1. What implicit claim about causality does Obama's "cycle of crime" theory assert?

harsh sentencing --> greater likelihood of criminality

1. The proposed research design is: Run a regression whose outcome is recidivism and whose main explanatory variable is the length of the prison sentence. React your friend's research design.

This design does not get at the causal effect of a prison sentence because it cannot rule out the alternative explanation of a third variable that explains both recidivism and length of the prison sentence. For example, it is plausible that people who commit a second crime also originally committed more serious crimes, which resulted in longer prison sentences.

1. Does the judge's party really seem to be randomly assigned?

Yes. Severity of crime does not significantly differ between Democratic and Republican judges. In other words, the difference in severity of crime by judge party is not significantly different from zero (95% CI [-.03, .06]).

1. Describe in words the “first stage” of the IV design. Then, create a publication-quality table for the first stage only.

The first stage examines the effect of judge’s party on length of prison sentence.

|  |  |  |
| --- | --- | --- |
|  | | |
|  | Months in Jail |
|  | |
| Constant | -19.47\*\*\* |
|  | (.52) |
| Republican Judge | 3.22\*\*\* |
|  | (.37) |
| Severity of Crime | 18.15\*\*\* |
|  | (.23) |
|  | |
| Observations | 5000 |
| R2 | .57 |
| Adjusted R2 | .57 |
|  | |
| *Note:* | p<0.1, \*\* p<0.05, \*\*\* p<0.01 |
|  | Standard errors in parentheses. |

**Notes**: This table contains a regression predicting the effect of having a Republican judge on the number of months a defendant spends in jail, controlling for the severity of the defendant’s crime. Standard OLS standard errors are reported.

1. Interpret the coefficient on your instrument from the first stage.

Defendants assigned to a Republican judge on average served 3 more months in jail than defendants assigned to a Democrat judge, controlling for severity of the defendant’s crime.

1. Calculate the ratio of the reduced form.

.044

1. Now complete the IV regression and make a publication quality table of the second stage.

|  |  |
| --- | --- |
|  | |
|  | Recidivates |
|  | |
| Constant | .75\*\*\* |
|  | (.11) |
| Months in Jail | .04\*\*\* |
|  | (.01) |
| Severity of Crime | -.62\*\*\* |
|  | (.11) |
|  | |
| Observations | 5000 |
| R2 | -.94 |
| Adjusted R2 | -.94 |
|  | |
| *Note:* | p<0.1, \*\* p<0.05, \*\*\* p<0.01 |
|  | Standard errors in parentheses. |

**Notes**: This table contains an instrumental variable regression predicting the effect of length of prison sentence on recidivism, using judge’s party as an instrument for length of prison sentence and controlling for the severity of the defendant’s crime. Standard OLS standard errors are reported.

1. State the F-stat in your writeup. Is it above the conventional threshold?

F(2, 4997) = 164.3. This is well above the conventional threshold of 3.00, given p=.05, 2 numerator degrees of freedom, and 4997 denominator degrees of freedom.

1. Compare your answer to question #8 (above) to the IV coefficient in #9.

.044 = .044

1. Complete these sentences.

In the research design above (using randomized judges), the **always-takers** are the defendants who are always sentenced to prison no matter their judge’s party.

The **never-takers** are the defendants who are always not sentenced to prison no matter their judge’s party.

The **compliers** are the defendants who are sentenced to prison only if their judge is Republican.

The **defiers** are the defendants who are less likely to be sentenced to prison only if their judge is Republican.

1. Comment on the monotonicity assumption and the possibility of "defiers" in this setting.

The assumption that all those who are affected by having a Republican judge are affected in the same way suggests that having a Republican judge did not decrease the length of prison sentence for any defendants. This assumption is challenged by the possibility of “defiers,” or defendants for whom having a Republican judge decreased the length of their prison sentence. For example, these defendants may be convicted of crimes that a Republican judge might view less harshly than a Democratic judge, such as tax evasion or police misconduct.

1. In your dataset, what types of defendants are compliers?

Compliers are those who received longer prison sentences if their judge was Republican, but not otherwise.

1. Does the cycle of crime hypothesis appear to be true for the compliers?

Yes. Defendants who receive harsher sentences but are otherwise comparable are significantly more likely to be involved in future criminal activity.