

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

# The Need for an Empirical Revolution in Criminal Justice Research:

## Examples from Research on Sentencing Disparities

Jose Pina-Sánchez

# Are Minorities Sentenced more Harshly?

## Background

### Better Data

- Overpunishing Muslims?

- Class Disparities

### Better Methods

- Sensitivity Analysis

- Causal Analysis

### Better Research Culture

- Meta-Analysis

- Specification Curve

### Discussion

# Are Minorities Sentenced more Harshly?

## Background

### Better Data

Overpunishing  
Muslims?

Class Disparities

### Better Methods

Sensitivity Analysis  
Causal Analysis

### Better Research Culture

Meta-Analysis  
Specification Curve

### Discussion

- Depending on who you ask you might get a different answer
- Much of what we think we know is wrong
- And we are unaware of much of what we do not know

# Are Minorities Sentenced more Harshly?

## Background

### Better Data

Overpunishing  
Muslims?

Class Disparities

### Better Methods

Sensitivity Analysis  
Causal Analysis

### Better Research Culture

Meta-Analysis  
Specification Curve

## Discussion

- Depending on who you ask you might get a different answer
- Much of what we think we know is wrong
- And we are unaware of much of what we do not know
- It is in our hands to redress this situation
  - better data
  - better methods
  - better research culture

Background

**Better Data**

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis  
Causal Analysis

Better Research  
Culture

Meta-Analysis  
Specification Curve

Discussion

- For years, sentencing data was censored
  - court locations
  - offenders ethnicity

Background

**Better Data**

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- For years, sentencing data was censored
  - court locations
  - offenders ethnicity
- In the US sentencing data is fully open
  - contributing to a far richer evidence base
  - we estimate approx. 30 empirical sentencing articles based on the US for every article from the UK

# No Open Data - No Replications

Background

**Better Data**

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion

- The Lammy Review (2017) reported large ethnic disparities in sentencing
  - 240% higher odds of imprisonment for BAME compared to White drug offenders

# No Open Data - No Replications

Background

**Better Data**

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis  
Causal Analysis

Better Research  
Culture

Meta-Analysis  
Specification Curve

Discussion

- The Lammy Review (2017) reported large ethnic disparities in sentencing
  - 240% higher odds of imprisonment for BAME compared to White drug offenders
- The above figure is wrong and likely cherry-picked
  - Lammy refers to an MoJ study reporting an odds ratio of 2.37 against BAME offenders for cases of drugs
  - for acquisitive and violent crimes the odds ratio is 0.88 and for sex offences it is 1.20



# No Open Data - No Replications

Background

**Better Data**

Overpunishing  
Muslims?

Class Disparities

**Better Methods**

Sensitivity Analysis

Causal Analysis

**Better Research  
Culture**

Meta-Analysis

Specification Curve

**Discussion**

- The Lammy Review (2017) reported large ethnic disparities in sentencing
  - 240% higher odds of imprisonment for BAME compared to White drug offenders
- The above figure is wrong and likely cherry-picked
  - Lammy refers to an MoJ study reporting an odds ratio of 2.37 against BAME offenders for cases of drugs
  - for acquisitive and violent crimes the odds ratio is 0.88 and for sex offences it is 1.20
- Without access to data results cannot be replicated
  - An integral part of the scientific process

# Accessing Alternative forms of Data

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

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ABOUT SEARCH CASES ADVANCED SEARCH CRIMINAL OFFENCES CASE LISTS PROSECUTION PRISONS POLICE CRIME MAPS MAXIMUM SENTENCES

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DATE	COURT	JUDGE	DEFENDANT	GENDER	AGE	INDICTMENT / OFFENCE	SENTENCE
27-10-2017	Central Criminal Court (Old Bailey)	Judge Rebecca Poulter QC	Shobidul Islam	Male	26 Years	Making and possessing indecent images of children Possessing an article/s for a purpose connected with terrorism Communicating false information with intent / Bomb hoaxes Encouragement of terrorism, directly or indirectly, inciting or encouraging others to commit acts of terrorism [2 counts]	Custodial immediate Custodial immediate Custodial immediate Custodial immediate Custodial immediate
27-10-2017	Leicester Crown Court	Judge Nicholas Dean QC	Ezekiel Braithwaite	Male	20 Years	Murder	Custodial immediate
27-10-2017	Central Criminal Court (Old Bailey)	Judge Mark Lucraft QC	Mark Loveridge	Male	37 Years	Manslaughter due to diminished responsibility Unlawfully and maliciously wounding or causing grievous bodily harm (GBH) with intent	Custodial immediate Custodial immediate
26-10-2017	Blackfriars Crown Court	Mr Justice Alan Wilkie	Terence Barry	Male	44 Years	Conspiracy to murder	Custodial immediate
26-10-2017	Central Criminal Court (Old Bailey)	Judge Philip Alec Jackson QC	Hong Chin	Male	46 Years	Acquisition, use or possession of criminal property Conspiracy to control prostitution / Causing or inciting prostitution for gain / Controlling prostitution for gain [2 counts] Trafficking in persons for the purposes of prostitution / Trafficking within the UK for sexual exploitation [2 counts]	Custodial immediate Custodial immediate Custodial immediate Custodial immediate
26-10-2017	Central Criminal Court (Old Bailey)	Judge Christopher Moss QC	Sabah Khan	Female	27 Years	Murder	Custodial immediate

# Name-Based Disparities

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

<b>Date</b>	:	05-08-2008	
<b>Court</b>	:	<a href="#">Stoke-on-Trent Crown Court</a>	
<b>Judge</b>	:	Judge Simon Tonking	
<b>Case number</b>	:	T20087025	
<b>Name</b>	:	<b>Raouf Mohammed</b>	
<b>Gender</b>	:	Male	
<b>Age</b>	:	37	
<b>Co-Defendants</b>	:	Yes	
<b>Offence</b>	:	<a href="#">Conspiracy to supply drugs</a>	
<b>Sentence</b>	:	<a href="#">Custodial immediate</a>	
<b>Sentence notes</b>	:	Half a kilogram of 34% heroin. Also required to serve half of the remaining two years left on his licence period from a similar offence in 2003, bringing his total sentence to 5 years.	
<b>Length</b>	:	4 Years	
		<b>Drug Offence Information:</b>	
		<b>Class A :</b> Yes	
		<b>Amount :</b> half a kilogram	
		<b>Purity :</b> 34%	
<b>Sentencing Considerations</b>			
<b>Victim Impact Statement</b>	:	No	
<b>Undertaken in a group</b>	:	Yes	
<b>Victim was serving the public</b>	:	No	
<b>Victim sustained injuries</b>	:	No	
<b>Defendant has similar previous convictions</b>	:	Yes	
<b>Total Sentence</b>	:	<b>4 Years</b>	
<b>Parole Eligibility Date (PED)</b>	:	5/8/2010	
<b>Distinguishing Features / Details</b>	:	Mohammed and Stephen Stead had picked up the drugs from an address in Shelton, before moving the drugs on. Mohammed had previous convictions for robbery and burglary, as well as receiving a nine-month sentence in 1995 for attempting to possess class A drugs with intent to supply, and a seven-and-a-half-year term for conspiracy to supply heroin, in January 2003. He was on licence when he committed this latest offence. Prosecuting - Alexander Jacobs Defending - Chaman Salhan	

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# Muslim Names

- We gathered a sample of 8,437 cases
- 8.6% of them we classified as having a ‘Muslim sounding name’
  - using a list of traditional ‘Muslim names’ from [www.alquranic.com](http://www.alquranic.com)

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

# Muslim Names

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- We gathered a sample of 8,437 cases
- 8.6% of them we classified as having a ‘Muslim sounding name’
  - using a list of traditional ‘Muslim names’ from [www.alquranic.com](http://www.alquranic.com)
- We found offenders with a ‘Muslim name’ receive 9.8% longer sentences

# Muslim Names

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- We gathered a sample of 8,437 cases
- 8.6% of them we classified as having a ‘Muslim sounding name’
  - using a list of traditional ‘Muslim names’ from [www.alquranic.com](http://www.alquranic.com)
- We found offenders with a ‘Muslim name’ receive 9.8% longer sentences
- But this difference disappears after we control for case characteristics
  - offence type, guilty plea, previous convictions, etc.
- Pina-Sánchez J, Roberts, J, & Sferopoulos D (2019) Does the Crown Court discriminate against Muslim-named offenders? A novel investigation based on text mining techniques. *British Journal of Criminology* 59(3):718–736

# Class Disparities

Background

Better Data

Overpunishing  
Muslims?

**Class Disparities**

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Data on offenders ethnicity has been made available since 2021 through ‘Data First’
  - administrative data from the MoJ
  - made available through secure portals from the ONS

# Class Disparities

Background

Better Data

Overpunishing  
Muslims?

**Class Disparities**

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Data on offenders ethnicity has been made available since 2021 through ‘Data First’
  - administrative data from the MoJ
  - made available through secure portals from the ONS
- Area deprivation as potential mediator
  - matching offenders’ neighbourhoods to the index of multiple deprivation



# Class Disparities

Background

Better Data

Overpunishing  
Muslims?**Class Disparities**

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## Statistically significant odds ratios

	Aslt.	Breach	Burg.	Drugs	Fraud	Robb.	Sex	Theft
Minority	1.17	-	-	1.42	-	-	-	-
Deprivation	1.06	1.06	-	-	-	-	1.03	-

# Class Disparities

Background

Better Data

Overpunishing Muslims?

**Class Disparities**

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

## Statistically significant odds ratios

	Aslt.	Breach	Burg.	Drugs	Fraud	Robb.	Sex	Theft
Minority	1.17	-	-	1.42	-	-	-	-
Deprivation	1.06	1.06	-	-	-	-	1.03	-

- the probability of custody for breach offenders living in the most deprived neighbourhoods is 0.63
- for similar offenders living in the most affluent neighbourhoods it is 0.51

# Class Disparities

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Pina-Sánchez J, Morales A, Guilfoyle E, Veiga A, Geneletti S (2024) The interrelationship between area deprivation and ethnic disparities in sentencing. *Analyses of Social Issues and Public Policy*

# Class Disparities

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Pina-Sánchez J, Morales A, Guilfoyle E, Veiga A, Geneletti S (2024) The interrelationship between area deprivation and ethnic disparities in sentencing. *Analyses of Social Issues and Public Policy*
- Using this data was an arduous process
  - in April 2022 we submitted our data access application
  - in July 2023 we received a conditional acceptance for the article
  - last week we received publication clearance

# Class Disparities

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

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- Using this data was an arduous process
  - in April 2022 we submitted our data access application
  - in July 2023 we received a conditional acceptance for the article
  - last week we received publication clearance
- It would also be good to access data on...
  - offenders nationality, legal representation, judge id, etc.

# Better Methods

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

**Better Methods**

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- It is not all about data
  - we could make better use of the data we have
  - if we were to employ better methods

# Better Methods

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

**Better Methods**

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- It is not all about data
  - we could make better use of the data we have
  - if we were to employ better methods
- The Sentencing Council (2020) sought to replicate the study reported in the Lammy Review
  - controlled for practically all factors listed in the sentencing guidelines

# Better Methods

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

**Better Methods**

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- It is not all about data
  - we could make better use of the data we have
  - if we were to employ better methods
- The Sentencing Council (2020) sought to replicate the study reported in the Lammy Review
  - controlled for practically all factors listed in the sentencing guidelines
  - estimated 40% higher odds of incarceration for Black offenders
  - but did not see that as conclusive evidence of unwarranted disparities



# Sensitivity Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

**Sensitivity Analysis**

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Pointing at a possible form of bias to dismiss the available evidence seems like a ‘cop out’ strategy
- Sensitivity analysis helps assess the robustness of findings
  - how important should the unobserved factor be for the reported effect to be completely spurious?
  - forces us to engage with the evidence more thoughtfully

# Sensitivity Analysis

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

- Pointing at a possible form of bias to dismiss the available evidence seems like a ‘cop out’ strategy
- Sensitivity analysis helps assess the robustness of findings
  - how important should the unobserved factor be for the reported effect to be completely spurious?
  - forces us to engage with the evidence more thoughtfully
- Pina-Sánchez J, Geneletti S, Veiga A, Morales A, Guilfoyle E (2024b) Can ethnic disparities in sentencing be taken as evidence of judicial discrimination? *Journal of Legal Research Methodology* 3(1):54–82
  - we simulated the data used in Sentencing Council (2000)
  - none known legal factor missed in that study was strong enough to explain away the sentencing disparities reported

# Sensitivity Analysis

- The E-value (VanderWeele & Ding, 2017)
  - indicates the required effect of the unobserved on both the outcome (probability of custody)
  - and the exposure (offenders ethnicity)
  - to render the effect of interest (ethnic disparities) non-significant

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

**Sensitivity Analysis**

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

# Sensitivity Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

**Sensitivity Analysis**

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- The E-value (VanderWeele & Ding, 2017)
  - indicates the required effect of the unobserved on both the outcome (probability of custody)
  - and the exposure (offenders ethnicity)
  - to render the effect of interest (ethnic disparities) non-significant
- We estimated 42% higher odds of custody for BAME drug offenders
  - the corresponding E-value is 1.45

# Sensitivity Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

**Sensitivity Analysis**

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- The E-value (VanderWeele & Ding, 2017)
  - indicates the required effect of the unobserved on both the outcome (probability of custody)
  - and the exposure (offenders ethnicity)
  - to render the effect of interest (ethnic disparities) non-significant
- We estimated 42% higher odds of custody for BAME drug offenders
  - the corresponding E-value is 1.45
  - i.e. the hypothetical unobserved confounder should increase the probability of receiving a custodial sentence by at least 45%
  - and simultaneously, this confounder should also be at least 45% more prevalent across minority than white offenders

## Choosing Controls

- To avoid confounding bias, we aim to control for as many legal factors as possible
  - to approximate ‘like with like’ comparisons
  - and be able to estimate truly unwarranted disparities

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

**Causal Analysis**

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion

## Choosing Controls

- To avoid confounding bias, we aim to control for as many legal factors as possible
  - to approximate ‘like with like’ comparisons
  - and be able to estimate truly unwarranted disparities
- What if we are controlling for part of the effect that we seek to estimate?

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## Choosing Controls

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

- To avoid confounding bias, we aim to control for as many legal factors as possible
  - to approximate ‘like with like’ comparisons
  - and be able to estimate truly unwarranted disparities
- What if we are controlling for part of the effect that we seek to estimate?
- Guilfoyle E & Pina-Sánchez J (2024) Racially determined case characteristics: Exploring disparities in the use of sentencing factors in England and Wales. *The British Journal of Criminology*
  - personal mitigating factors are unevenly distributed across ethnic groups
  - studies controlling for those factors might be underestimating the extent of ethnic disparities



## Race-Neutral Case Characteristics?

- We distinguish factors involve a high degree of judicial discretion and are based solely on an assessment of the offender
  - remorse, good character, ability to rehabilitate, mental disorder, and lack of maturity

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

**Causal Analysis**

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## Race-Neutral Case Characteristics?

- We distinguish factors involve a high degree of judicial discretion and are based solely on an assessment of the offender
  - remorse, good character, ability to rehabilitate, mental disorder, and lack of maturity
- Most other aggravating and mitigating factors in the drugs and assault guidelines appear evenly distributed
  - out of 70 factors only 27 (39%) show a substantive disparity between White and ethnic minority offenders
  - and only 16 of those (23%) favour the White group

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## Race-Neutral Case Characteristics?

- We distinguish factors involve a high degree of judicial discretion and are based solely on an assessment of the offender
  - remorse, good character, ability to rehabilitate, mental disorder, and lack of maturity
- Most other aggravating and mitigating factors in the drugs and assault guidelines appear evenly distributed
  - out of 70 factors only 27 (39%) show a substantive disparity between White and ethnic minority offenders
  - and only 16 of those (23%) favour the White group
- A different picture emerges when we look at subjectively defined offender's characteristics
  - *remorse*: present in 28% of White drug offenders compared to 19% of Black drug offenders
  - *good character*: present in 16% White drug offenders compared to 11% Black drug offenders
  - *ability to rehabilitate*: present in 9% of White assault offenders compared to 4% of Asian assault offenders

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion



# Causal Diagrams

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

**Causal Analysis**

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

# Causal Diagrams

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

**Causal Analysis**

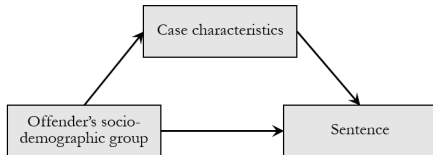
Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

The standard conceptualisation of sentencing disparities



# Causal Diagrams

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

**Causal Analysis**

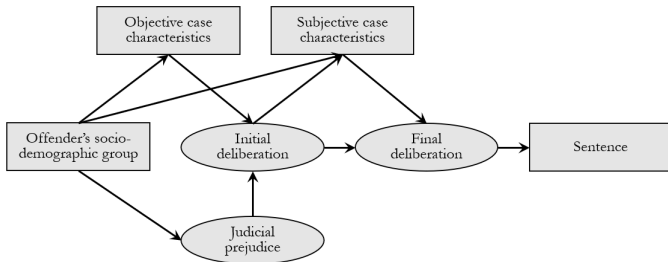
Better Research Culture

Meta-Analysis

Specification Curve

Discussion

A more realistic conceptualisation of sentencing disparities



# Research Culture

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

**Better Research  
Culture**

Meta-Analysis

Specification Curve

Discussion

- It is not all about data or methods
  - we need to transform our research culture radically

# Research Culture

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

**Better Research  
Culture**

Meta-Analysis

Specification Curve

Discussion

- It is not all about data or methods
  - we need to transform our research culture radically
- Emphasise quality over quantity
  - incentivise research that is as rigorous as possible



# Research Culture

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

**Better Research  
Culture**

Meta-Analysis

Specification Curve

Discussion

- It is not all about data or methods
  - we need to transform our research culture radically
- Emphasise quality over quantity
  - incentivise research that is as rigorous as possible
- Embrace Open Science practices
  - facilitate and encourage replications
  - minimise researchers bias through pre-registrations
  - minimise editors bias through pre-registered reports

# Meta-Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

**Meta-Analysis**

Specification Curve

Discussion

- Preliminary findings (<https://osf.io/2pnua> )
  - we have reviewed 400 out of 1,002 potentially eligible studies
  - 34 studies reporting the conditional effect of race on sentence length
  - 42 reporting the conditional effect of gender

# Meta-Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Preliminary findings (<https://osf.io/2pnua> )
  - we have reviewed 400 out of 1,002 potentially eligible studies
  - 34 studies reporting the conditional effect of race on sentence length
  - 42 reporting the conditional effect of gender
- Minority offenders receive 2% longer sentences
- Male offenders receive 14% longer sentences

# Meta-Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

**Meta-Analysis**

Specification Curve

Discussion

- There is a lot of variability across studies

# Meta-Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion

- There is a lot of variability across studies
- At the jurisdiction level
  - race (0.98, 1.07)
  - gender (0.80, 0.91)

# Meta-Analysis

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion

- There is a lot of variability across studies
- At the jurisdiction level
  - race (0.98, 1.07)
  - gender (0.80, 0.91)
- 2X more variability from sample and model differences

# Forest Plot of Gender Disparities

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

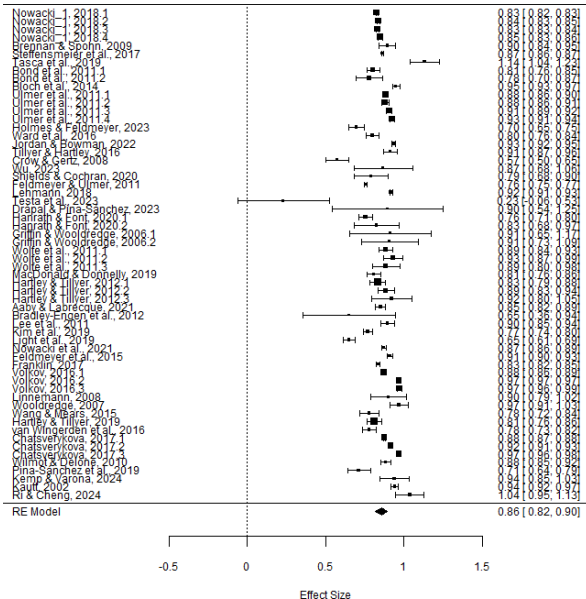
Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion



## Moderating Effects: Race

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion

	estimate	ci.lb	ci.ub
intrcpt	<b>1.15</b>	1.08	1.22
offence_general	-0.00	-0.04	0.04
offence_homicide	<b>2.69</b>	1.76	3.62
offence_immigration	<b>-0.12</b>	-0.19	-0.05
offence_terrorism	<b>0.48</b>	0.01	0.94
probation	0.01	-0.01	0.04
multiple counts	-0.01	-0.03	0.01
criminal history	<b>-0.05</b>	-0.10	-0.00
recommended sentence	0.03	-0.00	0.07
departure	-0.00	-0.03	0.03
seriousness level	-0.01	-0.04	0.01
specific offence	0.00	-0.05	0.05
guilty agreement	<b>-0.08</b>	-0.12	-0.04
remand	-0.01	-0.04	0.03
legal factors	<b>-0.01</b>	-0.02	-0.00
education	<b>-0.05</b>	-0.09	-0.01
unemployed	0.03	-0.05	0.10
non-citizen	0.02	-0.01	0.05
extralegal factors	0.00	-0.00	0.01



# Publication Bias

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

**Meta-Analysis**

Specification Curve

Discussion

- Race disparities are not significant when race is not mentioned in the title
  - i.e. when race is used as a control rather than as the causal variable of interest

# Publication Bias

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- Race disparities are not significant when race is not mentioned in the title
  - i.e. when race is used as a control rather than as the causal variable of interest
- When race is mentioned in the title race disparities are twice larger
- No evidence of publication bias for gender disparities

# Specification Curve

Background

Better Data

Overpunishing Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research Culture

Meta-Analysis

Specification Curve

Discussion

- We estimate the extent of model uncertainty in the US Federal Courts
- We consider different combinations of ‘valid’ modelling choices
  - 8 types of regression models
  - 3 forms of missing data adjustments
  - 6 groups of controls
- This gives us 2,304 models to be estimated

## Specification Curve

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

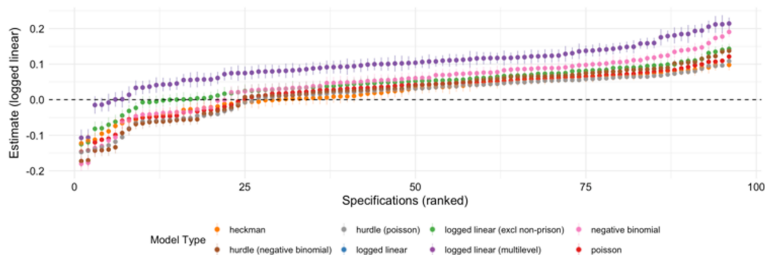
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Culture

Meta-Analysis

Specification Curve

Discussion

## Black vs White Offenders



## Discussion

- Criminal justice research (and policy) is being misdirected as a result of...
  - difficulty accessing key administrative data
  - slow methodological uptake
  - severely misaligned professional incentives

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

**Discussion**

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## Discussion

- Criminal justice research (and policy) is being misdirected as a result of...
  - difficulty accessing key administrative data
  - slow methodological uptake
  - severely misaligned professional incentives
- Regarding ethnic disparities in sentencing...
  - they are not widespread
  - but they are likely present amongst drug and assault offenders
  - to some extent stemming from how personal mitigating factors are applied
  - not mediated by area deprivation

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis  
Causal Analysis

Better Research  
Culture

Meta-Analysis  
Specification Curve

Discussion

## Discussion

- Criminal justice research (and policy) is being misdirected as a result of...
  - difficulty accessing key administrative data
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  - severely misaligned professional incentives
- Regarding ethnic disparities in sentencing...
  - they are not widespread
  - but they are likely present amongst drug and assault offenders
  - to some extent stemming from how personal mitigating factors are applied
  - not mediated by area deprivation
- We still do not know...
  - whether disparities are more concentrated in certain courts
  - the effect of legal representation
  - the role played by probation and pre-sentence reports
  - symposium on ethnic disparities in sentencing (14<sup>th</sup> of November, London)

# How Can We Move forward?

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research

Culture

Meta-Analysis

Specification Curve

Discussion



# How Can We Move forward?

- As individual researchers we can
  - try to keep up with the latest methodological developments
  - be more thoughtful of our assumptions
  - undertake sensitivity analysis
  - report uncertainty in our findings
  - avoid over-hyping our findings
  - embrace Open Science principles (pre-registrations, data/code sharing, etc.)

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

## How Can We Move forward?

Background

Better Data

Overpunishing  
Muslims?

Class Disparities

Better Methods

Sensitivity Analysis

Causal Analysis

Better Research  
Culture

Meta-Analysis

Specification Curve

Discussion

- As individual researchers we can
  - try to keep up with the latest methodological developments
  - be more thoughtful of our assumptions
  - undertake sensitivity analysis
  - report uncertainty in our findings
  - avoid over-hyping our findings
  - embrace Open Science principles (pre-registrations, data/code sharing, etc.)
- We should also pressure journals, universities, funders, policy-makers, to...
  - facilitate simpler access to administrative data
  - promote replications and pre-registered reports
  - realign professional incentives with good scientific practice