A map of Pennsylvania showing legislative district boundaries. The map is overlaid with a color gradient from light red to dark blue. The majority of the state is shaded in red, while several urban and suburban areas are shaded in blue. The text 'Report to PA Legislative Reapportionment Commission' is centered over the map in white. Below the title, the name 'Dr. Michael Barber' is also centered in white. Various cities and towns are labeled on the map, including Erie, Jamestown, Olean, Elmira, Vestal, Savre, Falls, Wa, Spar, Towns, Trenton, and Septford. The map also shows the state's outline and major roads.

Report to PA Legislative Reapportionment Commission

Dr. Michael Barber

Background

- Associate Professor of Political Science at Brigham Young University
- PhD in American Politics from Princeton University
- Published 20+ articles in American politics
- Expert witness in 10 election-related cases
- Redistricting cases in North Carolina and Ohio

Simulation Analysis

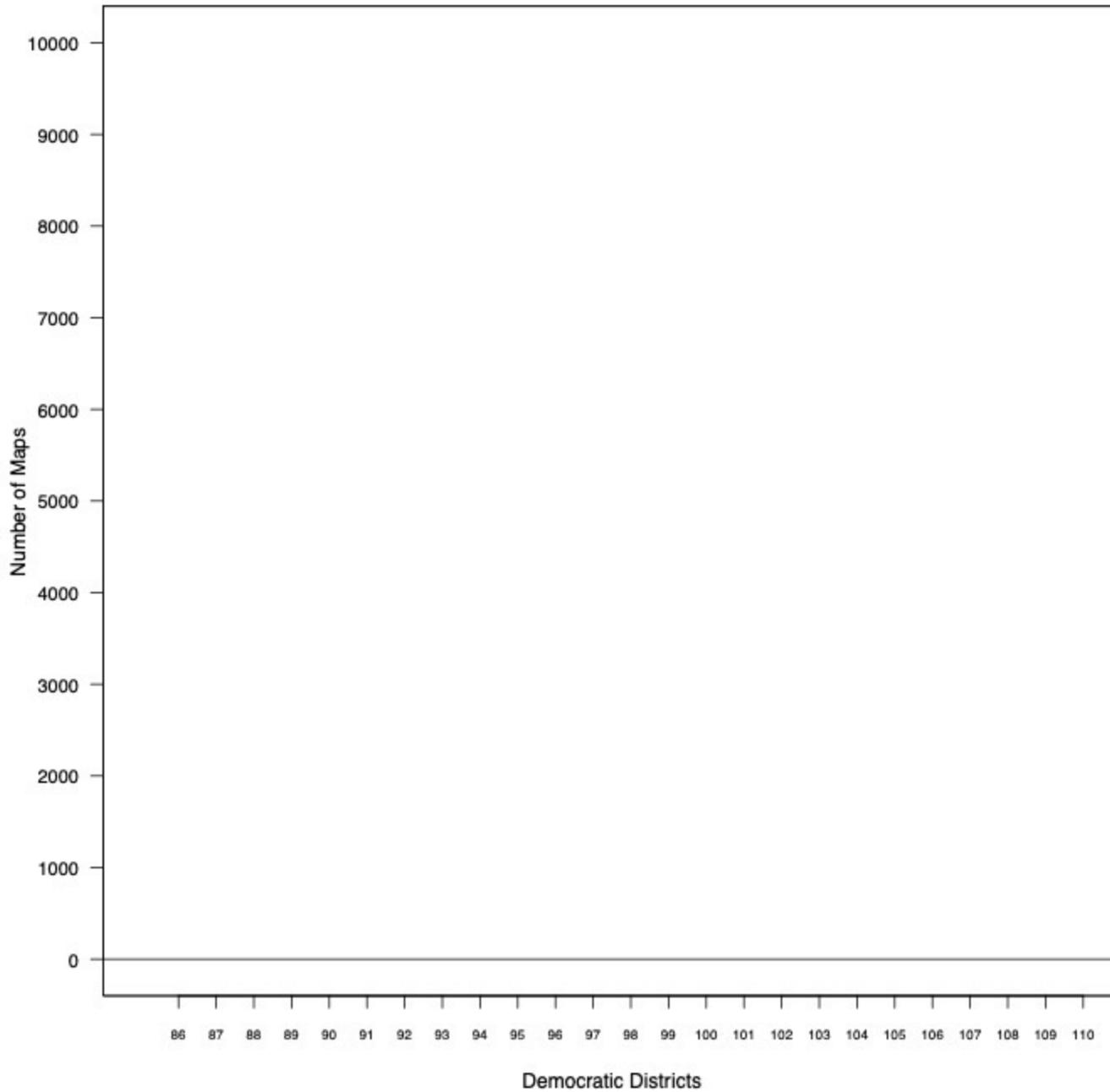
- Inputs

- 203 districts
- Criteria in Article II, Section 16 of Pennsylvania Constitution
- Compactness
- Contiguity
- “Unless absolutely necessary” no county, municipal splits

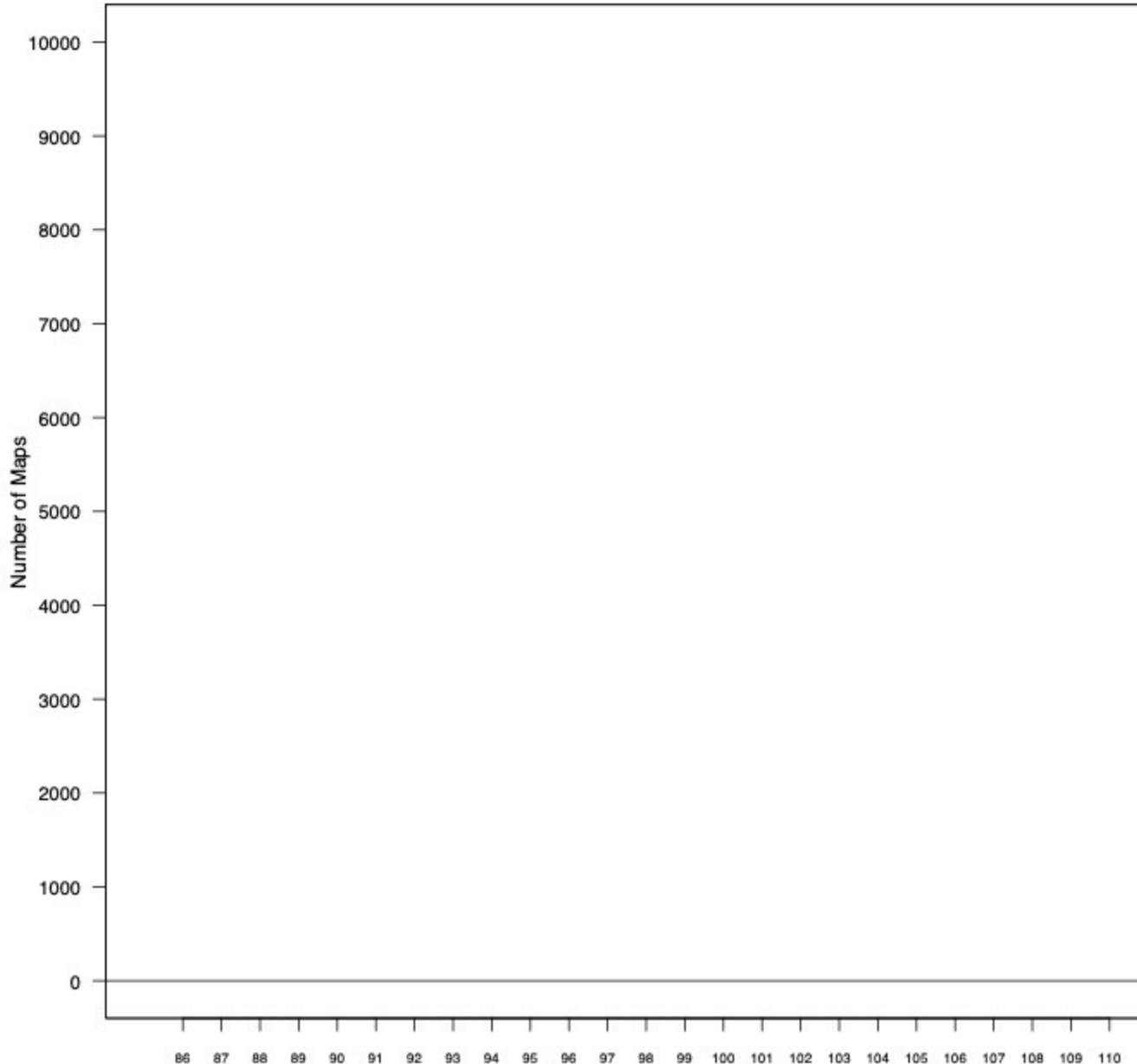
- Outputs

- 50,000 maps, each with 203 districts
- Calculate partisan lean of districts using 2012-2020 statewide elections
- Compare to LRC’s proposed plan

**Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)**

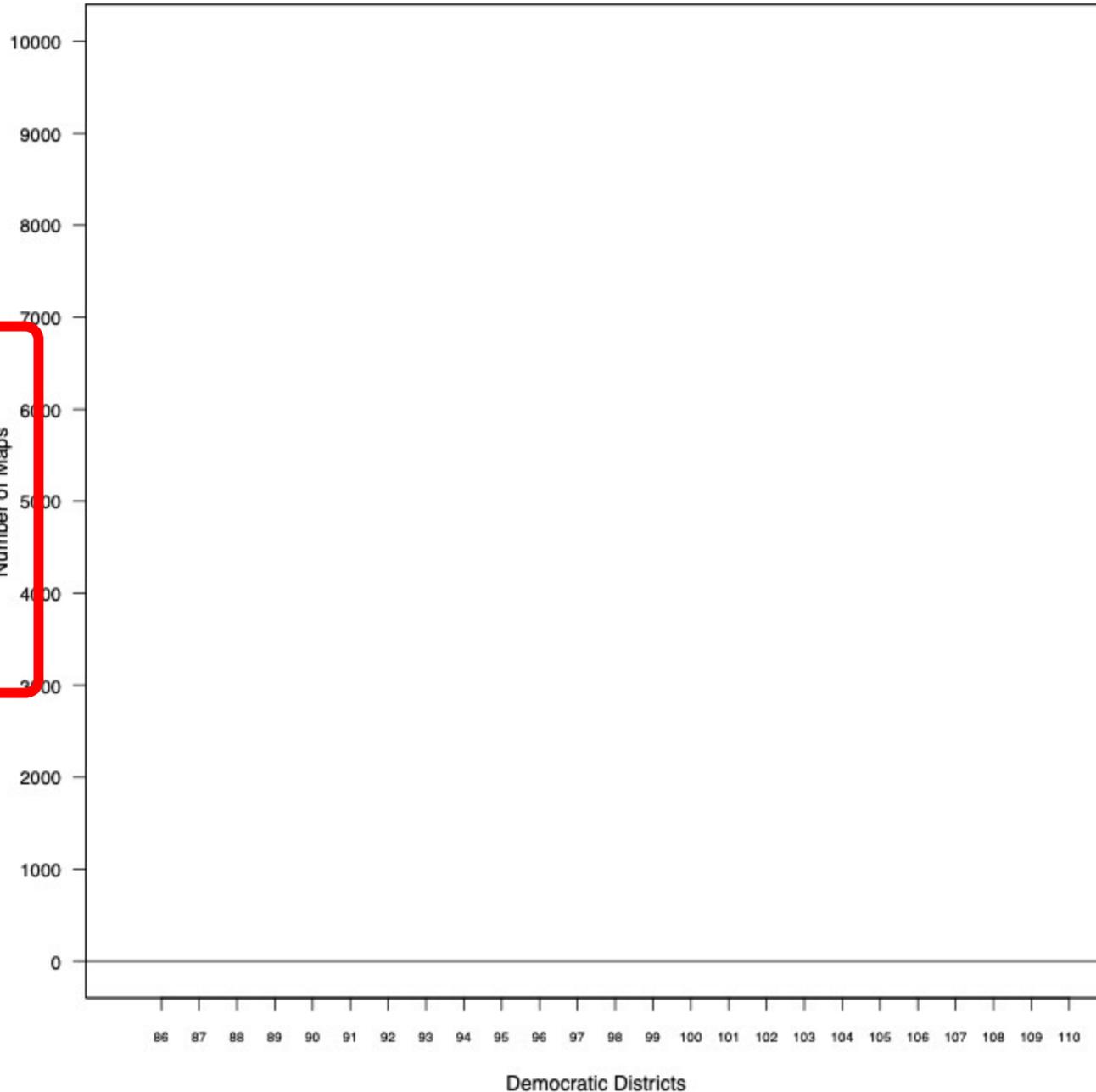


Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)



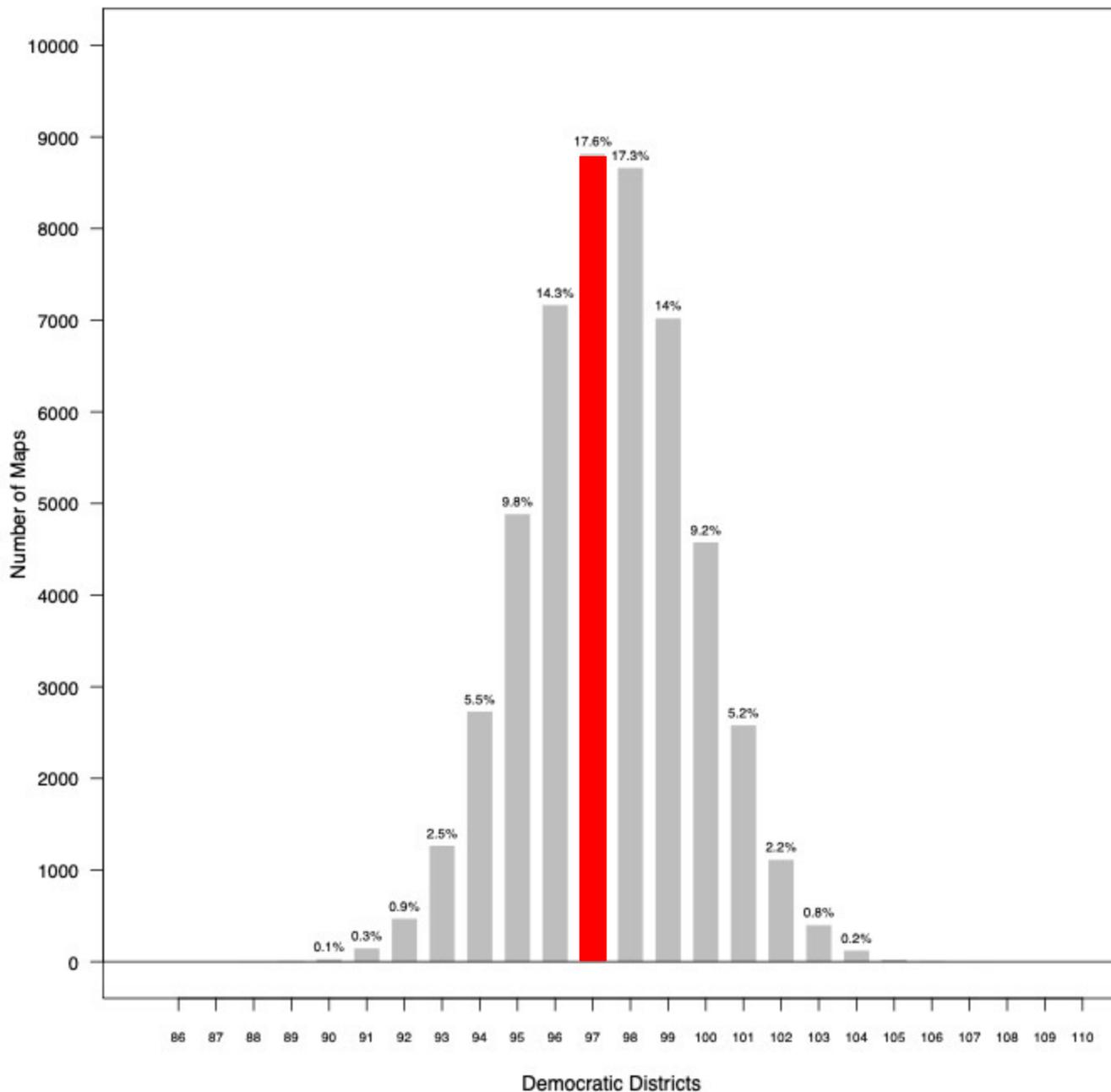
Horizontal Axis:
Number of
Democratic-
Leaning Districts

Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)



Vertical Axis:
Number of Maps
Producing a
particular
Outcome

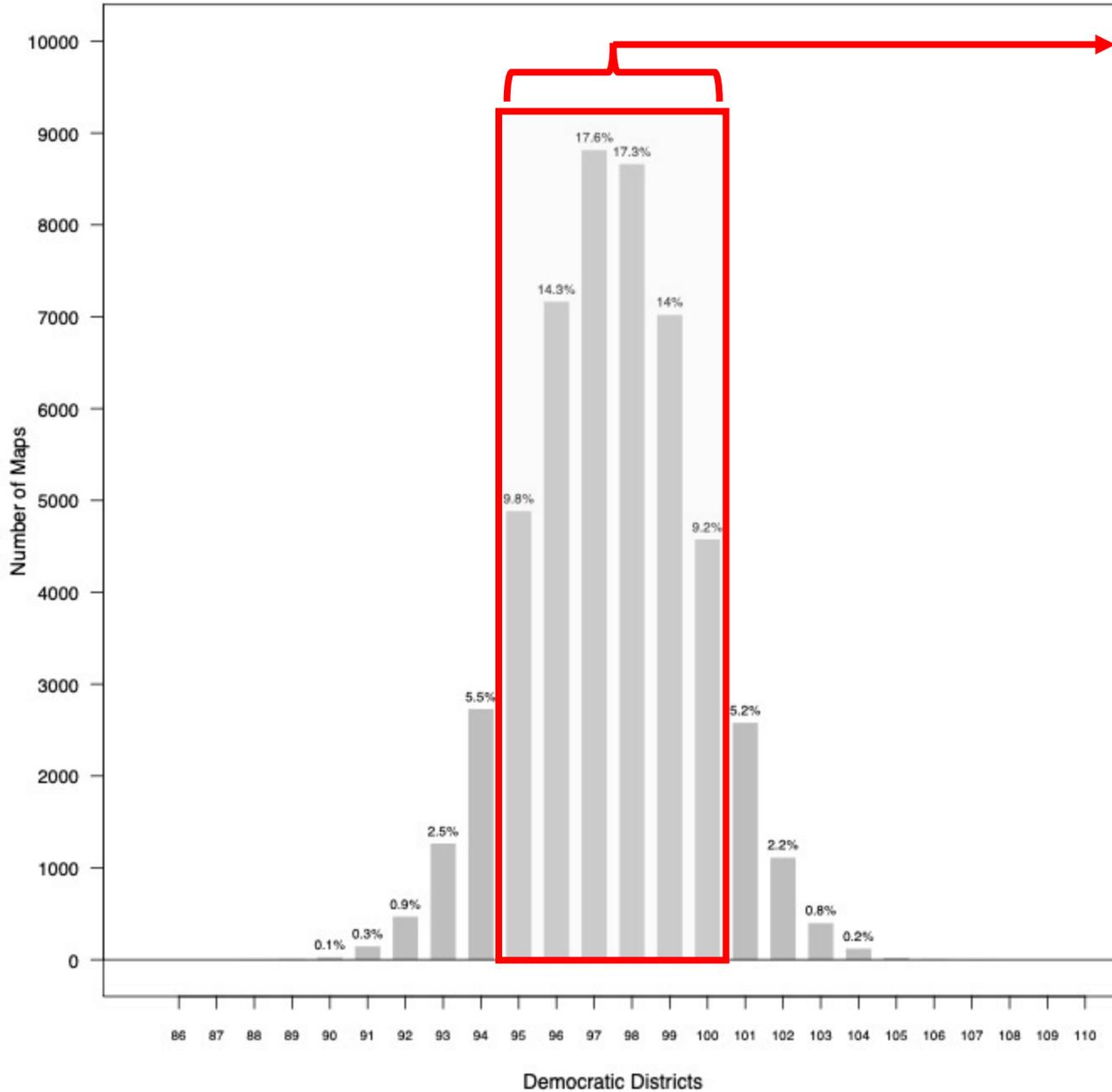
Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)



Most Common Outcome:
97 D-Leaning Districts

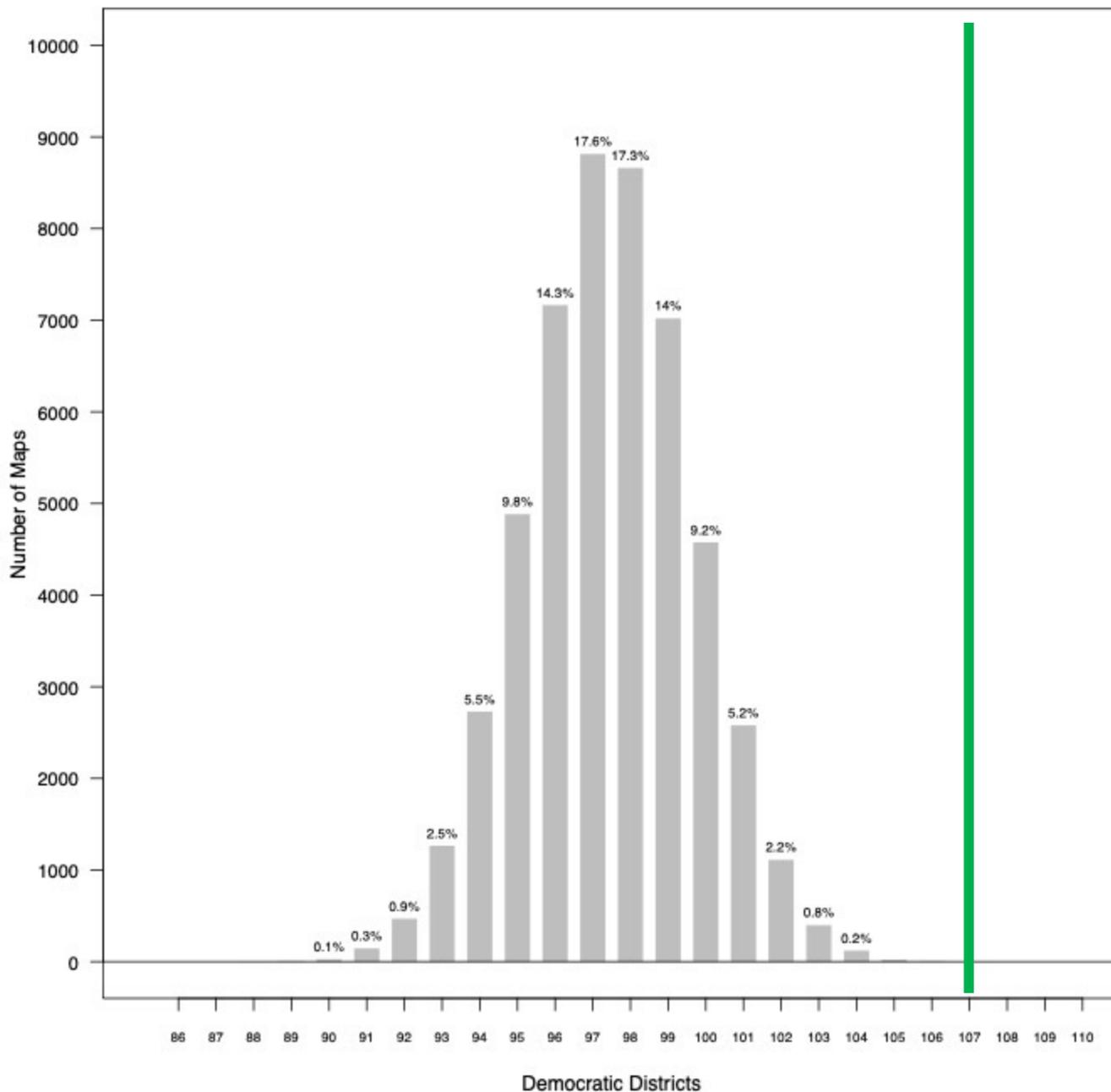
17.6% of all simulations
produce this result.

Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)



80% of simulations produce 95-100 D-leaning districts.

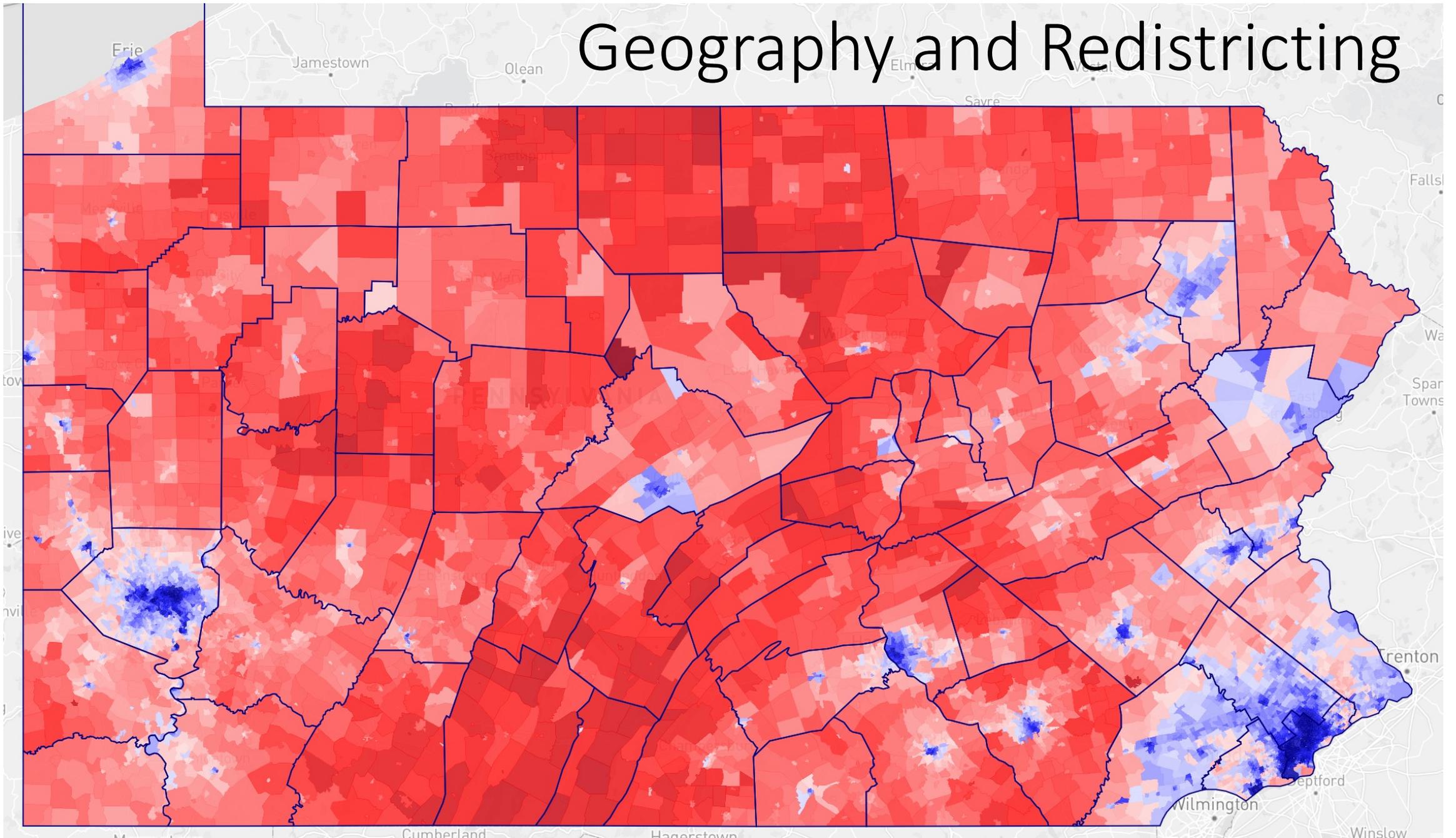
Comparison to 50,000 simulated plans in the PA House:
(drawn with population equality, compactness, and minimal political subdivision splits)



Commission Proposal:
107 D-leaning Districts

More D-leaning districts
than **99.998%** of all
simulations

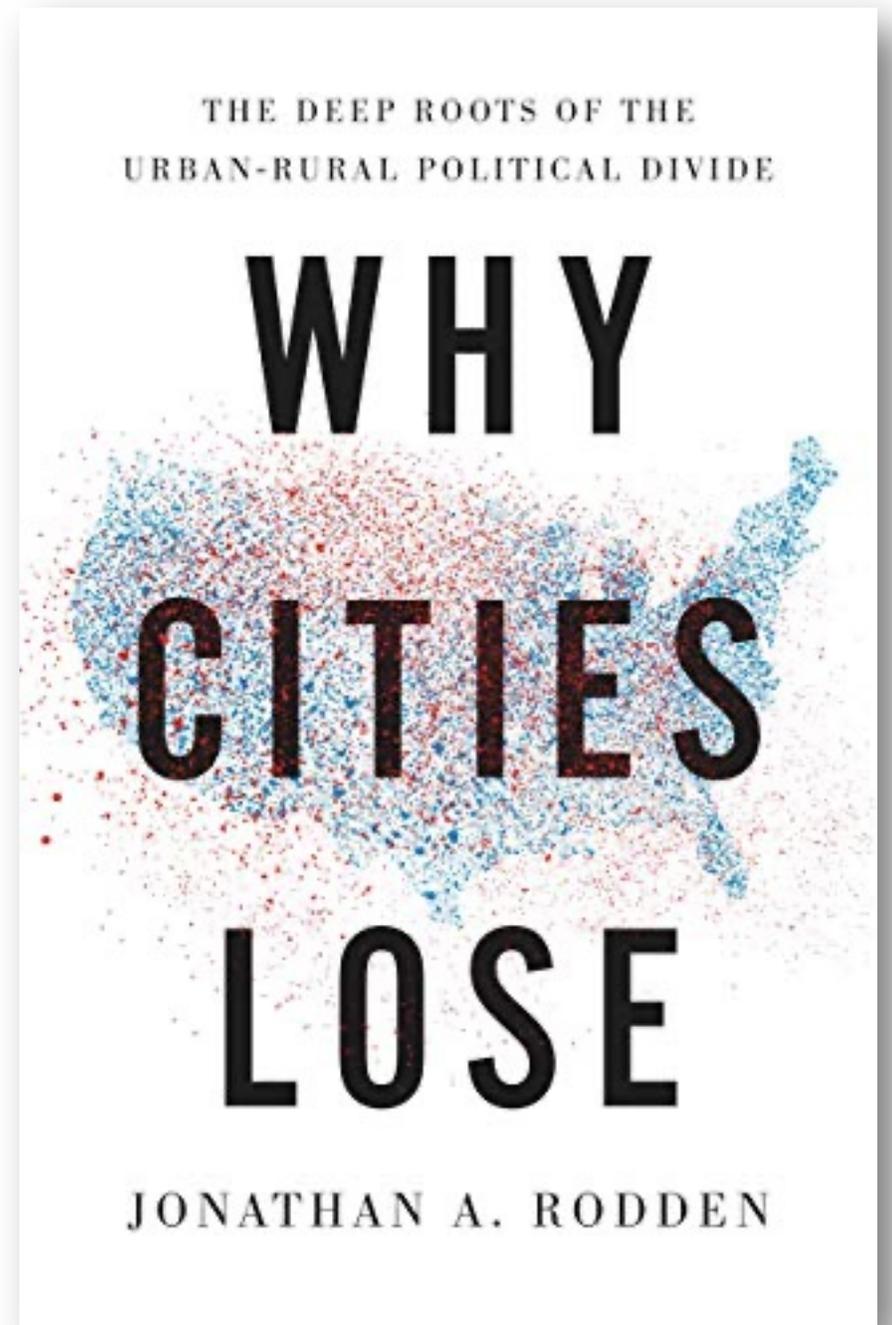
Geography and Redistricting



Geography and Redistricting

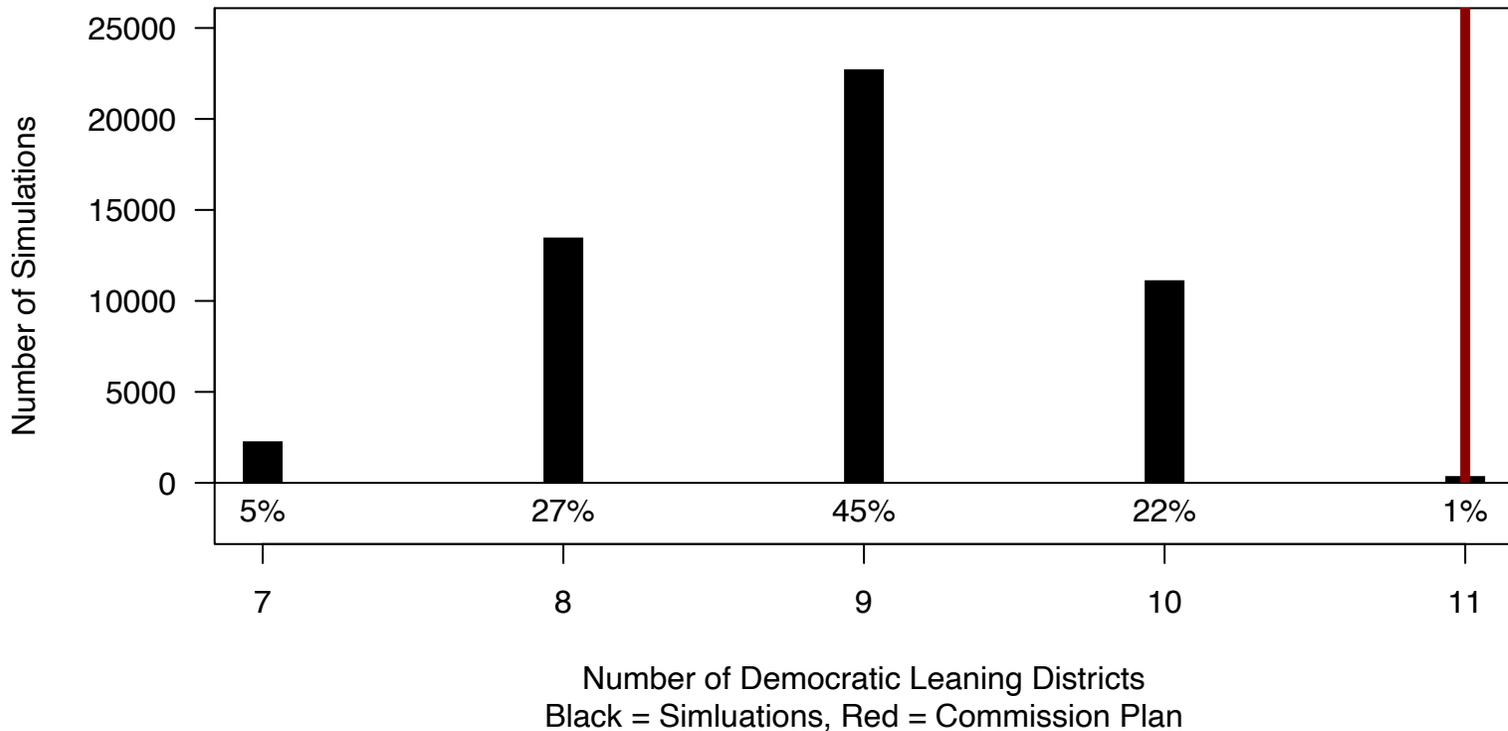
- “Democrats would need a redistricting process that **intentionally carved up large cities** like pizza slices or spokes of a wheel, so as to combine some very Democratic urban neighborhoods with some Republican exurbs in an effort to spread Democrats more efficiently across districts.”

- Jonathan Rodden, *Why Cities Lose*, pg. 155



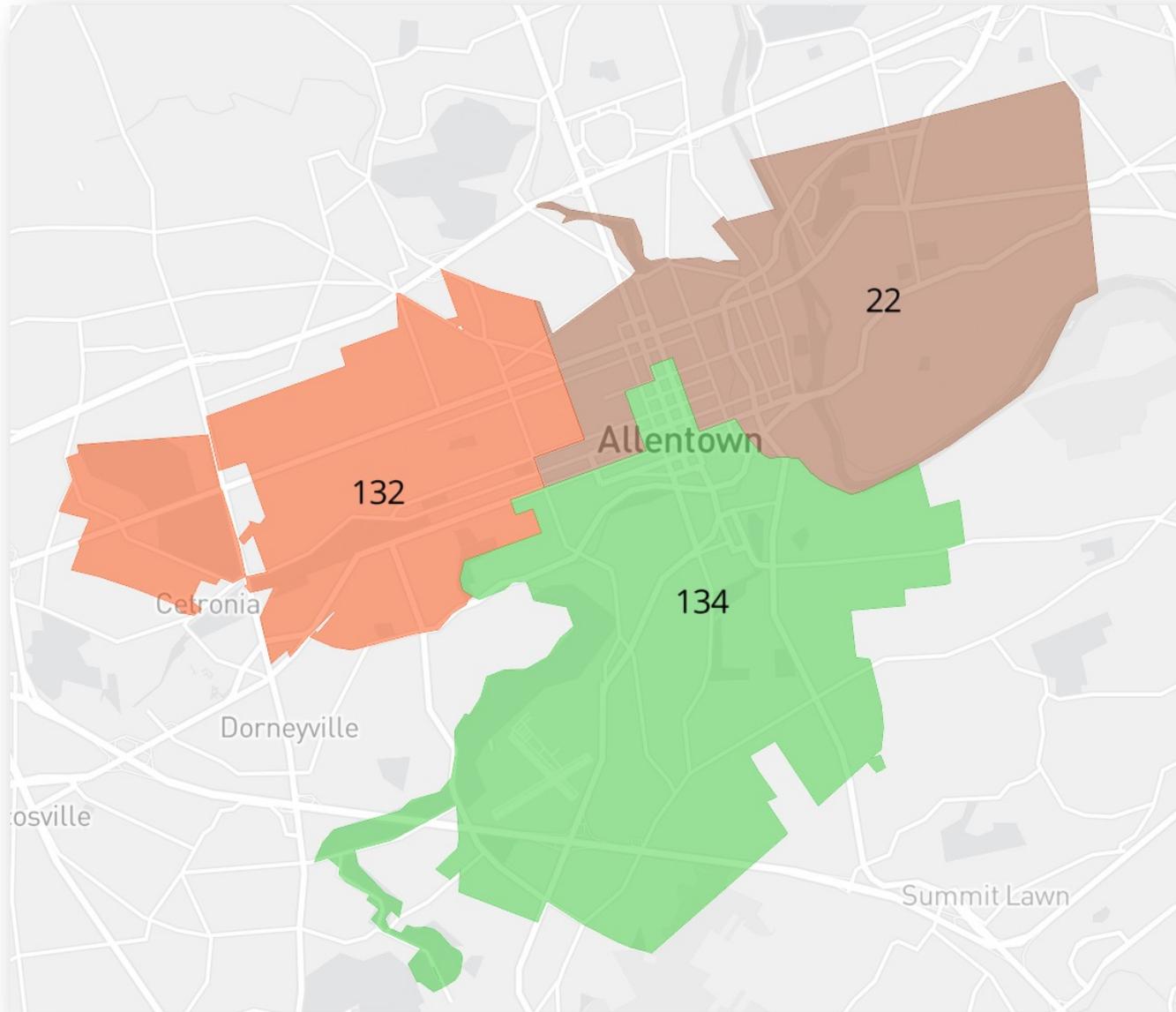
An Example: Allentown

Lehigh and Bucks Counties
Counties' Population = 16 Districts



Commission Proposal:
11 D-leaning Districts

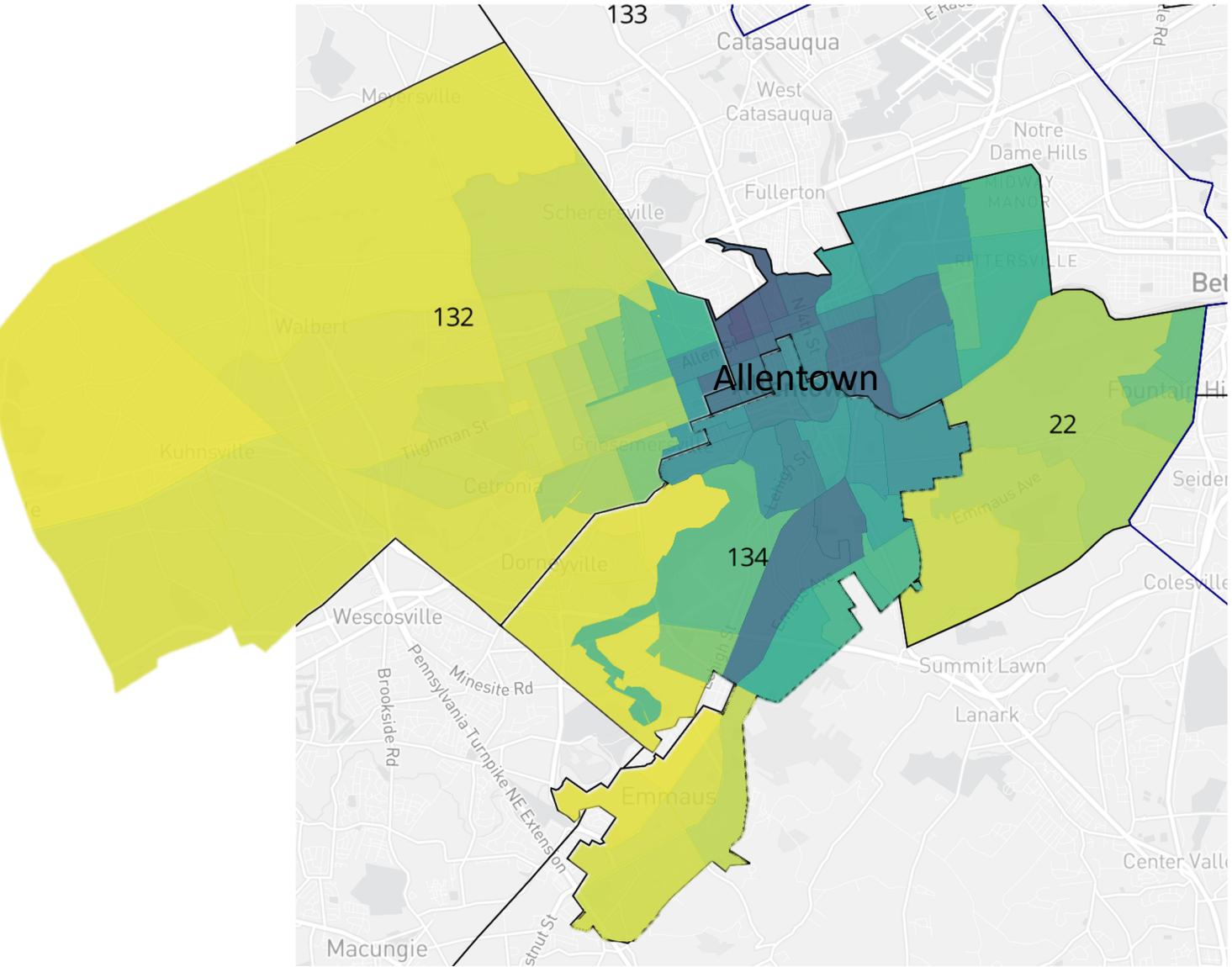
More D-leaning
districts than **99%** of
all simulations

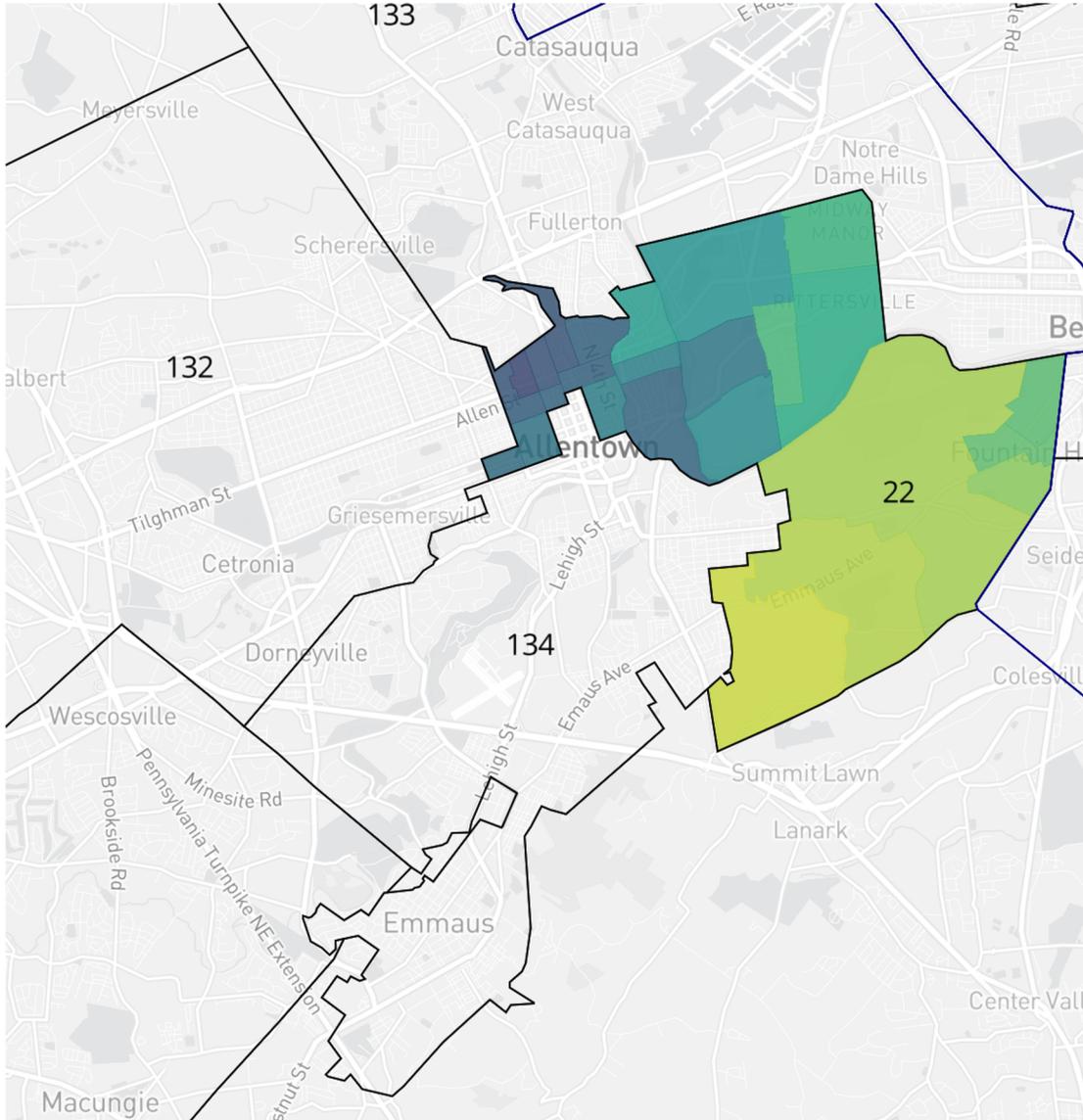


Allentown is
divided into 3
districts

- District 22
- District 134
- District 132

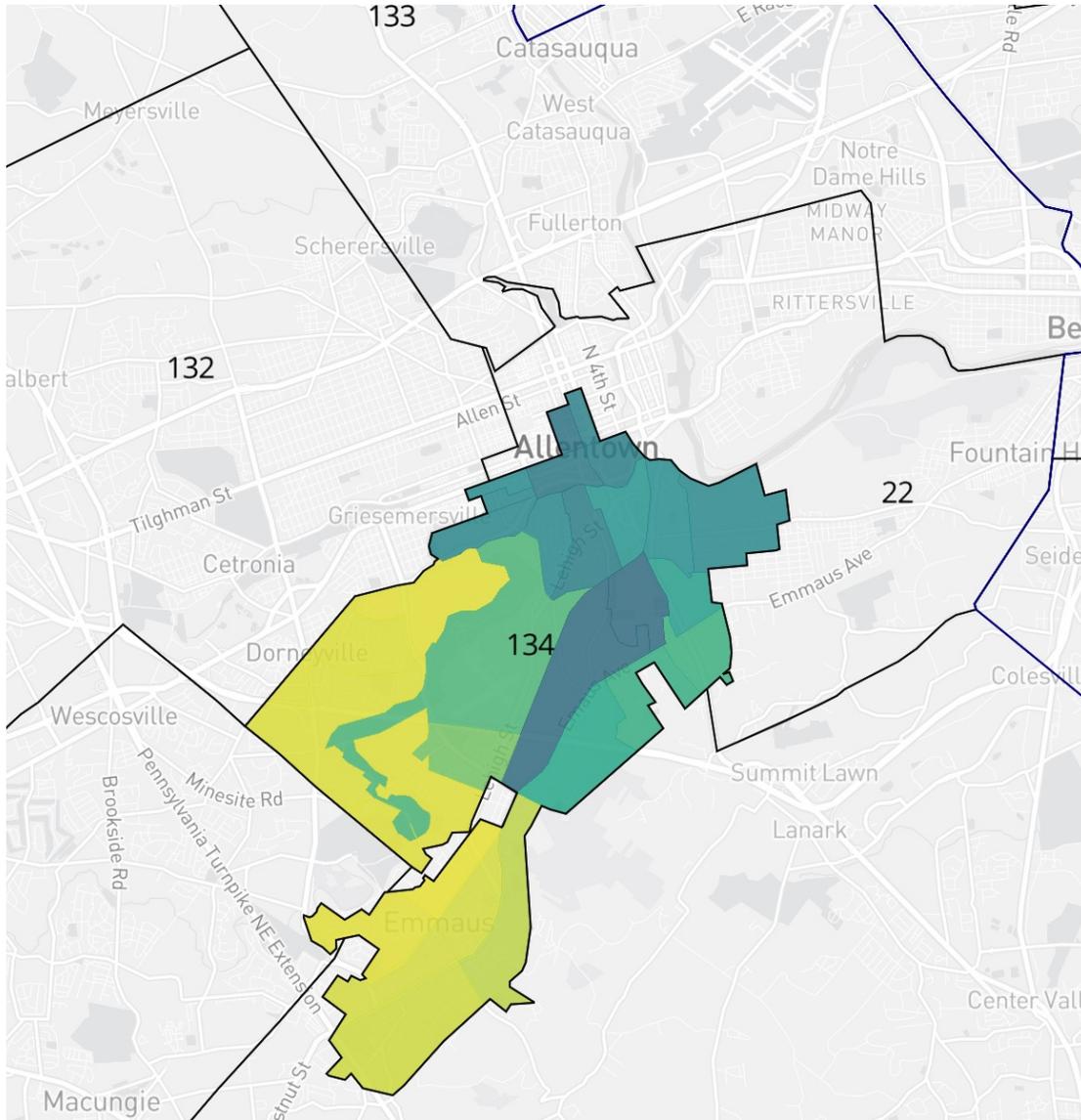
Allentown:
49% Hispanic VAP





Allentown: 49% Hispanic VAP

- District 22:
50.8% Hispanic VAP

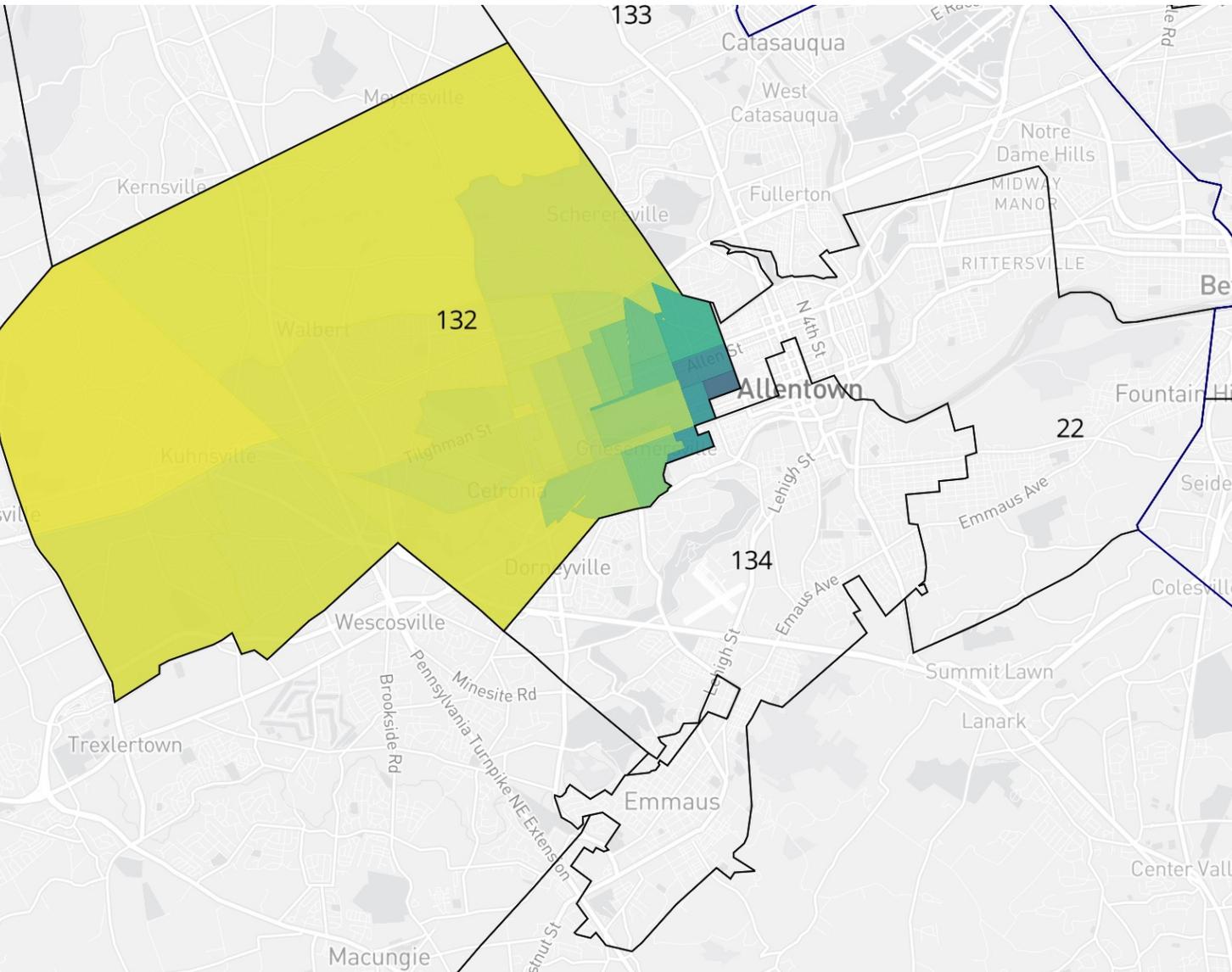


Allentown: 49% Hispanic VAP

- District 134:
38.5% Hispanic VAP

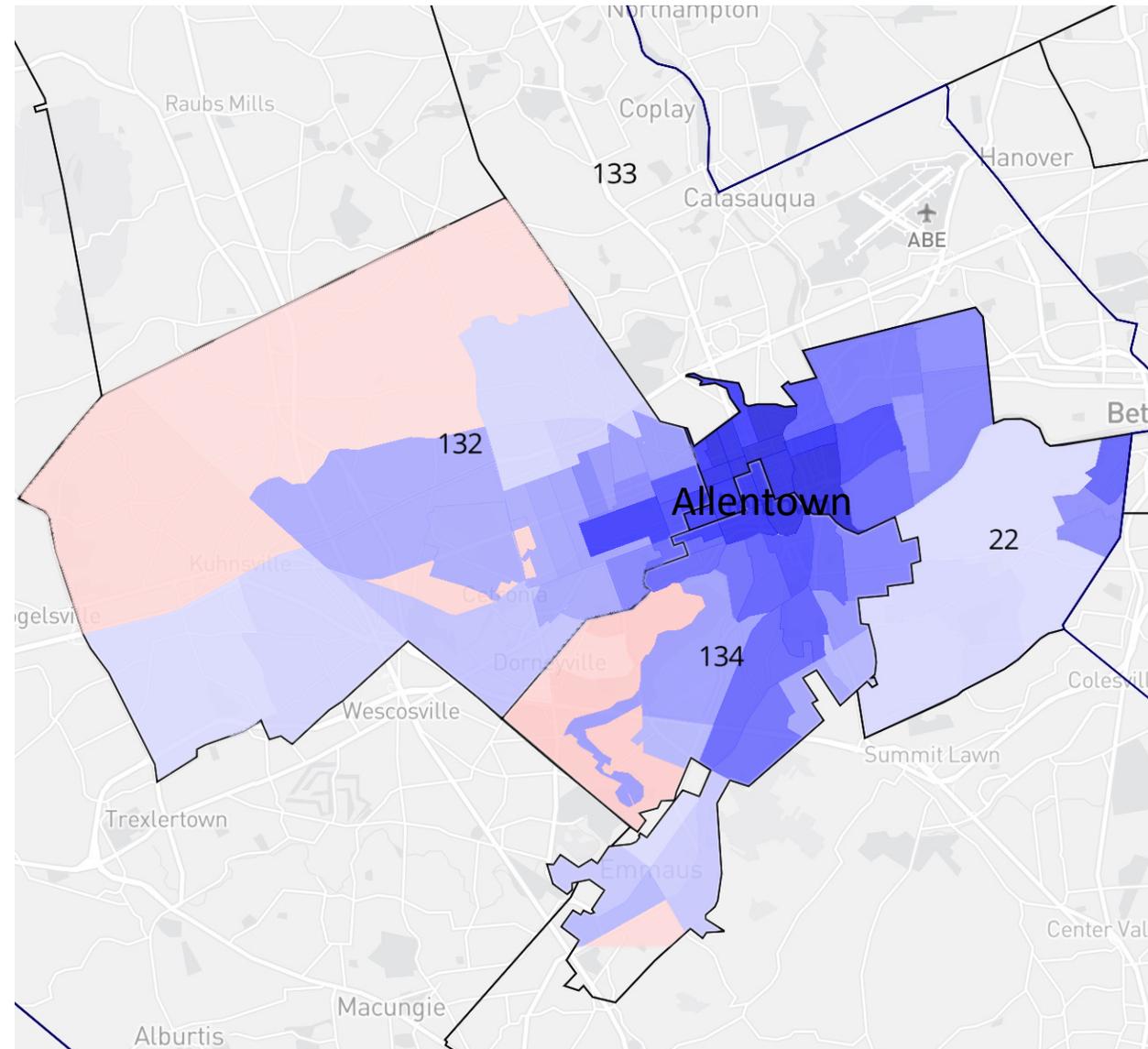
Allentown: 49% Hispanic VAP

- District 132:
18.1% Hispanic VAP

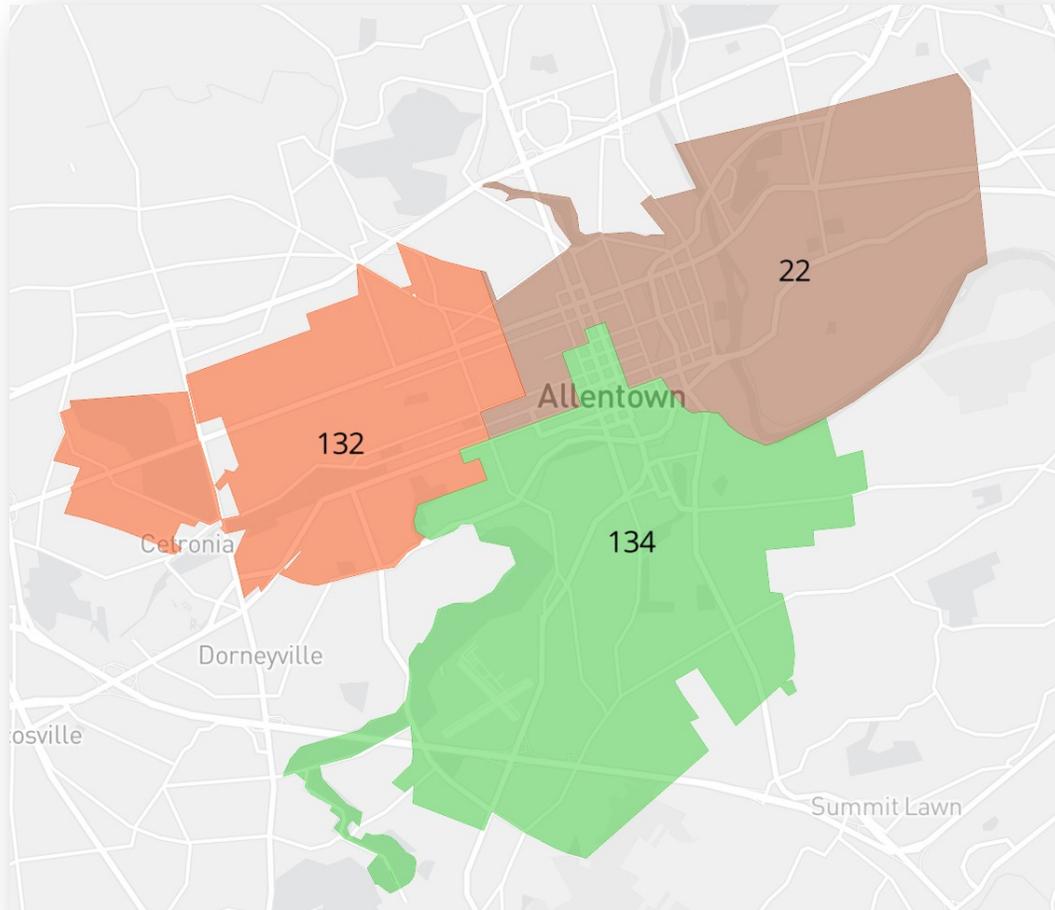


Allentown is divided into 3 districts

- District 22: 72% Democratic
- District 134: 63% Democratic
- District 132: 57% Democratic



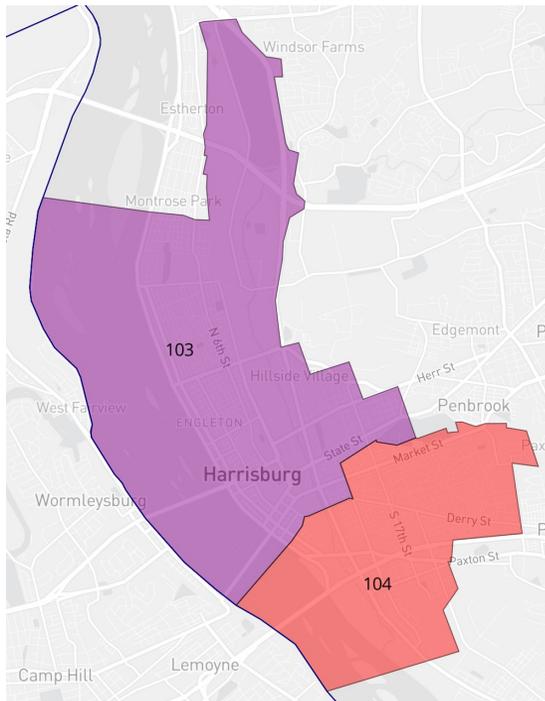
Allentown is divided into 3 districts



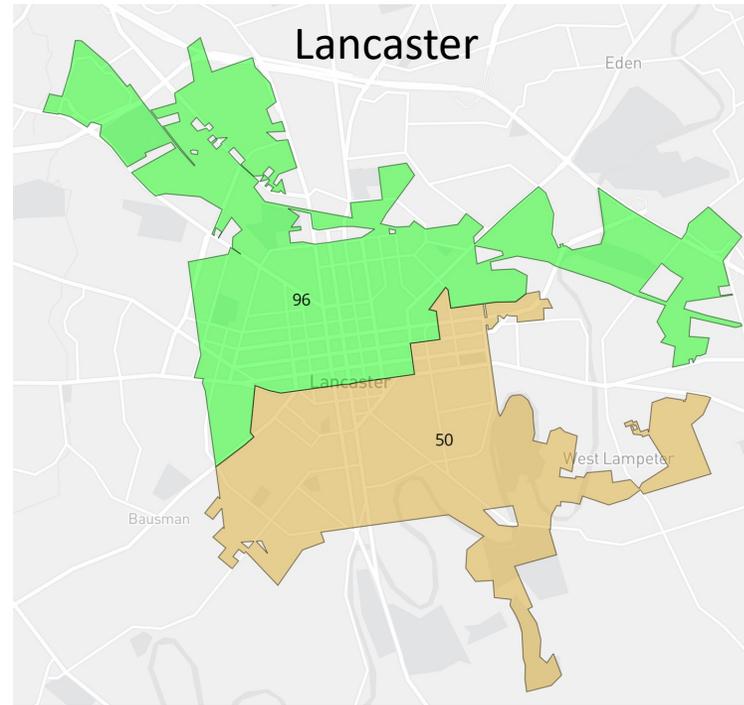
- Dilutes Hispanic population voting power
- Violates PA Constitutional criteria
 - “Unless absolutely necessary” no city shall be divided.

Commission Plan
divides Democratic
cities more than
necessary

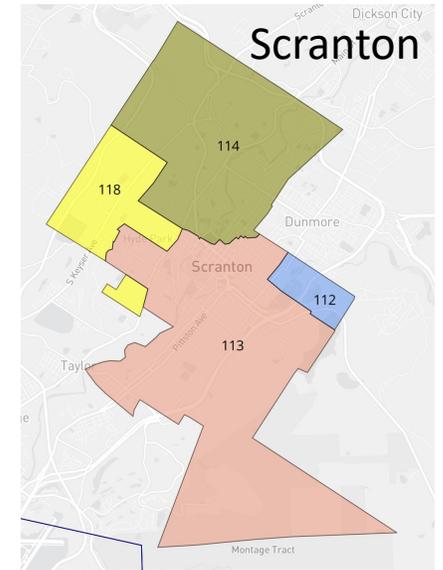
Harrisburg



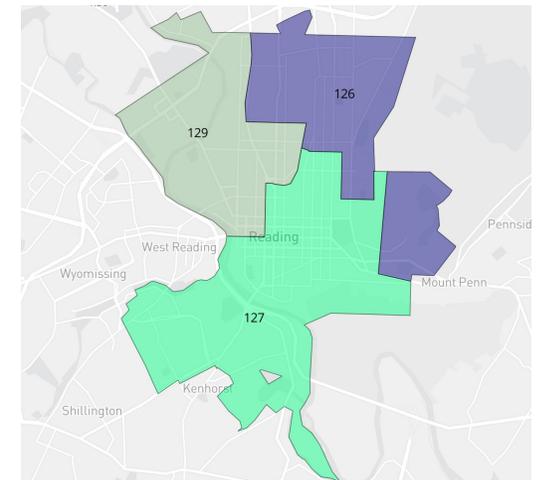
Lancaster



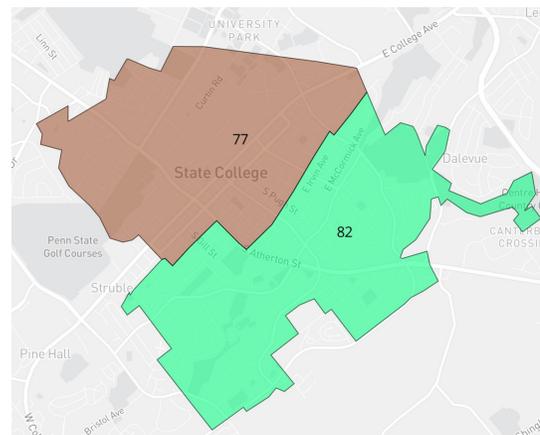
Scranton



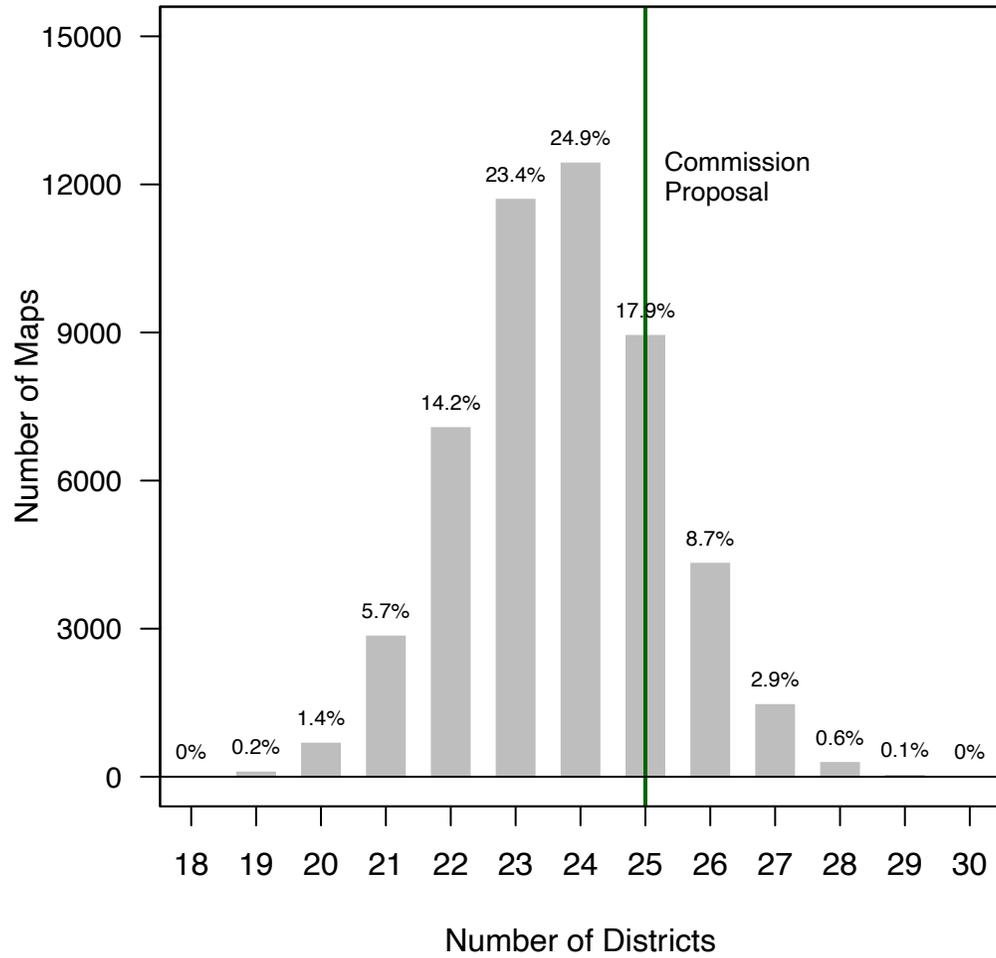
Reading



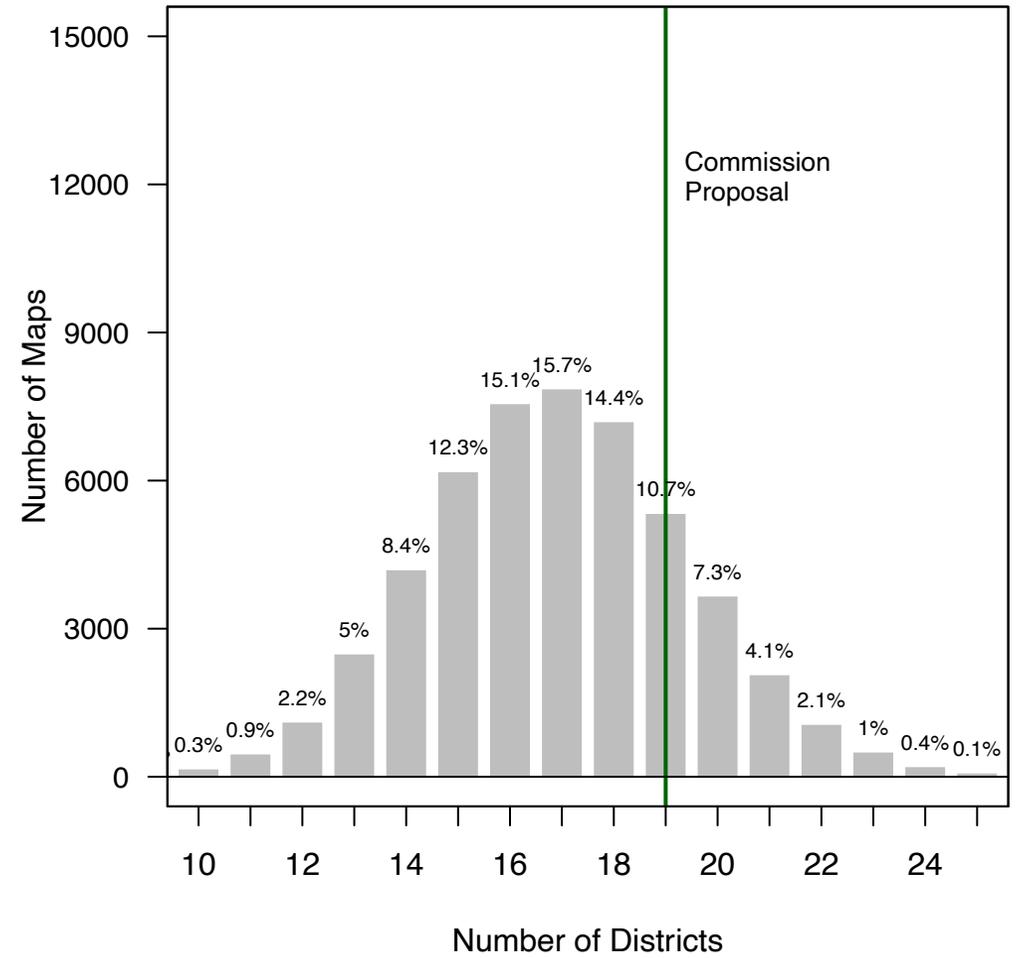
State College



Majority Minority Districts



Minority Opportunity (>35%) Districts



Dr. Imai's Report

- Dr. Imai's simulations are **less compact** and contain **many more municipal divisions**.
- In both Dr. Imai's and my simulations, the LRC plan is a **statistically significant outlier**.
- Even when explicitly incorporating race, in **3 of 6 analyses the LRC plan is a statistical outlier**.

Thank You