

# Adjusting State Turnout for Demographics and Competition

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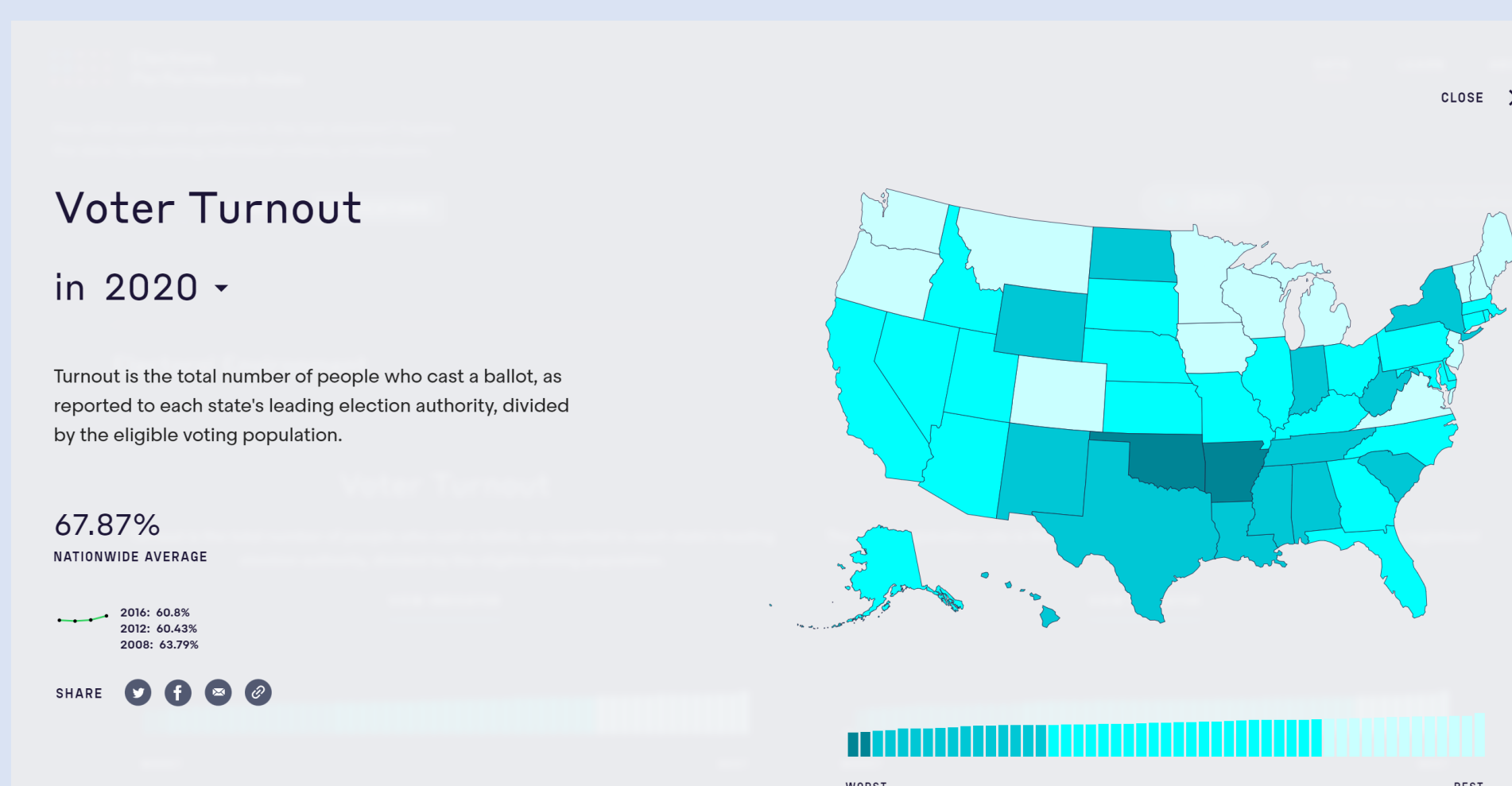


## Abstract

Turnout is often used as a measure of the performance a state's electoral institutions, including election laws. When used alone, this use of turnout is contaminated by factors beyond the direct control of policy and administration, such as demographics and electoral competition. This project explores a simple method of removing these confounding factors from state turnout using multiple regression to predict turnout in federal elections from 2000 to 2020. The procedure results in the promotion and demotion of states compared to raw turnout rankings, depending on whether they over- or under-perform states with comparable median household income, educational attainment, and partisan competition.

## The Problem

- State-level turnout is often used as an indicator of "election performance" or "democratic health."
- A specific example is the Elections Performance Index.
- However, turnout is a function of things both *subject to policy change* (e.g., election law) and/or *beyond (direct) policy change* (e.g., competition-driven mobilization).
- Therefore, the turnout metric is contaminated by factors beyond the control of policymakers or administrators.
- Is it possible to adjust state-level turnout to remove this contamination?



## The Idea

- Statistically adjust raw turnout for *demographics* and *electoral competition*.
- This is analogous in concept to age-corrected mortality, although the methods are different.

## The Algorithm

- Fit the following regression:

$$\frac{\text{Turnout}_{s,t}}{\text{VEP}_{s,t}} = f(\text{Median household income}_{s,t}, \text{Ed. attainment}_{s,t}, \text{Pol. competition}_{s,t}, t, \epsilon_{s,t})$$

- Calculate the residual

- Add the residual to  $\left(\frac{\text{Turnout}_t}{\text{VEP}_t}\right)$

## The Data

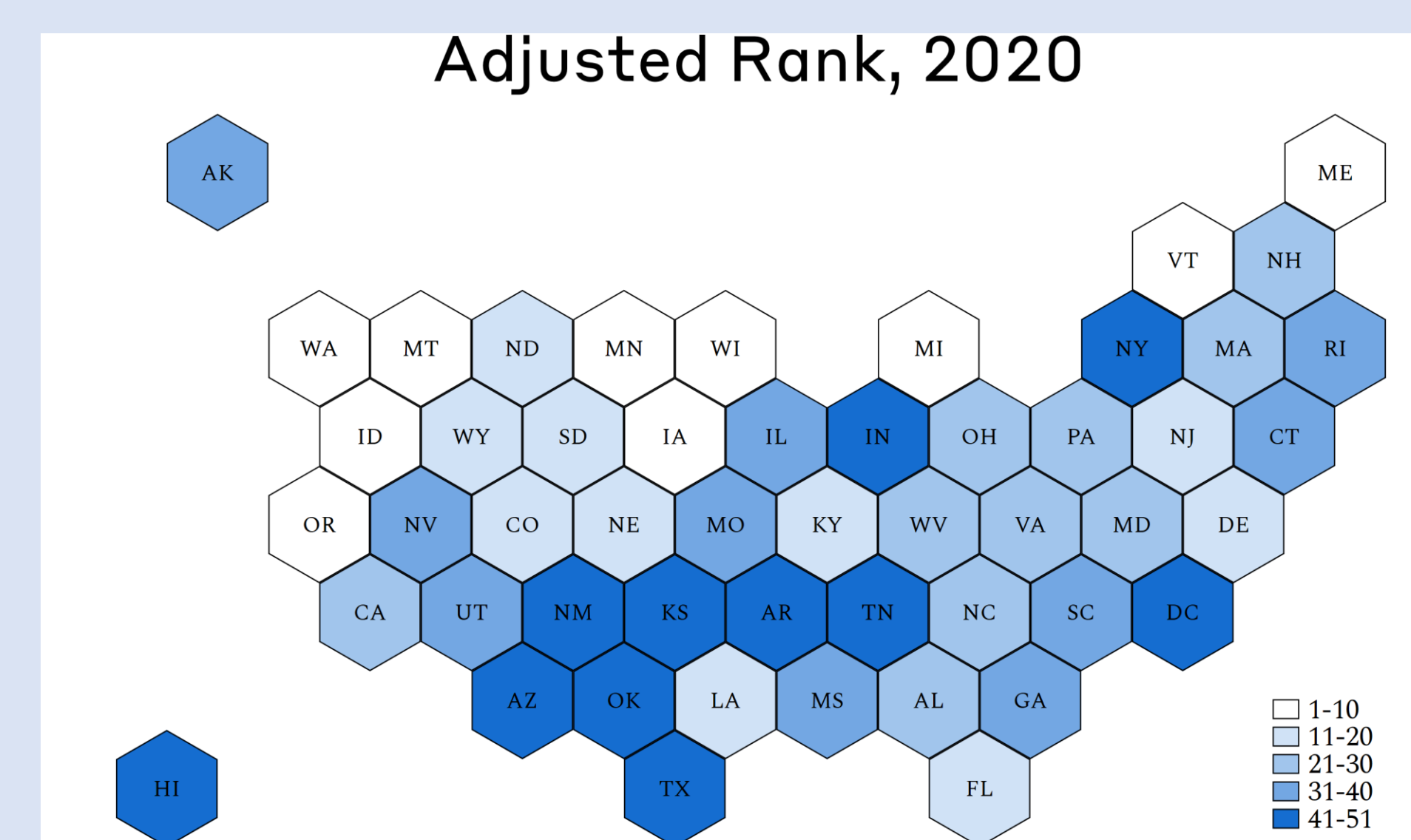
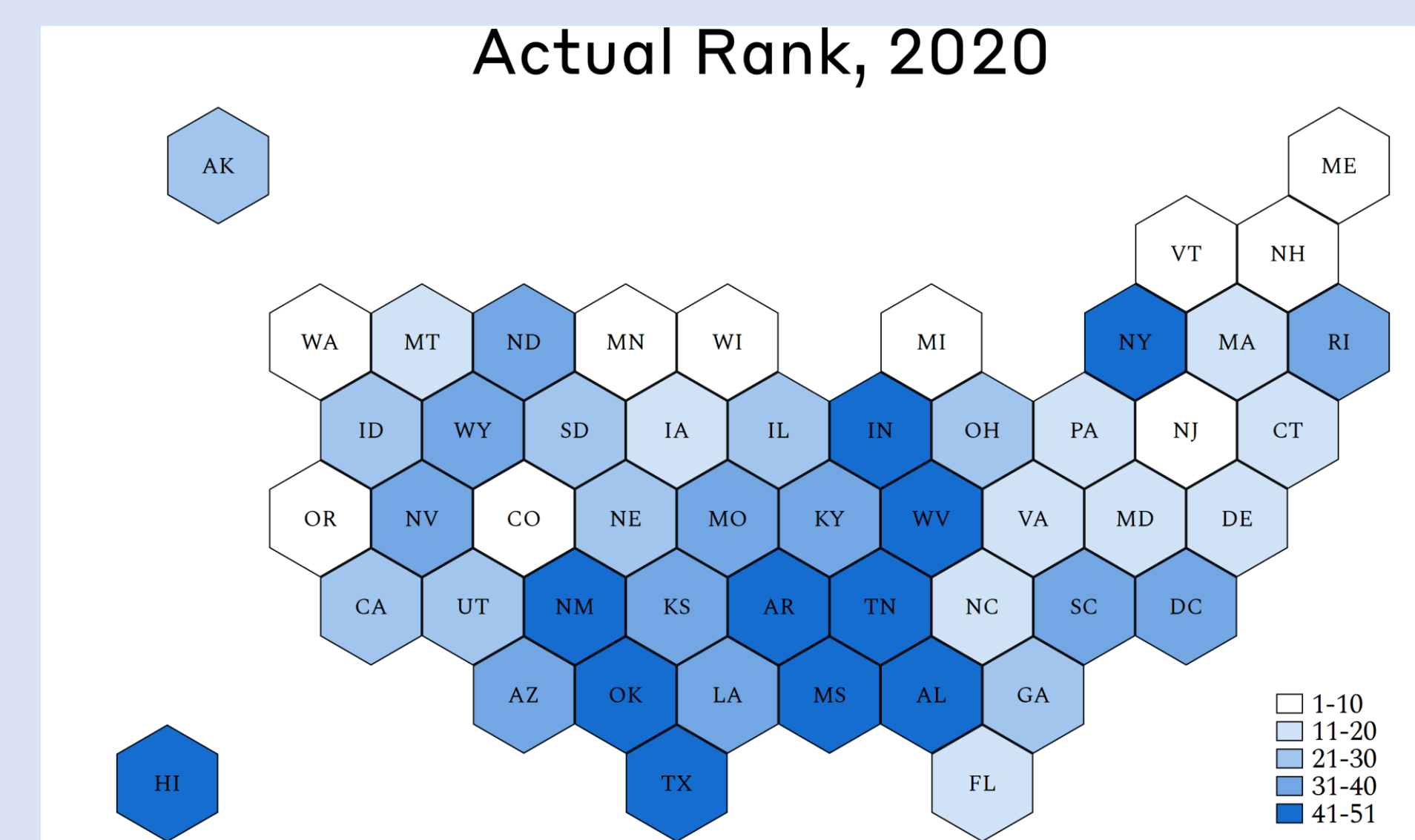
- Turnout/VEP: U.S. Elections Project
- Median household income (\$2018): U.S. Census Bureau
- Educational attainment (BA or beyond): U.S. Census Bureau
- Political competition: Leip Presidential Atlas
  - On-year:  $50 - \text{abs}(\text{Dem. pres. vote share}_{s,t} - \text{Rep. pres. vote share}_{s,t})$
  - Off-year:  $50 - \min[\text{abs}(\text{Dem. gov. vote share}_{s,t} - \text{Rep. gov. vote share}_{s,t}), \text{abs}(\text{Dem. sen. vote share}_{s,t} - \text{Rep. sen. vote share}_{s,t})]$

## Regression Results

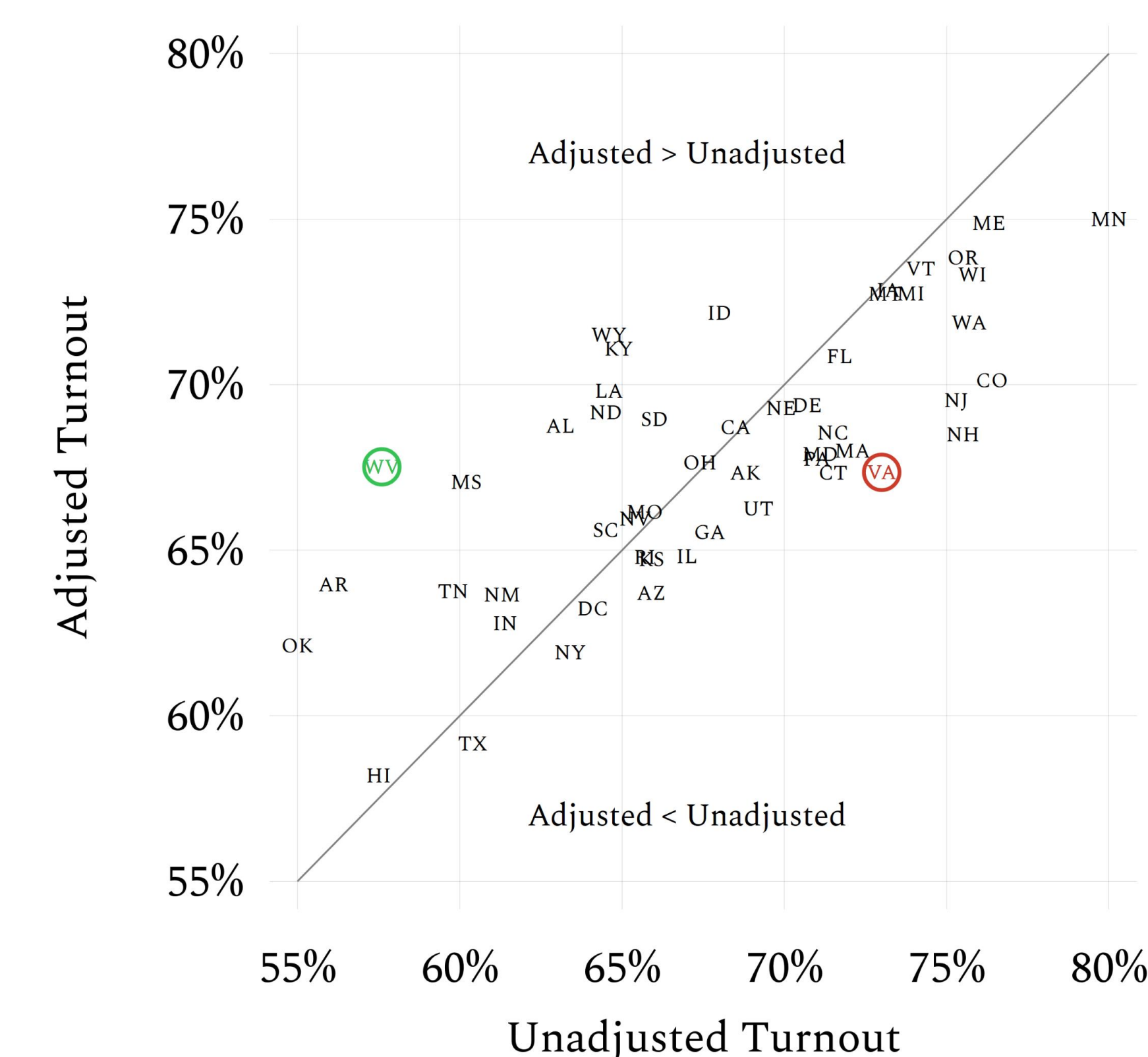
	On-Year	Off-Year
Competition	-0.186***	-0.221***
Ed. Attainment	-0.443***	0.025
H.H. Income	0.0925*	0.185***
Gov. contest	0.0089	0.051***
Sen. contest	0.0008	0.0427***
Year		
2000/2002	0.332***	0.245***
2004/2006	0.382***	0.265***
2008/2010	0.396***	0.261***
2012/2014	0.356***	0.228***
2016/2018	0.359***	0.329***
2020/2022	0.407***	0.280***
R <sup>2</sup>	.496	.378

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$   
 Note: R<sup>2</sup> reported from regression that includes constant.

## 2020 Comparison of Results



## Scatterplot of Adjusted vs. Actual Rank



## Biggest Changes in 2020

### States Promoted Most by Adjustment

State	Actual Turnout		Adj. Turnout		Why*
	Value	Rank	Value	Rank	
AL	63.1	42	68.6	24	EI
ID	68.0	25	72.0	10	C
KY	64.9	35	70.9	12	EI
LA	64.6	37	69.6	16	EI
MS	60.2	46	66.9	35	EI
ND	64.5	39	69.1	21	C
WV	57.6	48	68.2	25	CEI
WY	64.6	37	71.3	11	C

### States Demoted Most by Adjustment

State	Actual Turnout		Adj. Turnout		Why*
	Value	Rank	Value	Rank	
AZ	65.9	31	63.6	43	C
CO	76.4	2	69.9	15	E
CT	71.5	17	67.2	30	EI
GA	67.7	26	65.3	38	C
IL	67.0	28	64.6	39	EI
KS	65.9	31	64.5	41	EI
MA	72.1	14	67.8	26	EI (+C)
NH	75.5	7	69.2	19	EI

\*Reasons Why:  
 C = Competition  
 E = Education  
 I = Income

## Examples of Big Changes in 2020: Virginia and West Virginia

### Big Promotion: WV

- Actual turnout = 57.6% (#48)
- Adjusted turnout = 68.2% (#25)
- Competition: 10.4 pts (#49)
- Education: 21.5% (#51)
- Income: \$52,887 (#50)

### Big Demotion: VA

- Actual turnout = 73.0% (#12)
- Adjusted turnout = 67.1% (#31)
- Competition: 39.7 pts (#15)
- Education: 37.8% (#7)
- Income: \$84,253 (#10)

## Conclusions/Considerations

- The results reported here are very similar if the adjustment is done one year at a time rather than polling observations.
- Adjusting turnout identifies states that over- and under-perform other states with similar demographic and political attributes.
- This method could be extended to counties.
- Consideration needs to be given to the addition of more covariates.