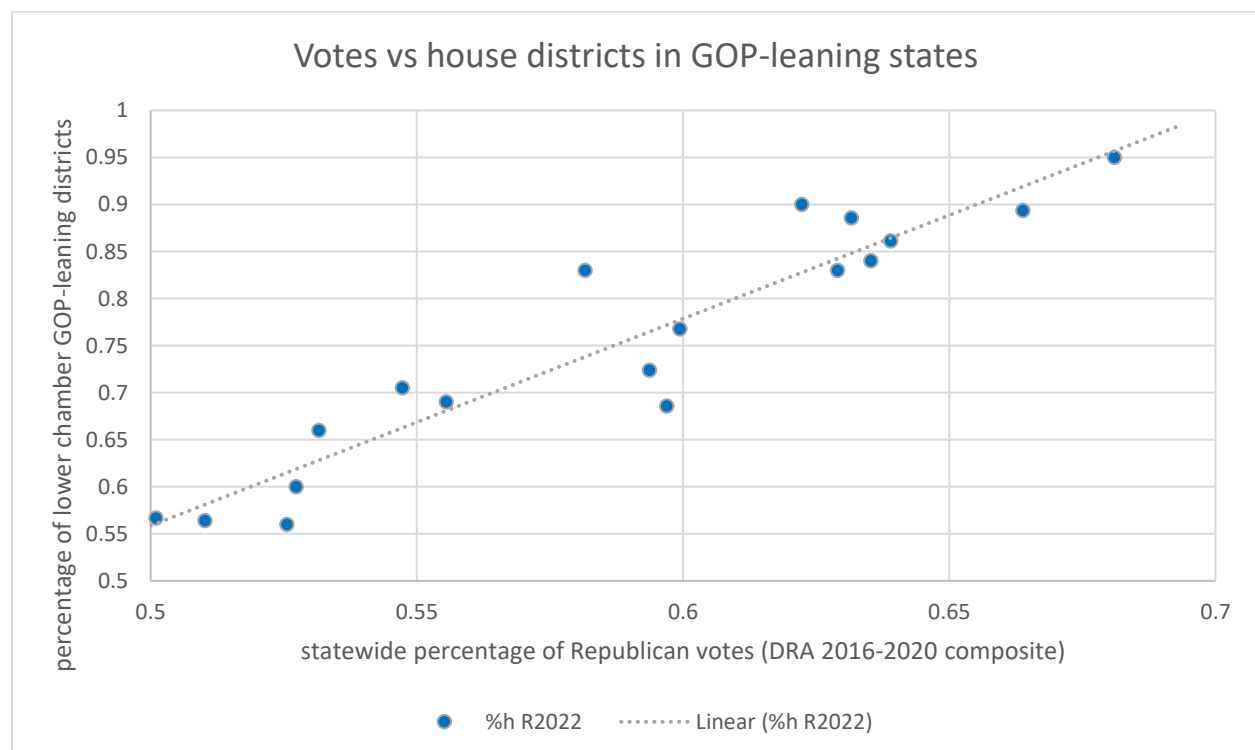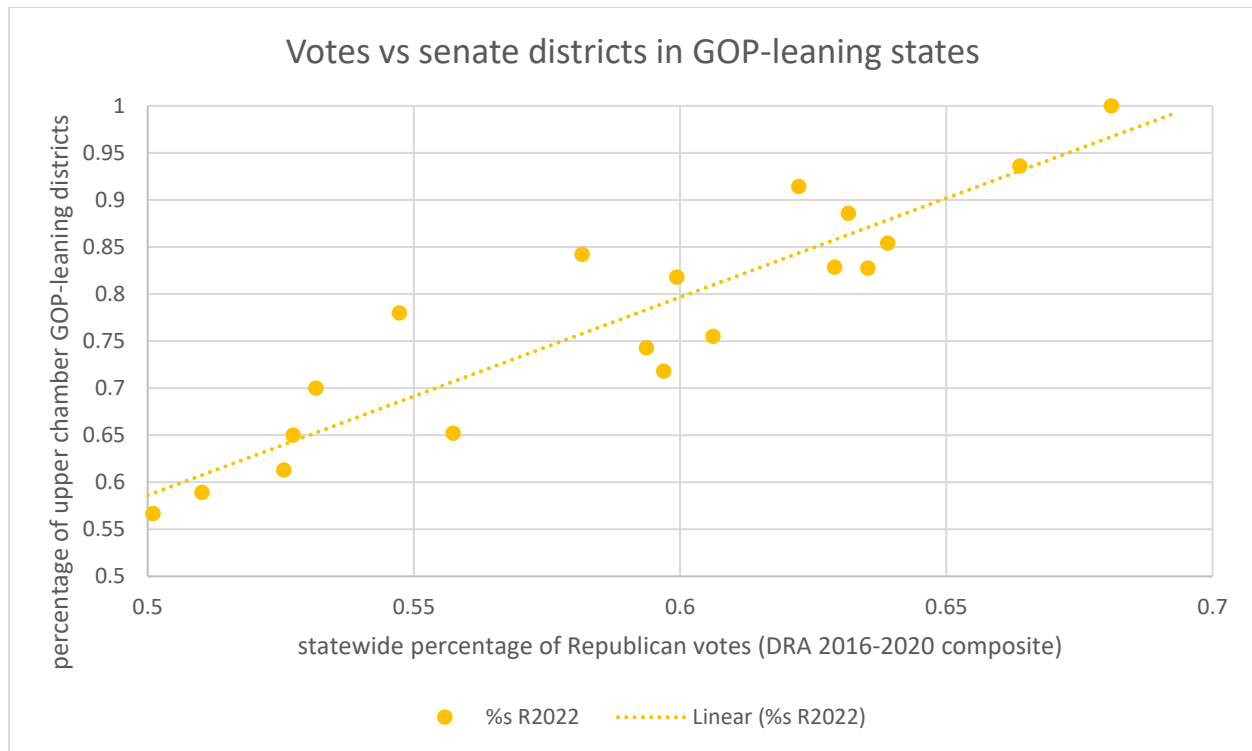The Dave's Redistricting App (DRA; davesredistricting.org) uses a composite 2016-2020 score to measure the recent margins of partisan statewide and federal elections. The composite for Ohio takes into account the 2016 and 2020 US presidential, the 2016 and 2018 US senatorial, the 2018 gubernatorial and the 2018 state attorney general elections. As such, it is a useful tool for determining the statewide preferences of the voters of Ohio based on statewide state and federal partisan general election results during the last ten years. According to the composite, Ohio's statewide voting margin is 52.41% Republican to 45.34% Democrat.

Comparing the percentage of Republican voters in states with a majority of Republican voters against the number of districts favoring Republican candidates in the general elections yields a very high correlation coefficient (0.941 for the lower chambers; 0.917 for the upper), just as we would expect if the number of votes for a particular party were positively correlated with the number of seats won by that party, and if the argument for proportional representation were not a mathematically sound metric. As there is an unmistakable positive correlation, we can perform a simple linear regression, where the independent variable is the percentage of Republican votes in statewide state and federal general elections, and the dependent variable is the percentage of Republican-leaning districts in a redistricting plan. By plotting the values in a scatter plot, we can then see approximately how many Republican-leaning seats there should be in any given state's redistricting plan. The same could be done for the Democratic Party; I have chosen the Republican Party because Ohio is a predominantly Republican state.

Based on the best fit line and on Ohio's 52.41 Republican lean, but with no other considerations, about 62% of Ohio's House districts and about 64% of Ohio's Senate districts should lean Republican.

Votes vs senate districts in GOP-leaning states

Of the other states in the United States, New Hampshire's voting demographics are the most closely aligned with Ohio's. According to the DRA 2016-2020 composite, New Hampshire's statewide voting margin is 51.94% Republican to 45.22% Democrat. Prior to this year's redistricting, New Hampshire's plan favored Republicans in 72% (101.5 of 141) of House districts and 75% (18 of 24) of Senate districts. As of April 2022, New Hampshire has not finalized a new redistricting plan. Therefore, if Ohio is measured against the state with the closest voting demographics to its own, the redistricting plan should favor Republicans in approximately 72 of 99 House districts and 25 of 33 Senate districts. By this standard, a plan with these values would more closely align to the statewide preferences of the voters of Ohio than any other would.

Among states in the Midwestern United States, Iowa's voting demographics are the most closely aligned with Ohio's. According to the DRA 2016-2020 composite, Iowa's statewide voting margin is 53.16% Republican to 43.96% Democrat. Prior to this year's redistricting, Iowa's plan favored Republicans in 64% (64 of 100) of House districts and 70% (35 of 50) of Senate districts. As of 2022, Iowa's plan favors Republicans in 66% (66 of 100) of House districts and 70% (35 of 50) of Senate districts. The average of Iowa's current and most recent plans has favored Republicans in 65% of House districts and 70% of Senate districts. Therefore, if Ohio is measured against the state with the closest voting demographics to its own in the same region, the redistricting plan should favor Republicans in approximately 65 of 99 House districts and 23 of 33 Senate districts. By this standard, a plan with these values would more closely align to the statewide preferences of the voters of Ohio than any other would.

Among states bordering Ohio, Indiana's voting demographics are the most closely aligned with Ohio's. According to the DRA 2016-2020 composite, Indiana's statewide voting margin is 54.73% Republican to 42.1% Democrat. Prior to this year's redistricting, Indiana's plan favored Republicans in 73% (73 of 100)

of House districts and 74% (37 of 50) of Senate districts. As of 2022, Indiana's plan favors Republicans in 70.5% (70.5 of 100) of House districts and 78% (39 of 50) of Senate districts. The average of Indiana's current and most recent plans has favored Republicans in 71.75% of House districts and 76% of Senate districts. Therefore, if Ohio is measured against the state with the closest voting demographics to its own with which it shares a border, the redistricting plan should favor Republicans in approximately 72 of 99 House districts and 25 of 33 Senate districts. By this standard, a plan with these values would more closely align to the statewide preferences of the voters of Ohio than any other would.

Based on other states whose voting margins and regional interests are most closely aligned with Ohio's, the statewide preferences of the voters allow a range of districts exclusively favoring Republicans in 65 to 72 House contests and in 23 to 25 Senate districts.

So we see that the result of linear regression predicting about 62% House and 63 or 64% Senate districts favoring Republicans is well short of the range here in the Midwest, so that anything below these percentages could not reasonably be determined as aligned with the statewide preferences of the voters of Ohio.

The plan included here favors Republicans in 68 House districts (68.7%) and in 21 Senate districts (63.6%). As these values are both at or between the national and regional averages, they are therefore closely aligned with the preferences of the voters of Ohio based on recent statewide general elections.