[13] Nicholas Goedert, "Gerrymandering or geography? How Democrats won the popular vote but lost the Congress in 2012," *Research & Politics* 1 no. 1 (2014): 1, doi 10.1177/2053168014528683.

[14] Michael D. McDonald & Robin E. Best, "Unfair Partisan Gerrymanders in Politics and Law: A Diagnostic Applied to Six Cases." *Election Law Journal* 14 no. 4(2015):doi: 10.1089/elj.2015.0358.

[15] Samuel S-H Wang. "Three Tests for Practical Evaluation of Partisan Gerrymandering," *Stanford Law Review* 68 (2016):1263, http://www.stanfordlawreview.org/wp-content/uploads/sites/3/2016/06/3_-_Wang_-_Stan._L._Rev.pdf.

[16] Some have attributed this aggressive interpretation to stances by Bush Justice Department. See Miller v. Johnson, 515 U.S. 900, 924-6 (1995), *but see* Mark A. Posner, "Post-1990 Redistricting and the Preclearance Requirement of Section 5 of the Voting Rights Act," in *Race and Redistricting in the 1990s*, ed. Bernard Grofman (New York: Agathon Press, 1998), 80-117.

[17] Michael Barone and Grant Ujifusa, *The Almanac of American Politics 1994* (Washington D.C.: National Journal, 1993).

[18] For purposes of this study, we define the South as the states of the former Confederacy.

[19] Partisan bias measures are generally only used to measure bias in states with at least six districts. Therefore, Mississippi is not included in this analysis.

[20] Barone and Ujifusa, *The Almanac of American Politics 1994*, 1209.

[21] Florida's 18th and 21st Congressional Districts were both located in Miami-Dade County under the two congressional plans used in the 1990s and were represented by Republicans Ileana Ros-Lehtinen and Lincoln Diaz-Balart throughout this period. Michael Barone and Grant Ujifusa, *The Almanac of American Politics 2002* (Washington, D.C.: National Journal 2001), 411-13, 418-20.

[22] Michael Barone and Grant Ujifusa, *The Almanac of American Politics 1998* (Washington, D.C.: National Journal, 1997), 344.

[23] Hawaii is excluded from this analysis for the same reasons set forth in endnote 19.

[24] Barone and Ujifusa, *The Almanac of American Politics 2002*.

[25] Ibid.

[26] Michael Barone and Grant Ujifusa, *The Almanac of American Politics 2000* (Washington, D.C.: National Journal, 1999), 1097.

[27] Ibid., 175-316, 1100-1184.

[28] See Samuel Issacharoff, *Gerrmandering and Political Cartels,* 116 Harv. L. Rev. 593, 631-36 (2002) for a discussion of the Supreme Court's racial gerrymandering jurisprudence.

[29] Michael Barone and Richard E. Cohen, *The Almanac of American Politics 2006* (Washington, D.C.: National Journal, 2005), 117, 156, 467.

[30] Michael Barone and Richard Cohen, *The Almanac of American Politics 2010* (Washington, D.C.: National Journal, 2009), 105, 135, 408.

[31] Ibid., 487-88.

[32] Ibid., 135-36.

[33] Ibid., 389, 397, 407.

[34] Justin Levitt, *Quick and Dirty: The New Misreading of the Voting Rights Act*, 43 Fl. St. U. L. Rev. 573-610 (2016).

[35] TX-33 is a coalition district in the Dallas-Fort Worth area.

[36] Christopher Ingraham, "What 60 Years of Political Gerrymandering Looks Like," *Washington Post*, May 21, 2014, https://www.washingtonpost.com/news/wonk/wp/2014/05/21/what-60-years-of-political-gerrymandering-looks-like/?utm_term=.8cb5bdf77052.

[37] Bethune-Hill v. Virginia State Bd. of Elections, 137 S.Ct 788 (2017) (reversing and remanding decision holding that Virginia's 2012 congressional plan was not racial gerrymander) and Cooper v. Harris, 147 S.Ct. 1455 (2017) (affirming decision invalidating two districts in North Carolina's 2011 congressional plan as racial gerrymanders).

[38] Brennan Center analysis based on data from the Texas Legislative Council.