

HW2

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Instructions

In this assignment, you will write a brief analysis of police staffing levels across US counties using data on tax revenues, police spending, crime, and racial segregation. Be sure to interpret your findings and justify your decisions in manipulating the data. I expect this report to be relatively brief (about 500 - 1000 written words), but the actual document may be many pages with the inclusion of graphics and code output.

- Use the data `hw_2_data.csv` found in `intermediate_stats/data`
- Your outcome for this analysis is police officer staffing levels
- Transform the data appropriately to create predictor variables
- Remember that many of these measures should be normalized for population size to make them comparable. Other transformations may also be in order
- Explore and visualize your outcome and predictors using `table()`, `hist()`, and `plot()` as you see fit
- Present your writeup as either a `.html` or `.pdf` document using RMarkdown. Your code should be in-line with your narrative alternating between code chunks and text. Use the included section headers.
- Delete the instructions and codebook before submitting the assignment.
- Note that unless you have a LaTeX installation, you will need to change `output:pdf_document` to `output:html_document` in the RMarkdown YAML header at the beginning of your Rmd file.

Codebook

All variables are at the county-level and include both local and county governments for 2012

- `fips`: 5 digit county fips code
- `exp_police`: expenditures on police in dollars
- `pop_tot`: total population
- `officers_pc`: full-time sworn police officers
- `rev_prop_tax`: property tax revenues in dollars
- `violent.crime`: violent crimes (count)
- `dissim_bw`: dissimilarity index of Black/White segregation
- `dissim_wl`: dissimilarity index of Latinx/White segregation

Construction of measures

Summarise your decisions and display code used to transform data into usable measures for analysis

Exploratory analysis of officer staffing across counties

Provide a description of your officer staffing level variable

Exploratory analysis of focal predictors

Provide a description of one or more variables you will use as predictors in your regression model

Bivariate relationships between officers staffing levels and predictors

Provide description of bivariate relationships between your variables

Regression model

*Estimate and describe the findings of a regression model with your officer staffing variable as the outcome.
Predict officer staffing levels for an interesting counterfactual case*

Theoretical interpretation of results

Provide a brief (2-3 sentences) theoretical interpretation of the meaning of your results