

# Gerrymandering in the North Carolina State Legislature

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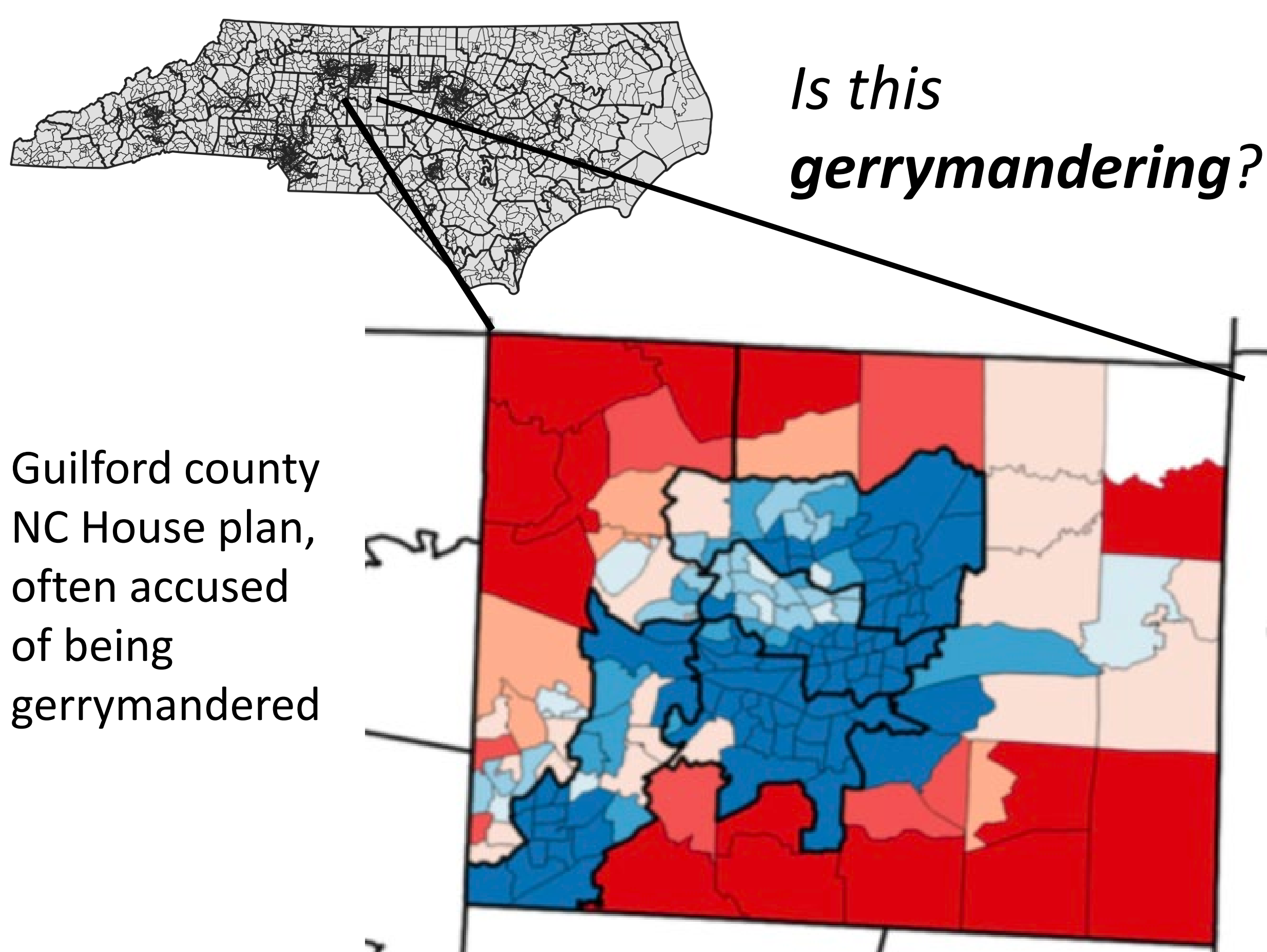
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## Background

Since 2010, every state election held for the North Carolina state legislature used redistricting plans that were later deemed **unconstitutionally gerrymandered** by the United States Supreme Court. Through our research, we aim to quantify the extent of gerrymandering within North Carolina's House and Senate legislatures.

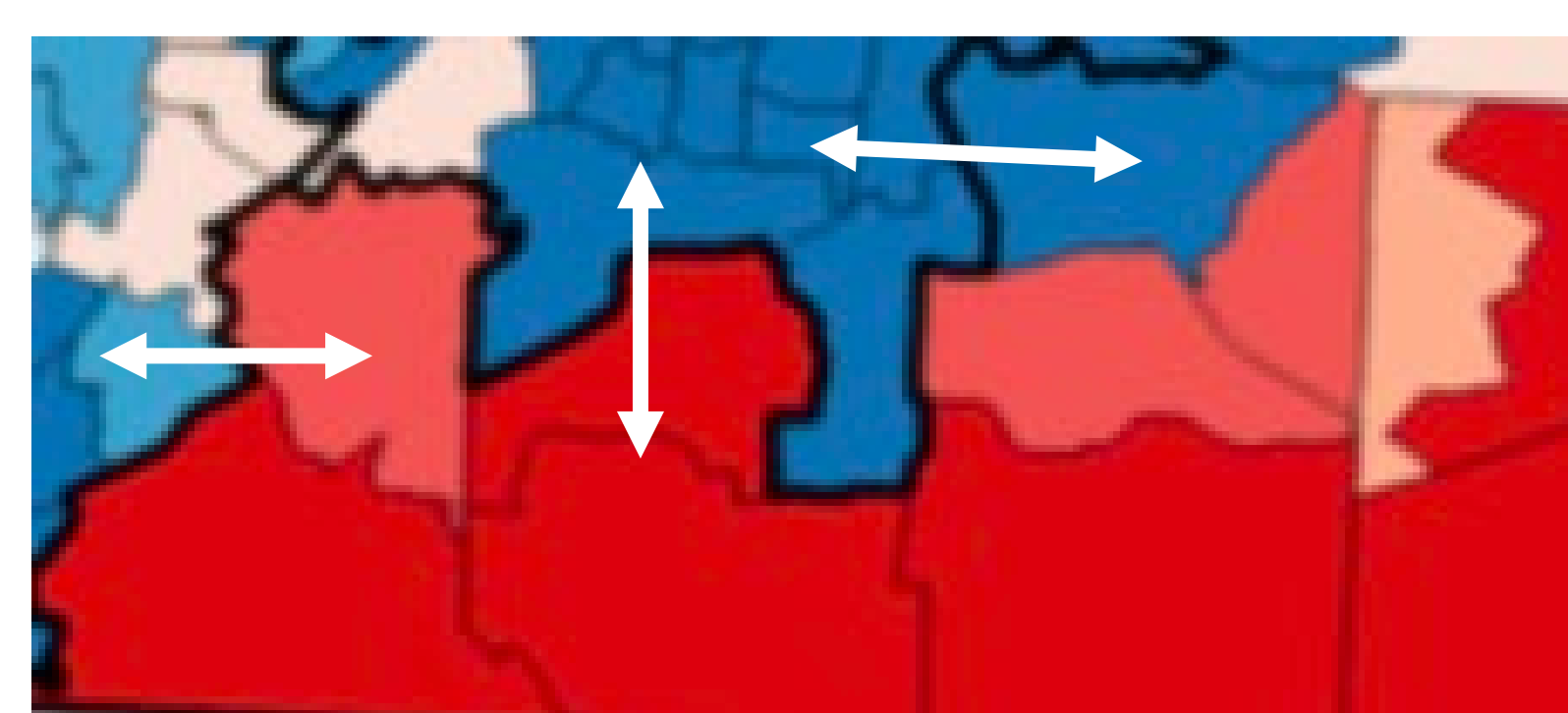


## How Do We Quantify?

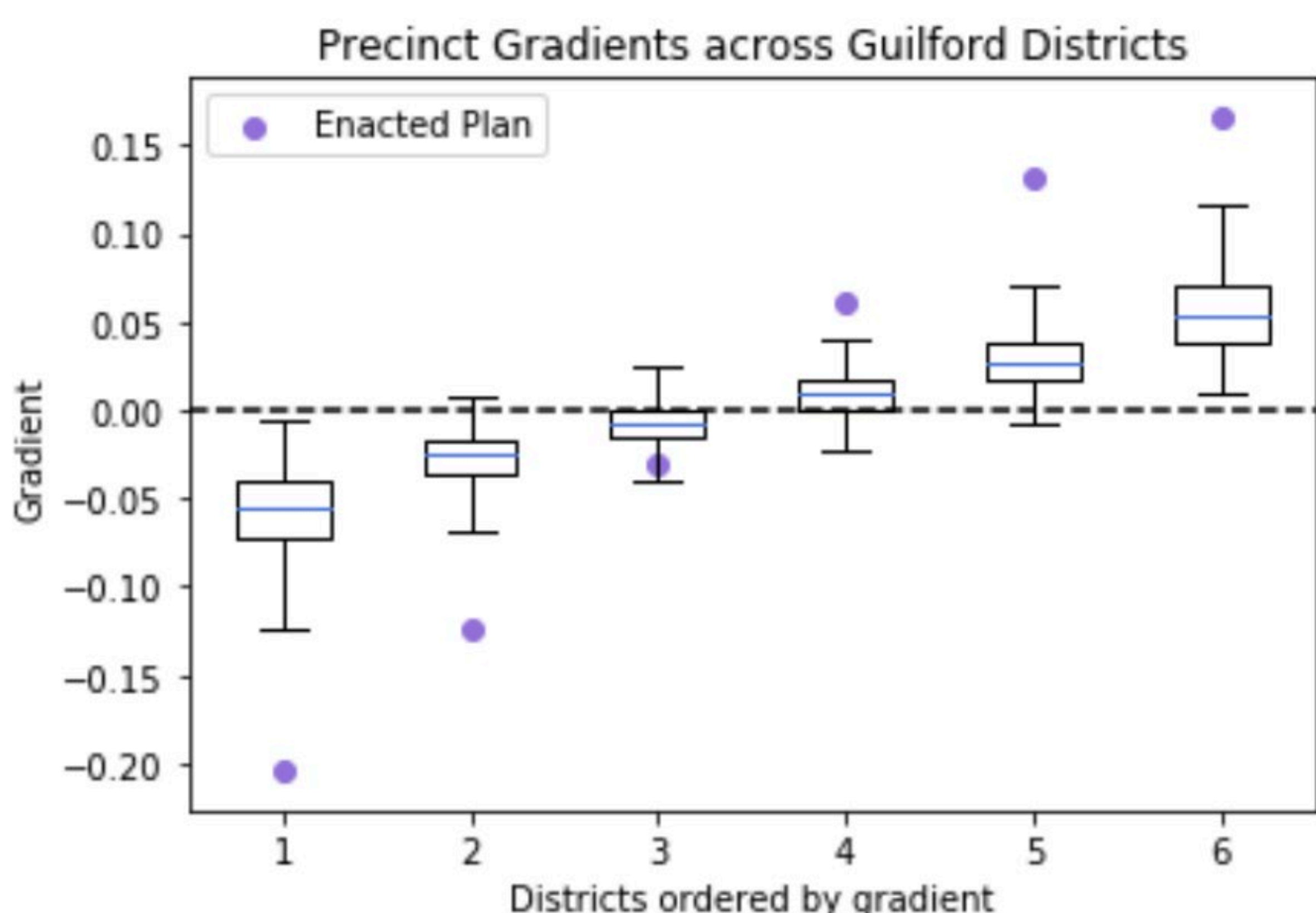
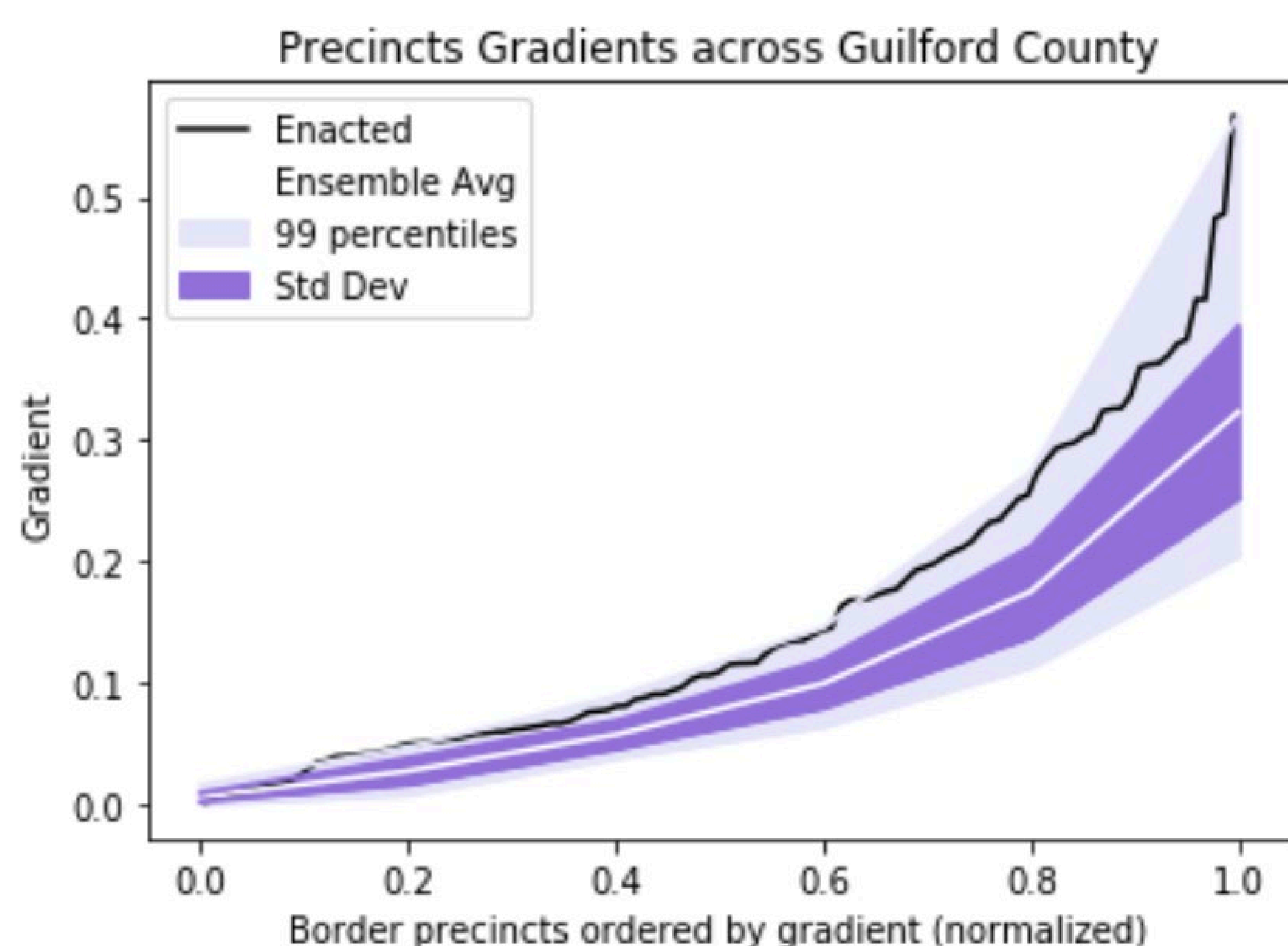
- Randomly generate **ensemble** of 1,000 compliant district plans with a Markov Chain Monte Carlo algorithm
- Factor in population, compactness, and limiting split counties
- **Map** previous election voting data onto each plan
- **Simulate election outcomes** in the ensemble for **four elections**:
  - 2012 President (PRE12)
  - 2014 Senate (SEN14)
  - 2016 Commissioner of Insurance (COI16)
  - 2016 Governor (GOV16)
- **Compare** % of seats won by Democrats in **ensemble plans** to % of seats won by Democrats in **enacted plan** for each district

## Do Borders Matter?

Were redistricting borders intentionally chosen to “pack” large numbers of Democrats into few districts and “crack” remaining few in the majority of districts?

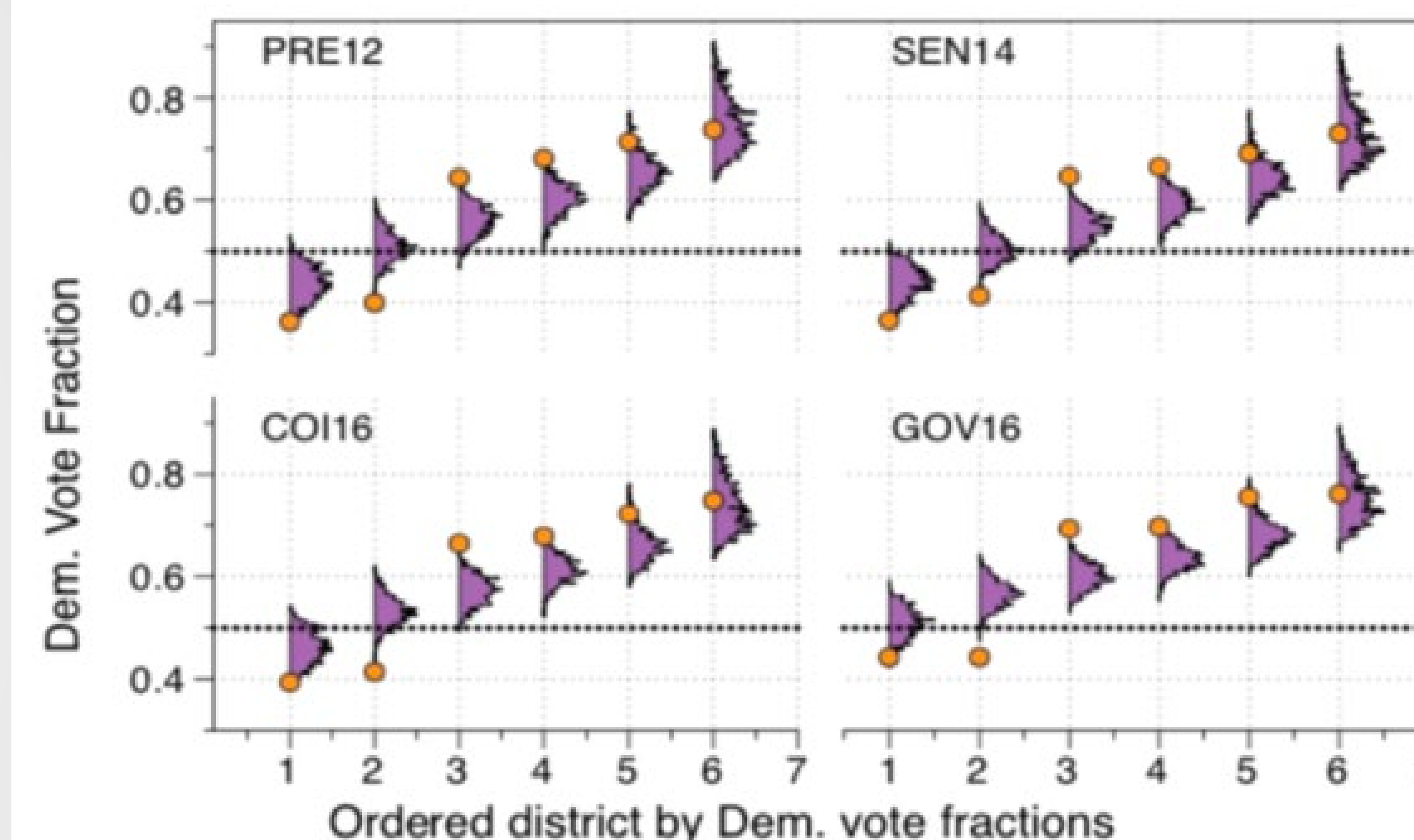


- We created a **new metric** focusing on just precincts at the border – the gradient
- **Gradient** – Difference in vote fraction across precincts separated by a district border



## Election Results

- We simulated **four elections** for Guilford county
- Districts ordered from lowest Dem vote % to greatest
- **Purple**: distribution of Dem vote % for our **1,000 ensemble plans**
- **Orange**: Dem vote % for **enacted plan**



## Implications

- Election Outcomes:
- **40% of House** counties and **50% of Senate** counties across North Carolina indicate some **skew** in election outcomes **towards Republicans**
  - Competitive districts skew towards the Republicans
  - Typically safe Democratic districts became competitive
- Gradient Outcomes:
- Enacted plans had **extremely steeper gradients** than the ensemble averages
  - Analyses at finer scales revealed **larger differences** in gradients
  - Cracking and Packing was **highly likely** used to dilute the Democratic vote