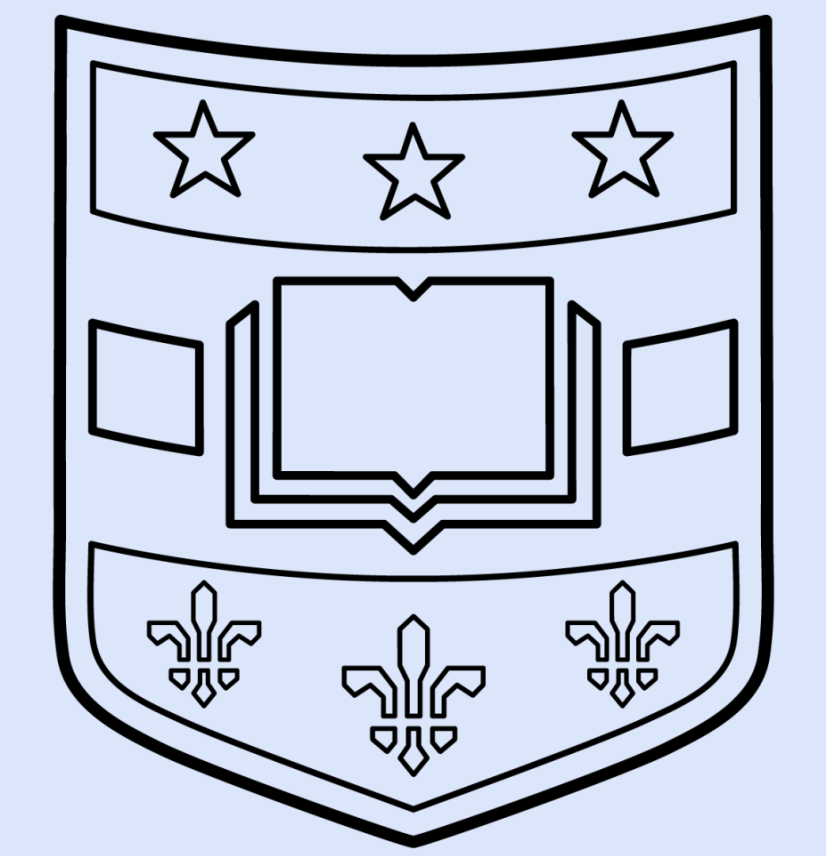# Legislative Lockup:
Does State Partisanship Affect Prison Population?

Introduction

In the past four decades, the prison population in the United States has increased by 700% (Alexander, 2012). Mass incarceration is primarily a result of the "War on Drugs" campaign, which has led to a dramatic increase in the number of arrests being made for drug offenses and the establishment of mandatory minimum sentencing laws. Some political leaders in the Republican party tend to take a position of being "tough on crime" in an effort to maintain order and promote the safety of communities.

Research question: Does state partisan control have a significant impact on state incarceration rates?

Hypothesis: States with majority Republican legislators will have higher incarceration rates.

Null Hypothesis: State partisan control will have no effect on incarceration rate.

Methodology

Data Collection

- Used data from 1992-1999 of state partisan control, specifically the percentage of legislature controlled by Republicans.
- Used data from 1992-1999 of prison population per 100,000 U.S. residents.
- Nebraska is unique in that it has a nonpartisan state legislature, so it was excluded from our data.

Testing

- Ran a fixed effects regression using percent Republican legislature as the explanatory variable, log of incarceration rate as the response variable, and states as the fixed effect.
  - In our regression we chose 6 states (2 Republican, 2 Democratic, and 2 moderate) to demonstrate the different effects. The y-intercept differs between states, however the slope does not, so it is not necessary to display every state.
- Ran a regression discontinuity using percent Republican legislature as the explanatory variable and log of the incarceration rate as the response variable.
  - Threshold: Looking at legislature just above and below 50% Republican.
- The response variable is log(incarceration rate) in order to improve the models and put the variable on a better interval (between 4 and 7, rather than 100 to 700).
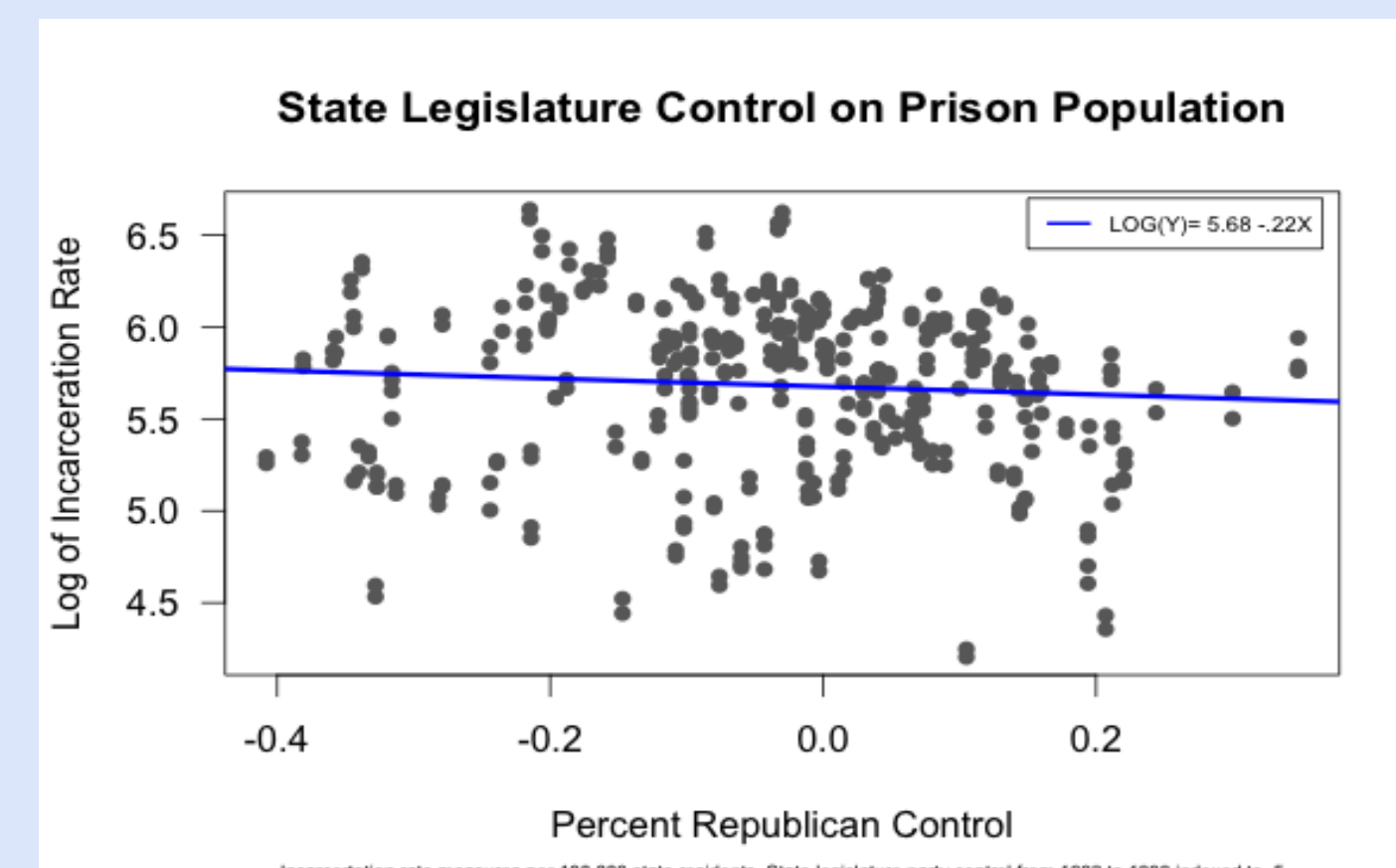
Analysis

Figure 1: Regression model using Republican control of the legislature as a predictor for log(incarceration rate)
Adjusted R^2: .003; **p<0.138**
Prediction Equation: Log(incarceration rate) = 5.676 -0 .2197*(Percent Republican)
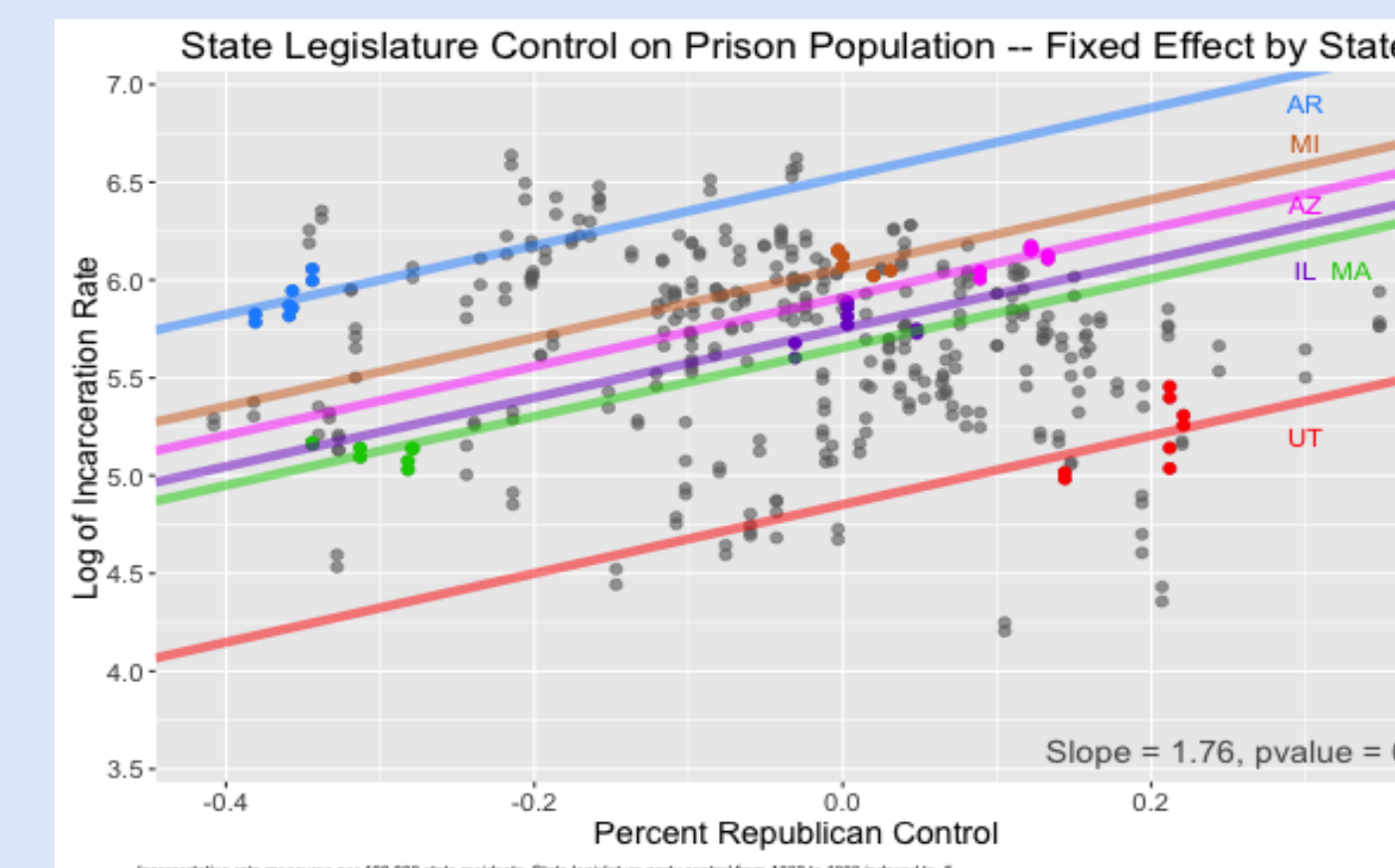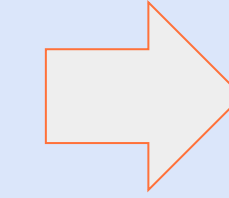

Figure 2: Fixed effect regression using Republican control of the legislature while controlling for each state as a predictor for log(incarceration rate)
Adjusted R^2: 0.9995; **p<2.2e-16**
Prediction Equation: Log(incarceration rate) =B$_{0,state}$ + 1.76*(Percent Republican)
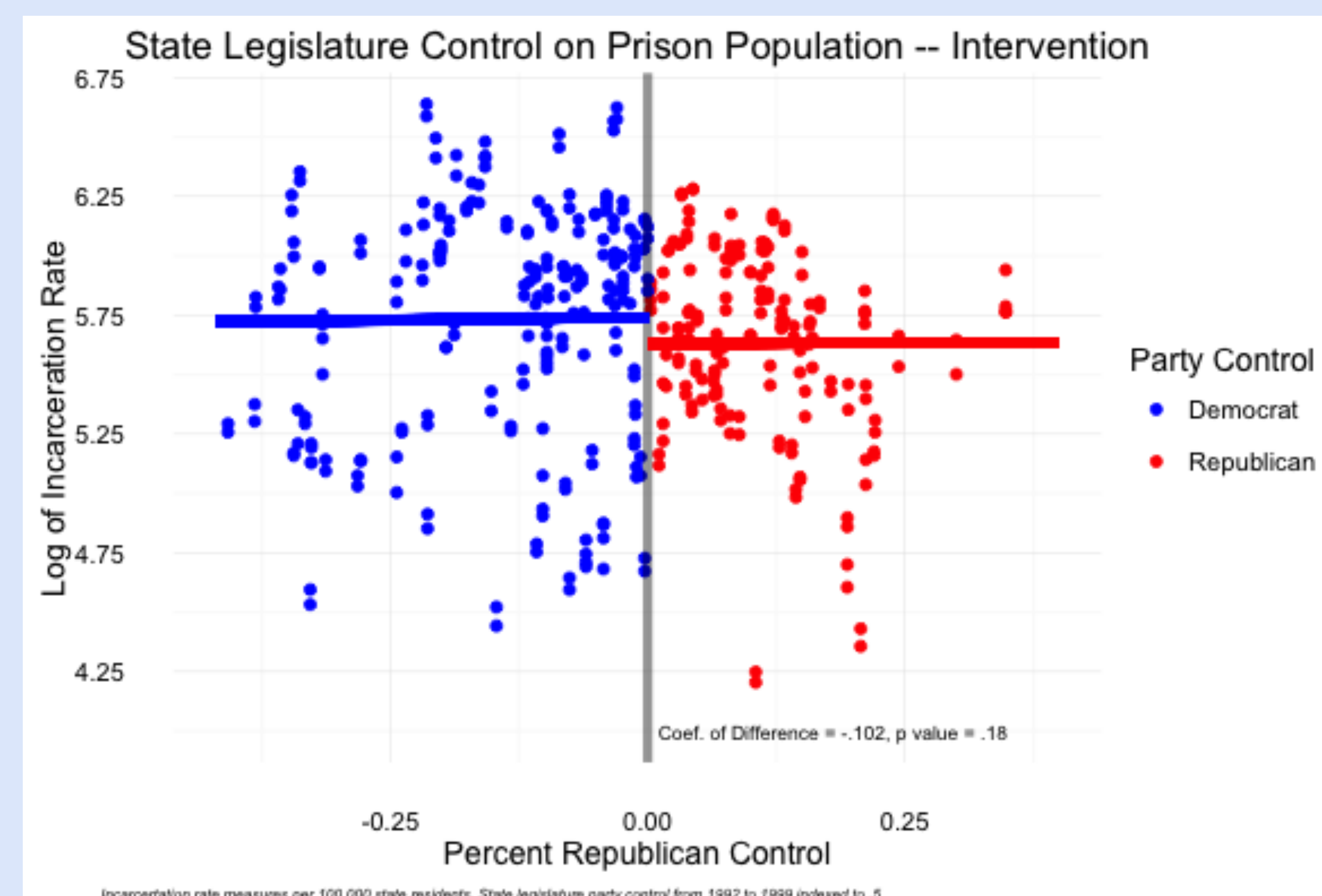

Figure 3: Regression discontinuity model testing if there is a before-after effect of party control to the majority and incarceration rate. Party control is indexed at 50-50 (e.g., 0 means no majority control).
Adjusted R^2: 0.005; **p=0.134**
Prediction Equation: Log(incarceration rate) = 5.728 -0 .029*(Percent Republican) -0.102*I(% Rep >0)

Interpretation of Results

Fixed Effects Regression:
When not controlling for states (Figure 1), the model indicates that a 0.01 increase in percent Republican control in state legislature will result in a -0.22% decrease in a state's incarceration rate. However, the model is not significant at the 0.05 level and the predictor fails to capture any variance. With fixed effects controlling for each state (Figure 2), our model predicts that an increase in percent Republican control by 0.01 unit will lead to a 1.76% increase in incarceration rate.

Regression Discontinuity:
In the regression discontinuity model (Figure 3), we see that when Republicans have the majority in the state legislature, the predicted incarceration rate decreases by 0.102%. However, this prediction is not significant. Moreover, this model does not control for each state, and is not realistic in that state legislatures rarely see a shift in majority control over the course of 7 years. More longitudinal data is needed in order to improve this model.

Conclusions

We can reject our null hypothesis. The composition of the state legislature has an effect on the rate of incarceration.

- The fixed effects regression was the only model to have an adjusted R^2 extremely close to 1 and a very large F-statistic, meaning that the model is a good fit and explains the variability around incarceration rates.
  - The P value of the fixed effect regression is small enough to be considered statistically significant, at a significance level of 0.05.
- The other two models cannot reject the null hypothesis at the 0.05 level, however, both have extremely small adjusted R^2 and F-stats.

Limitations

- While the R^2 and F statistic in the fixed effects regression seem to indicate a strong relationship, it should be pointed out that 49 predictors have possibly inflated these numbers. Moreover, each state only has 8 data points. Although this model is promising, additional data are needed to corroborate our conclusion.
- Racial minorities are incarcerated in state prisons at a rate that is 5.1 times higher than whites, so incarceration rate could be affected by the racial makeup of the state's population.
- While sentencing policy is created by state legislatures, these guidelines mandate sentences within a certain range and judges decide what the actual length of each sentence will be. Incarceration rates could be affected by the tendencies of certain judges.
- We did not control for the size of police forces or policing methods which could have an impact on the number of people being arrested and incarcerated in a state.
- Future research could account for crime rates within the states. Overall, crime rates were declining between 1992 and 1999, and it is possible that state incarceration rates were affected by variation in the types of crimes committed.

Sources

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