

**Empirical Validation of Automated Redistricting Algorithms on the Virginia  
House of Delegates District Map**

Madeleine Goertz

International Community School

AP Research

Randall S. Huberman

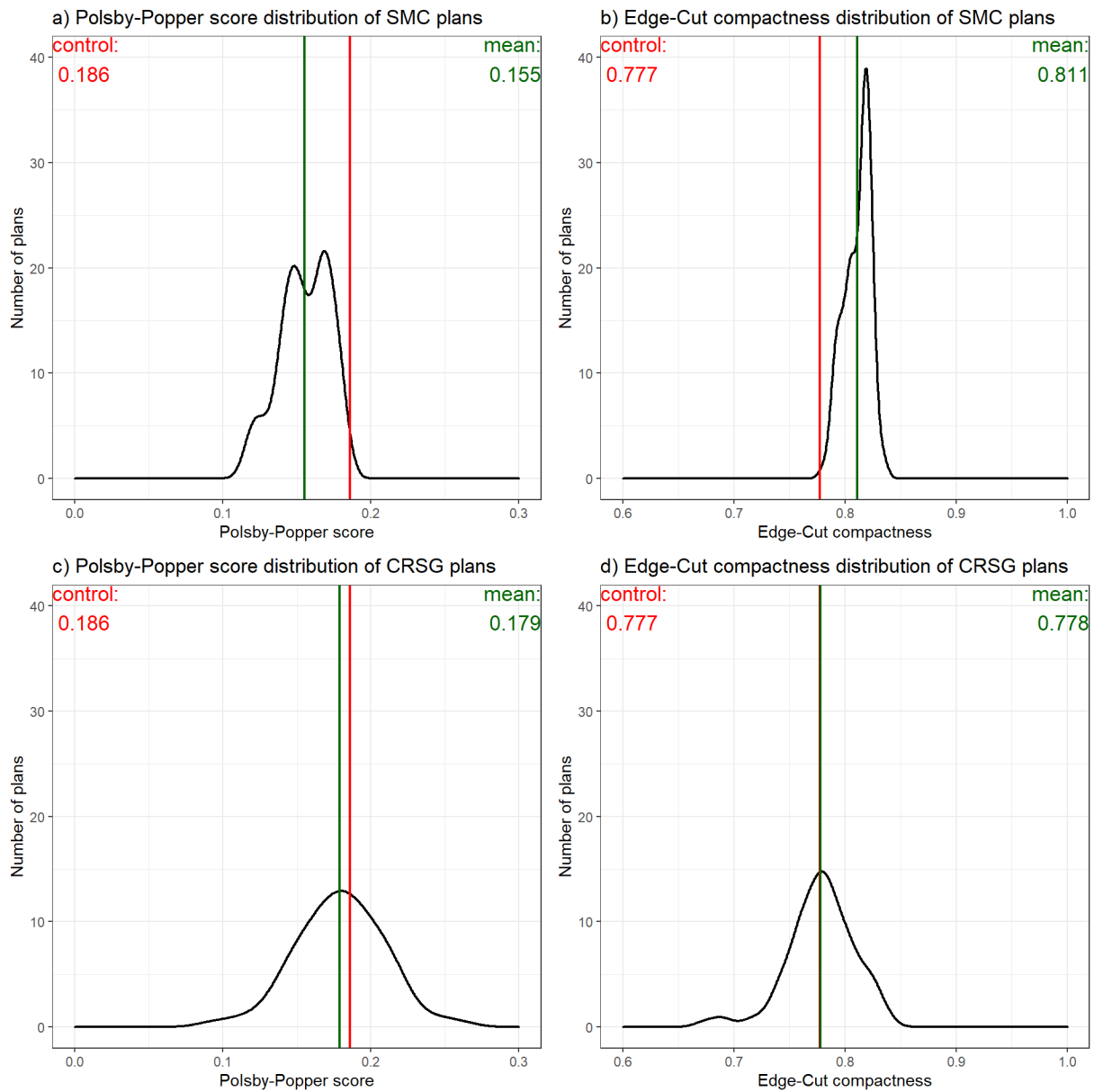
May 20th, 2021

## Results

This section provides an overview of the results from my method.

### Overall Measures

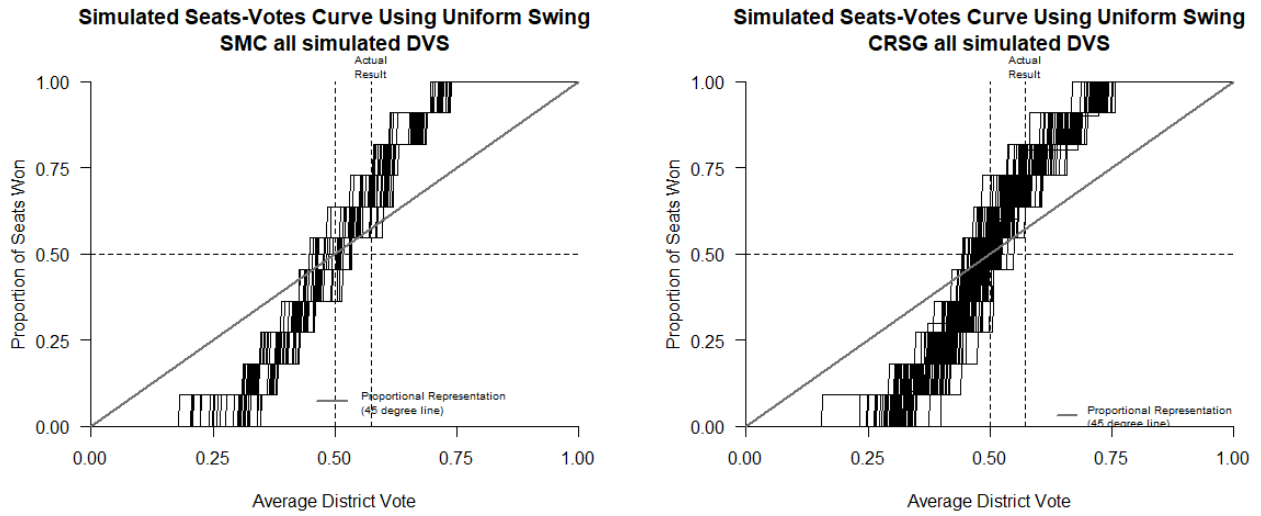
#### Compactness



**Figure 1**

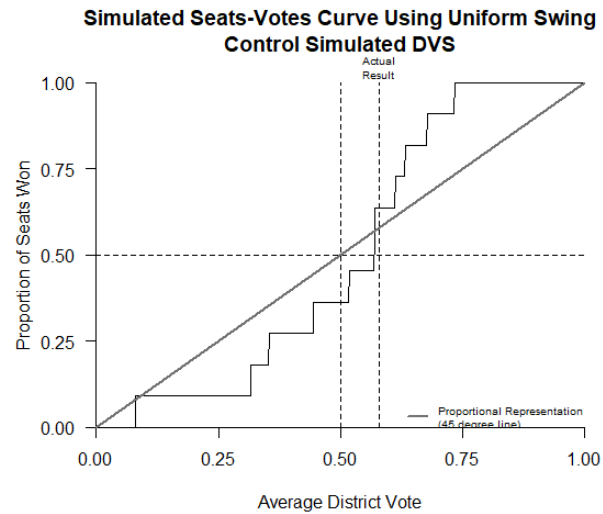
*Distributions of compactness measures.*

## Partisan Fairness



(a) *SMC Seats-Votes Curve*

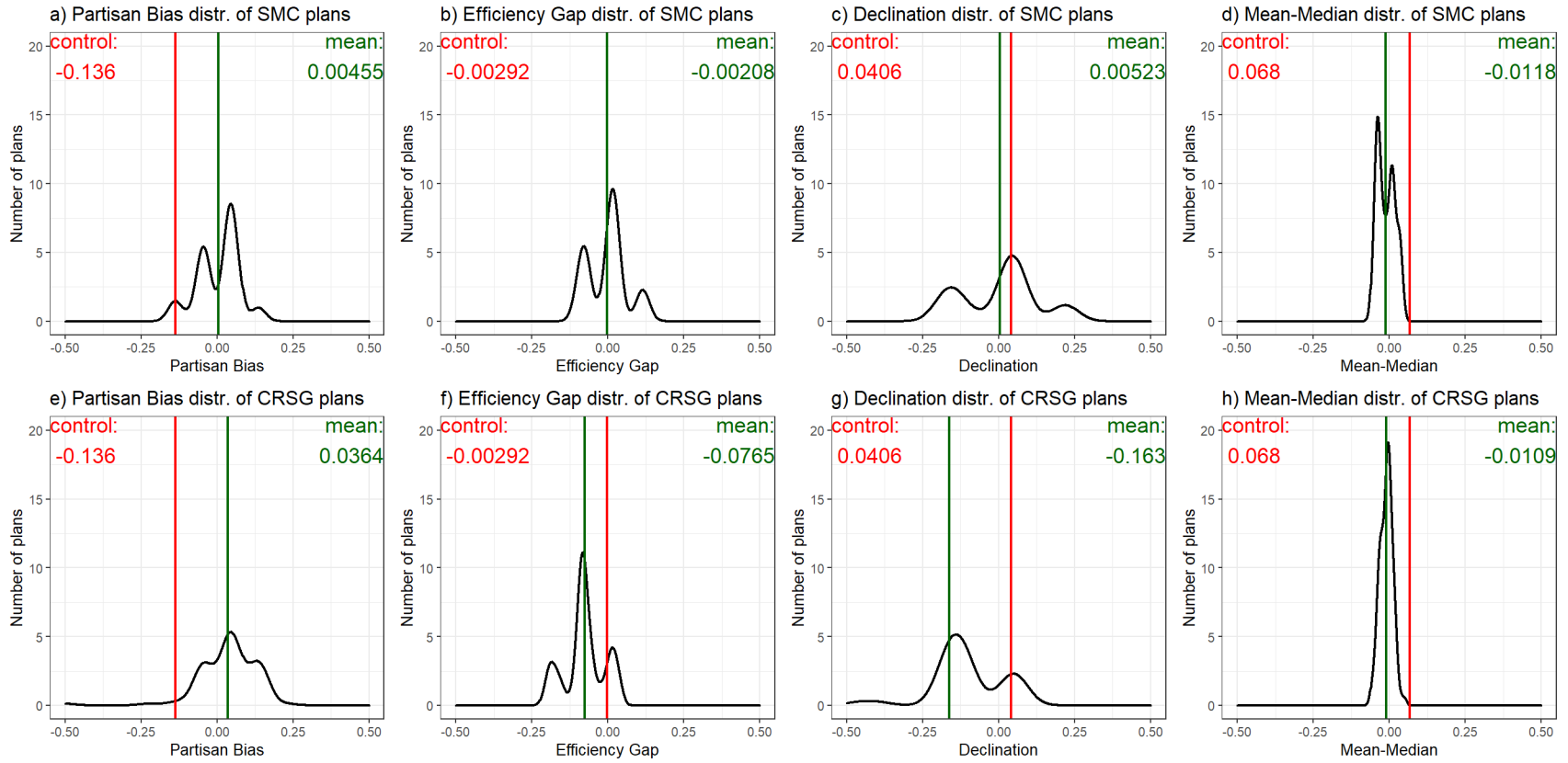
(b) *CRSG Seats-Votes Curve*



(c) *Real Seats-Votes Curve*

**Figure 2**

*Seats Votes Curves*

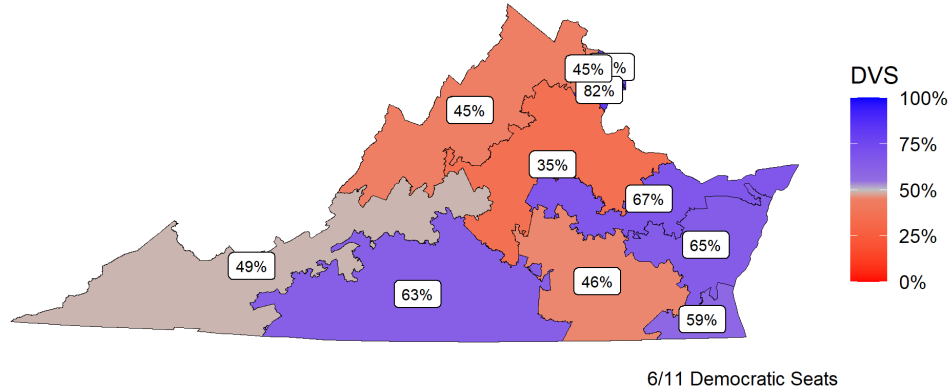


**Figure 3**

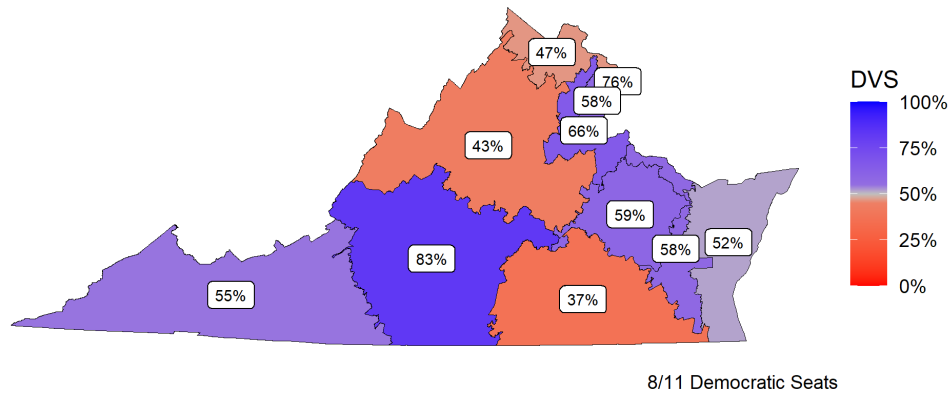
*Distributions of fairness measures*

## 2018 General Election Simulation

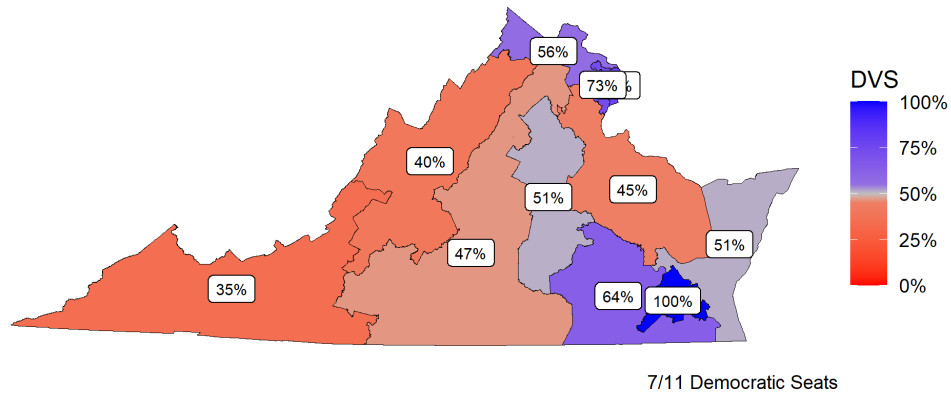
Election under Fairest SMC District  
Compared to 57.0% popular DVS



Election under Fairest CRSG District  
Compared to 57.0% popular DVS



Election under Fairest Control District  
Compared to 57.0% popular DVS



**Figure 4**

*Simulated election results*