

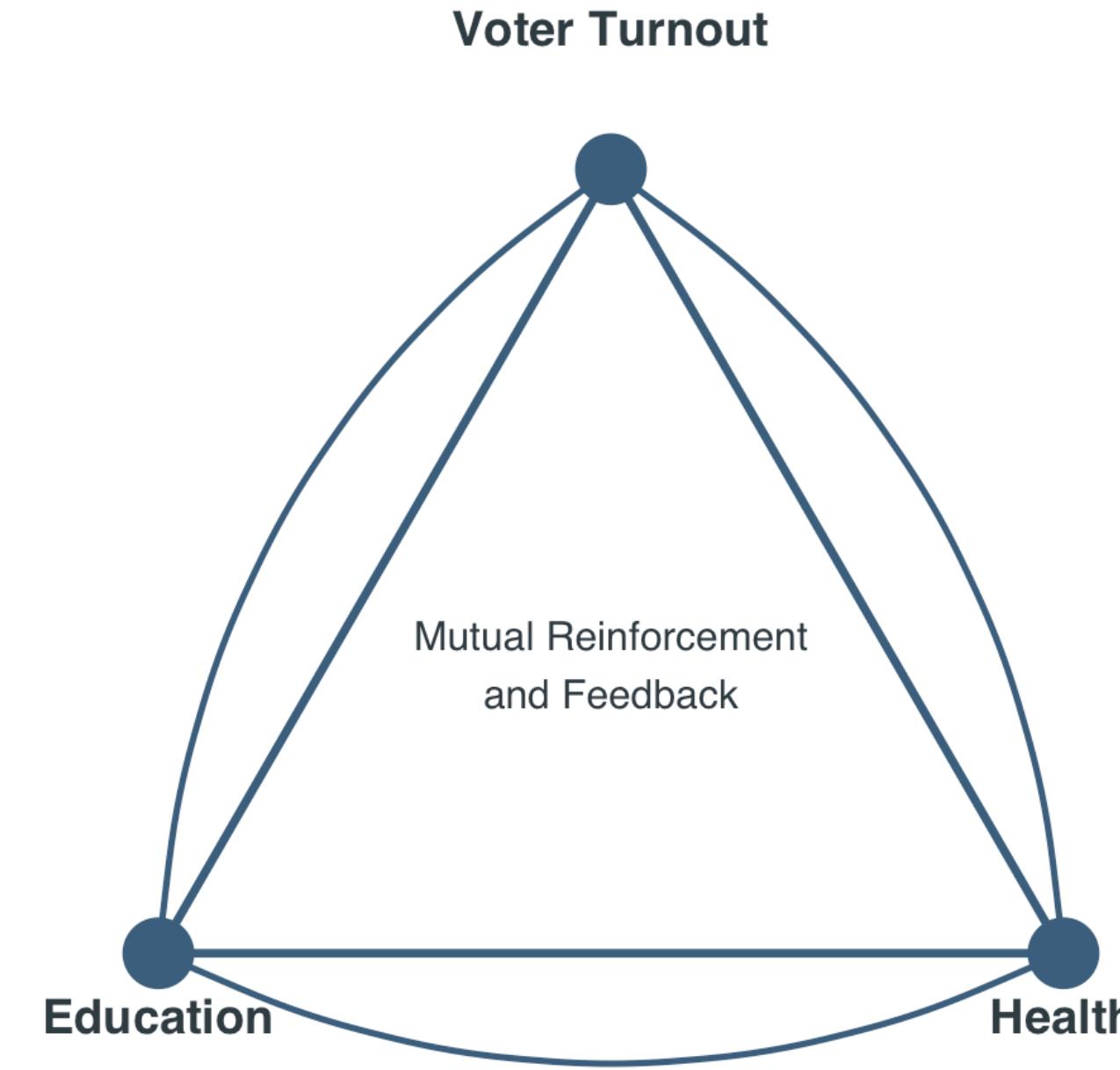
# Interactive Graphics

<https://john-glendenning.shinyapps.io/FinalReportGraphics/>

# Mapping Civic Inequality in Texas: Gardens and Deserts of Democratic Engagement

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## The Civic Triangle: Education, Health, and Voter Turnout



	Expected Relationship
<b>Education → Voting</b>	Education increases political involvement, civic knowledge, and voter participation.
<b>Health → Voting</b>	Healthier individuals are more likely to vote and engage. Poor health reduces civic participation.
<b>Education → Health</b>	Education predicts life expectancy, preventive care use, and health literacy.
<b>Voting → Health Policy</b>	Communities with higher turnout have more influence on health and education policy outcomes.
<b>Health → Education</b>	Healthy people perform better academically; adult wellness supports lifelong learning.
<b>Voting → Education</b>	Participatory democracies sustain educational investment; educated voters support public health policy.

# The Civic Triangle

# Data and Methodology

## Texas State Data

( 2 variables )

- Voter Turnout
- Registered Voters

## American Community Survey

( 23 variables )

- Level of Education

## CDC Places

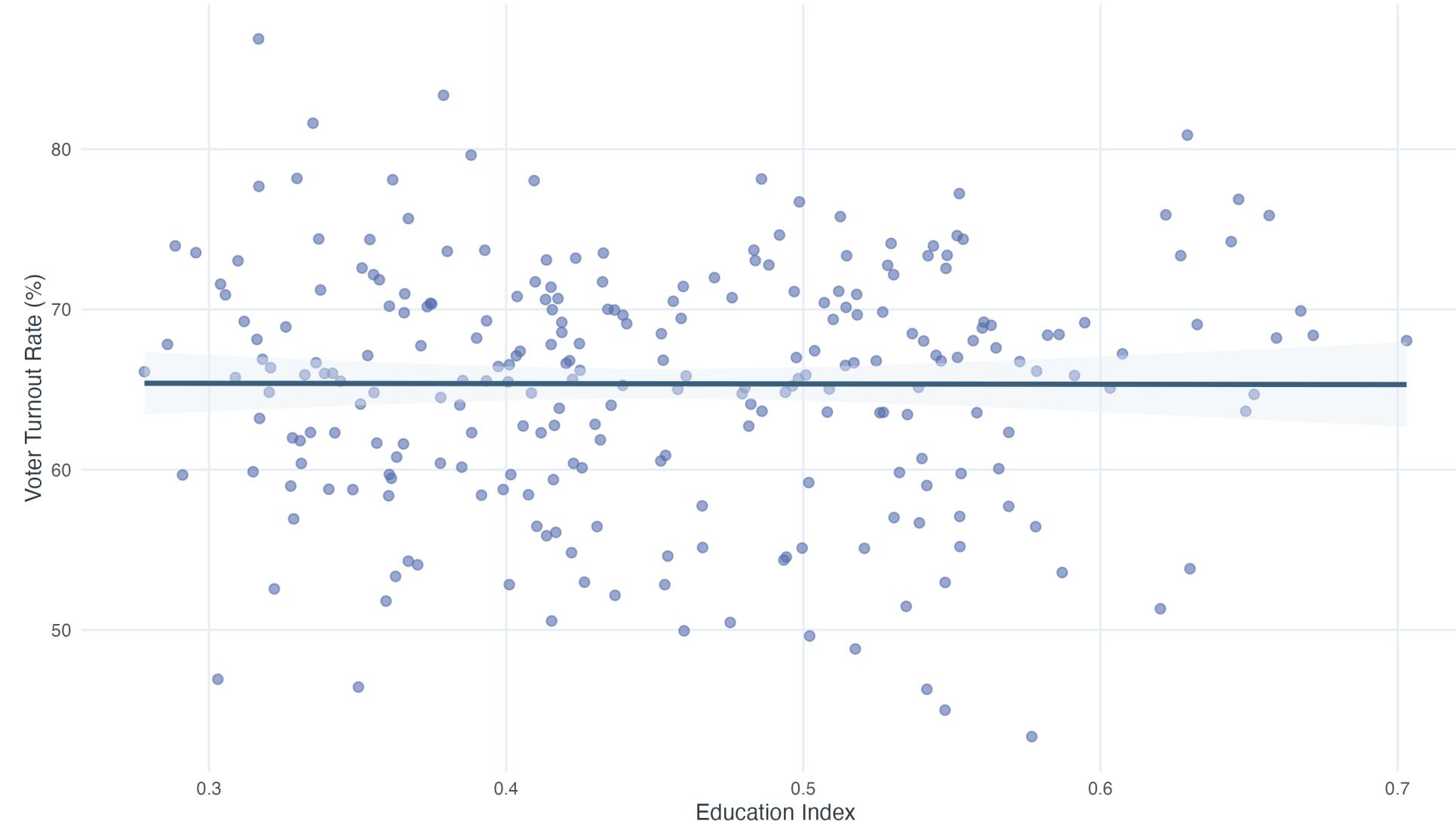
( 8 variables )

- Mental & Physical Health (days per month)
- General Health (good or poor)
- Health Insurance Access
- Regular Checkups, Physical Activity, Sleep
- Obesity

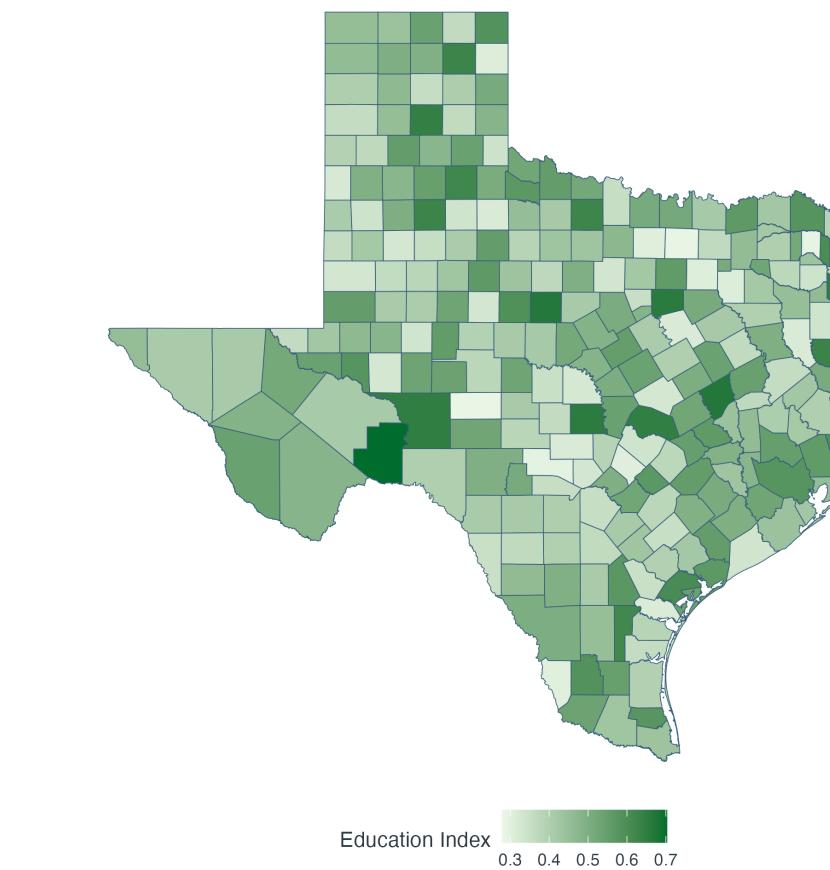
## Civic Vitality Index

$$\text{CivicIndex}_i = \frac{\frac{\text{TurnoutRate}_i}{100} + \text{EduIndex}_i + (1 - \text{HealthIndex}_i)}{3}$$

# Education Surprise

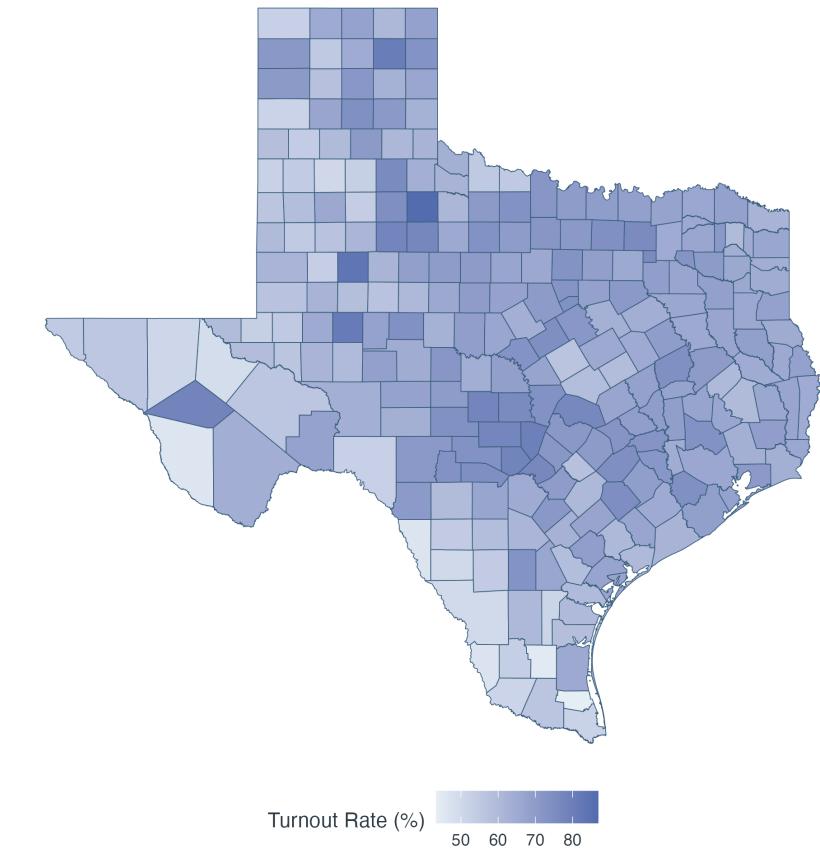


Education



Education Index  
0.3 0.4 0.5 0.6 0.7

Turnout

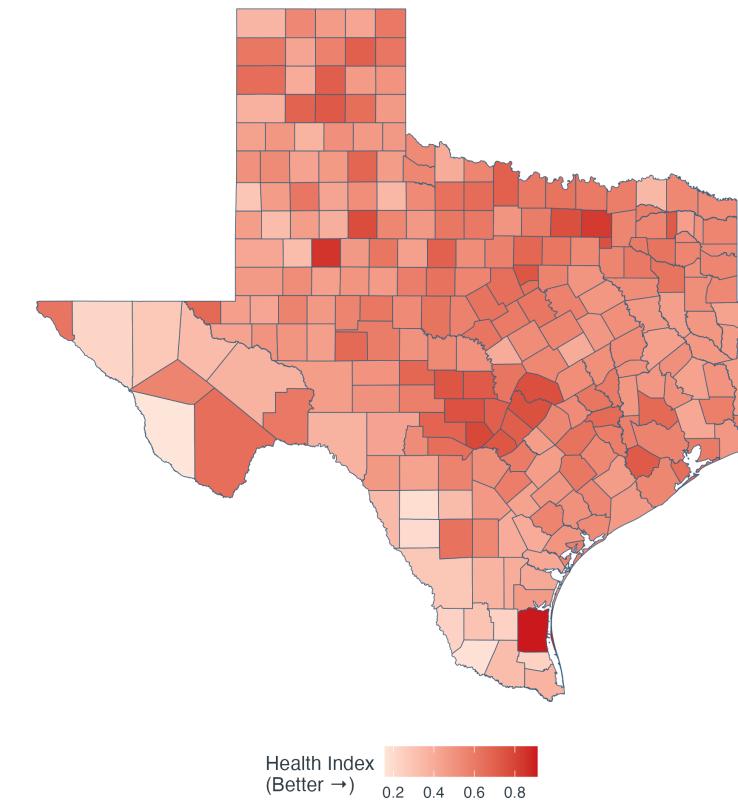


Turnout Rate (%)  
50 60 70 80

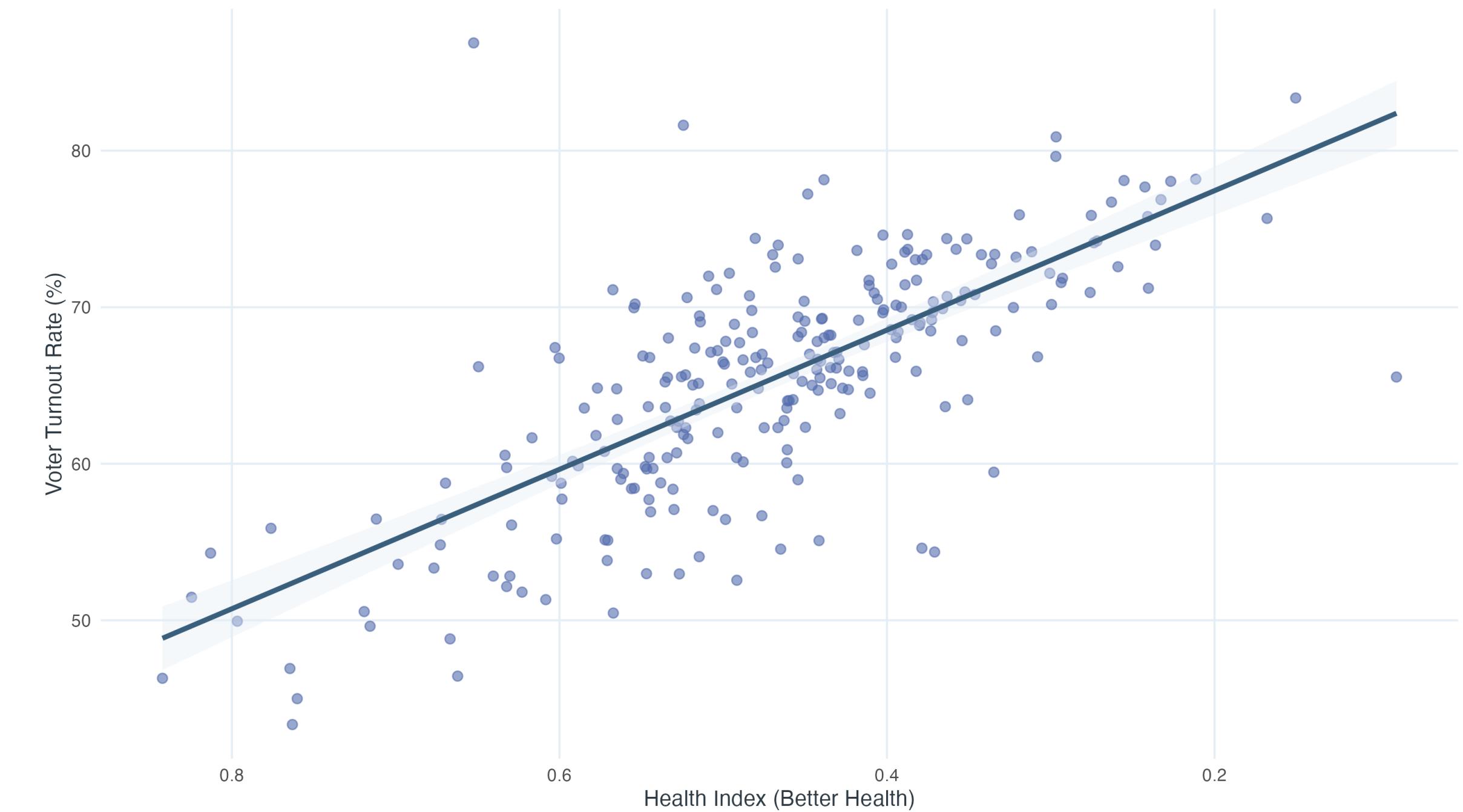
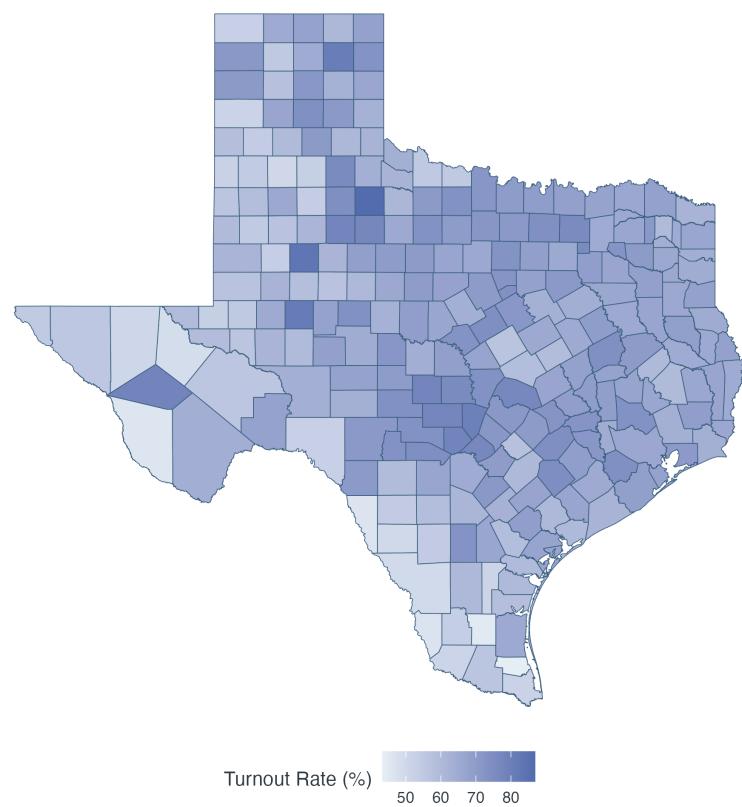
- Weak Correlation between Turnout and Education
- Spatially Disjointed
- Index and Turnout maps would be similar if linked

# Health is Key

Health

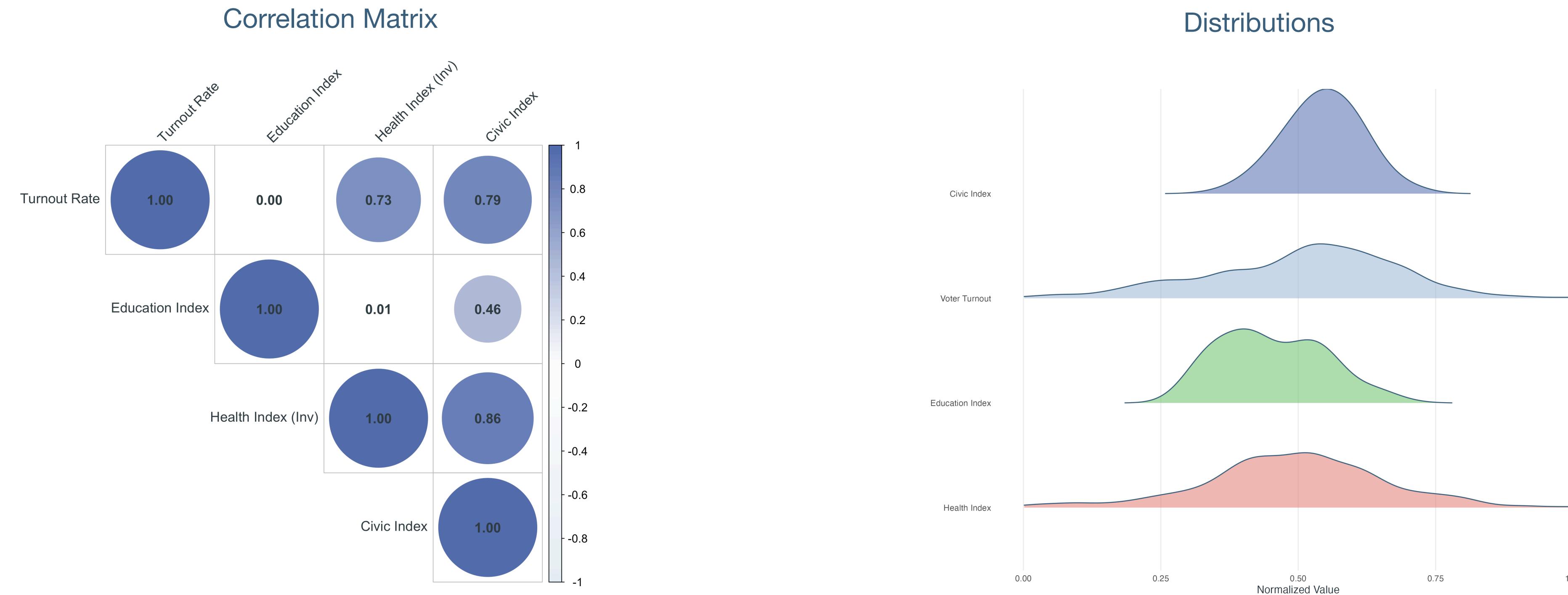


Turnout

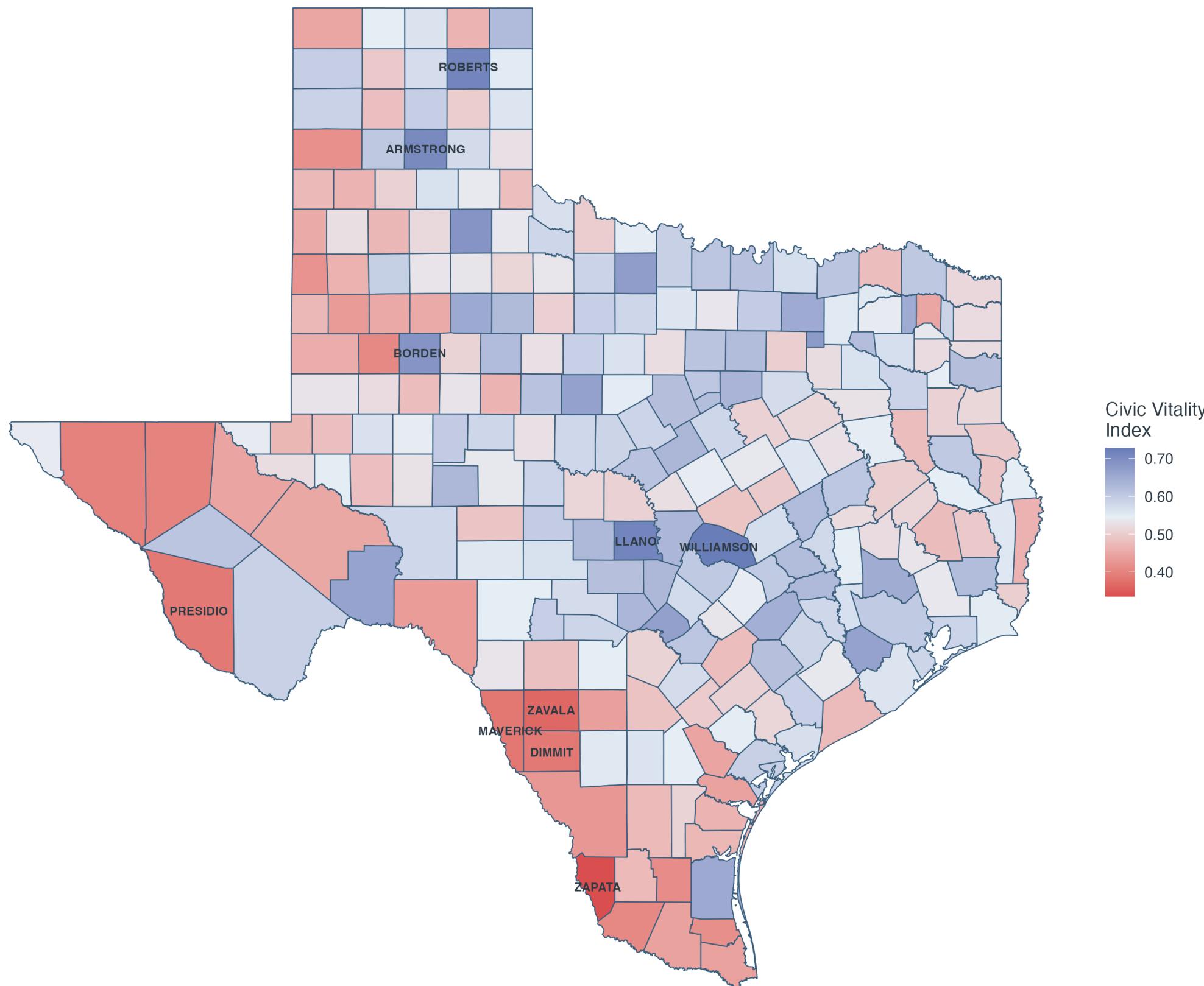


- Health is a stronger predictor
- Spatially Similar

# Interrelationships



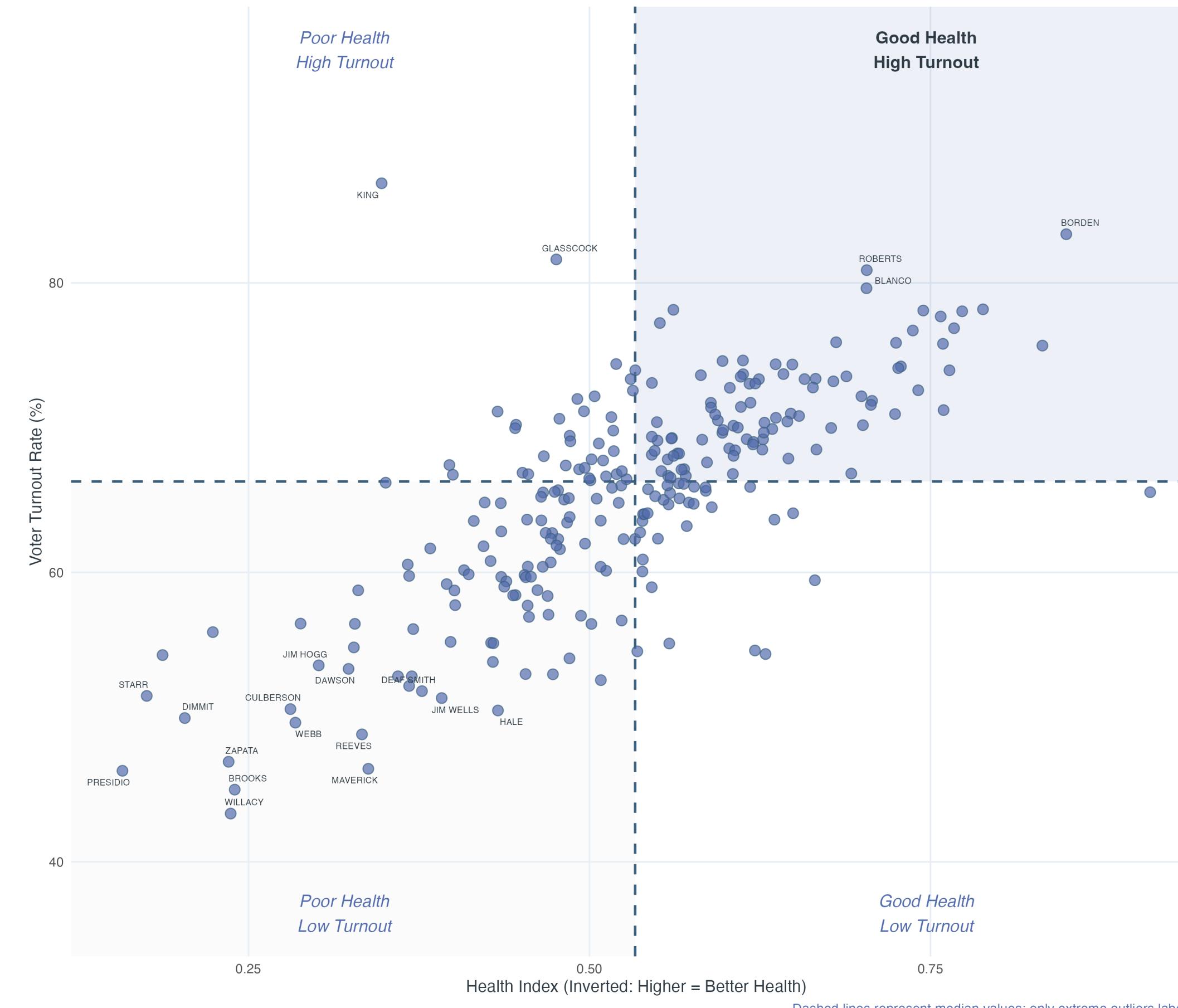
# Geographic Patterns



Higher values indicate stronger civic vitality. Top and bottom 5 counties labeled.

Civic Vitality Index

# Quadrant Analysis

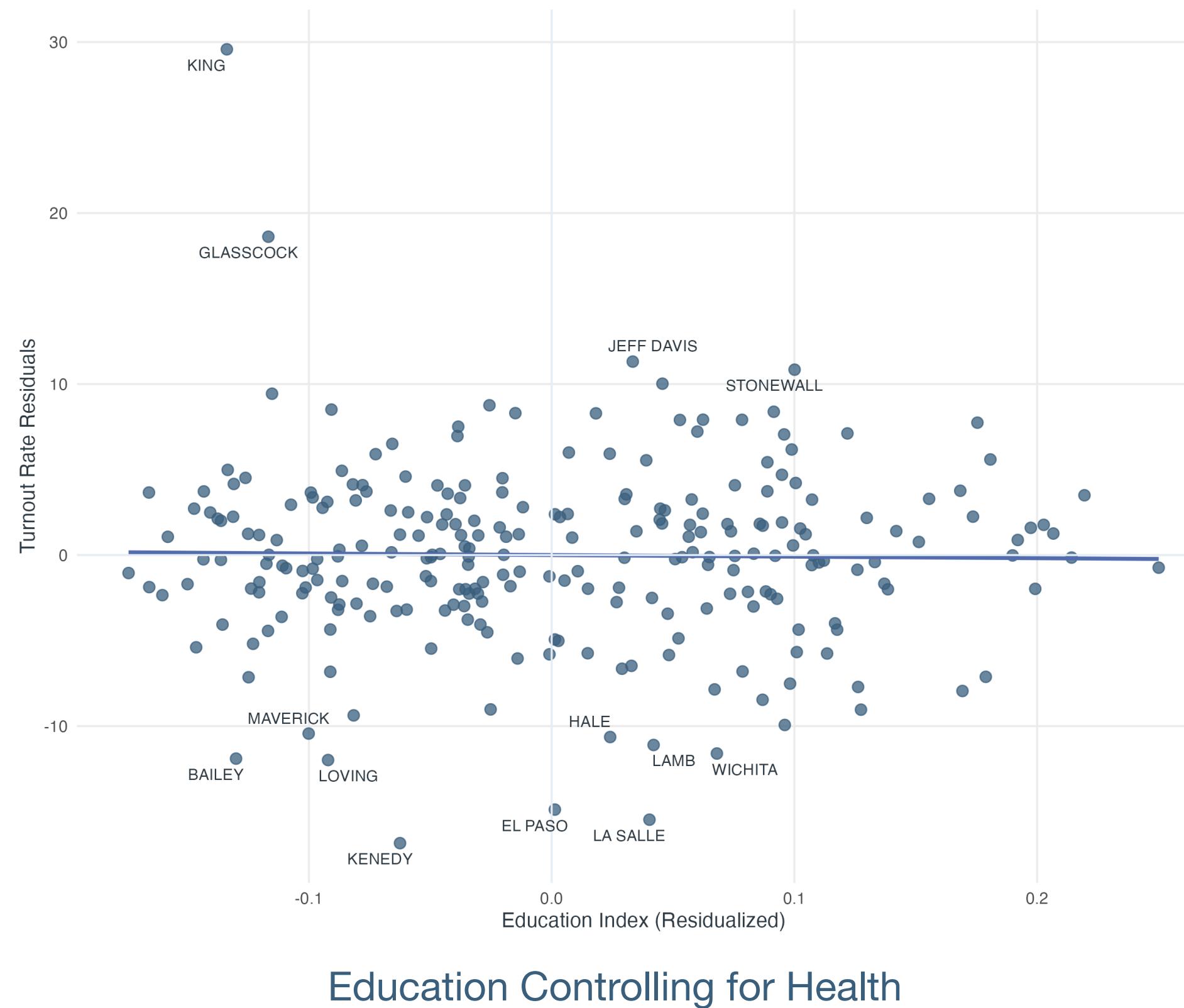


Turnout vs Health



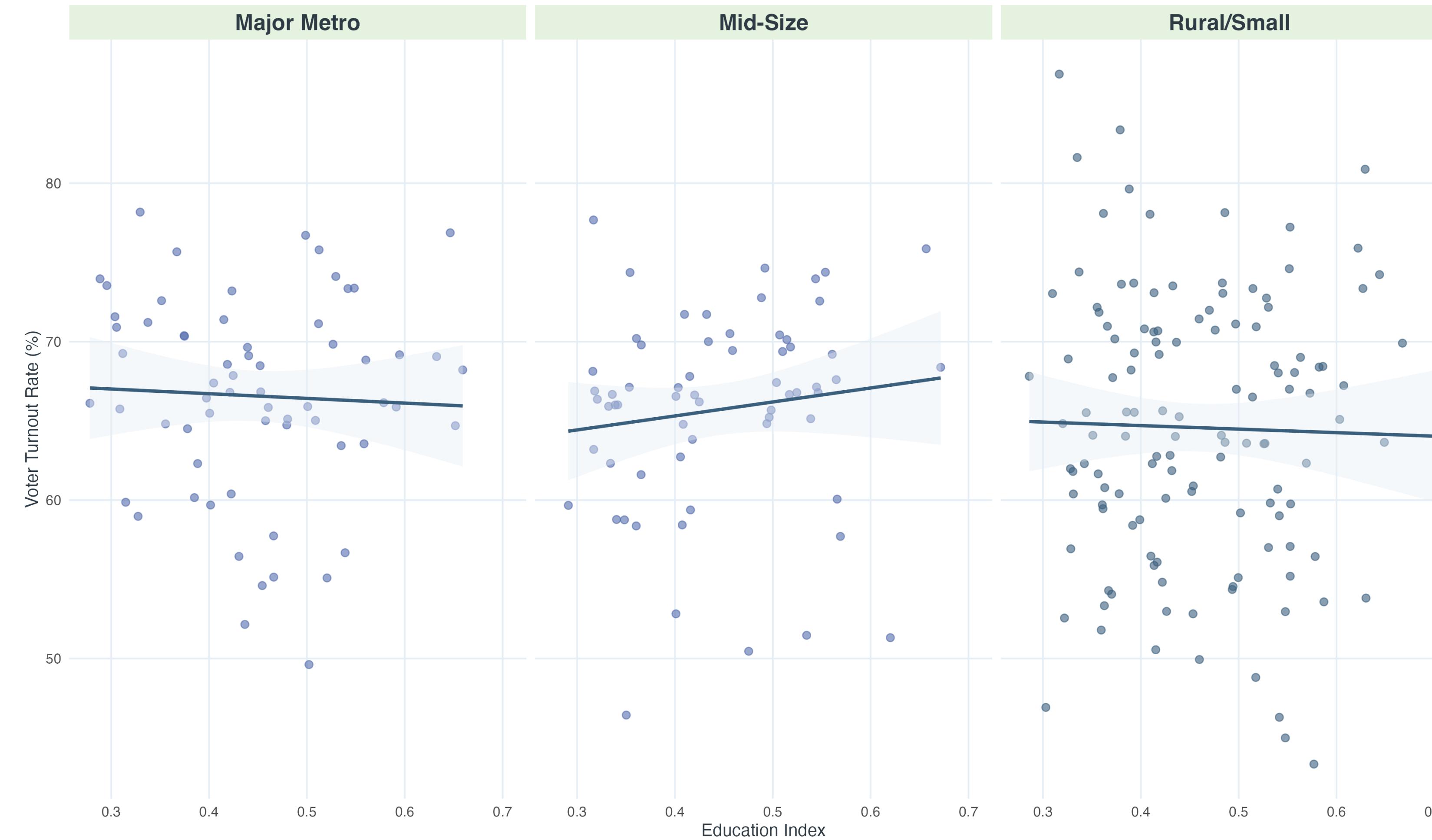
Turnout vs Education

# Partial Regression



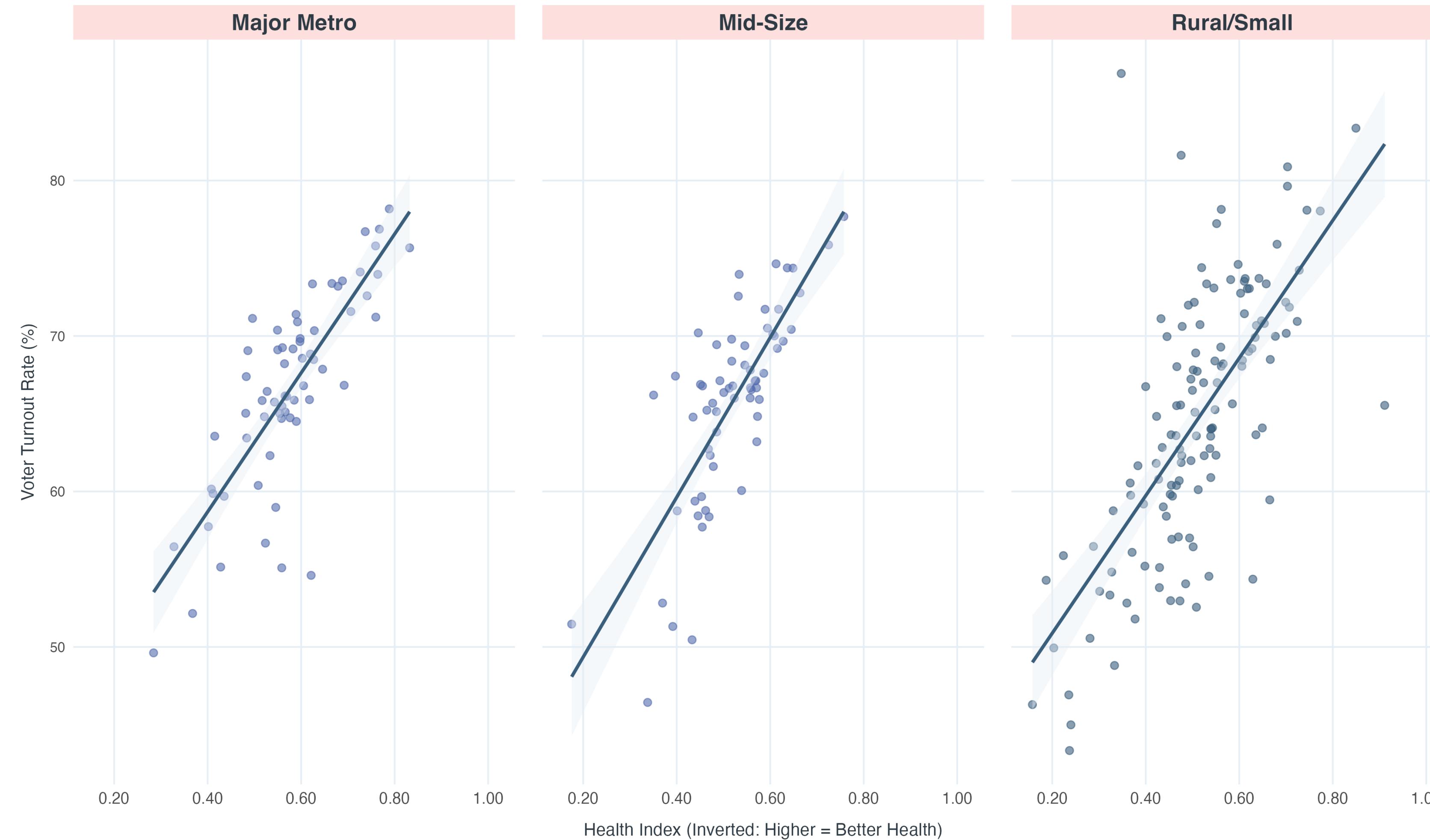
# Counties / Education

Comparing metropolitan, mid-size, and rural counties

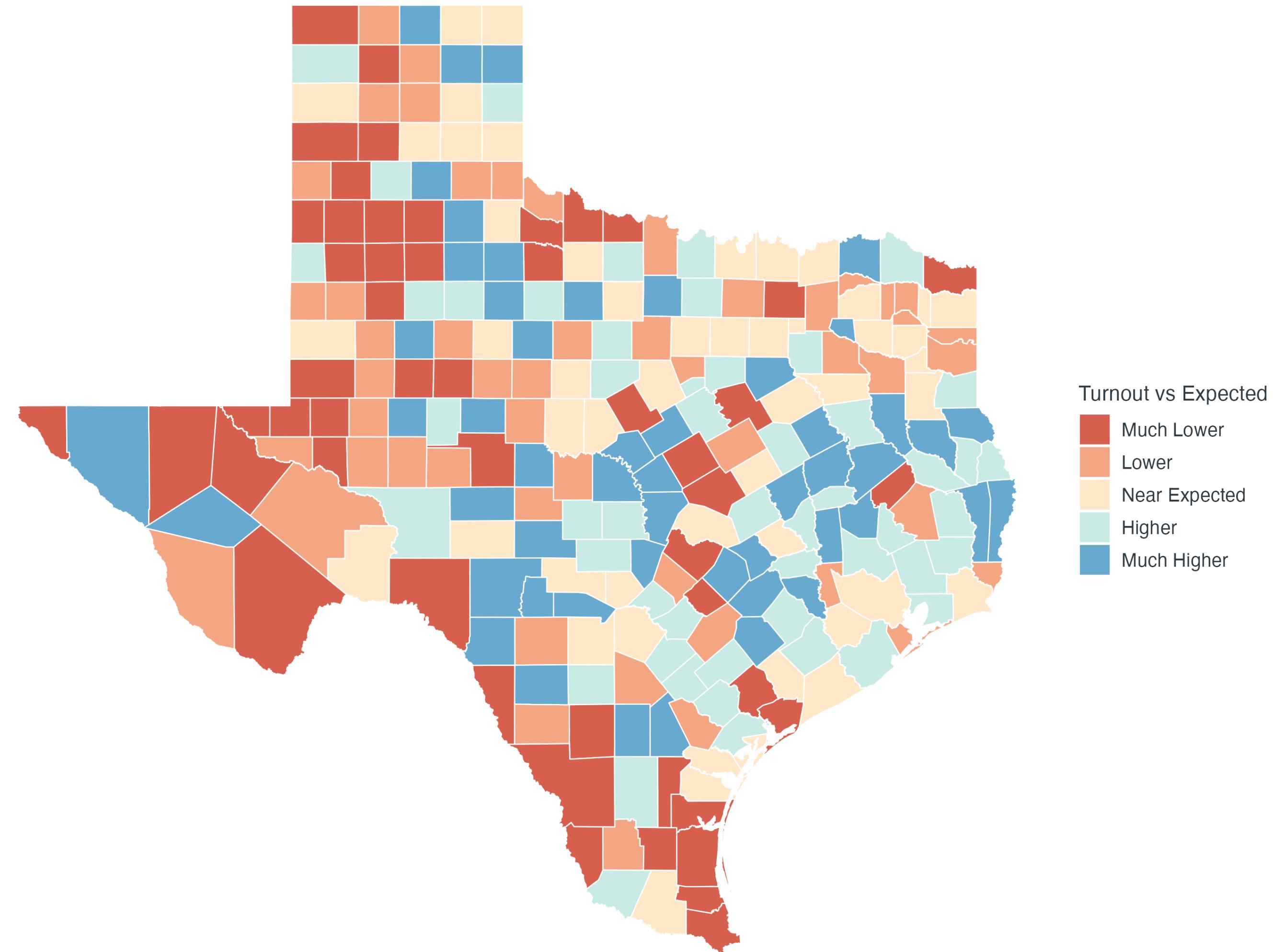


# Counties / Health

Comparing metropolitan, mid-size, and rural counties

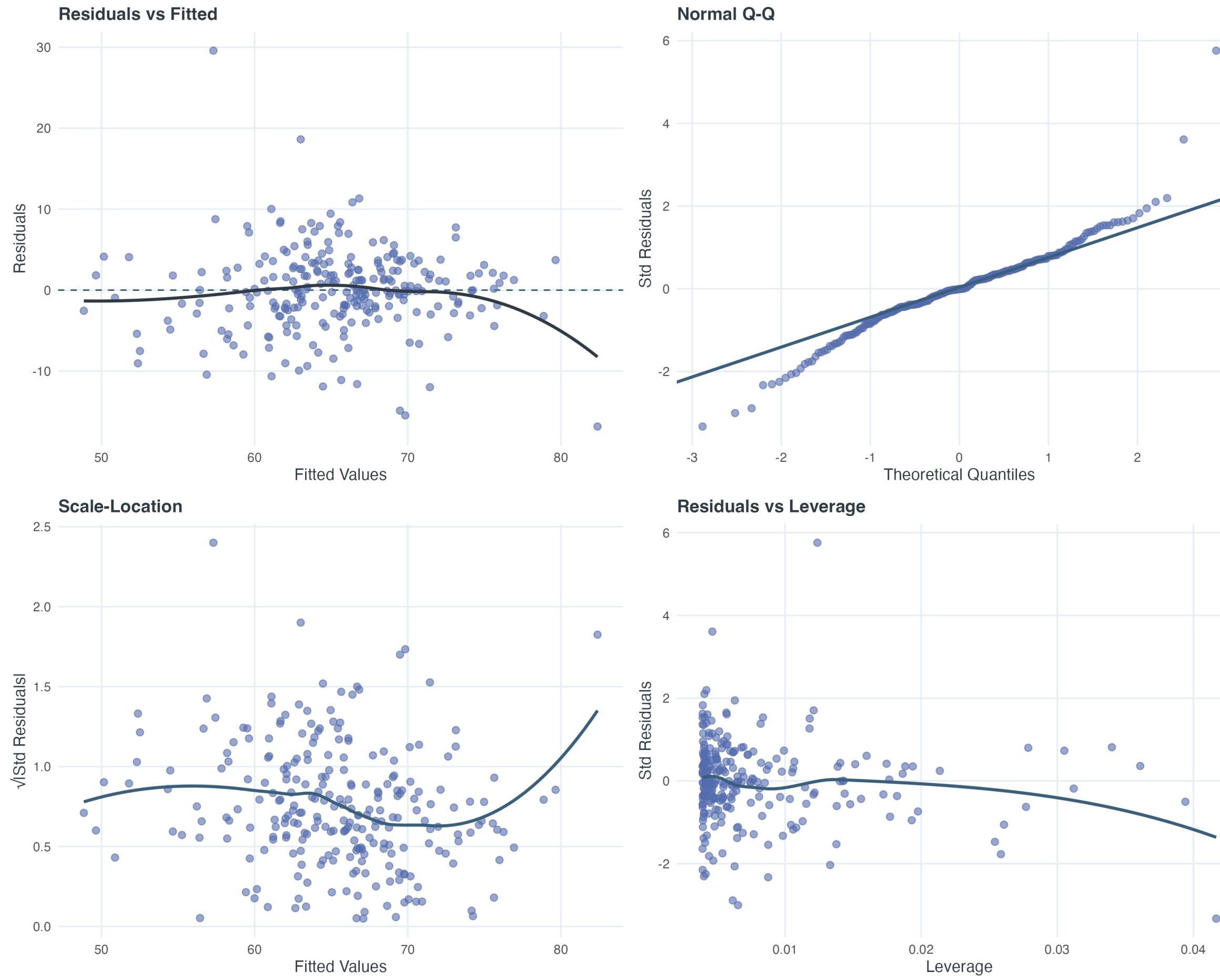


# Regression Residuals

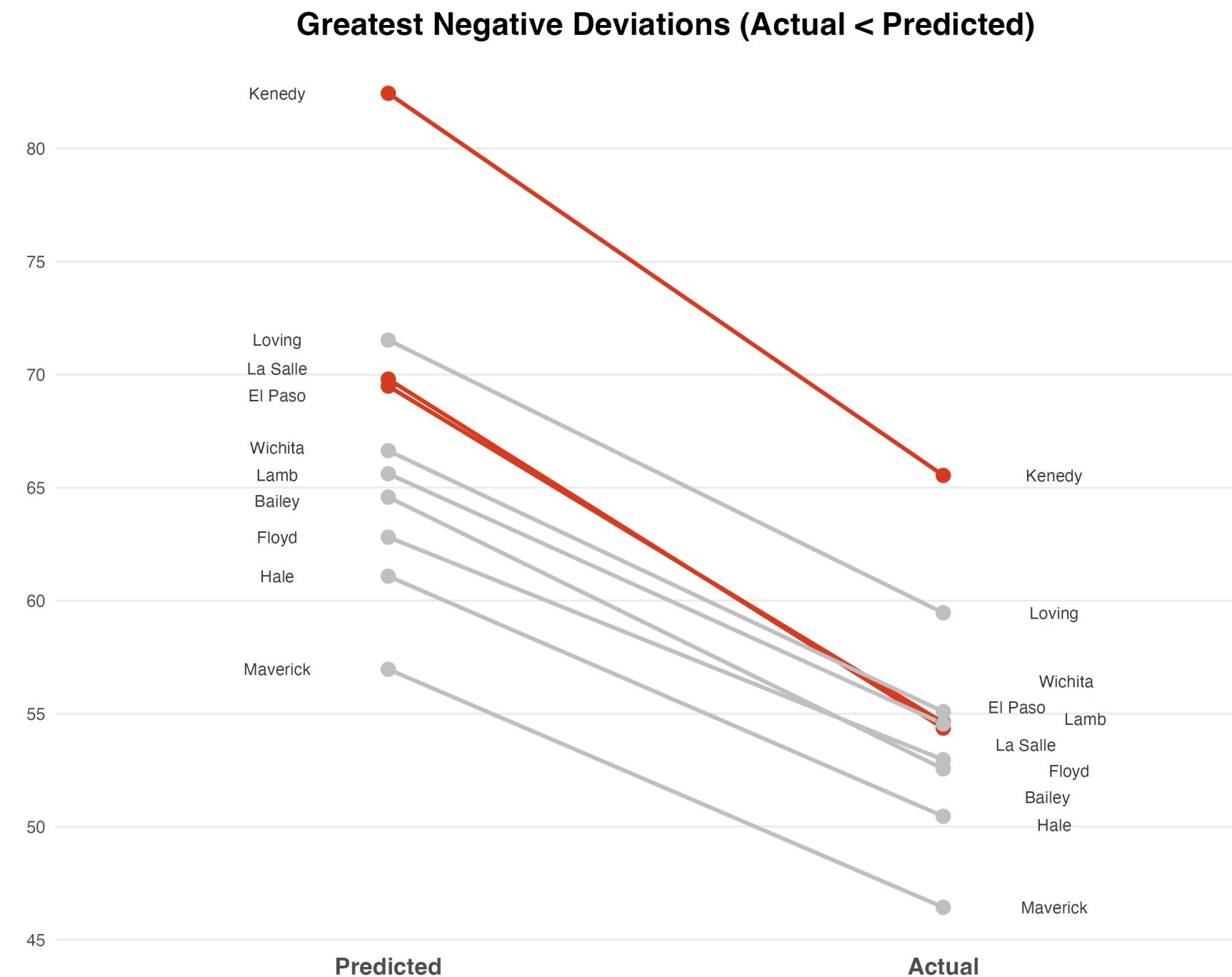


# Model Diagnostics

Adjusted R<sup>2</sup> = 0.531 | Education excluded due to null relationship

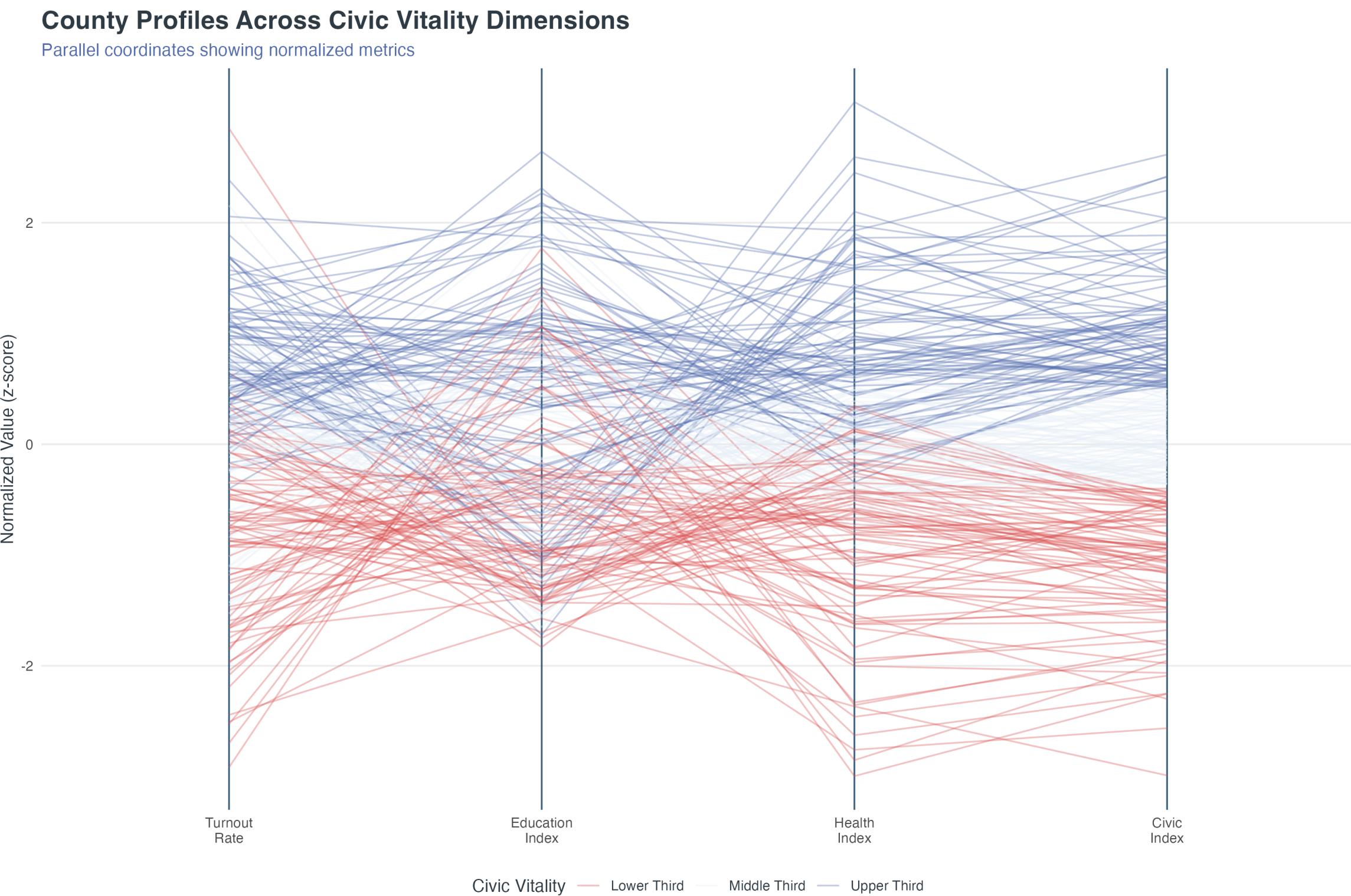
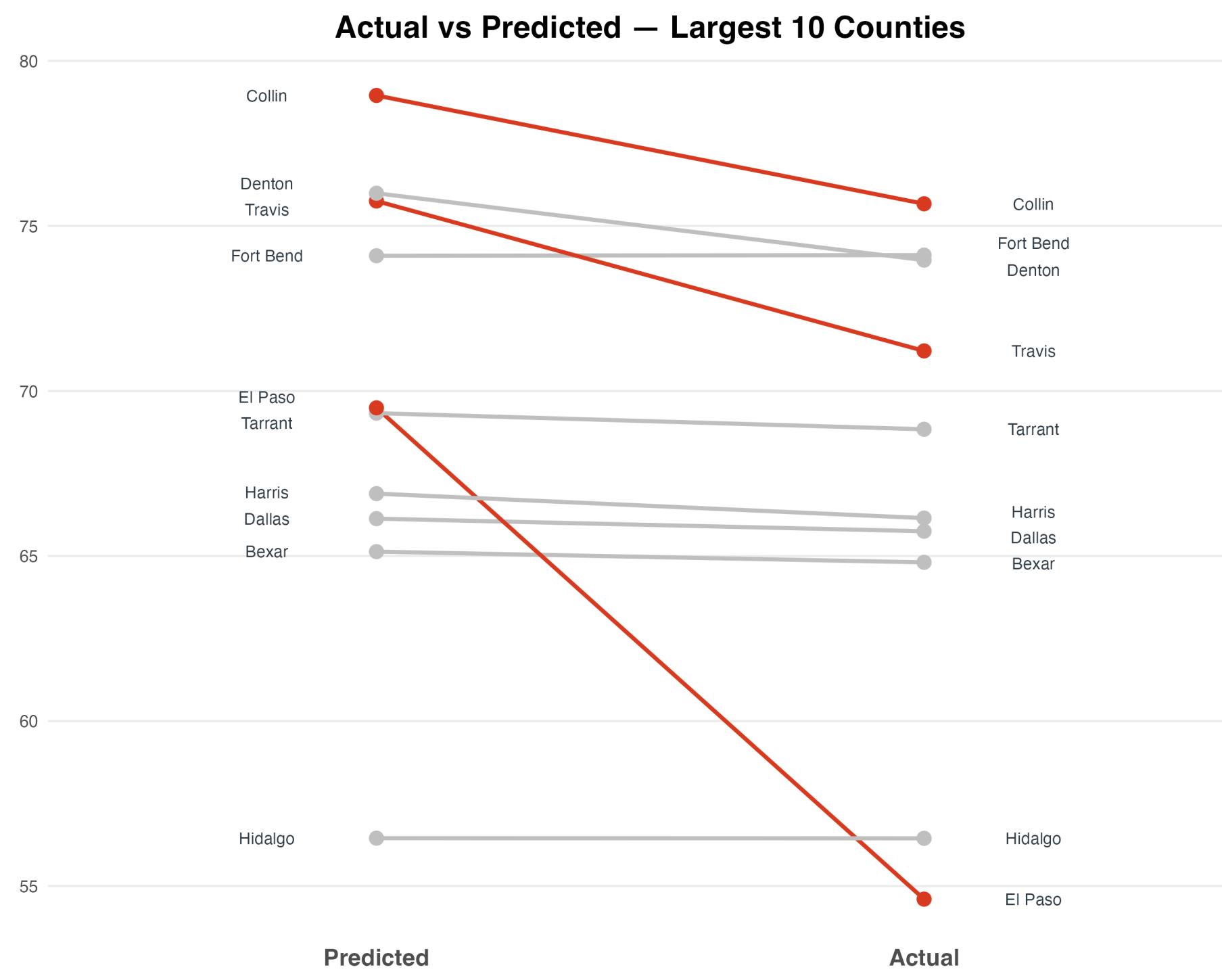


# Model Deviations



- South Texas underperforms
- Panhandle overperforms
- Local or unaccounted factors are important

# Model Deviations



# Conclusions

- **Health is the lever for civic participation**
  - County health outcomes are the strongest structural predictor of voter turnout
  - This relationship holds across metro, mid-size, and rural counties
- **Education's role is indirect (at best)**
  - The effect of education documented in the literature does not seem to translate to county-level patterns
  - After controlling for health, education adds no explanatory power
- **Geography shows systematic inequality**
  - Civic gardens cluster around major metros with likely stronger health infrastructure
  - Civic deserts persist in South Texas, West Texas, and the Rio Grande Valley
  - Local political culture may create meaningful deviations from predictions
- **Policy Implications:**
  - Invest in community health infrastructure as a pathway to democratic participation
  - Target health disparities in underperforming regions (South/West Texas)
  - Don't assume education alone will boost turnout since health matters more

Healthy Communities Vote More