Political Science 390 Introduction to Research and Data in Political Science Winter 2023 Data analysis assignment

Using the attached dataset, explain why some U.S. states have higher murder rates than other states. The murder rate here is measured as the number of murders per 100,000 people in the state. Some potential explanations, captured through other variables in the dataset, include:

Rates of gun ownership. If there are more guns in a state, then perhaps it becomes easier for conflicts to escalate into murders. Alternatively, perhaps a greater proliferation of guns creates a deterrent effect whereby somebody is less likely to attempt murder because they suspect that the target, or somebody else in the immediate vicinity, will be armed and thus able to fight back.

Poverty rate. Perhaps high rates of poverty put more people into the kinds of situations that result in someone committing murder.

Gini coefficient, as a measure of inequality. A Gini coefficient at its theoretical minimum of 0 would indicate that everyone has the same income, whereas a theoretical maximum of 100 would indicate that one person has all the income. Perhaps inequality creates more conflict among people and ultimately more murders.

Religious affiliation, measured as the percent of adults who say they are highly religious. A strong religious commitment might give people a moral code that discourages murders. Alternatively, maybe greater levels of religious adherence somehow lead to more murders.

Your assignment:

First, examine the data on murder rates. Are there big or small differences across states? Do you see any patterns among the states that are either high or low in their murder rates?

Then, estimate a multivariate regression with the murder rate as your dependent variable, and the others in the dataset as independent variables. Copy and paste the output of your regression.

Next, explain the results of your regression. Describe any coefficients that are statistically significant using a two-tailed test at the .05 level. Interpret the magnitude of those coefficients, making a judgment as to whether you have uncovered a small, medium, or large effect.

Finally, what can be learned from this analysis about the causal factors through which states differ in their murder rates? Do you believe the results (both the null findings and the positive findings)? Why or why not? What are its limitations of this analysis? How could you

improve it? Your recommendations for improvement should include—but reach beyond—adding other specific independent variables to the regression.

Due date: Monday, March 6 at 8:00 PM, with a ten-minute grace period to account for potential connectivity problems. You will upload your file (in doc, docx, or pdf format) to the "Assignments" section of the course's Canvas page. Late submissions will be penalized by 15 points (out of 100) for each day late. The clock for lateness begins at the end of the grace period. In other words, a memo will be considered one day late if it is submitted between 8:11 on Monday, March 6 and 8:10 on Tuesday, March 7.

Expected length:

2-3 pages, double-spaced, 12 point font, Times New Roman.