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# It's Not Just Gerrymandering:

The Bias in Our Electoral Mapping Process

## Executive Summary

Purple Values Foundation analyzed congressional district bias across all 50 states and found something deeply troubling. Twenty-eight states have maps that disproportionately favor one party over another, but here's the kicker: all this manipulation produces almost no net benefit. The opposing advantages cancel each other out nationally, creating just a 1-seat difference in Congress.

So, we're destroying democracy's foundation, citizen trust in government, for essentially nothing.

The numbers are stark. In Massachusetts, one-third of voters support Republican candidates, yet Republicans hold zero of the state's nine congressional seats. In Oklahoma, Democrats get over a third of the vote but hold none of the five seats. Across America, 78% of House races are predetermined before Election Day.

But here's what really shocked us: some of the most disproportionate maps come from independent commissions that claim to be fair. California's celebrated independent commission produces the most disproportionate map in America, giving Democrats 11 extra seats beyond what their vote share deserves.

**The bottom line:** We need leadership that will immediately put country over party. Governor Abbott and Governor Newsom can start the healing process by committing to proportional representation in their states. Make the offer: "We'll adopt fair proportional maps if you will too."

## Why This Matters: Democracy's Hidden Crisis

Purple Values Foundation exists because America is trapped in a vicious cycle of political polarization. Citizens feel disenfranchised in their own districts, watching representatives they didn't choose make decisions they don't support. As one person told us, "I feel politically homeless in an occupied congressional district."

That's not hyperbole. It's the lived experience of millions of Americans who've been systematically locked out of meaningful representation.

When voters can't elect representatives who reflect their actual preferences, they stop participating. Why vote in a predetermined game? This creates a feedback loop where only the most partisan voices show up, electing more extreme candidates, which drives more reasonable people away from politics entirely.

The psychological damage is real. Voters develop learned helplessness, lose trust in democratic institutions, and withdraw from civic life. What starts as disproportionate maps, ends up as a fundamental crisis as voters question our democratic legitimacy.

## The Scope of the Problem

Our analysis reveals disproportionate representation in 28 of 50 states, affecting millions of voters across the political spectrum. Twelve states show severe disproportion of 2 or more seats beyond what proportional representation would predict:

### Democratic Advantages:

- California: +11 seats (Independent Commission)
- Illinois: +4 seats (Democrat Control)
- New York: +4 seats (Democrat Control)
- Massachusetts: +3 seats (Democrat Control)
- Connecticut: +2 seats (Court-drawn)
- Washington: +2 seats (Independent Commission)
- New Jersey: +2 seats (Split Control)

### Republican Advantages:

- Florida: +4 seats (Republican control)
- Texas: +4 seats (Republican control)
- South Carolina: +2 seats (Republican control)
- Tennessee: +2 seats (Republican control)
- North Carolina: +2 seats (Republican control)

Beyond these major offenders, 16 more states show 1-seat disproportion. Among these smaller advantages, 13 disproportionately favor Republicans while only 3 disproportionately favor Democrats. The odds of this happening randomly? About 1 in 100.

Republican states are more likely to have disproportionate maps (62% vs 48% for Democratic states), but when Democratic states create advantages for themselves, they go bigger. The top 5 disproportion scores all come from Democratic states, and on average, Democratic states with disproportionate maps grab twice as many extra seats as Republican states with disproportionate maps.

While all of this is perfectly legal, the end result is safe districts, partisan candidates, and disaffected voters in the minority and the majority parties.

## Complete State-by-State Bias Scores

The table below presents our complete findings, sorted by the absolute value of the adjusted bias score (most biased to least biased). Note: we changed the sign for MI, CO, & MN as the bias was in favor of the minority party).

Rank	State	State Leans	Total Seats	Current Dem	Current Rep	Expected Dem	Expected Rep	Bias Score	Biased Seats
1	California	Democrat	52	43	9	32	20	3.14	+11 Dem
2	Massachusetts	Democrat	9	9	0	6	3	2.12	+3 Dem
3	Illinois	Democrat	17	14	3	10	7	1.97	+4 Dem
4	Connecticut	Democrat	5	5	0	3	2	1.83	+2 Dem
5	New York	Democrat	26	19	7	15	11	1.59	+4 Dem
6	Florida	Republican	28	8	20	12	16	1.53	+4 Rep
6	South Carolina	Republican	7	1	6	3	4	1.53	+2 Rep
8	Tennessee	Republican	9	1	8	3	6	1.41	+2 Rep
9	Texas	Republican	38	13	25	17	21	1.31	+4 Rep
10	Washington	Democrat	10	8	2	6	4	1.29	+2 Dem
11	New Mexico	Democrat	3	3	0	2	1	1.22	+1 Dem
12	Nebraska	Republican	3	0	3	1	2	1.22	+1 Rep
13	New Jersey	Democrat	12	9	3	7	5	1.17	+2 Dem
14	Arkansas	Republican	4	0	4	1	3	1.15	+1 Rep
14	Iowa	Republican	4	0	4	1	3	1.15	+1 Rep
14	Utah	Republican	4	0	4	1	3	1.15	+1 Rep
17	Oklahoma	Republican	5	0	5	1	4	1.12	+1 Rep
18	North Carolina	Republican	14	4	10	6	8	1.08	+2 Rep
19	Oregon	Democrat	6	5	1	4	2	0.87	+1 Dem
20	Kentucky	Republican	6	1	5	2	4	0.87	+1 Rep
21	Maryland	Democrat	8	7	1	6	2	0.82	+1 Dem
22	Missouri	Republican	8	2	6	3	5	0.73	+1 Rep
22	Wisconsin	Republican	8	2	6	3	5	0.73	+1 Rep
24	Indiana	Republican	9	2	7	3	6	0.71	+1 Rep
25	Arizona	Republican	9	3	6	4	5	0.67	+1 Rep
26	Georgia	Republican	14	5	9	6	8	0.54	+1 Rep

27	Ohio	Republican	15	5	10	6	9	0.53	+1 Rep
28	Pennsylvania	Republican	17	7	10	8	9	0.49	+1 Rep
<b>Proportional States (No Significant Bias)</b>									
29	Alabama	Republican	7	2	5	2	5	0.00	0
29	Alaska	Republican	1	0	1	0	1	0.00	0
29	Delaware	Democrat	1	1	0	1	0	0.00	0
29	Hawaii	Democrat	2	2	0	2	0	0.00	0
29	Idaho	Republican	2	0	2	0	2	0.00	0
29	Kansas	Republican	4	1	3	1	3	0.00	0
29	Louisiana	Republican	6	2	4	2	4	0.00	0
29	Maine	Democrat	2	2	0	2	0	0.00	0
29	Mississippi	Republican	4	1	3	1	3	0.00	0
29	Montana	Republican	2	0	2	0	2	0.00	0
29	Nevada	Democrat	4	3	1	3	1	0.00	0
29	New Hampshire	Democrat	2	2	0	2	0	0.00	0
29	North Dakota	Republican	1	0	1	0	1	0.00	0
29	Rhode Island	Democrat	2	2	0	2	0	0.00	0
29	South Dakota	Republican	1	0	1	0	1	0.00	0
29	Vermont	Democrat	1	1	0	1	0	0.00	0
29	Virginia	Democrat	11	6	5	6	5	0.00	0
29	West Virginia	Republican	2	0	2	0	2	0.00	0
29	Wyoming	Republican	1	0	1	0	1	0.00	0
<b>Reverse Bias States (Minority Party Over-Represented)</b>									
48	Michigan	Democrat	13	6	7	7	6	-0.56	+1 Rep
49	Colorado	Democrat	8	4	4	5	3	-0.73	+1 Rep
50	Minnesota	Democrat	8	4	4	5	3	-0.73	+1 Rep

**Notes:**

- Bias scores  $\geq 1.96$  indicate statistically significant bias at 95% confidence level
- Negative bias scores indicate the minority party is over-represented. We changed the sign.
- Expected seats calculated using average of 2020 presidential, 2024 presidential, and Cook PVI data

## How "Fair" Rules Create Disproportionate Results

The most eye-opening discovery isn't about obvious gerrymandering but about how neutral-sounding rules can systematically disenfranchise millions of voters.

Take California. Everyone praises its independent commission as the gold standard for fair redistricting. The commissioners can't consider partisan data, operate transparently, and follow seemingly neutral criteria like keeping districts compact and preserving "contiguity."

The result? Democrats win about 60% of California's votes but hold 83% of House seats. Our statistical analysis shows this outcome has less than a 1% chance of occurring randomly. California's disproportion score of 3.14 is the highest in the nation.

Why does a "fair" commission produce the most disproportionate map? Because the rules aren't actually neutral. By prioritizing "compactness," the commission preserves large Democratic urban blocs in Los Angeles, the Bay Area, and San Diego. Republicans get packed into fewer, heavily Republican rural districts. We were unable to find any studies on the effect of removing the compactness rule, so we had 2 AIs run simulations with similar results. Both suggested that eliminating the compactness requirement would significantly reduce California's disproportion, bringing Democratic representation closer to their actual vote share.

Now imagine Texas adopted similar rules but with one twist: every district must contain both urban and rural areas. This sounds reasonable, even enlightened. Representatives would have to consider the needs of ranchers and tech workers, rural hospitals and urban medical centers, oil workers and environmentalists, a more balanced perspective.

Under AI simulations, the redistricting results would be devastating for Democrats. By systematically diluting urban Democratic voters into rural Republican areas, this "fair" commission would likely give Republicans about 79% of Texas seats despite winning only 53% of the vote.

Would anyone accept either of these? Of course not. The disproportion would be obvious and would draw national outrage. Yet defenders could argue the process was completely neutral, transparent, and citizen-led, just like California's commission.

And if Texas adopted California's mapping procedures, the AI simulations predicted a disproportional map giving Republicans 19-20 seats and Democrats 18-19 seats.

This comparison reveals a crucial insight: disproportionate representation must be corrected regardless of how it's created. It doesn't matter whether the disproportion comes from partisan gerrymandering, neutral rules with partisan effects, or natural geographic clustering. The outcome is the same: millions of voters lose meaningful representation.

## The Statistical Evidence

Could this pattern of disproportionate representation across 28 states have occurred by random chance? The math says no.

Among the 31 states that show measurable disproportion, 28 disproportionately favor the majority party while only 3 disproportionately favor the minority party. Even assuming majority parties have natural advantages, this pattern has less than a 2.4% chance of occurring randomly.

Under the most generous assumptions about natural advantages toward majority parties, we're still looking at odds of roughly 1 in 42. Under more realistic assumptions, the odds drop to less than 1 in 5,000.

The systematic disproportion we see across America's congressional maps isn't coincidence or geography. It's the predictable result of deliberate choices about how districts get drawn.

## The National Cancellation: Maximum Damage, Minimal Gain

Here's the maddening part of this whole situation is that despite 28 states systematically alienating millions of citizens through disproportionate maps, the opposing advantages cancel out nationally to produce just a 1-seat difference in Congress.

Think about that. We're destroying democracy's foundation, voter trust in government, for essentially no net benefit. All this manipulation, all this voter alienation, all this institutional damage, and it produces a result that could occur by random chance.

This creates a false appearance of national fairness while millions of voters in individual states lack meaningful representation. It's the worst of all possible outcomes: maximum democratic damage for minimal partisan gain.

## Three States That Break the Pattern

Colorado, Michigan, and Minnesota present an interesting puzzle. All three lean Democratic but give Republicans extra representation, creating what we call "reverse disproportion."

These cases are particularly revealing because they show that states can disproportionately favor the other minority party, sometimes through court intervention or independent commission decisions that prioritize other factors over partisan balance.

In two of these three cases, lawsuits played a role which may partially explain the unexpected outcomes.

## The Polarization Cycle

Disproportionate maps don't just affect election outcomes. They reshape American politics in destructive ways:

**Safe seats breed extremism.** When 78% of House races are predetermined, the real election happens in low-turnout primaries where the most partisan voices dominate. Representatives learn to fear primary challenges from their base, not general election competition from the center.

**Voter engagement collapses.** When people know outcomes are predetermined, they stop participating. Why waste time on a fixed game? This leaves primaries (with 19% turnout) as the only meaningful elections, further empowering partisan extremists.

**Trust erodes.** When citizens repeatedly see their preferences ignored by design, they lose faith in democratic institutions and withdraw from civic engagement. This creates fertile ground for the institutional delegitimization that feeds our national divisions.

**Polarization intensifies.** Representatives who only need to appeal to partisan bases have no incentive to find common ground. They can ignore moderate voters and focus on keeping extremist primary voters happy.

## A Path Forward: Leadership Over Manipulation

Governor Abbott and Governor Newsom have the power to break this cycle. Both are on record as being willing to escalate redistricting battles, but are they willing to take steps toward healing?

**To Governor Abbott:** Texas currently holds 4 more Republican seats than proportional representation would predict. Your state is considering adding 5 more Republican districts, which could increase this disproportion even further.

**To Governor Newsom:** California's independent commission produces the most disproportionate map in America, giving Democrats 11 seats beyond what proportional representation would predict.

**The opportunity:** Both governors could immediately commit to proportional representation simultaneously. Texas moving to roughly 21 Republican and 17 Democratic seats, California moving to roughly 20 Republican and 32 Democratic seats. Will you accept proportional House representation is the other state will? Make the offer.

This isn't about either state disadvantaging itself. It's about both states choosing its citizens over manipulation, competition over predetermined outcomes, and national healing over partisan warfare.

Political violence is rising in America, and disproportionate representation fuels that fire. Both governors are willing to escalate, but is party or governor either willing to lead the de-escalation that our democracy desperately needs?

## What Citizens Gain from Proportional Maps

When leaders choose fairness over manipulation, citizens win:

**Competitive elections** mean representatives must earn votes through good governance, not coast on predetermined outcomes. Voter turnout increases 5-15% in competitive districts because people believe their choices matter.

**Reduced extremism** happens when politicians must appeal to diverse constituencies rather than just partisan bases. They rediscover the art of coalition-building that makes democracy work.

**Restored trust** comes from proof that the system can work for all Americans, not just partisan extremes. When maps reflect actual voter preferences, faith in democratic institutions begins to heal.

**Responsive government** emerges when officials become accountable to broad constituencies rather than just primary voters. Citizens regain their voice in how they're governed.

## The Choice Before Us

The polarization crisis isn't inevitable. It's the result of structural choices that can be changed. Disproportionate congressional maps are a hidden but powerful driver of this crisis, creating millions of voters who feel like prisoners in their own democracy.

We have a path out. Our leaders can continue competing to see who can create the most disproportionate maps, or they can lead us toward a democracy that works for all its citizens.

Governors Abbott and Newsom can demonstrate that leadership. By immediately committing to proportional representation in their congressional maps, they can begin restoring the trust and democratic legitimacy our polarized nation desperately needs.

Purple Values was founded to move America away from political extremism toward the fiscal responsibility, social compassion, and constitutional adherence that unite us as a people. Fair congressional maps that reflect actual voter proportions provide the foundation that makes this mission possible.

The choice is clear: we can remain trapped in escalating polarization and extremist governance, or we can begin rebuilding a democracy that works for all Americans.

The question now is whether our leaders will have the courage to join us.

## Appendix: The Numbers Behind the Analysis

### Methodology: How We Measured Bias

For those interested in the data and methodology behind our findings, we've included information on how we measured bias and analyzed different mapping systems. Our approach allows for fair comparisons between states of different sizes and political makeups.

### Methodology Detail

Our analysis uses rigorous statistical methods to measure partisan bias in congressional maps across all 50 states. Washington D.C. has no House seats, therefore votes cast in D.C. are not included in our analysis. This appendix provides the detailed methodology, data sources, and complete results that support our findings.

We only included votes cast for the Democrat and Republican presidential candidates. At this time third party's lack state-wide numbers needed for this analysis. We will continue to assess the inclusion of third party in future reports.

### Data Sources

Our methodology creates a robust, balanced assessment by combining multiple measures of partisan preference:

1. **Presidential Vote Data (2020):** State-level results from the 2020 Biden-Trump presidential election.
2. **Presidential Vote Data (2024):** State-level results from the 2024 Harris-Trump presidential election.
3. **Cook Partisan Voting Index (PVI):** A measurement of how each state voted in recent presidential elections compared to the national average.

By averaging these three indicators, we create a more stable baseline for each state's partisan lean that isn't overly influenced by any single election cycle or candidate-specific effects.

4. **Congressional Results:** Current House membership data was collected from the Clerk of the U.S. House of Representatives as of August 1, 2025.
5. **Redistricting Rules:** Information on state redistricting processes was compiled by multiple AIs from state constitutions, statutes, and official commission websites.

### Proportional Seat Calculation - Step by Step

For each state, we calculated the expected proportional allocation of seats as follows:

1. **Calculate Partisan Vote Share by State:**

- a. Republican Share = Average of Republican Vote Share across 2020 Presidential, 2024 Presidential, and Cook PVI
- b. Democratic Share = Average of Democratic Vote Share across 2020 Presidential, 2024 Presidential, and Cook PVI
2. **Multiply by Total House Seats:**
  - a. Expected Republican Seats = Republican Share × Total Seats in State
  - b. Expected Democratic Seats = Democratic Share × Total Seats in State
3. **Round Down to Whole Numbers:**
  - a. Projected Republican Seats = Floor(Expected Republican Seats)
  - b. Projected Democratic Seats = Floor(Expected Democratic Seats)
4. **Allocate Any Remaining Seat:**
  - a. If Projected Republican Seats + Projected Democratic Seats < Total Seats, then: Award remaining seat to party with higher vote share

### Detailed Bias Score Calculation

We used a standardized measure that adjusts for state size to enable fair comparisons:

1. **Actual Proportion (pa):**
  - a.  $pa = \text{Actual GOP Seats} / \text{Total Seats}$
2. **Projected Proportion (pp):**
  - a.  $pp = \text{Proportional GOP Seats} / \text{Total Seats}$
3. **Standard Error (SE):**
  - a.  $SE = \sqrt{[pp(1-pp)/\text{Total Seats}]}$
4. **Directional Bias Score (Z-value):**
  - a.  $\text{Directional Bias Score} = (pa - pp) / SE$
5. **Bias Score:**
  - a.  $\text{Bias Score} = \text{Absolute Value (Directional Bias Score)}$
6. **Note:**
  - a. The 3 cases of reverse bias, in CO, MI, and MN, are particularly interesting because they demonstrate that even in Democratic-leaning states, maps can be drawn that favoring the other party, sometimes inadvertently through court intervention or independent commission decisions.
  - b. After taking the absolute value, we chose to flip the sign to negative, so this significance was not lost. Additionally, we did not want reverse bias to affect the Bias Ranks.

This standardized score directly relates to confidence intervals. Using the normal distribution:

- An adjusted bias score of **±1.65** corresponds to a 90% confidence interval
- An adjusted bias score of **±1.96** corresponds to a 95% confidence interval
- An adjusted bias score of **±2.58** corresponds to a 99% confidence interval

When a state's directional bias score exceeds these thresholds, we can be statistically confident that the deviation from proportional representation is not due to random chance.

## Statistical Significance

Statistical significance is determined using the directional bias score, which follows a standard normal distribution. For a 95% confidence level (the standard in statistical analysis), bias is considered statistically significant if the absolute value of the adjusted bias score is greater than or equal to 1.96.

By this standard, the following states show statistically significant bias:

- **California:** 3.14 (Democratic leaning bias)
- **Massachusetts:** 2.12 (Democratic leaning bias)
- **Illinois:** 1.97 (Democratic leaning bias)

States with bias scores exceeding 1.65 (90% confidence level) include:

- **Connecticut:** 1.83 (Democratic leaning bias)

States with bias scores exceeding 1.44 (85% confidence level) include:

- **New York:** 1.59 (Democratic leaning bias)
- **Florida:** 1.53 (Republican leaning bias)
- **South Carolina:** 1.53 (Republican leaning bias)

## Could This Bias Pattern Have Occurred by Random Chance?

The statistical evidence overwhelmingly says no.

We start from the ideal that all 50 states would draw electoral maps with no partisan bias. In reality, we expect some maps will fall out of this category due to practical imperfections, geographic constraints, or other factors. The key question is: when bias does occur, does it randomly favor either party equally?

### What We Actually Found:

- 19 states showed no significant bias
- 31 states showed measurable bias toward either the majority or minority party
- Among those 31 biased states: 28 favored the majority party, only 3 favored the minority party

### Testing for Randomness

If the map-drawing process were genuinely unbiased, then when a state falls out of the "no bias" category, it should be roughly equally likely to favor either the majority or the minority party. We tested this hypothesis using three scenarios with increasingly generous assumptions about natural majority party advantages.

### The Verdict

Under any reasonable assumption about neutral map-drawing, the observed pattern is statistically implausible as the result of random chance. Even giving majority parties

substantial structural advantages, the odds of this outcome occurring accidentally remain vanishingly small.

The systematic bias we observe across America's congressional maps isn't the result of coincidence, geography, or random chance. It's the predictable outcome of deliberate choices about how districts are drawn – choices that consistently favor the party already in power.

### The Mathematical Evidence

For those interested in the statistical details, here are the precise calculations:

#### Scenario 1: Even Split ( $p = 0.5$ )

$$P(X \geq 28) = \sum_{k=28}^{31} C(31, k) \times (0.5)^k \times (0.5)^{(31-k)}$$

$$P(X \geq 28) = 2.09 \times 10^{-6} \approx 1 \text{ in } 480,000$$

Z-score calculation:

$$\mu = np = 31 \times 0.5 = 15.5$$

$$\sigma = \sqrt{np(1-p)} = \sqrt{31 \times 0.5 \times 0.5} = 2.78$$

$$Z = (28 - 15.5) / 2.78 = 4.50$$

#### Scenario 2: Majority Advantage ( $p = 0.6$ )

$$P(X \geq 28) = \sum_{k=28}^{31} C(31, k) \times (0.6)^k \times (0.4)^{(31-k)}$$

$$P(X \geq 28) = 1.76 \times 10^{-4} \approx 1 \text{ in } 5,700$$

Z-score calculation:

$$\mu = np = 31 \times 0.6 = 18.6$$

$$\sigma = \sqrt{np(1-p)} = \sqrt{31 \times 0.6 \times 0.4} = 2.73$$

$$Z = (28 - 18.6) / 2.73 = 3.44$$

#### Scenario 3: Strong Majority Advantage ( $p = 0.75$ )

$$P(X \geq 28) = \sum_{k=28}^{31} C(31, k) \times (0.75)^k \times (0.25)^{(31-k)}$$

$$P(X \geq 28) = 0.024 \approx 1 \text{ in } 42$$

Z-score calculation:

$$\mu = np = 31 \times 0.75 = 23.25$$

$$\sigma = \sqrt{np(1-p)} = \sqrt{31 \times 0.75 \times 0.25} = 2.41$$

$$Z = (28 - 23.25) / 2.41 = 1.97$$

Where:

- $X$  = number of majority-biased states among the 31 biased states
- $C(31,k)$  = binomial coefficient =  $31! / (k! \times (31-k)!)$
- $p$  = probability that a biased state favors the majority party

**Statistical Significance:**

- $Z > 1.96$  indicates significance at the 95% confidence level
- $Z > 2.58$  indicates significance at the 99% confidence level
- $Z > 3.29$  indicates significance at the 99.9% confidence level

**Bottom Line:** All three scenarios show statistically significant deviations from what we'd expect by chance. The 50/50 and 60/40 scenarios show extreme significance ( $Z > 3.29$ ), meaning there's less than a 0.1% chance this occurred randomly. Even under the generous 75/25 assumption, the result remains statistically significant at the 95% level, confirming that this pattern of bias is systematic, not accidental.

And we have now proven what America has known all along: Our state congressional district maps are biased. The bias we observe across America's congressional maps is intentional, not accidental.

Please help us improve.

Use the QR code to provide anonymous feedback on this report in a short 6 question survey



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