

Data Scrapping

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Unwarranted Disparities in the Crown Court: Look at the Judge before the Court

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Access to Sentence Data Is Limited

- Quantitative studies on sentencing are importantly limited by the type of data available
 - Researchers have to either collect the data themselves (court observations, manually coding court records)
 - Or rely on official data from the judiciary



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- Court observations are very flexible but they are time consuming
 - Normally based on small samples
 - And on one or a small number of courts



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Access to Sentence Data Is Limited

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 - Or rely on official data from the judiciary
- Court observations are very flexible but they are time consuming
 - Normally based on small samples
 - And on one or a small number of courts
- Official datasets made available by the judiciary tend to withhold key variables
 - Offender's characteristics are often removed
 - The judge and court IDs are often missing too



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Implications of Missing Courts/Judges

- Statistical models missing court and/or judge information are seriously flawed
 - Measures of uncertainty (standard errors, confidence intervals, etc.) are underestimated
 - Higher chances of taking false positives as significant effects



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Implications of Missing Courts/Judges

- Statistical models missing court and/or judge information are seriously flawed
 - Measures of uncertainty (standard errors, confidence intervals, etc.) are underestimated
 - Higher chances of taking false positives as significant effects
- The exploration of key topics such as the extent and origin of sentencing disparities are severely hindered
 - Are certain courts harsher or more lenient than others?
 - Is this due to the characteristics of the court (e.g. size, workload pressure, etc.)?
 - Or is it just down to the judges who operate in those courts?
 - What kind of judges sentence more harshly/leniently?
 - Do court and judge characteristics interact (e.g. do urban judges resent sentencing from rural courts?)



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Disparities in England & Wales

- In 2011 England and Wales created a new Sentencing Council
 - In charge of designing new sentencing guidelines
 - Seeking to promote consistency in sentencing



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Disparities in England & Wales

- In 2011 England and Wales created a new Sentencing Council
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- For the last five years I have been looking at sentencing disparities and the effect of the guidelines
 - I have been involved in four projects commissioned by the England and Wales Sentencing Council



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Disparities in England & Wales

- In 2011 England and Wales created a new Sentencing Council
 - In charge of designing new sentencing guidelines
 - Seeking to promote consistency in sentencing
- For the last five years I have been looking at sentencing disparities and the effect of the guidelines
 - I have been involved in four projects commissioned by the England and Wales Sentencing Council
- We have only been able to assess disparities at the court level
 - Requests to access judge IDs have been systematically denied
 - We have applied to all formal channels (Sentencing Council, Ministry of Justice, HM Courts and Tribunals Service)



Data Scrapping Sentence Transcripts

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• After failing repeatedly at obtaining judge data through formal channels I decided to take the problem into my own hands



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Data Scrapping Sentence Transcripts

- After failing repeatedly at obtaining judge data through formal channels I decided to take the problem into my own hands
- I came across this website www.thelawpages.com
 - Used by legal practitioners to advertise their services
 - Sentence transcripts are uploaded on a daily basis
 - These transcripts contain information about the characteristics of the offence, the offender, the court, and the judge



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Data Scrapping Sentence Transcripts

- After failing repeatedly at obtaining judge data through formal channels I decided to take the problem into my own hands
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 - Used by legal practitioners to advertise their services
 - Sentence transcripts are uploaded on a daily basis
 - These transcripts contain information about the characteristics of the offence, the offender, the court, and the judge
- We used a data scrapping algorithm to open and scan them sequentially
 - $-\,$ We did this protected by the 2014 amendments to the 1988 Copyrights Act



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DATE	COURT	JUDGE	DEFENDANT	GENDER	AGE	INDICTMENT / OFFENCE	SENTENCE
27-10- 2017	Central Criminal Court (Old Bailey)	Judge Rebecca Poulet QC	Shobidul Islam	Male	26 Years	Making and possessing indexent images of children Possessing an article 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
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 Katz QC	Hong Chin	Male	46 Years	Acquilition, use or possession of criminal property Conspiracy to control prostitution / Gausing 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
26-10- 2017	Central Criminal Court (Old Bailey)	Judge Christopher Moss QC	Sabah Khan	Female	27 Years	Murder	Custodial immediate



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- We managed to pull a dataset of 19,183 cases sentenced in England and Wales from 2005 to 2017
 - Our analysis was restricted to 7,221 violent offences sentenced to prison in the Crown Court from 2007 to 2017



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 - $-\,$ Our analysis was restricted to 7,221 violent of fences sentenced to prison in the Crown Court from 2007 to 2017
- Most variables used were taken directly from the transcript
 - e.g. sentence outcome, type of offence, whether offence committed on bail, etc.
 - Others such as the gender or the type of judge, were subsequently coded using their full name



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- We managed to pull a dataset of 19,183 cases sentenced in England and Wales from 2005 to 2017
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- Most variables used were taken directly from the transcript
 - e.g. sentence outcome, type of offence, whether offence committed on bail, etc.
 - Others such as the gender or the type of judge, were subsequently coded using their full name
- We have 81 courts and 1,140 judges
 - 63% of cases were passed by judges who were observed to sentence from more than one court
 - 26% of the sample are cases of murder \rightarrow more serious cases are overrepresented
 - $-\,$ The average sentence length is 126 months in prison, with 29% of the sample sentenced to life imprisonment



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Standard Hierarchical Data





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Cross-Classified Hierarchical Data





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• Our focus is on disparities in the duration of custodial sentences

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• Yet, the complexities of the data made us depart from the standard linear model



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• Our focus is on disparities in the duration of custodial sentences

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- Yet, the complexities of the data made us depart from the standard linear model
 - Three different random effects were used to account for the hierarchical cross-classified structure of the data
 - A court effect, and two judge effects distinguishing whether the judge rotates or works from the same court



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 - Cases sentenced to life were considered right-censored with the mandatory minimum taken as the last observed point
 - Accelerated failure time Weibull specifications were used to account for the right-censoring and non-normality in the response
 - The models were programmed in WinBUGS



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- To distinguish between gross and net disparities empty and full (i.e. controlling for case characteristics) models were estimated

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empty model: $log(T) = (\beta_1 + \zeta_1)X_1 + (\beta_2 + \zeta_2)X_2 + \zeta_3 + \frac{1}{p}\xi$ $\zeta_1 \sim N(0, \sigma_1)$ $\zeta_2 \sim N(0, \sigma_2)$ $\zeta_3 \sim N(0, \sigma_3)$

 $\xi \sim$ extreme value distribution

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full model:

 $log(T) = (\beta_1 + \zeta_1)X_1 + (\beta_2 + \zeta_2)X_2 + \beta_l X_l + \zeta_3 + \frac{1}{p}\xi$

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Table 3. Complete Results from Model 2

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Co-deficients 0.18 (0.11, 0.26) Co-deficients 0.18 (0.11, 0.26) Guilty pie 4.04 (0.10, 0.56) Mermand 0.02 (0.81, 1.08) Mermand 0.02 (0.81, 1.08) Mermand 0.02 (0.41, 0.67) Instance 0.27 (0.16, 0.65) Instance 0.27 (0.16, 0.67) Second offence 0.64 (0.64), 0.71) Attempted munder -2.28 (2.54, 2.02) Comparison 0.64 (0.44, 0.71) Attempted munder -2.38 (-2.54, 2.02) Comparison susuit -5.89 (-5.43, -5.41) Comparison susuit -5.89 (-5.43, -5.41) Anon officient -4.22 -4.22 -4.23 Volent disorder -6.04 (-6.43, -5.41) Anon officient -4.22 -4.24 -4.23 Volent disorder -6.24 (-6.44, -4.07) -4.44 -3.33 Anon officient beberg -4.33 (-4.44, -3.73) -4.44	Year	0.04	(0.02, 0.05)
Potention 0.92 (0.81, 10.0) Contropies -0.63 (-6.70, -0.56) Mapping -0.31 (-6.44, -0.21) Victimizing -0.32 (-6.44, -0.21) Victimizing -0.32 (-6.44, -0.21) Second offence 0.49 (-0.64, -0.71) Function 0.12 (-0.02, -0.22) Second offence 0.44 (-0.32, -0.32) Function offence 0.44 (-0.32, -0.32) GBH -5.68 (-5.44, -5.43) GOBH with intert -5.68 (-5.44, -5.43) GBH with intert -5.84 (-5.45, -5.45) Affarr -5.84 (-5.44, -5.43) Affarr -5.84 (-6.44, -5.23) Affarr -5.84 (-6.44, -5.23) Affarr -5.84 (-6.44, -5.23) Affarr -5.84 (-6.44, -5.23) Affarr -5.83 (-6.45, -2.75) Affarr -5.83 (-6.45, -2.75) Compinger to anone -5.75 (-6.45, -2.75)	Co-defendants	0.18	(0.11, 0.26)
Gailer pins -0.43 (co.70, co.50) Mingating -0.31 (co.44, 0.621) Remand 0.32 (co.44, 0.621) Victim impact 0.22 (0.44, 0.621) Second offence 0.24 (0.41, 0.23) Second offence 0.44 (0.32, 0.55) Pouth offence 0.44 (0.32, 0.55) Pouth offence 0.54 (0.42, -2.02) GBE with intert -3.44 (c.33, -3.45) Compinger to Giffence -3.44 (c.33, -3.45) GBE with intert -3.44 (c.33, -3.45) GBE with intert -5.33 (c.42, -3.32) ADH -5.33 (c.42, -3.32) ADH -5.33 (c.42, -3.42) Compinger to Giffence -6.46 (c.44, -4.37) Compinger to Giffence -6.46 (c.44, -4.37) Anom with intert -4.57 (c.44, -4.37) Anom with intert -4.77 (c.44, -4.37) Compinger to Giffence -6.46 (c.44, -3.47) Conspinger to Giffence	Protection	0.92	(0.81, 1.03)
Magging -0.31 (-0.41, -0.21) Magging -0.31 (-0.44, -0.27) Vicini impact 0.27 (0.14, 0.05) Junion 0.27 (0.14, 0.05) Junion 0.27 (0.14, 0.05) Junion 0.27 (0.14, 0.05) Junion 0.27 (0.14, 0.05) Third offence 0.44 (0.32, 0.55) OBH with intert -2.26 (2.34, -2.00) OBH with intert -3.34 (-3.54, -3.01) Compirery to OBH -3.38 (-4.23, -3.52) Malicious wounding -5.72 (-6.01, -5.43) Violatt Giooder -6.06 (-6.34, -5.10) Annon -4.22 (-2.34, -2.01) Annon -4.22 (-2.43, -3.45) Compirery to obleme -4.57 (-6.43, -5.10) Compirery to obleme -4.53 (-5.44, -0.17) Annor third and and and and and and and and and an	Guilty plea	-0.63	(+0.70, +0.56)
Remain * 0.32 (0.44, 0.40) Victim impust 0.27 (0.19, 0.35) Injuizen 0.12 (0.02, 0.22) Second office 0.44 (0.46, 10.77) Second office 0.44 (0.46, 10.77) Fourth offices 0.44 (0.46, 10.77) Attempted mutched -2.38 (-2.54, -2.02) GBH with intert -3.48 (-3.54, -3.42) GBH with intert -3.43 (-3.53, -5.45) Addition -5.89 (-6.33, -5.45) Affary -6.38 (-4.54, -4.02) Additionum constraint -4.38 (-4.64, -6.07) Additionum constraint -4.38 (-4.64, -6.07) Additionum constraint -4.38 (-4.64, -4.02) Violation constraint -4.38 (-4.64, -4.02) Annow with intert -4.37 (-4.64, -4.02) Annow with intert -4.37 (-4.64, -3.07) Compares to anon -3.38 (-4.64, -3.07) Annow with intert -4.37 (-4.64, -3.07) Conspruper	Mitigating	-0.31	(-0.41 -0.21)
Victor impact 0.27 (0.19, 0.35) Inuises 0.12 (0.02, 0.22) Second offence 0.64 (0.32, 0.35) Point offence 0.44 (0.32, 0.35) Point offence 0.44 (0.32, 0.35) Found offence 0.34 (0.32, 0.35) OBH -3.36 (0.42, 0.35) GBH with intert -3.46 (-3.48, -3.49) Compinery to OBH -3.38 (-3.23, -3.23) ABH -3.38 (-3.43, -4.59) Outrier -4.38 (-3.43, -4.59) Malicons wounding -5.72 (-6.01, -5.43) Volent disorder -4.58 (-4.54, -5.79) Anon with intert -4.77 (-4.64, -4.77) Anon with intert -4.77 (-4.64, -4.70) Anon with intert -4.77 (-4.64, -4.77) Anon with intert -4.37	Remand	0.52	(0.44_0.60)
Injume 0.12 (0.02, 0.22) Second offence 0.49 (0.61, 0.77) Thaid offence 0.44 (0.32, 0.35) Second offence 0.44 (0.32, 0.35) Offence 0.44 (0.32, 0.35) GHT -5.63 (-41, 0.71) GHT -5.64 (-5.48, -5.43) GHT with intert -5.64 (-5.48, -5.43) GMT -3.78 (-4.22, -3.32) Micioou Wonding -5.39 (-5.43, -5.43) Affiar -3.89 (-6.46, -6.07) Micioou Wonding -5.72 (-6.01, -5.43) Volent diootet -6.08 (-5.43, -5.73) Annon -3.73 (-1.45, -3.71) Annon -3.73 (-1.45, -3.71) Comparise to anoon -3.74 (-4.53, -3.70) Comparise to anoon -3.73 (-1.45, -3.71)	Victim impact	0.27	(0.19, 0.35)
Second offence 0.69 (0.4), 0.77) Thaid offence 0.44 (0.32, 0.35) Pourth offence 0.56 (0.4), 0.71) Artempted munder 2.43 (2.4), 4.20, 3. GBH with intent 3.44 (2.34, 2.4), 2.03, 3. GBH with intent 3.44 (2.34, 2.4), 2.03, 3. GBH with intent 3.44 (2.34, 2.4), 3.2, 3.2, 3.24, 3	Iniuries	0.12	(0.02, 0.22)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Second offence	0.69	(0.61, 0.77)
Fourth officials 0.56 (0.41, 0.71) Attempted number -5.28 (-5.42, -5.02) GBH with inter -5.48 (-5.42, -5.02) GBH with inter -5.48 (-5.44, -5.02) GBH with inter -5.48 (-5.44, -5.02) ABH -5.48 (-5.44, -5.02) ABH -5.48 (-5.45, -5.45) Common statul -5.39 (-6.33, -5.45) Affing -4.38 (-6.46, -6.09) Malcoout wooning -4.72 (-6.45, -4.54) Vision condet -4.29 (-6.45, -4.54) Value -4.33 (-4.16, -3.71) Anou with initet -4.37 (-6.44, -4.57) Abter problem -4.33 (-4.16, -3.71) Computery to lating -4.07 (-6.45, -3.46) Robberg -4.38 (-6.46, -3.67) Robberg -4.38 (-4.64, -3.47) Computery to lating e-dial -4.34 (-4.53, -4.60) Robberg -4.38 (-4.64, -3.47) Robberg -4.38 (-	Third offence	0.44	(0.32, 0.55)
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Fourth offence	0.56	(0.41, 0.71)
GBH -568 (5.54, 5.45) GBH with intert -3.64 (-3.68, -3.45) Compirery to GBH -3.78 (-4.22, -3.25) ABH -3.78 (-4.22, -3.25) Million -3.78 (-6.68, -3.01) Millicons wounding -3.84 (-3.64, -3.01) Millicons wounding -3.27 (-6.01, -5.43) Violent disorder -6.08 (-6.44, -4.01) Annon -3.78 (-4.54, -5.76) Annon -3.78 (-4.52, -3.25) Comparety to anon -3.78 (-4.52, -3.25) Robbery -4.33 (-4.52, -3.25) Comparety to anon -3.78 (-4.52, -3.25) Robbery -4.00 (-4.72, -4.66) Statistic activity with dial -4.32 (-4.53, -3.17) Rope -3.38 (-4.63, -3.16) Indecent susualit -4.32 (-4.54, -4.60) Rope -3.83 (-4.64, -3.67) Anternyted rupe of a child -4.32 (-4.54, -4.60) Rape of a child -3.68	Attempted murder	-2.28	(-2.54 -2.02)
CBH with internt -3.64 (3.56, 3.45) Compinger to Compine to C	GBH	-5.68	(-5.94 -5.43)
Compare to GBH -3.78 (-4.22, -3.52) ABH -5.33 (-5.5, -5.10) Common smalt -5.89 (-6.33, -5.49) ABH -5.89 (-6.33, -5.49) Attime volantic -5.99 (-6.43, -5.49) Attime volantic -6.09 (-6.43, -5.49) Volent disorder -6.09 (-6.44, -4.01) Anon -4.32 (-6.44, -4.01) Anon with intert -4.72 (-6.44, -4.01) Anon with intert -4.73 (-6.44, -5.73) Obleary -3.30 (-1.42, -3.42) Obleary -3.34 (-6.44, -3.73) Statigg to balong -4.01 (-4.44, -3.32) Bape -3.33 (-6.44, -4.00) Bape of a chald -3.42 (-4.54, -4.00) Bape of a chald -3.12 (-4.43, -3.32) Attempted rape of a chald -3.64 (-4.43, -3.32) Attempted rape of a chald -3.64 (-4.43, -3.32) Dattempted rape of a chald -3.64 (-4.43, -3.32)	GBH with intent	-3.64	(-3.86 -3.43)
ABH -5.33 (-5.56, -5.10) Common struit -5.39 (-6.33, -5.45) Affray -6.38 (-6.64, -6.07) Affray -6.38 (-6.64, -6.07) Affray -6.38 (-6.64, -6.07) Anor -4.32 (-6.43, -4.07) Anor -4.32 (-6.43, -4.07) Anor -4.32 (-6.43, -4.07) Anor -4.32 (-6.44, -4.52) Compires to anon -3.78 (-6.45, -2.09) Abberg -4.30 (-1.42, -3.17) Anorthymbolic -4.30 (-1.42, -3.17) Compires to biology -4.30 (-1.42, -3.17) Compires to biology -4.31 (-4.64, -3.47) Rep of a child -4.32 (-2.02, -4.65) Rep of a child -3.19 (-4.64, -3.67) Attempted rupe of a child -3.11 (-1.71, -3.66) Dangeron driving -6.03 (-4.57, -5.7) Density scrutes furtiming -6.07 (-4.53, -5.47) Densthy carders durining -6.07	Conspirant to GBH	-3.78	(-4.22 -3.32)
Common stualt 5.89 (4.3), 5.45) Affary -6.38 (6.64, 6.07) Malicous wounding -5.72 (6.61, 5.43) Volent disorder -6.08 (6.43, 5.78) Anon -4.37 (4.64, -4.07) Comparing to maint -4.37 (4.64, -4.07) Comparing to maint -3.37 (-4.63, -5.78) Robberg -3.33 (-4.63, -5.78) Robberg -3.38 (-4.64, -3.73) Atompted tobberg -4.04 (-4.72, -4.08) Comparing to maint -3.28 (-4.64, -3.73) Robberg -3.38 (-4.64, -3.73) Comparing to maint -3.22 (-4.64, -3.67) Rape of a child -3.13 (-4.64, -3.67) Sexual activity with child -4.24 (-4.64, -3.67) Sexual activity with child -3.24 (-4.64, -3.67) Sexual activity with child -3.24 (-4.64, -3.67) Attrapted nge or a child -3.16 -4.64, -3.67 Attrapted nge or a child -3.14 -4.71, -3.68) <	ABH	-5.33	(-5.56 -5.10)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Common assault	-5.89	(+6.33 +5.45)
Maleboom wounding -5.72 (-6.0), -6.45) Volent disorder -6.06 (-6.43, -5.76) Anon with intent -4.27 (-6.43, -4.57) Anon with intent -4.97 (-5.44, -4.52) Anon with intent -4.97 (-5.44, -4.52) Anon with intent -4.97 (-6.44, -4.52) Anon with intent -4.97 (-6.44, -6.26) Anon with intent -4.01 (-4.72, -4.69) Comparey to sobbery -3.53 (-6.46, -3.67) Ange and -4.01 (-4.45, -3.64) (-6.46, -3.67) Sexual areauxit -4.22 (-6.60, -3.16) Sexual areauxit -4.22 (-4.64, -3.67) Attempted name a child -3.18 (-4.46, -3.67) Attempted name a child -3.18 (-4.47, -4.69) Attempted name a child -3.18 (-4.47, -3.69) Danageron during -6.08	Affray	-5.07	(-6.68 -6.09)
Volent disorder -6.05 (c 3.4), -5.79 Anon -4.22 (4.4), -4.01 Anon with intent -4.97 (3.4), -4.52 Compiliant on the compil	Malicions wounding	-5.72	(-6.01 -5.43)
Anon -4.32 (-4.6), -4.01 Anon with intert -4.97 (-4.6), -4.01 Anon with intert -4.97 (-5.4), -4.52 Compirately to anon -3.78 (-4.5), -2.99 Robbert -3.40 (-1.4), -2.13 Compirately to inducery -3.40 (-1.4), -2.13 Compirately to inducery -3.40 (-1.4), -2.13 Compirately to inducery -4.30 (-1.4), -2.13 Compirately to inducery -4.31 (-1.4), -3.43 Rape -6.31 (-1.6), -3.10 Indecationstrip to inducery -4.32 (-2.5), -4.63 Secular assait -4.52 (-2.6), -4.63 Rape of a child -3.15 (-3.4), -2.63 Attempted rape of a child -3.16 (-4.7), -3.063 Nameative presentation -4.21 (-4.7), -3.063 Dangeron driving -6.08 (-4.5), -3.73 Dentity or diagenous driving -4.63 (-4.5), -4.53 Dentity diagenous driving -4.69 (-4.5), -3.53	Violent disorder	-6.05	(-6.34 -5.78)
Anone with intent -457 (5.41, 4.52) Compirery to anon -3.38 (-4.50, 2.59) Robbery -3.33 (-4.50, 2.59) Robbery -3.33 (-4.50, 2.59) Robbery -3.33 (-4.50, 2.59) Attempted tobbery -3.33 (-4.60, -3.30) Robbery -3.35 (-4.60, -3.30) Rape -3.34 (-4.60, -3.30) Rape -3.38 (-5.60, -3.10) Sexual ansult -4.22 (-4.50, -4.60) Sexual atrauit -4.22 (-4.50, -4.60) Manuel Model -3.13 (-3.44, -2.60) Attice Addition -3.12 (-4.71, -4.69) Attice Addition -3.12 (-4.51, -2.60) Sexual atrauit -4.22 (-4.22, -4.62) Indecent summit child -3.56 (-4.27, -3.60) Dangeroot adriving -6.06 (-4.53, -5.27) Death by canceles durining -6.07 (-6.41, -5.73) Death by dangeroun durining -4.56 (-4.27, -4.73) Deathy dangeroun dur	Arson	-4.32	(-4.63 -4.01)
Compare to assoc -3.78 (-4.50, 2.59) Robber -3.03 (-4.16, -3.71) Attempted tobber -4.00 (-4.72, -4.69) Compares to sobtem -3.01 (-4.62, -3.71) Compares to sobtem -4.01 (-4.52, -4.59) Repe -3.38 (-4.63, -3.47) Repe -3.38 (-4.64, -3.47) Attempted tage -4.32 (-4.43, -4.44) Attempted tage of a child -4.22 (-4.53, -4.69) Attempted tage of a child -3.45 (-4.63, -3.67) Attempted tage of a child -3.46 (-4.47, -3.02) Datagecons darking -6.04 (-4.47, -3.02) Datagecons darking -6.04 (-4.51, -3.7) Datagecons darking -6.06 (-4.57, -3.72) Datagecons darking -6.06 (-4.51, -5.7) Death by causeler darking -6.07 (-4.41, -5.73) Datagecons darking -6.06 (-4.53, -5.7) Datagecons darking -6.06 (-4.53, -5.7)	Arron with intent	-4.97	(-5.41 -4.52)
Robberg -333 (-416, 3.71) Attempted tobberg -3.53 (-416, 3.71) Compares to tobberg -3.53 (-3.82, 3.27) Compares to tobberg -4.03 (-443, 3.34) Compares to kindup -4.07 (-4443, 3.34) Indecent assume -4.22 (-453, -450) Sexual assume -4.22 (-453, -450) Sexual assume -4.22 (-453, -450) Sexual assume -4.22 (-464, -460) Attrapted tops -4.22 (-463, -367) Attrapted tops -4.22 (-464, -367) Attrapted tops -4.22 (-464, -460) Attrapted tops -4.22 (-464, -367) Attrapted tops of a child -3.16 (-464, -367) Attrapted tops of a child -3.16 (-454, -367) Indecent assume top meterstanton -4.21 (-477, -3.66) Dangeron during -6.06 (-453, -352) Death by tangeneous during -4.06 (-453, -352) Death by dangenous during -4.06 (-453, -457)	Conspirace to aroon	3.78	(-4.50 -2.98)
Attempted tobber -4.40 (-4.72, -4.69) Compilers to tobberg -3.55 (-3.82, -3.27) Kidnap -4.07 (-4.40, -3.73) Rape -3.38 (-3.64, -3.34) Rape -3.38 (-3.64, -3.34) Indecent smuth -4.32 (-4.45, -3.64) Indecent smuth -4.32 (-4.45, -4.60) Rape of a shald -3.15 (-5.45, -2.60) Attempted tape of a shald -3.15 (-6.45, -3.67) Attempted tape of a shald -3.15 (-4.63, -3.67) Attempted tape of a shald -3.68 (-4.27, -4.02) Attempted tape of a shald -3.68 (-4.27, -4.02) Datagetoroi during -6.00 (-6.43, -5.7) Death by canceles during -6.07 (-6.44, -5.7) Death by datagetoroi during -6.07 (-6.44, -5.7) Death by datagetoroi during -6.07 (-6.42, -5.2) Death by canceles during -6.07 (-6.24, -5.7) Death by canceles during -6.07 (-6.24, -5.2) Death by canceles during	Robberry	-3.93	(-4.16 -3.71)
Compares to nobleary -3.53 (-3.82, -3.27) Kindmp -4.07 (-4.40, -3.73) Compares to halmap -4.01 (-4.46, -3.74) Rape -4.01 (-4.46, -3.74) Sexual activity with child -4.32 (-3.46, -3.67) Sexual activity with child -4.32 (-3.46, -3.67) Sexual activity with child -4.32 (-3.46, -3.67) Attempted maps of a child -3.19 (-4.46, -3.67) Attempted maps of a child -3.19 (-4.47, -3.02) Dangeron driving -6.08 (-4.57, -5.79) Dentity or achesid straining -6.07 (-4.41, -5.73) Dentity or disense durining -4.08 (-4.53, -3.47) Acholon chained dath durining -4.08 (-4.53, -3.47)	Attempted robberg	-4.40	(-4.72 -4.08)
Kining -407 (440, 373) Compary to kinap -401 (-463, 334) Rape -338 (-364, 3-14) Indecent smuth -432 (-453, -460) Semul smuth -424 (-443, -400) Semul smuth -424 (-443, -400) Reperiod Semul smuth -13 (-52, -463) Attempted lapt -141 (-47, -300) Attempted lapt -143 (-52, -300) Attempted lapt -138 (-463, -357) Attempted lapt -141 (-47, -365) Datte by calleles driving -607 (-644, -57) Death by calleles driving -607 (-644, -57) Death by calles driving -607 (-642, -57) Death by calles driving -607 (-642, -57) Death by calles driving -607 (-642, -57) Death by calles drivin	Conspiracy to robbery	-3.55	(-3.82 -3.27)
Compare to balance -401 (+45, 3-54) Rape -3.38 (-3.60, -3.16) Indecent small -4.32 (-4.53, -4.60) Small actiny with dhild -4.32 (-4.45, -8.46) Small actiny with dhild -4.32 (-4.45, -8.46) Attempted rape of a child -3.45 (-4.45, -8.67) Attempted rape of a child -3.68 (-4.27, -3.02) Attempted rape of a child -3.68 (-4.27, -3.02) Datageons draining -6.08 (-4.57, -3.75) Death by caudeed rationing -6.07 (-6.41, -5.73) Death by caudeed rationing -4.08 (-4.53, -3.57) Death by caudeed rationing -6.07 (-6.43, -3.47) Death by caudee draining -6.08 (-4.53, -3.57) Death by caudee draining -6.98 (-4.53, -3.57) -6.43, -3.42	Kidnan	-4.07	(-4.40 -3.73)
Rape -3.38 (-5.40), -3.10, -3.20, -4.00, -4	Conspiracy to kidnan	-4.01	(-4.65 -3.34)
Indecent south 4.32 (4.45), 4.00; Sexual activity with child 4.52 (4.45), 4.00; Sexual activity with child 4.52 (5.42), 4.65; Attemptof apa 4.19 (4.46), 3.67; Attemptof apa 4.19 (4.46), 3.67; Attemptof apa 4.19 (4.45), 3.67; Attemptof apa 4.19 (4.45), 3.67; Attemptof apa 4.01 (4.17), 3.68; Datageton during 6.08 (4.57), 5.79; Death by causeds during 4.09 (4.45), 3.43; Death by duringerous during 4.09 (4.45), 3.23; Death by caused during 4.09 (4.45), 3.23; Death by caused during 4.09 (4.45), 3.23; Death by caused during 4.03 (4.25), 4.33;	Bane	-3.38	(-3.60 -3.16)
Sexual area -4.24 (-4.46, -4.00) Sexual area -4.22 (-5.20, -4.65) Rape of a child -3.13 (-3.43, -2.80) Attempted maps of a child -3.19 (-4.46, -3.07) Attempted maps of a child -3.69 (-4.47, -3.02) Named by perturbation -3.63 (-4.77, -3.06) Dangeron during -6.08 (-4.57, -5.79) Death by cancels during -6.07 (-4.4, -5.73) Death by dangeron during -4.08 (-4.53, -3.79) Death by cancels during -4.08 (-4.53, -3.79) Death by dangeron during -4.08 (-4.53, -3.79)	Indecent arrault	.4.32	(-4.59, -4.06)
Serual avaual -452 (-2.2) (-2.2) Rape of a chald -3.15 (-3.43, -2.86) Attemptot tape Attemptot tape -4.19 (-4.68, -3.67) Attemptot tape Attemptot tape -4.19 (-4.68, -3.67) Attemptot tape Attemptot tape of a chald -3.68 (-4.27, -3.02) Indecent susual: thild Assult by penetration -4.21 (-4.17, -3.66) Dangeroot during -6.08 (-4.57, -5.79) Death by causeles during -6.07 (-6.44, -5.73) Death by causeles during -6.08 (-4.50, -3.62) Death by causeles during -6.08 (-4.53, -5.27) Death by causeles during -6.08 (-4.53, -5.27) Death by causeles during -6.08 (-4.53, -5.27) Death by causeles during -6.08 (-4.52, -5.23) Death by causeles during -6.08 (-4.52, -5.33) -6.22 -6.22, -4.33)	Savual activity with child	-4.74	(-4.48 -4.00)
Rape of a chald -3.15 (-3.45, -2.60) Attempted rape of a chald -3.68 (-4.27, -3.02) Attempted rape of a chald -3.68 (-4.27, -3.02) Indecert strand transf -3.68 (-4.27, -3.02) Datagetoria of the characterization of the characterizat	Sevual accounts	-4.97	(-5.20, -4.65)
Attemptot ape -4.19 (-468, 3.67) Attemptot ape of a child -3.68 (-427, 3.02) Indecent sawait big -3.68 (-427, 3.02) Indecent sawait big -3.68 (-437, 3.42) Dangeroot during -0.08 (-437, 3.42) Death by cantelle during -0.06 (-443, 3.42) Death by dangeroot during -4.09 (-430, 3.42) Death by cantelle during -4.09 (-422, 4.33) Death by cantelle during -4.12 (-472, 223, 233)	Bane of a child	-3.15	(-3.45 -2.86)
Attempted append append and the second appendix of a child -3.66 (-4.27), 3.62) Attempted appendix child -3.85 (-4.27), 3.62) Assualt by praetration -4.21 (-4.37), 5.63) Dargeron ariming -6.06 (-6.37), 5.79) Dents by manchesidening -6.06 (-6.47), 5.63) Dents by manchesidening -6.07 (-6.44), 5.73) Dents by manchesidening -6.06 (-6.33), 3.82) Alcohol rahand denth driving -3.98 (-4.33), 3.52) Monte of anteromodenting -4.98 (-2.2), 4.33)	Attempted cone	4.19	(4.69, 2.67)
$ \begin{array}{cccc} \text{Interpret ratio ratio } & 5.00 & (+4.1, -5.06) \\ \text{Indecent statul} & \text{Indecent statul} & -5.00 & (+4.5, -3.5) \\ \text{Assait by prentration} & -4.21 & (+4.7, -3.66) \\ \text{Dangerous driving} & -6.08 & (-6.37, -5.79) \\ \text{Death by catcless driving} & -6.07 & (-6.41, -5.73) \\ \text{Death by catcless driving} & -4.06 & (-4.30, -3.82) \\ \text{Alcohol related death driving} & -3.98 & (-4.38, -3.57) \\ \text{Interm tre dramework driving} & -4.79 & (-5.23, -4.33) \\ \end{array} $	Attempted rape of a shild	-4.17	(4.27 - 3.02)
Assault by penetration + 21 (+4.71, -3.68) Dangerout defining -6.08 -(-7, -5.79) Death by carelest during -4.07 -(-4.41, -5.73) Death by carelest during -4.06 (-4.41, -5.73) Death by carelest during -4.06 (-4.30, -3.82) Alcohol related death during -3.98 (-4.38, -3.57) Diruch to durace death during -4.79 (-2.34, -4.33)	Indecent arrault child	-3.95	(-4.35 -3.52)
Damperous during -0.8 (-4.7, 5.79) Death by careless driving -0.08 (-6.41, 5.73) Death by careless driving -0.07 (-6.41, 5.73) Death by careless driving -0.06 (-4.30, -3.82) Alcohol related death driving -3.98 (-4.38, -3.57) Diarth by dragerous driving -4.7 -7 Death by dragerous driving -3.98 (-4.38, -3.57)	Arrault by penetration	-4.21	(-4.71 -3.68)
Death by careless driving -0.06 (-0.57, -3.77) Death by careless driving -0.07 (-6.41, -5.73) Death by dangerous driving -4.06 (-4.30, -3.82) Alcohol related death driving -3.98 (-4.38, -3.57) Diniur by dangerous drivine -4.79 (-5.3, -4.33)	Dengerous deixing	6.09	(6.37 5.70)
Death by dangerous driving 40.07 (-0.41, -5.73) Death by dangerous driving 40.06 (-4.30, -3.82) Alcohol related death driving -3.98 (-4.38, -3.57) Injury by dangerous driving -4.79 (-5.23, -4.33)	Death by careless driving	-0.08	(-0.37, -3.79)
Alcohol related death driving -3.98 (-4.38, -3.57) Iniur by denserous driving -4.79 (-5.23, -4.33)	Death by dangerous driving	-4.05	(-4.30 -3.82)
Thiury by dangerous driving -4.79 (-5.23 -4.33)	Alashal selated death deiting	3.00	(**.30, *3.62)
	Inium by dangerous driving	-4 79	(-5.23 -4.33)

Results: Fixed Effects

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Table 3. Complete Results from Model 2

	Estimate	95% CI
Fixed Effects		
Judge Characteristics		
Rotate	12.06	(11.7, 12.43)
Stay	12.05	(11.69, 12.42)
Judge female	0.03	(-0.12, 0.19)
Circuit	-0.38	(-0.77, 0.04)
High Court	0.62	(0.41, 0.82)
QC	0.01	(-0.08, 0.10)
Recorder	-0.30	(-0.41, -0.18)

Results: Fixed Effects



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Table 3. Complete Results from Model 2

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Recorder	-0.30	(-0.41, -0.18)

- High Court (the most senior and prestigious) judges sentence more harshly
- Recorders (least senior, often part-time) sentence more leniently

Results: Random Effects

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Table 2. Summary of Results from Models 1 and 2

	Mo	del 1	Model 2		
	Estimate	95% CI	Estimate	95% CI	
Fixed Effects					
Rotate	5.94	(5.73, 6.15)	12.06	(11.7, 12.43)	
Stay	5.35	(5.17, 5.53)	12.05	(11.69, 12.42)	
Random Effects					
σ_{court}	0.43	(0.35, 0.53)	0.18	(0.13, 0.24)	
$\sigma_{judge,rotate}$	1.10	(1, 1.21)	0.36	(0.30, 0.44)	
$\sigma_{judge,stay}$	0.69	(0.61, 0.78)	0.47	(0.39, 0.56)	

Results: Random Effects

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Table 2. Sun	nmary of Res	ults from Mo	dels 1 and 2
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- Between-court disparities are relatively negligible, especially after controlling for case characteristics
- Between-judge disparities are about twice as prevalent

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Table 2. Summary of Results from Models 1 and 2

	Mo	del 1	Me	odel 2
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Results: Random Effects

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- Incidentally, accounting for judge-court interactions, we observed an extremely interesting result
 - Judges who rotate deal with more heterogeneous caseloads
 - But in spite of that they sentence more consistently
 - This corroborates the hypothesis that judges moving across courts fosters exchange of good practices and consistency in sentencing

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• Between-judge disparities are much more relevant than between-court disparities (Johnson, 2006)

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- Between-judge disparities are much more relevant than between-court disparities (Johnson, 2006)
- High Court judges seem to sentence more harshly than circuit judges, which in turn are harsher than recorders

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- Between-judge disparities are much more relevant than between-court disparities (Johnson, 2006)
- High Court judges seem to sentence more harshly than circuit judges, which in turn are harsher than recorders
- Judges moving across courts seems to process a more heterogeneous caseload than those staying in the same court
- However the former do so more consistently than the latter (Hester, 2017)

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• The exploration of sentencing disparities requires the modelling of court and judge disparities, and their interactions

- And to do so we need to access court and judge IDs
- Findings from this unofficial dataset are more insightful than everything I have done during the last five years put together

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• The exploration of sentencing disparities requires the modelling of court and judge disparities, and their interactions

- And to do so we need to access court and judge IDs
- Findings from this unofficial dataset are more insightful than everything I have done during the last five years put together
- Our results suggest reconsidering the Council's strategy
 - Their focus should not be on monitoring court outliers,
 - but on addressing the differences between types of judges
 - It seems that there are more effective strategies to promote consistency
 - Fostering judicial rotation: a less intrusive approach than requiring adherence to sentencing guidelines

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- This type of research will probably become more mainstream as a consequence of the big data revolution
 - With the ever growing amount of information available online
 - It might be worthwhile to keep looking beyond official sources of data



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- This type of research will probably become more mainstream as a consequence of the big data revolution
 - With the ever growing amount of information available online
 - It might be worthwhile to keep looking beyond official sources of data
- We are planning future work using the law pages data
 - Discrimination against Muslims
 - The effect of alcohol on sentencing (aggravating or mitigating)