**Research Questions**

The purpose of this note is to flesh out the questions I want to answer to guide my work.

1. What is DRA’s method for evaluating the partisan characteristics of maps?   
     
   Write up the elements of the methodology we used: composite elections, the specific elections, fractional seat probabilities, inferring a seats­­–votes curve using proportional shift.
2. How much does the statewide Democratic two-party vote share () vary by election in a state’s composite?  
     
   For each map, calculate the mean , the SEM, and the RSE.
3. How much do district-by-district Democratic two-party vote shares () vary by election in a state’s composite?  
     
   For each map, calculate mean , SEM, and RSE for each district.   
     
   Question: Can these be meaningfully aggregated into one (set of) number(s) for each state-map?
4. How much do the Democratic two-party seat shares () for each vote share () in a map’s inferred seats–votes curve vary for each election in a state’s composite?   
     
   For each map, for each point in the inferred seats–votes curve calculate mean , SEM, and RSE.  
     
   Question: What range around can we constrain this analysis to? Most of the range 25–75% is not realistic for a state-map, and a narrower range should yield an even tighter result. Probably depends on the answer to #5 below.  
     
   Question: Can these be meaningfully aggregated into one (set of) number(s) for each state-map?
5. How much do partisan analytics vary by election in a state’s composite? (The analysis to definitively answer Moon Duchin.)  
     
   Question: What subset of metrics do we want to do this analysis for?  
     
   For each map and metric, calculate the mean, SEM, and RSE. Compare the mean to the same metric for the composite.  
     
   Question: Is there some formal way we can analyze the differences between the mean value of the metric and the metric for the composite (which is the mean of the elections in it)?

*Note: Answering question about the actual election results requires processing the 2022 election like I have for previous election results and imputing the results for uncontested races.*

1. How much do *actual* 2022 statewide congressional Democratic two-party vote shares () vary from the statewide Democratic two-party vote share () for each state’s composite? Ideally, we could say something like, “Based on this sample, actual congressional Democratic two-party vote shares were within +/–N% of the composite’s statewide vote share.” and have confidence narrowing the range of analysis of the seats–votes curve.  
     
   For each state, calculate the difference () … Question: I’m a little uncertain how to characterize this variation. Should I calculate the mean difference across states/maps and then SEM and RSE for this?
2. How well do the inferred seats–votes curves track actual 2022 election results? IOW, given actual statewide congressional Democratic two-party vote shares (), how well do inferred seat shares () track actual seats ()?  
     
   For each map, interpolate the seat fraction () for the actual statewide congressional Democratic two-party vote share () and then the implied first-past-the-post (FPTP) seats (). Compare predicted seats () to actual seats ().   
     
   This feels like it’s going to be a pretty coarse, more qualitative analysis.

[end]