Research Methods F22: Assignment 4

19.11.2022

1.Obama’s theory asserts that being convicted and receiving a criminal sentence increases the likelihood that an individual will commit future crimes.

2. I’m not sure ‘my friend’s’ research design really gets to the core of the problem. Obama’s claim is not simply looking at how long being in prison among convicted criminals affects likelihood of recidivism, which is what the research design seems to be testing. If we were to focus just on the treated population (those who ended up in prison) there would be a lot of endogenous factors affecting recidivism outside of just past criminal sentences and prison time. We want to find a way to somehow randomize prison sentences and length of time in prison (for instance, using an instrumental variable).

4. Balance Table: Judge Appointed by Republican or Democrat? – Recidivates

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | Democrat | Republican | Difference |
| Severity of Crime | 1.979 | 1.966 | 0.014 |
| Months in Jail | 16.453 | 19.429 | -2.975\*\*\* |
| Recidivates | 0.259 | 0.399 | -0.140\*\*\* |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

I looked at “Republican Judge” as the treatment for “Severity of Crime,” “Months in Jail,” and “Recidivism” and there is a statistically significant difference, whereby Republican appointed judges (as the treatment …. Democrat appointed judges as the control) sentence more months in jail and there is more recidivism among the people they convict. However, there isn’t a statistically significant difference for “Severity of Crime.” The non-significant difference means that there is random selection in the political party of the judge’s appointer.

I’m a bit confused by what we want to show in the balance table. If the point of “First Stage” is to isolate the exogenous variation in x that is predicted by z, then there needs to be exogenous variation, and there isn’t much variation for “Severity of Crime.” Does this mean it should not be used as x? We want people who are more responsive to whatever the instrument is, so we would use “Months in Jail” as the z because the treatment (“Republican Judge”=1) has a larger treatment effect?

5. I want to make a causal statement about how Judge appointment by a Republican or a Democrat (“Republican Judge”) and “Severity of Crime,” where “Republican Judge” is my instrument and “Severity of Crime” is my “x.” I will control for “Months in Jail” which seems to not be randomized with “Republican Judge” and thus I don’t want to include it as “x.”

First Stage Regression

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | Severity Of Crime | Severity Of Crime |
| Republican Judge | -0.0136 | -0.106\*\*\* |
|  | (0.0230) | (0.0152) |
|  |  |  |
| Months In Jail |  | 0.0310\*\*\* |
|  |  | (0.000387) |
|  |  |  |
| Constant | 1.979\*\*\* | 1.469\*\*\* |
|  | (0.0165) | (0.0126) |
| *N* | 5000 | 5000 |
| *R*2 | 0.000 | 0.563 |
| adj. *R*2 | -0.000 | 0.563 |

Standard errors in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

6. Being randomly assigned to a Republican appointed judge as opposed to a Democrat appointed judge decreased a defendant’s the severity of the crime defendants were convicted of by 10.6% when controlling for the number of months the defendants were in jail.

7. Reduced Form Regression

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | Republican Judge | Republican Judge |
| Recidivates | 0.158\*\*\* | 0.149\*\*\* |
|  | (0.0149) | (0.0160) |
|  |  |  |
| Months In Jail |  | 0.000611 |
|  |  | (0.000382) |
|  |  |  |
| Constant | 0.462\*\*\* | 0.455\*\*\* |
|  | (0.00855) | (0.00986) |
| *N* | 5000 | 5000 |
| *R*2 | 0.022 | 0.023 |
| adj. *R*2 | 0.022 | 0.022 |

Standard errors in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

8. 0.149/-0.106= -1.40566

9. IV Regression

|  |  |
| --- | --- |
|  |  |
|  | Recidivates |
| Severity of Crime | -1.083\*\*\* |
|  | (0.203) |
|  |  |
| Months in Jail | 0.0421\*\*\* |
|  | (0.00628) |
|  |  |
| Constant | 1.709\*\*\* |
|  | (0.288) |
| *N* | 5000 |
| *R*2 | -1.586 |
| adj. *R*2 | -1.587 |

Standard errors in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

10. The F-statistic (F( 2, 4997) = 144.96, Prob > F = 0.0000) meets the conventional threshold as both it and the p-value are statistically significant.

11. My coefficient for question 8 is -1.40566 and for the IV regression it is -1.083. I think the coefficient with the two OLS regressions and the coefficient for the IV regression are supposed to be the same. I think I’ve made a mistake at some point, maybe using the wrong x (maybe months in jail is supposed to be the x) or perhaps I wasn’t supposed to control for months in jail.

12.

* + In the research design above (using randomized judges), the **always-takers** are the defendants who are always going to be more likely to recidivate no matter whether they are convicted of a more or less severe crime.
* The **never-takers** are the defendants who are always going to be less likely to recidivate no matter if they are convicted of a more or less severe crime.
* The **compliers** are the defendants who are more likely to recidivate only if they are convicted of a more severe crime
* The **defiers** are the defendants who are only more likely to recidivate if they are are convicted of a less severe crime.

13. Overall, looking back to the original “cycle of crime” theory, I think it’s likely that there are defendants who are only more likely to recidivate if they are not convicted. If they aren’t convicted, they are perhaps more likely to think they will be able to get away with committing a crime again, and thus they will be more likely to recidivate.

What we are actually examining with the IV regression above is more complex than this though. There is 1) the severity of the conviction and 2) the months in jail. And we are looking at the severity of the conviction. In this case, then the monotonicity assumption is met…if you are committed of a less severe crime you will be more likely to recidivate. This seems quite unlikely.

14. Compliers are those defendants that are more likely to recidivate if they are convicted of a more severe crime.

15. Yes, it does I think, although I’m not entirely sure if the negative coefficient means anything of importance, or if I should just be focusing on the F-stat and the p-value.