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Sentencing Data

Maths For Justice Virtual Study Group

Theme 2 - Statistical study of possible bias in criminal justice
decision-making

Ethnic disparities in sentencing section

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- Sentencing is one of the most consequential criminal justice processes
 - with the potential to ruin/save lives
 - offenders' lives, but also their victims', and families

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- Sentencing is one of the most consequential criminal justice processes
 - with the potential to ruin/save lives
 - offenders' lives, but also their victims', and families
- Sentencing is also a highly symbolic process
 - The most visible of all criminal justice processes
 - It has to be fair and proportional
 - The principle of equality under the law
- If perceived to be discriminatory,
 - trust in the criminal justice system is undermined
 - and with that compliance with the law

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- Hundreds of studies exploring ethnic disparities in sentencing
 - Most document harsher sentences on ethnic minority offenders
 - However, the evidence remains largely contested

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- Hundreds of studies exploring ethnic disparities in sentencing
 - Most document harsher sentences on ethnic minority offenders
 - However, the evidence remains largely contested
- Are those disparities ‘warranted’ or ‘unwarranted’?
 - I.e. Are those disparities evidence of discrimination?
 - Is that a question we can even answer?

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- Most studies follow the same research design
 - Use observational data
 - Control for as many case characteristics as possible
 - With the hope that we can make ‘like with like’ comparisons

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- Is that the right modelling strategy?
 - Could lead to overfitted models
 - and post-treatment bias, by controlling for factors like remand/bail, which are also determined by the judge
 - Also, Irish travellers are often misclassified into the White British group
 - And we should expect selection bias from missing data too

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 - and post-treatment bias, by controlling for factors like remand/bail, which are also determined by the judge
 - Also, Irish travellers are often misclassified into the White British group
 - And we should expect selection bias from missing data too
- What underlying assumptions must hold so the association between ethnicity and unfavourable criminal justice decisions could be interpreted causally?

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- How should we define ‘sentencing disparities’?
 - Overall disparities: Differences in sentence severity associated to non-legal factors (normally a demographic characteristic)
 - Unwarranted disparities: Overall disparities that are not explained by case characteristics
 - Discrimination: Unwarranted disparities that are not explained by other non-legal factors
- Should we focus on direct discrimination, or consider indirect paths too?
 - Direct discrimination relates to judicial decisions only
 - Indirect discrimination could take the form of other criminal justice disparities, or even socio-economic disparities

Control for *All* Case Characteristics

- The traditional modelling strategy
 - We want to estimate the total effect of judges' perception of a given offender characteristic on sentence severity
 - But need to disentangle that from any other offender or offence characteristics that might be confounding that relationship

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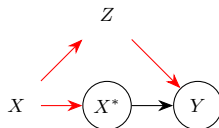
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Control for *All* Case Characteristics

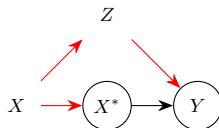
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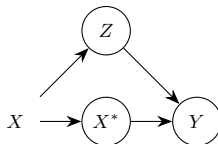
Bad model

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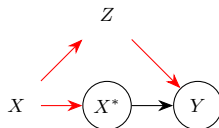
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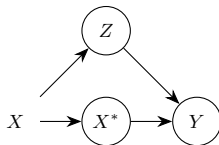
Good model

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Bad model



Good model

- Is there a better way to represent sentencing disparities?

Sensitivity Analysis: Unobserved Characteristics

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- Ideally we should use sensitivity analysis to consider the impact of such unobserved case characteristics
 - ‘E-value’ (VanderWeele & Ding, 2017)
 - ‘Robustness value’ (Cinelli & Hazlett, 2020)
- Not always straightforward
 - How do we proceed if we take unobserved case characteristics as mediators instead of confounders?
 - And what about when we have both unobserved aggravators and mitigators?

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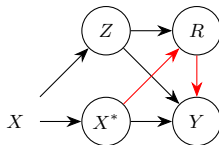
Sentencing Data

Post-treatment Bias

- We tend to control for factors that are affected by the judge's perception of the offender (i.e. racially-determined factors)
 - Subjectively defined factors like remorse
 - Judicial decisions like remand/bail
 - Even past decisions like previous convictions
- We control away the effect that we seek to estimate

Post-treatment Bias

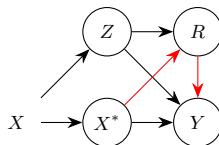
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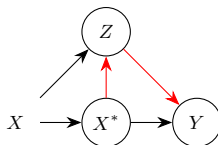
Post-treatment bias 1

Post-treatment Bias

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Post-treatment bias 1



Post-treatment bias 2

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Type of variable	Examples	Control?

To Be Controlled or Not?

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Table 1: What should be controlled for to identify ethnic discrimination?

Type of variable	Examples	Control?
Non-judicially defined case characteristics	Offence type, offender plead guilty, use of a weapon, etc.	

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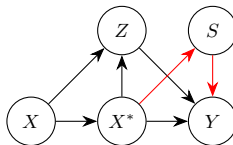
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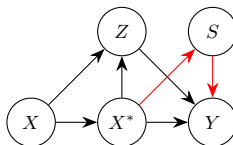
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Selection Bias



- Upstream disparities
 - Ethnic minority individuals are more likely to being stopped, arrested, charged and found guilty

Selection Bias



- Upstream disparities
 - Ethnic minority individuals are more likely to being stopped, arrested, charged and found guilty
- Even if we focus just on discrimination in sentencing, problems of missing data (MNAR) could be exerting a similar bias
 - When offender's ethnicity is self-reported, or the judge is in charge of filling the questionnaire
 - How can we adjust for potential MNAR?

Two Case Studies

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- Hopkins et al. (2016), from the Ministry of Justice
 - 21,639 cases, covering all offence types processed in the Crown Court
 - Controls for offender demographics, offence type, previous convictions and guilty plea
 - Estimates 53% higher odds of incarceration for Blacks
- Isaac (2020), from the Sentencing Council
 - 14,000 cases of three drug offences sentenced in the Crown Court
 - Controls for offender demographics, and practically all factors listed in the sentencing guidelines
 - Estimates 40% higher odds of incarceration for Blacks

Shoplifters Data

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Sentencing Data

- the Magistrates Court Survey
 - theft from a shop offences
 - 2116 of cases sentenced in the magistrates court
- 35 variables capturing sentence outcome, offence and offender characteristics
 - whether a suspended/immediate custody was imposed or not
 - age and gender of the offender
 - culpability, harm, aggravating, and mitigating factors
- Data quality issues
 - About 60% response rate
 - Case characteristics recorded as a binary variable could be affected by item-nonresponse, which is wrongly coded as absent (i.e. potential false positives)