

Impact of Gerrymandering in America

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BASS CONNECTIONS



Bass Connections in Information, Society & Culture

Is America Gerrymandered?

- Limited quantitative data exists that measure the extent of gerrymandering
- We conduct a state-by-state analysis to observe the cumulative impact of gerrymandering in the United States

Methods

- Linear Regression:

$$\text{House Result}(p)_D = \sum_{C \in D} C_p \times \text{CountySplitValue}(p)_{CND}$$

- Machine Learning: Used a 3 layer neural network to predict election results based on census data

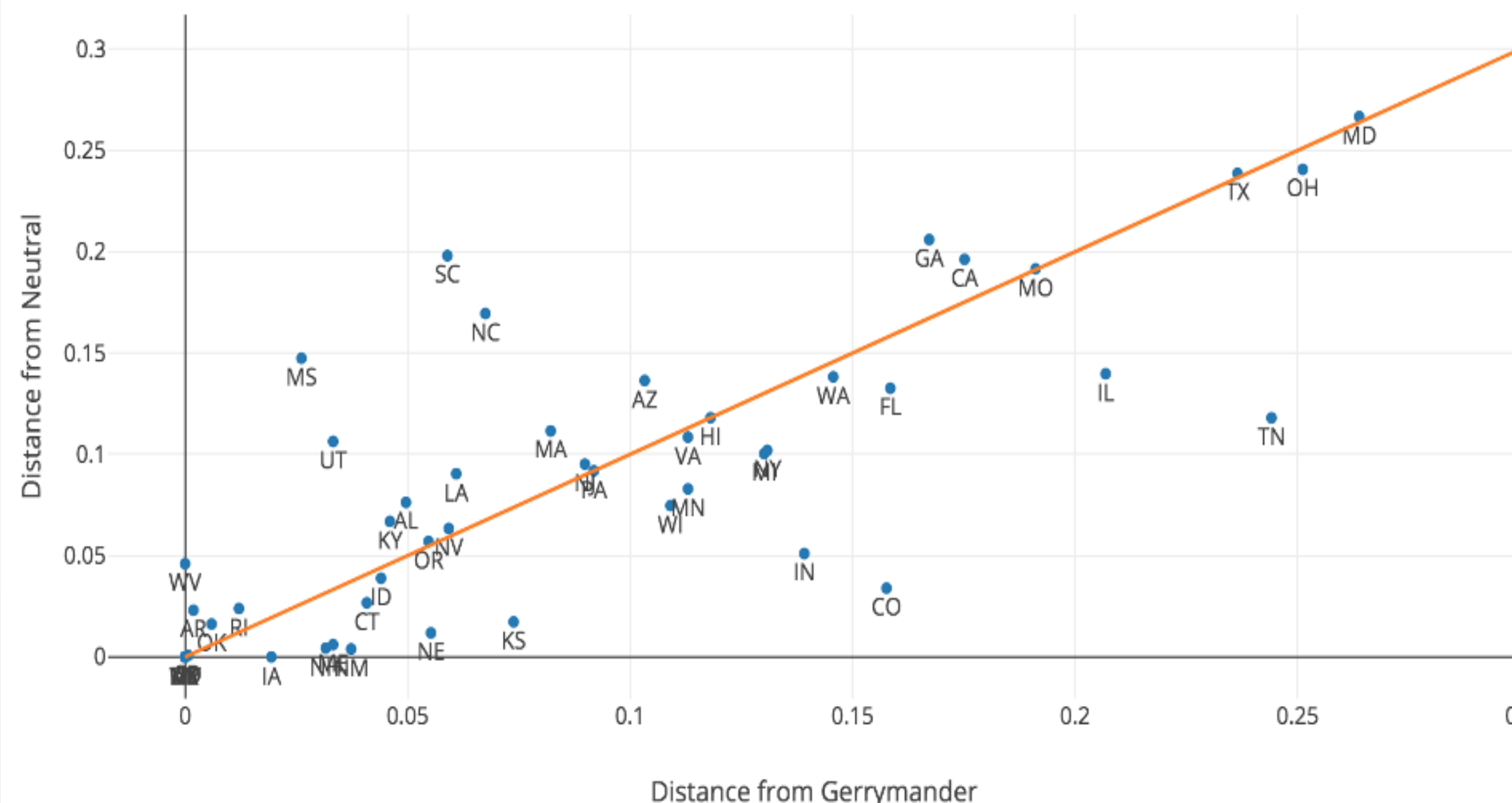
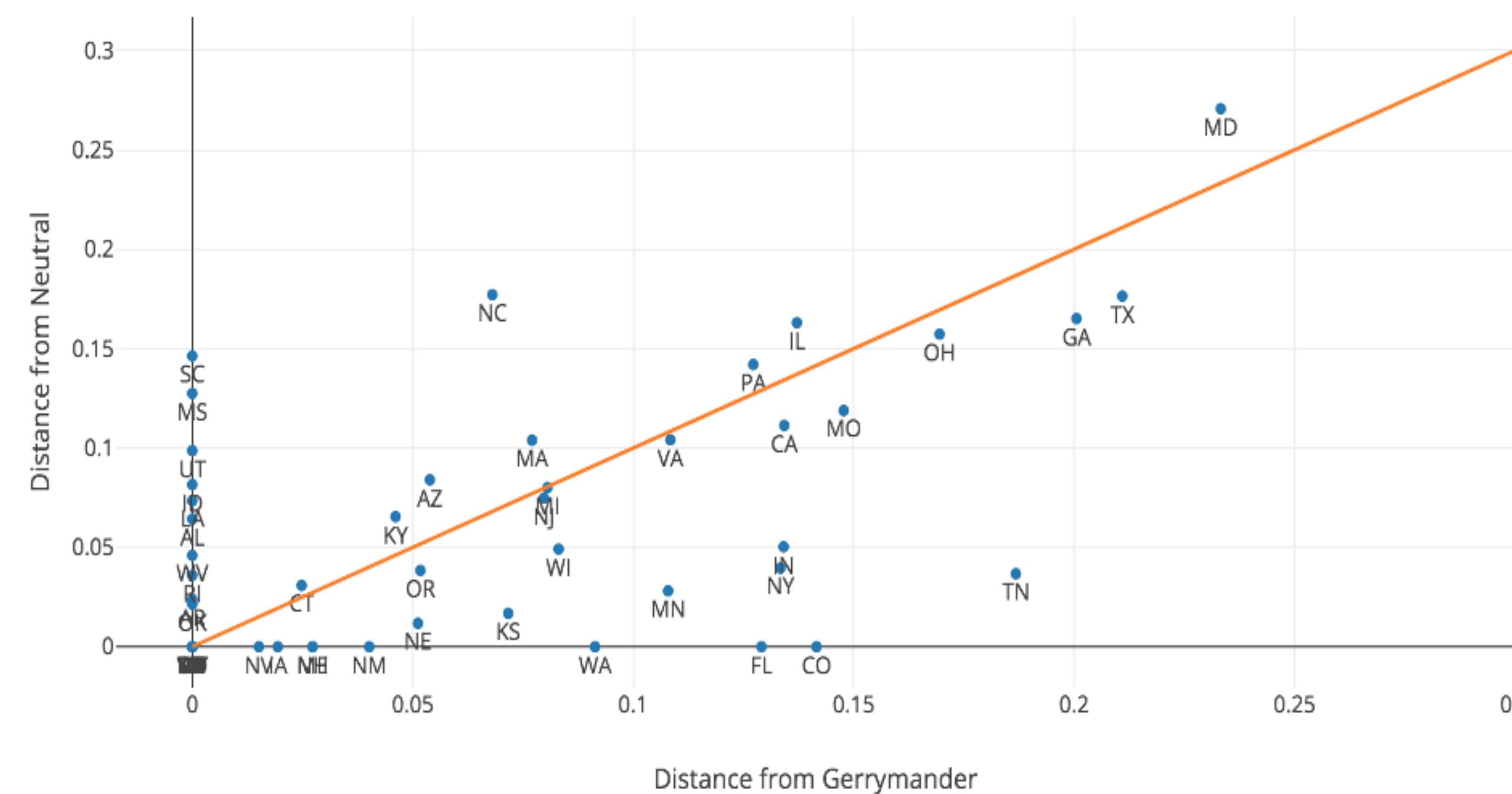
- 538 Atlas of Redistricting:

- Used compact maps as a neutral baseline
- Used Democratic and Republican gerrymandered maps
- Used state current maps

Gerrymandering in Individual States

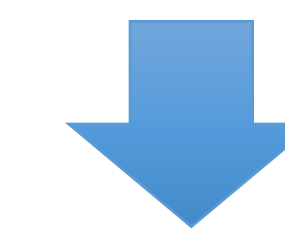
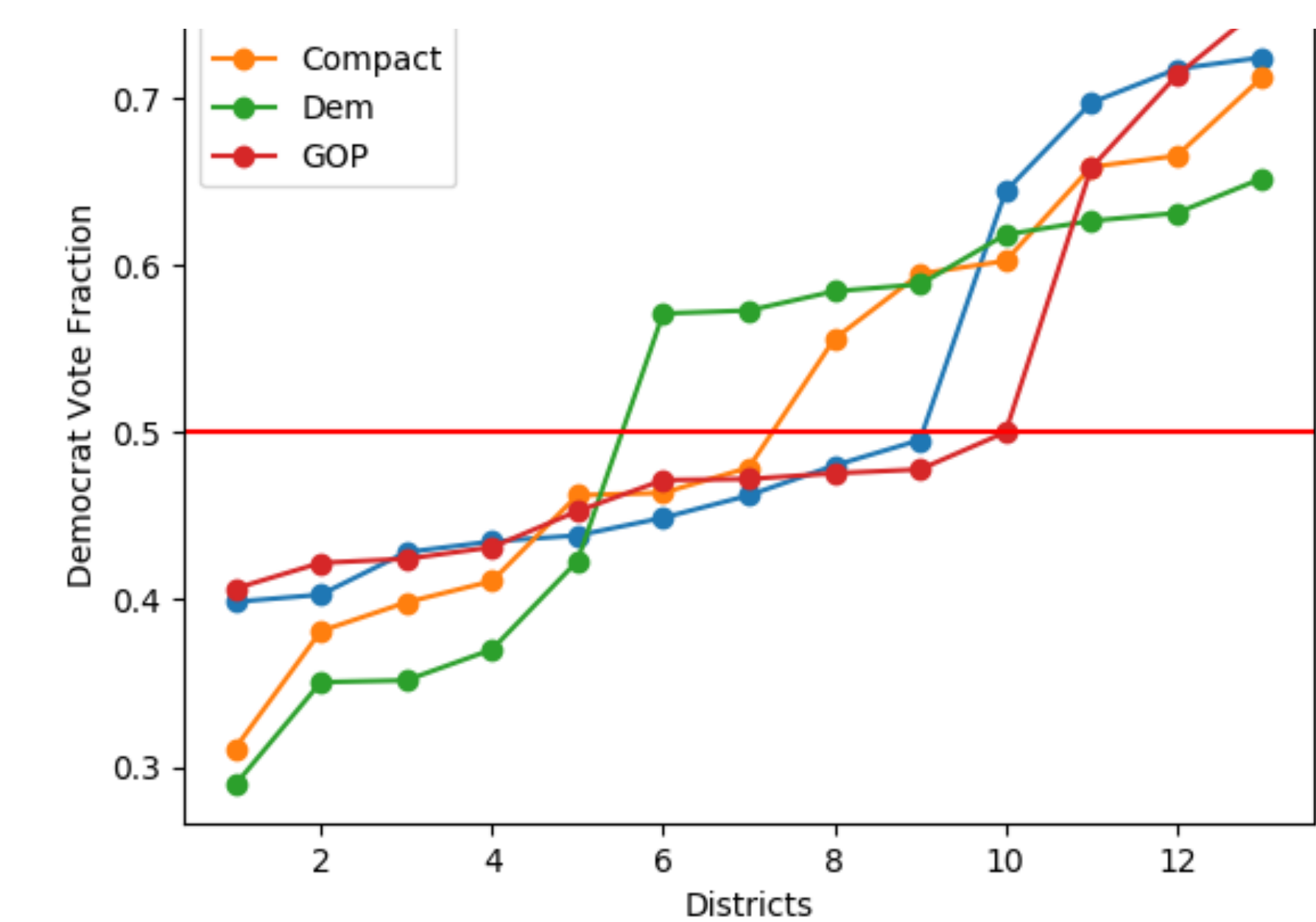
- Chart key political variables in each state's redistricting method
- Using vote fraction plots, measure distance from Atlas compact and gerrymandered maps to currently enacted states maps
- Graph each state's respective distances

State Distance Plots

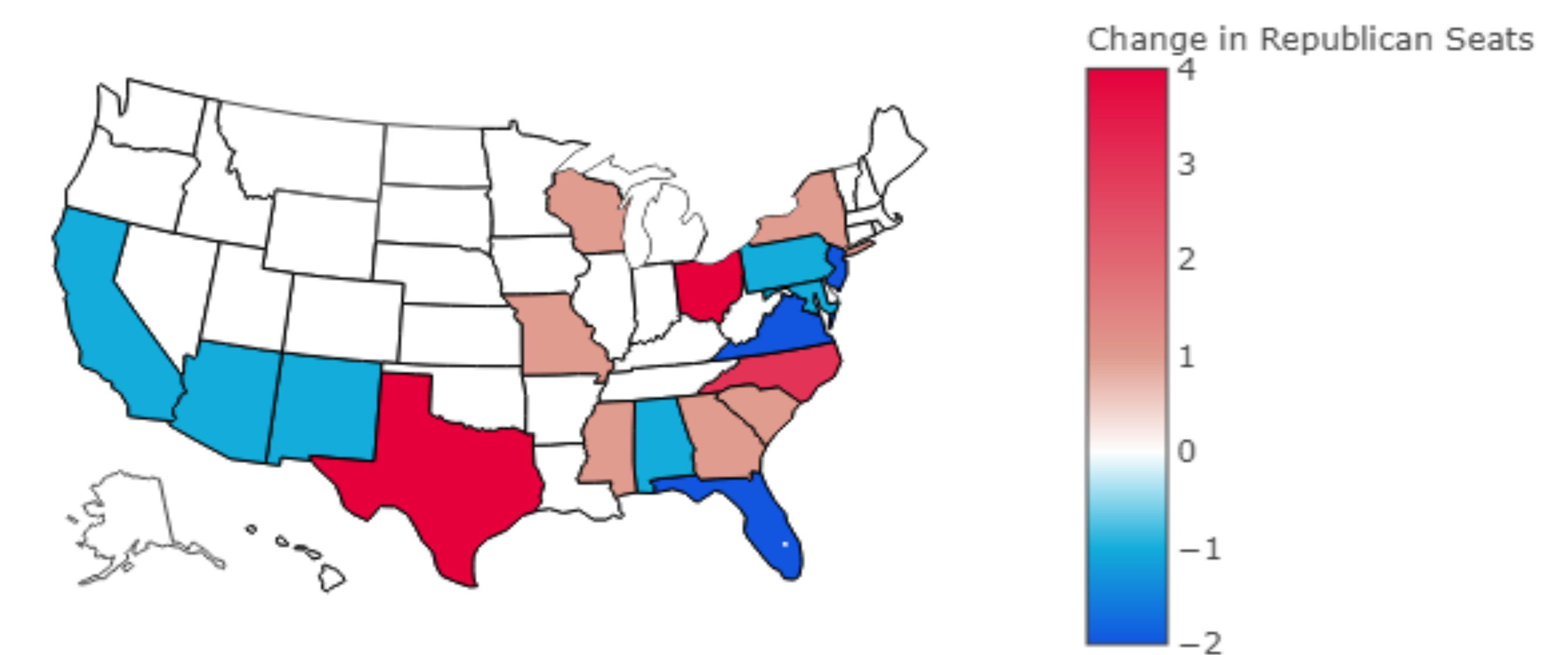


Gerrymandering at the National Level

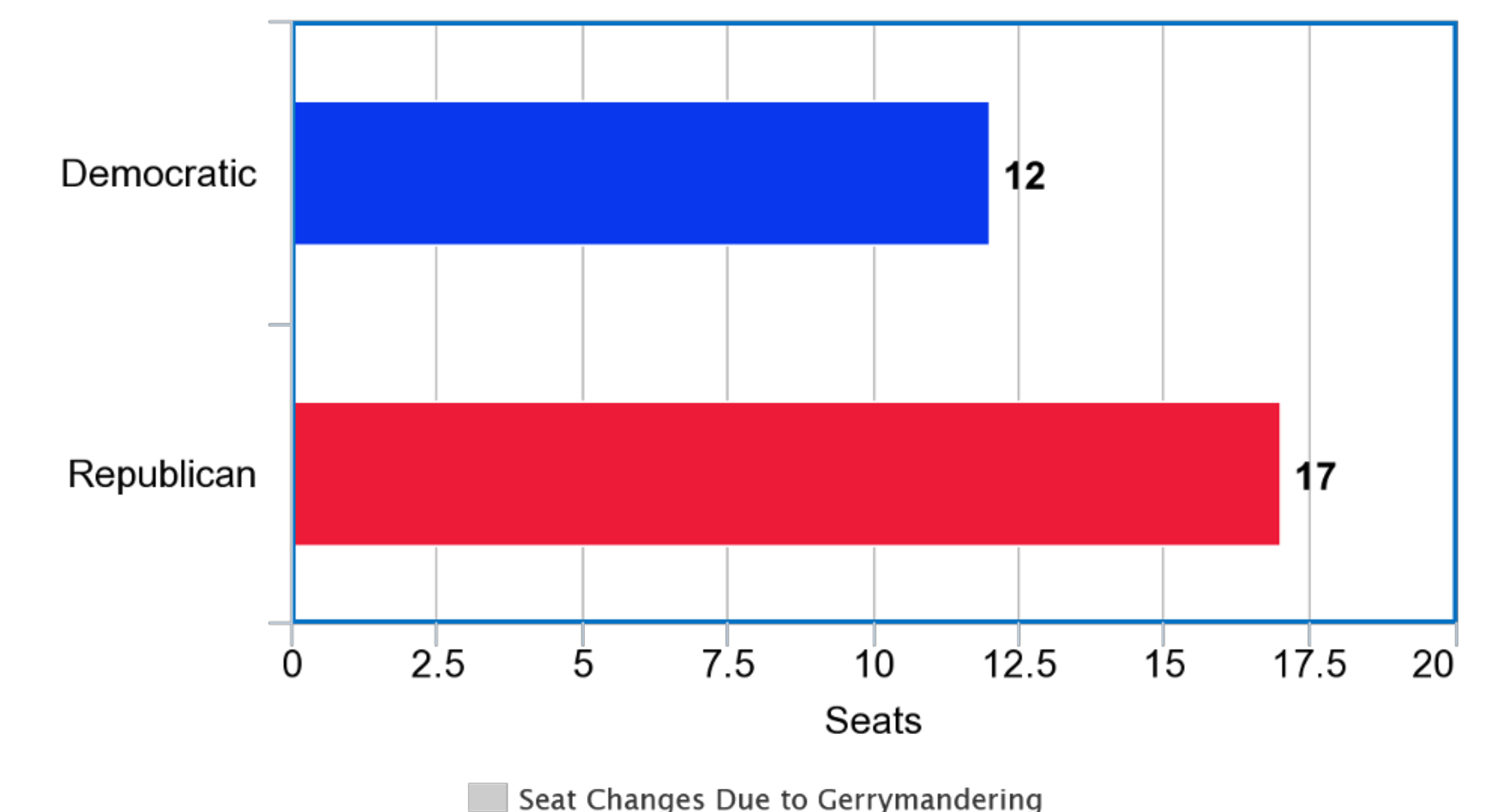
Simulated House Election Results



House Seat Changes Due to Gerrymandering 2018



2018 House Seats Gained Through Gerrymandering



A special thanks to our project leaders: Fritz Mayer, Gregory Herschlag, and Jonathan Mattingly