STA 199CCL / Fall 2026

Health Insurance Disparities in North Carolina



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Research Question and Motivation

How do uninsured rates vary by geography, race, income, sex, and age in North Carolina?



Motivation

Coverage gaps affect access to care and financial liability.

Hypotheses

1. **Coastal counties** tend to have **higher uninsured rates** than inland counties.
2. **Racial minorities** tend to have **higher uninsured rates** than Whites.
3. **Low-income** populations tend to have **higher uninsured rates** than high-income populations.
4. **Men** tend to have **higher uninsured rates** than women.
5. **Younger** populations tend to have **higher uninsured rates** than older populations.

Data

Source: U.S. Census Bureau's 2024 Small Area Health Insurance Estimates (SAHIE)
12,270 rows (describe a specific geographic area & demographic combination)
25 columns (identifiers, explanatory variables, response variables)

100
North Carolina counties

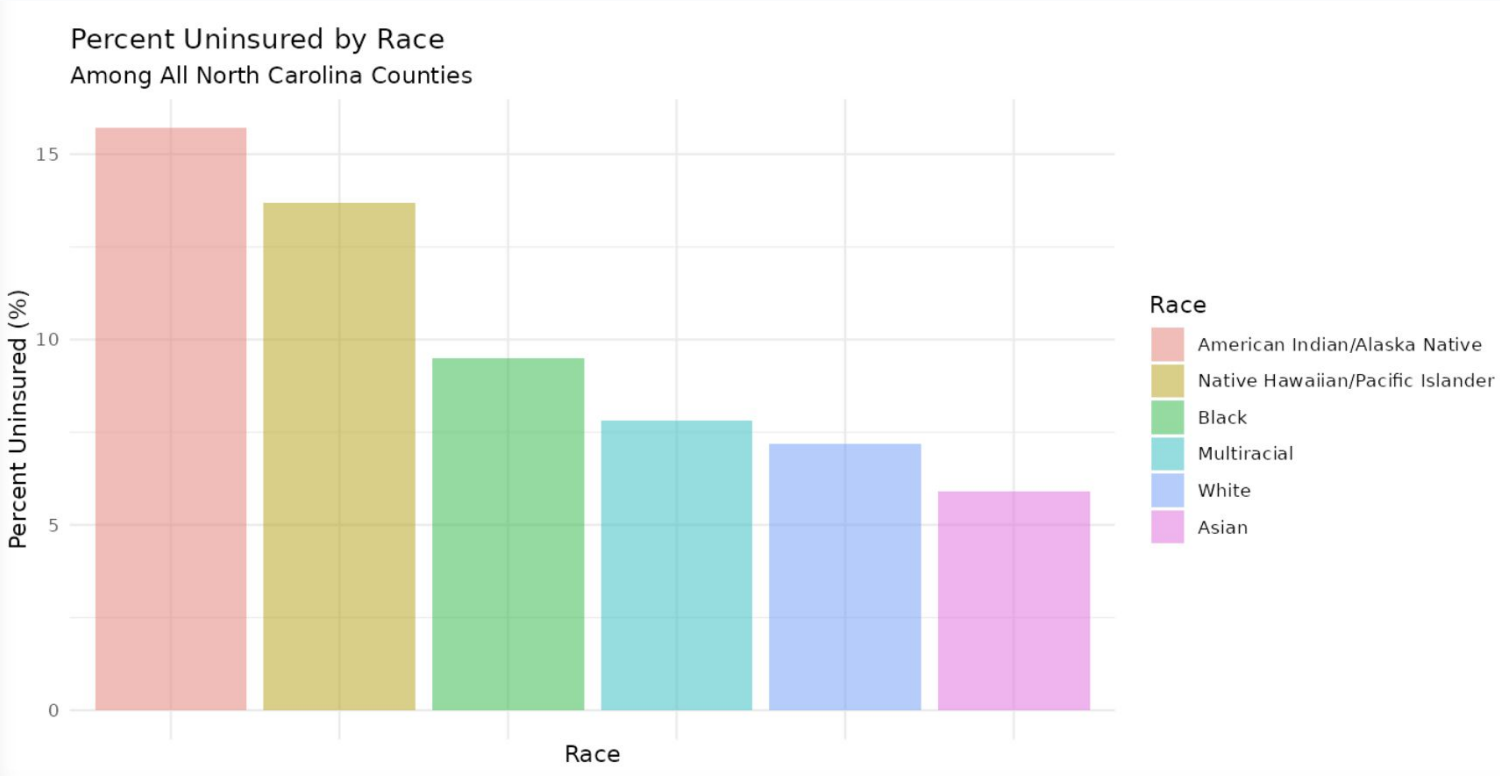
8
Prosperity Zones

6
Variables

Response Variable: Percentage uninsured among residents under age 65 in a given county

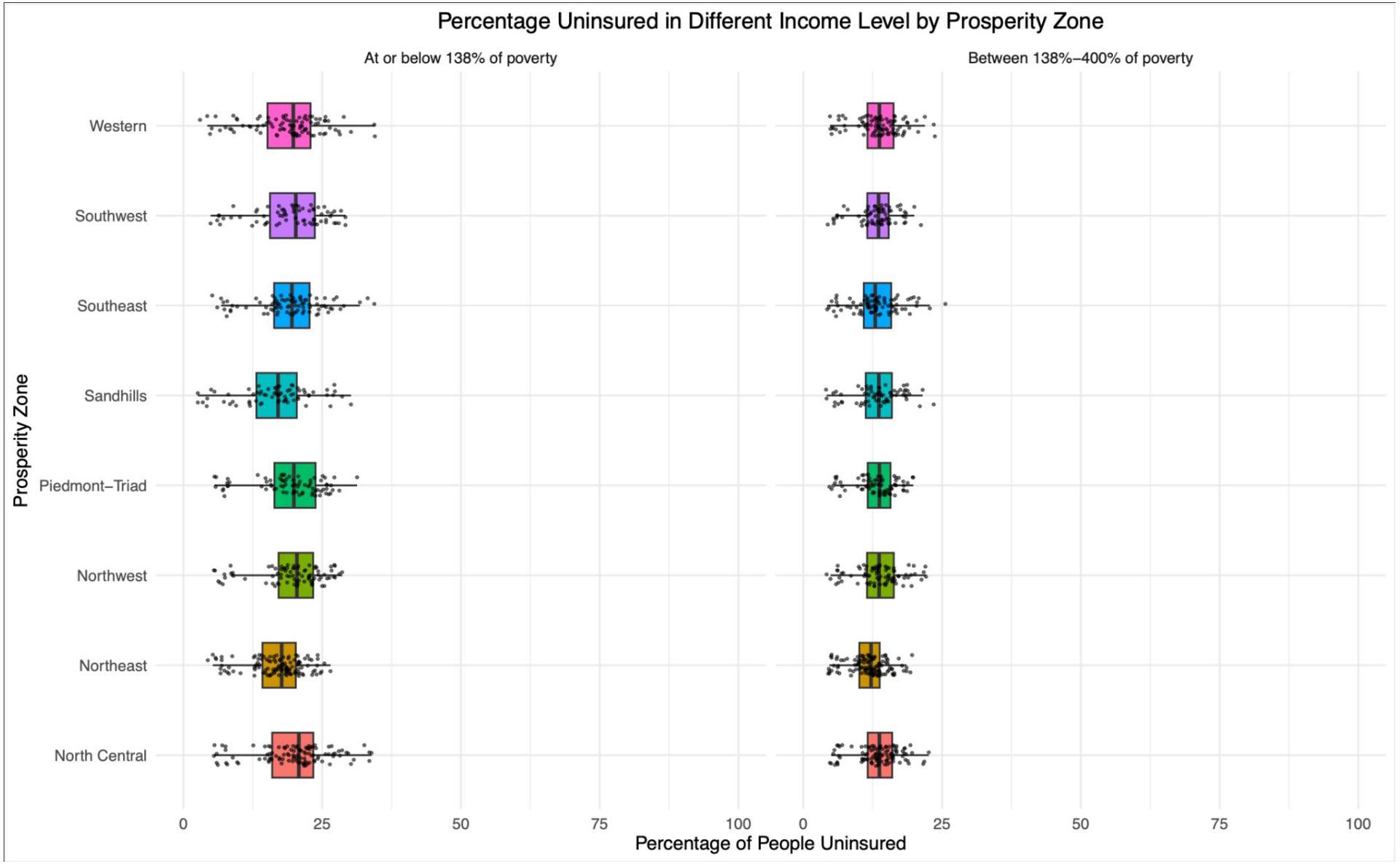
Explanatory Variables: Prosperity zone, race, income, sex, age

Percent Uninsured by Race (State Level)

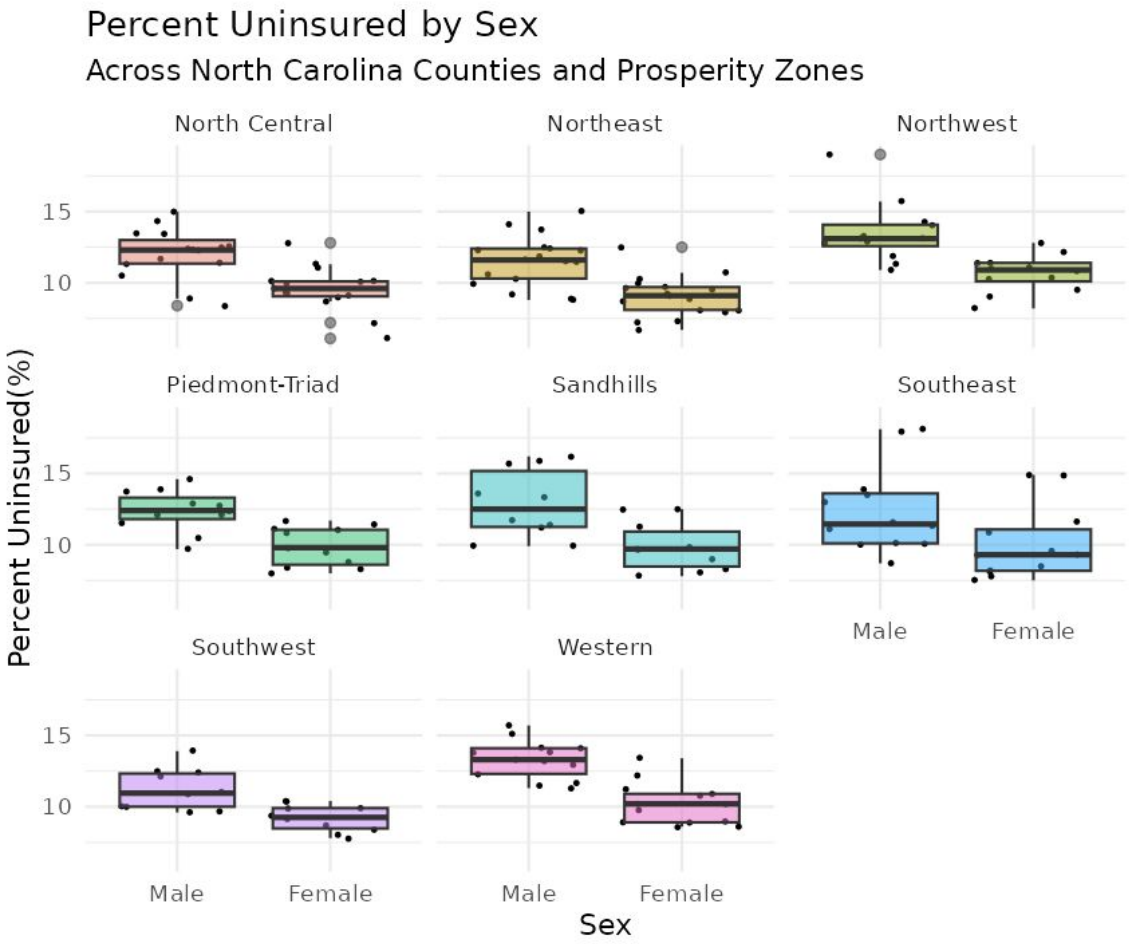


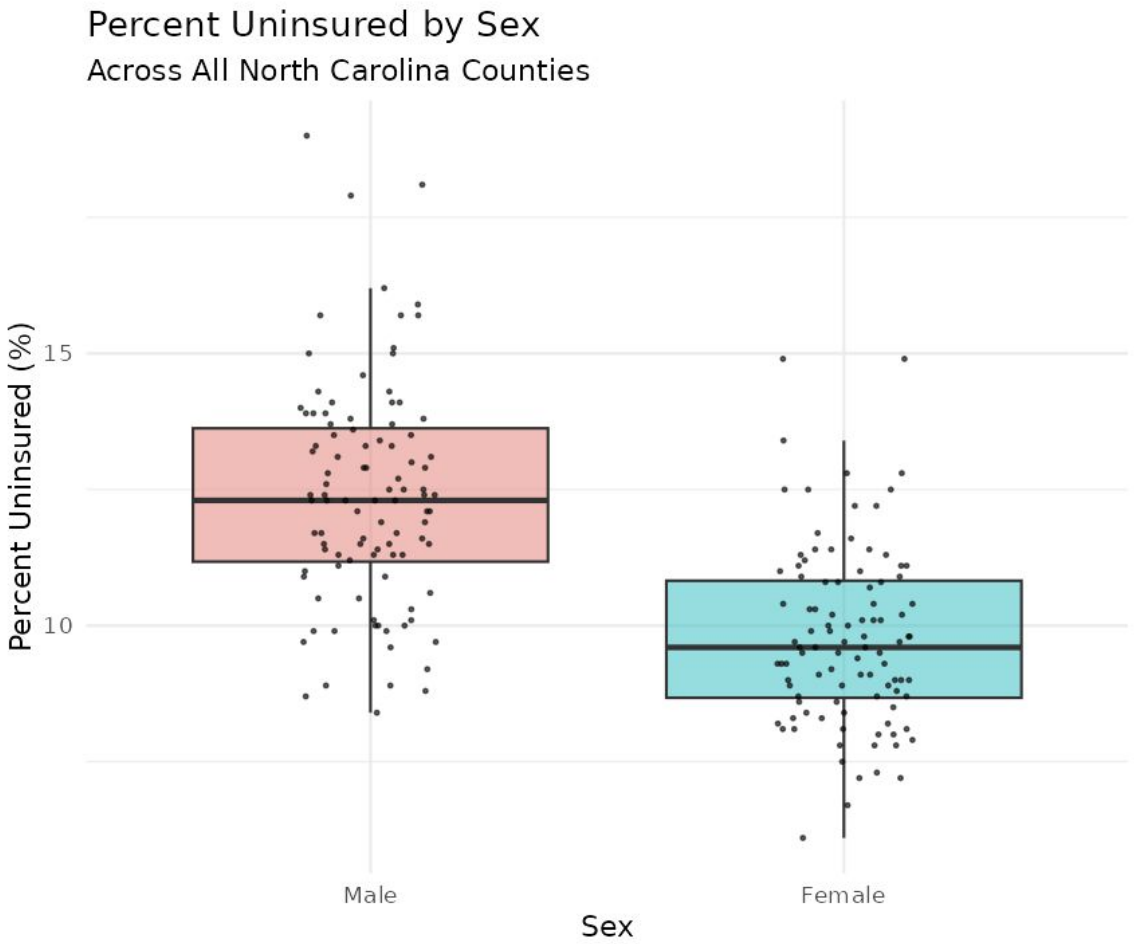

```
# A tibble: 6 × 2
  Race                                `Percent Uninsured (%)`
  <fct>                                                 <dbl>
1 American Indian/Alaska Native                          15.7
2 Native Hawaiian/Pacific Islander                       13.7
3 Black                                                   9.5
4 Multiracial                                             7.8
5 White                                                   7.2
6 Asian                                                   5.9
```

Percent Uninsured by Income

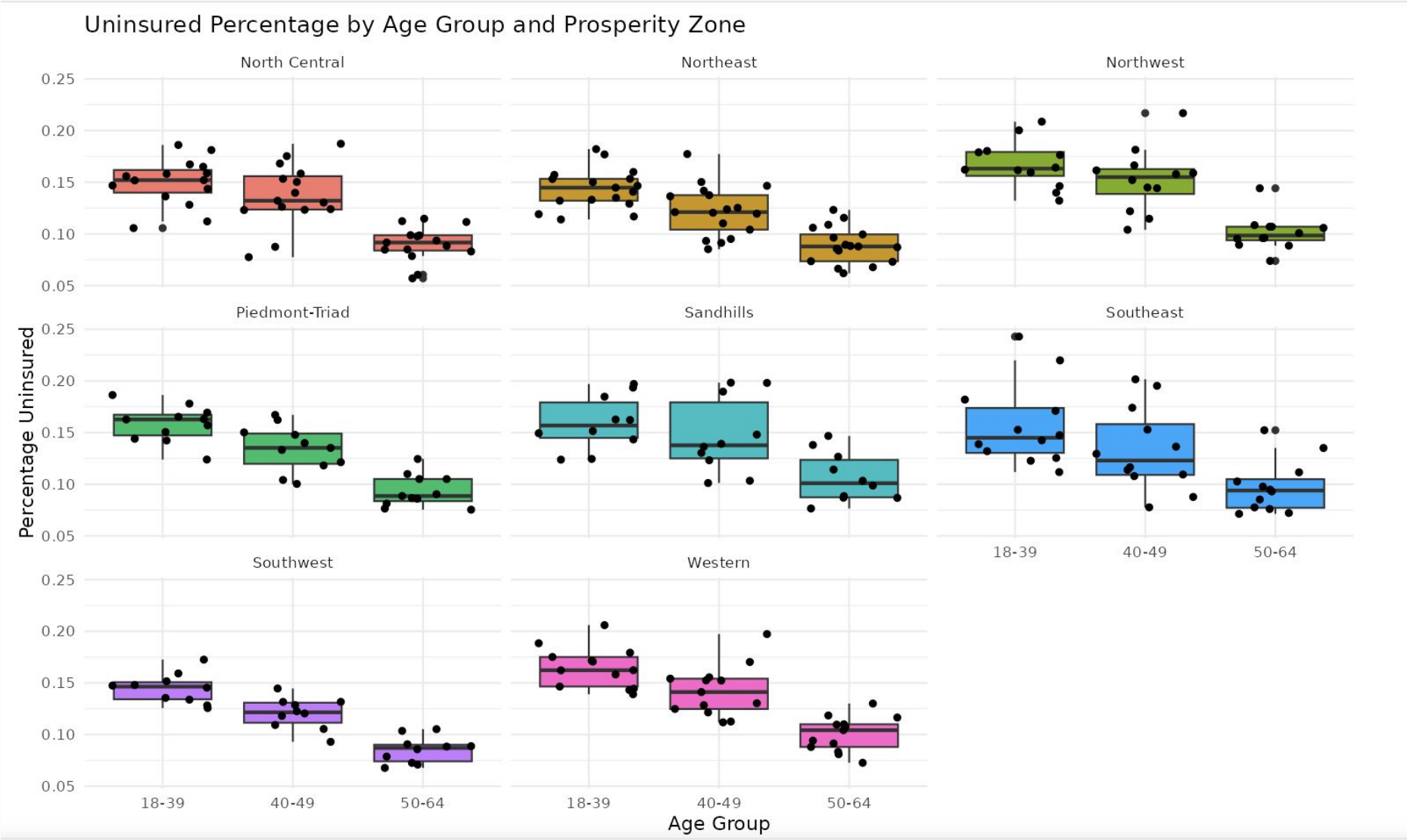


Percent Uninsured by Sex





Percent Uninsured by Age



Percent Uninsured by Age



Conclusions & Future Directions

How do uninsured rates vary by geography, race, income, sex, and age in North Carolina?

Data supports that…

1. **Coastal counties** do not tend to have **higher uninsured rates** than inland counties.
2. **Racial minorities** tend to have **higher uninsured rates** than Whites.
3. **Low-income** populations tend to have **higher uninsured rates** than high-income populations.
4. **Men** tend to have **higher uninsured rates** than women.
5. **Younger** populations tend to have **higher uninsured rates** than older populations.

Future directions:

Perform a **regression analysis** for between predictors and uninsured rates, and examine the **interactions** between explanatory variables.

Compare NC data to **other states** in the United States to examine differences and similarities across US regions.

Sources

Bureau, U. C. (2026, August). *2008 - 2024 Small area health insurance estimates (SAHIE) using the American community survey (ACS)*. Census.Gov. https://www.census.gov/data/datasets/time-series/demo/sahie/estimates-acs.html