

Measuring Competitiveness in Redistricting

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Outline

- **What does “competitive” mean?**
- How might “competitive” be measured?
- How does competitiveness relate to bias?
- How might PlanScore help?

What does “competitive” mean?

- *Partisan*

- Supporting candidates as representatives of parties
- Party performance is what matters

- *Personal*

- Supporting candidates as individuals
- Individual candidate record is what matters

What does “competitive” mean?

- Redistricting *partisan* not *personal*
 - “To the extent practicable, competitive districts should be favored where to do so would create no significant detriment to the other goals.”
 - “Party registration and voting history data...may be used to test maps for compliance with with the above goals. The places of residence of incumbents or candidates shall not be identified or considered.”

COMPETITIVE:

- District’s *partisanship* makes it possible to be held by more than one party over its lifetime
 - *Personal* uncertainty

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How might “competitive” be measured?

- Party registration: *WORST*
 - Votes matter more than labels on a registration form
 - What about “other”?
 - Usually closet partisans
 - Usually *not* “swing voters”
- Vote for statewide office: *BETTER*
 - What matters is votes for the office the district is drawn to represent
 - Need to know relationship between statewide office and office in question

How might “competitive” be measured?

- Expected vote: *BEST*
 - Use statewide office and past outcomes to *predict* party performance
 - Fewest assumptions; most data-driven
- Two approaches
 - Average election (with uncertainty)
 - Average + partisan tides

How might “competitive” be measured?

- Average election (with uncertainty)
 - Pick some two-party vote range that seems competitive (e.g., 55%/45%, 53%/47%)
 - Factor in uncertainty about the expected outcome
- Average + partisan tides
 - What is a typical partisan tide, and will a district flip under those conditions?

Outline

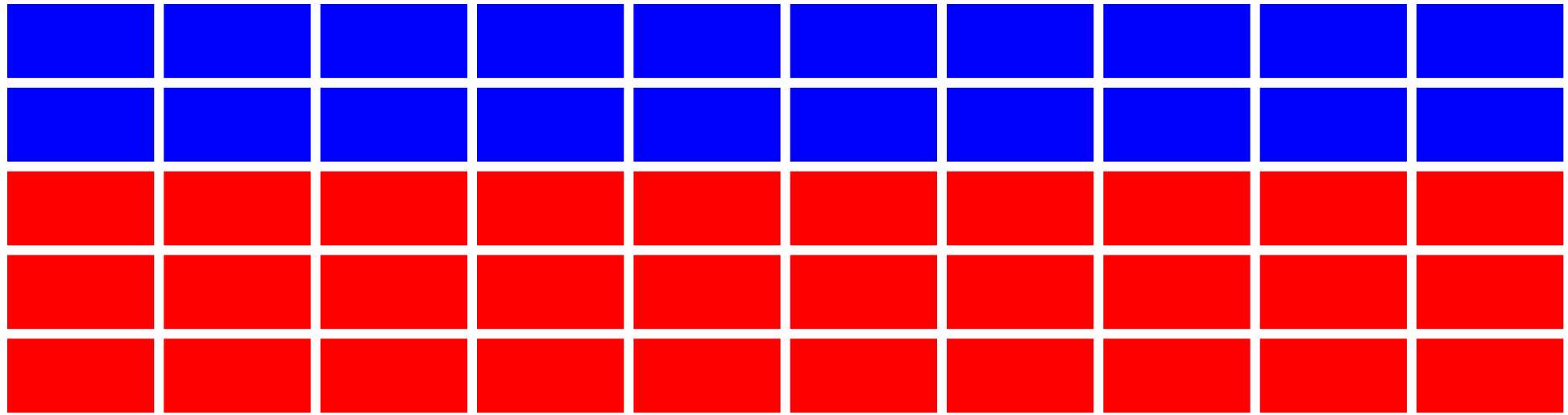
- What does “competitive” mean?
- How might “competitive” be measured?
- **How does competitiveness relate to bias?**
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How does competitiveness relate to bias?

- Bias = efficiency
 - Party supporters that don't contribute to victory might help win a neighboring district instead
 - Votes for losers
 - Votes in excess of number needed for winners
 - Party that wins its seats by smaller margins makes better use of its supporters
- All bias metrics measure some aspect of efficiency
 - For AZ, all give broadly similar results

How does competitiveness relate to bias?

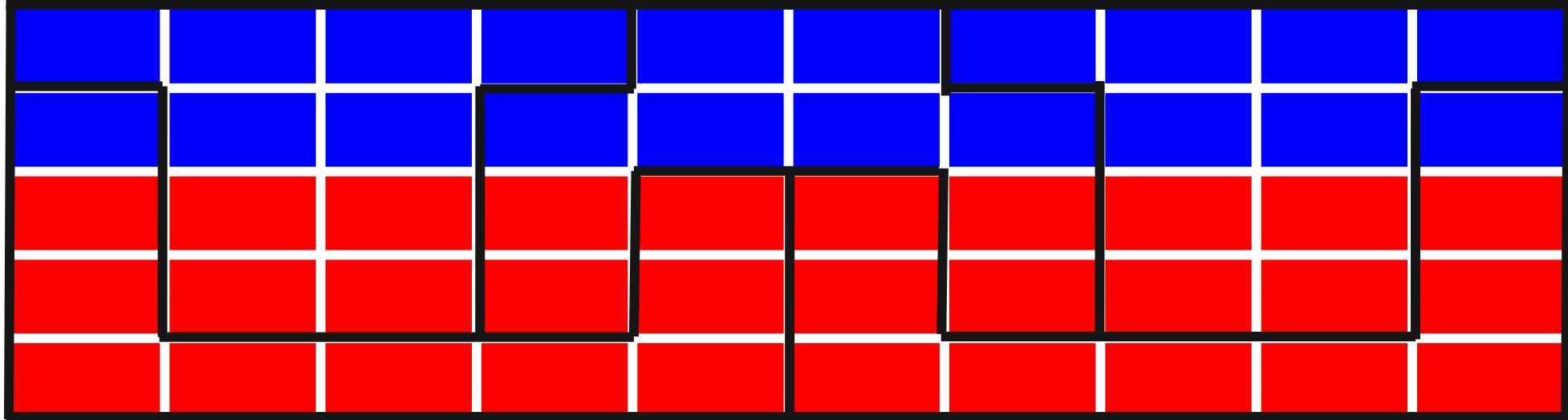
- Uncompetitive seats “use up” partisans of one side
 - Easier to create competitive seats on the other side
 - Might lead to accidental partisan results



50 VOTERS

20 BLUE

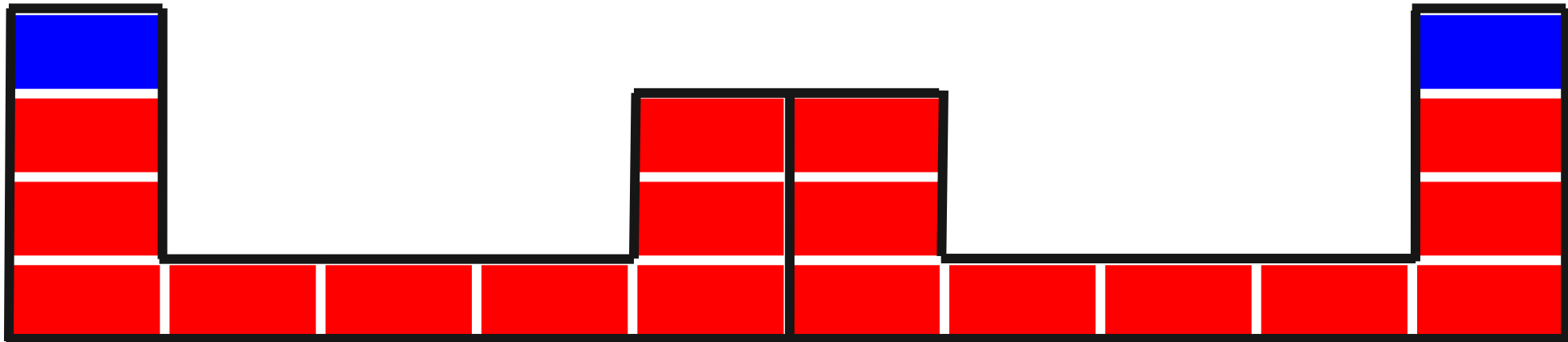
30 RED



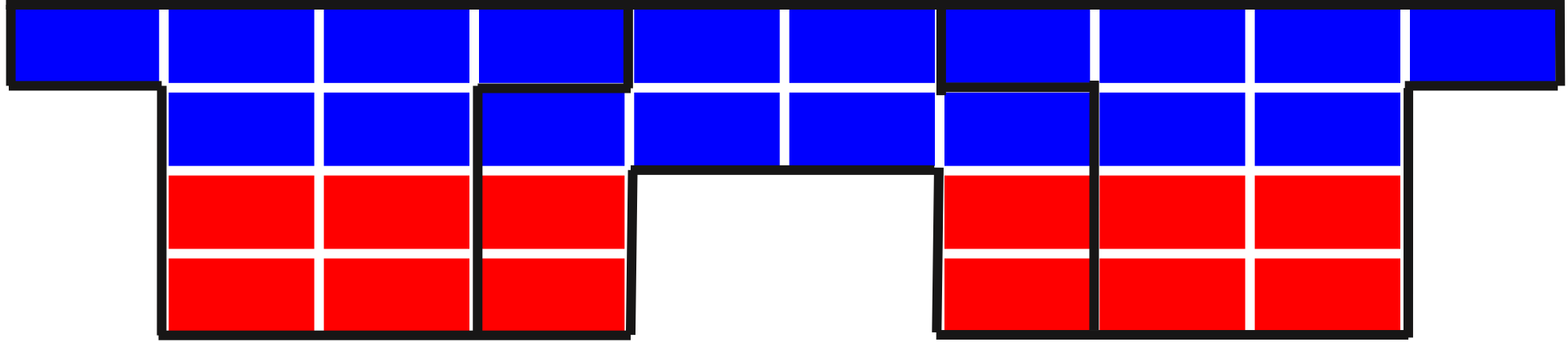
5 DISTRICTS

3 BLUE

2 RED



9 RED - 1 BLUE



4 RED – 6 BLUE

How does competitiveness relate to bias?

- Uncompetitive seats “use up” partisans of one side
 - Easier to create competitive seats on the other side
 - Might lead to accidental partisan results
- To avoid bias, balance competitiveness

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How might PlanScore help?

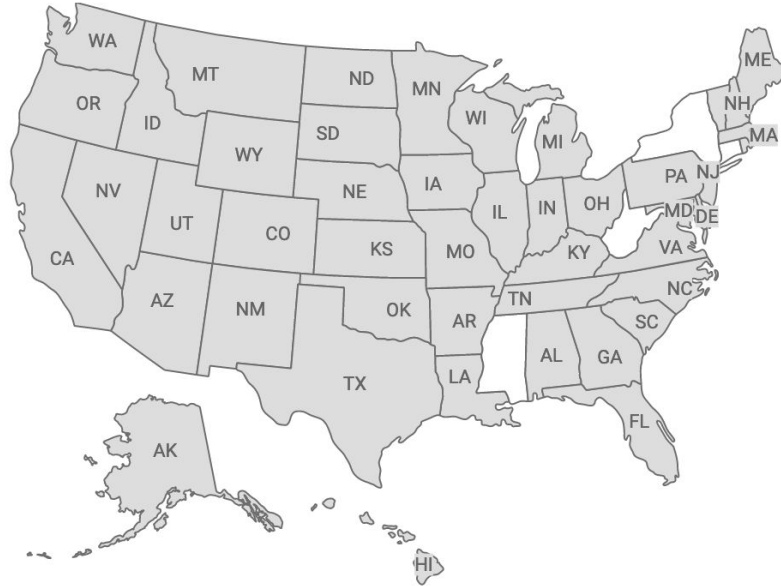
- PlanScore

- Nonpartisan redistricting resource
- Predict partisan outcomes of plans
- Calculate bias metrics
- Historical bias metrics



Try our scoring service for new district plans. Upload a map to instantly receive projected data about its partisan consequences. Previously, this sort of analysis was available only to the parties' line-drawers.

Learn more [about our methodology and its validation here.](#)



Our current supported states are **Alabama, Alaska, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming.**

Upload a district plan as a geospatial file containing Polygon or MultiPolygon shapes. These file types are currently supported:

- [Shapefile](#) (upload as a [single .zip file](#))
- [GeoJSON](#)
- [Geopackage](#)

Select a file to upload

Processing time depends on the complexity of the district plan, and may take a few seconds or many minutes.

Add Plan Details

Name this plan:

[Score This Plan](#)

Arizona U.S. House plan uploaded at 7/19/2021, 2:27:07 PM



Optional: Incumbent Candidates

If you know which districts have incumbents running for re-election, select their party affiliation below for a more accurate prediction.

District	Candidate Scenario		
1	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
2	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
3	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
4	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
5	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
6	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
7	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
8	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent
9	<input type="radio"/> Democratic Incumbent	<input checked="" type="radio"/> Unknown or Open Seat	<input type="radio"/> Republican Incumbent

[Score This Plan](#)

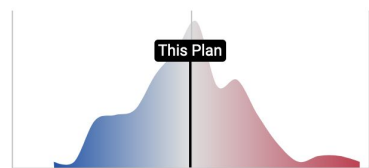
az_Final_Congressional_Districts-shp.zip

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Arizona U.S. House plan

PlanScore bases its scores on predicted precinct-level votes for each office (State House, State Senate, and U.S. House) built from past election results and U.S. Census data. [More information about the predictive model used to score this plan.](#)

Efficiency Gap: 0.1%



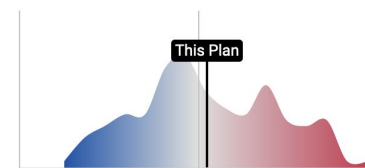
Votes for Democratic candidates are expected to be wasted at a rate 0.1% lower than votes for Republican candidates. The expected gap favors Democrats in 52% of predicted scenarios. [Learn more >](#)

Partisan Bias: 2.0%

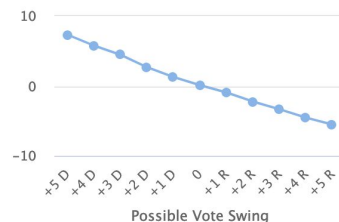


Republicans would be expected to win 2.0% extra seats in a hypothetical, perfectly tied election. The expected bias favors Republicans in 61% of predicted scenarios. [Learn more >](#)

Mean-Median Difference: 0.6%



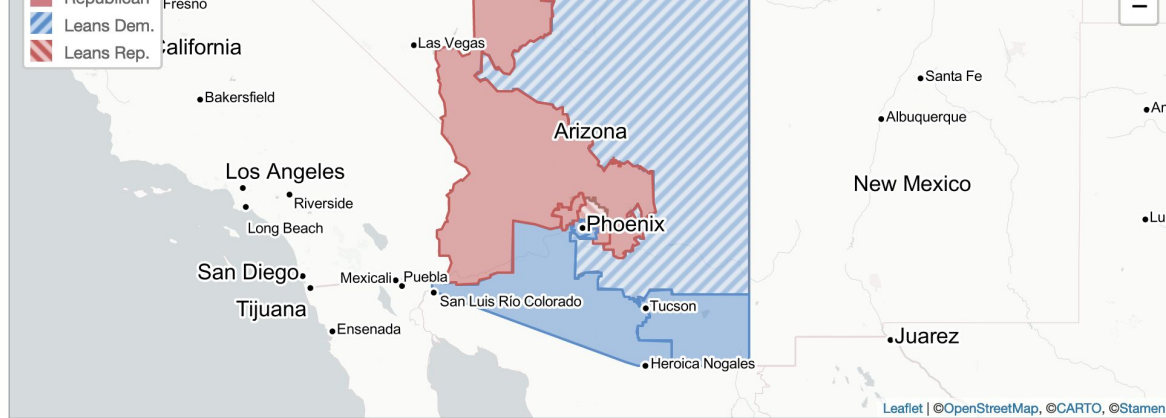
The median Republican vote share is expected to be 0.6% higher than the mean Republican vote share. The expected difference favors Republicans in 61% of predicted scenarios. [Learn more >](#)



Sensitivity Testing

Sensitivity testing shows us a plan's expected efficiency gap given a range of possible vote swings. It lets us evaluate the durability of a plan's skew.





District	Candidate Scenario	Pop. 2010	Pop. 2019	Black Pop. 2019	Hispanic Pop. 2019	CVAP 2019	Chance of Democratic Win	Predicted Vote Shares	Biden (D) 2020	Trump (R) 2020
1	Open Seat	710,671	771,735	3.5%	23.3%	567,935	54%	50% D / 50% R	187,206	180,700
2	Open Seat	710,276	707,895	5.4%	28.8%	532,259	79%	54% D / 46% R	213,393	171,776
3	Open Seat	710,731	759,021	5.9%	63.0%	471,505	99%	61% D / 39% R	174,830	99,516
4	Open Seat	711,441	780,071	2.6%	19.1%	601,493	<1%	34% D / 66% R	126,020	280,115
5	Open Seat	710,787	819,910	4.7%	18.4%	572,846	8%	44% D / 56% R	195,260	262,801
6	Open Seat	710,284	792,499	4.0%	17.4%	580,340	33%	48% D / 52% R	204,364	222,153
7	Open Seat	710,240	811,651	11.6%	64.0%	431,112	>99%	70% D / 30% R	165,131	55,430
8	Open Seat	710,578	788,596	5.9%	20.6%	583,841	6%	43% D / 57% R	181,713	251,458
9	Open Seat	710,224	786,011	7.7%	27.4%	555,241	98%	59% D / 41% R	224,196	137,706

[Download raw data as tab-delimited text.](#)



How might PlanScore help?

District	Actual 2020 Vote		PlanScore Prediction (open)	Planscore Prediction (with incumbency)
1	52%		50%	53%
2	55%		54%	56%
3	65%		61%	63%
4	30%		34%	32%
5	41%		44%	41%
6	48%		48%	45%
7	77%		70%	73%
8	40%		43%	40%
9	62%		59%	62%

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