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## Q-estival 2019: People, Data and Society

Could Sentencing be as much of a Science as it is an Art?  
On the benefits of Empirical Sentencing Research

Jose Pina-Sánchez



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- I am going to review some of the quantitative research on sentencing we have undertaken over the past few years and present some unresolved questions



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- I am going to review some of the quantitative research on sentencing we have undertaken over the past few years and present some unresolved questions
- Hopefully relevant to those of you going through the - not always easy - process of learning about quantitative methods
- To those of you already quantitative experts, I will try to pick your brains and see if I can turn you into sentencing converts



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- Sentencing is a complex process
- Seeking to achieve competing goals
  - Retribution (punishment)
  - Rehabilitation
  - Incapacitation
  - Restoration, ...



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- Sentencing is a complex process
- Seeking to achieve competing goals
  - Retribution (punishment)
  - Rehabilitation
  - Incapacitation
  - Restoration, ...
- Governed by principles that are difficult to define
  - Consistency
  - Individualisation
  - Proportionality, ...



# Sentencing As an Art not a Science

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- Hence, sentencing is thought by practitioners - and many researchers - as an art not a science
  - It cannot be coded
  - It certainly cannot be measured



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## Discussion

- Hence, sentencing is thought by practitioners - and many researchers - as an art not a science
  - It cannot be coded
  - It certainly cannot be measured
- A practice traditionally hostile to quantitative research
  - Very difficult for researchers to 'break into court'
  - Sentencers prevented from being contacted by researchers by the Judicial Office
  - Several examples of official data been censored
  - The French ban on data analytics





# Implications

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- UK sentencing research principally dominated by normative and doctrinal approaches

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- UK sentencing research principally dominated by normative and doctrinal approaches
- Immersed in circular discussions
  - Arguing which sentencing principles are more dominant
  - Discussing which goals should be prioritised
- Throwing around untested claims
  - E.g. the E&W sentencing scheme being ‘gender neutral’
  - Being governed by the principle of proportionality
  - Sentencing Guidelines improve consistency,
  - but they hinder individualisation
  - We cannot possibly know how judges weight different factors
  - Judges in E&W have got more discretion than in the US



# The Role of the Sentencing Council

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- Things are starting to change
- The Sentencing Council for England and Wales has played a key role



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- Things are starting to change
- The Sentencing Council for England and Wales has played a key role
  - Founded in 2011
  - In charge of the design of ‘sentencing guidelines’
  - Which, to an extent, represent a codification of the sentencing practice
  - Also in charge of evaluating the impact of their guidelines
  - Employing a team of 7 social researchers and statisticians
- Followed by the creation of the Scottish Sentencing Council, and others



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# Sentencing Guidelines: Assault

## STEP ONE

### Determining the offence category

The court should determine the offence category using the table below.

<b>Category 1</b>	Greater harm (serious injury must normally be present) <b>and</b> higher culpability
<b>Category 2</b>	Greater harm (serious injury must normally be present) <b>and</b> lower culpability; or lesser harm <b>and</b> higher culpability
<b>Category 3</b>	Lesser harm <b>and</b> lower culpability

The court should determine the offender's culpability and the harm caused, or intended, by reference **only** to the factors below (as demonstrated by the presence of one or more). These factors comprise the principal factual elements of the offence and should determine the category.

#### Factors indicating greater harm

Injury (which includes disease transmission and/or psychological harm) which is serious in the context of the offence (must normally be present)

Victim is particularly vulnerable because of personal circumstances

Sustained or repeated assault on the same victim

#### Factors indicating lesser harm

Injury which is less serious in the context of the offence

#### Factors indicating higher culpability

##### *Statutory aggravating factors:*

Offence racially or religiously aggravated

Offence motivated by, or demonstrating, hostility to the victim based on his or her sexual orientation (or presumed sexual orientation)

Offence motivated by, or demonstrating, hostility to the victim based on the victim's disability (or presumed disability)

##### *Other aggravating factors:*

A significant degree of premeditation

Use of weapon or weapon equivalent (for example, shod foot, headbutting, use of acid, use of animal)

Intention to commit more serious harm than actually resulted from the offence

Deliberately causes more harm than is necessary for commission of offence

Deliberate targeting of vulnerable victim

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# Sentencing Guidelines: Assault

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### STEP TWO

#### Starting point and category range

Having determined the category, the court should use the corresponding starting points to reach a sentence within the category range below. The starting point applies to all offenders irrespective of plea or previous convictions. A case of particular gravity, reflected by multiple features of culpability in step one, could merit upward adjustment from the starting point before further adjustment for aggravating or mitigating features, set out below.

Offence Category	Starting Point ( <i>Applicable to all offenders</i> )	Category Range ( <i>Applicable to all offenders</i> )
<b>Category 1</b>	12 years' custody	9–16 years' custody
<b>Category 2</b>	6 years' custody	5–9 years' custody
<b>Category 3</b>	4 years' custody	3–5 years' custody

The table below contains a **non-exhaustive** list of additional factual elements providing the context of the offence and factors relating to the offender. Identify whether any combination of these, or other relevant factors, should result in an upward or downward adjustment from the starting point. In some cases, having considered these factors, it may be appropriate to move outside the identified category range.

#### Factors increasing seriousness

##### Statutory aggravating factors:

Previous convictions, having regard to a) the nature of the offence to which the conviction relates and its relevance to the current offence; and b) the time that has elapsed since the conviction

Offence committed whilst on bail

##### Other aggravating factors include:

Location of the offence

Timing of the offence

Ongoing effect upon the victim

Exploiting contact arrangements with a child to commit an offence

Previous violence or threats to the same victim

Established evidence of community impact

Any steps taken to prevent the victim reporting an incident, or obtaining assistance and/or from assisting or supporting the prosecution

Offences taken into consideration (TICs)

#### Factors reducing seriousness or reflecting personal mitigation

No previous convictions or no relevant/recent convictions

Single blow



# An Impact Gold Mine

- Sentencing research in the UK is now a field where the possibility of achieving wide-reaching impact is very real

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- Sentencing research in the UK is now a field where the possibility of achieving wide-reaching impact is very real
- A genuine commitment to ‘evidence-based policy’ from the part of the Council
  - Consultations about their guidelines at different stages (pre-design stage, definition of terms, impact evaluations)
  - Commissioning empirical research
  - Organising and participating in academic conferences



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  - Organising and participating in academic conferences
- The iterative nature of the sentencing guidelines
  - In E&W those guidelines identified as problematic during the evaluation stage will be replaced first

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- A genuine commitment to ‘evidence-based policy’ from the part of the Council
  - Consultations about their guidelines at different stages (pre-design stage, definition of terms, impact evaluations)
  - Commissioning empirical research
  - Organising and participating in academic conferences
- The iterative nature of the sentencing guidelines
  - In E&W those guidelines identified as problematic during the evaluation stage will be replaced first
- Examples of ‘impact’ achieved by our research
  - Evaluations of consistency based on multilevel modelling
  - Evaluations of severity based on our new scale of sentence severity
  - Identifying aggravating and mitigating factors inconsistently applied (e.g. ‘remorse’, ‘alcohol intoxication’)



# Thinking Empirically about Sentencing

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- The approach we have taken to explore empirically some of the principles governing the sentencing practice
  - Consistency
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- The approach we have taken to explore empirically some of the principles governing the sentencing practice
  - Consistency
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  - Severity
  - Proportionality
- These are rather elusive concepts
  - Not more complex than other concepts explored by Social Scientists, like poverty or happiness
  - Even if not been able to measure them perfectly, it is still worth trying to estimate them



# Thinking Empirically about Sentencing

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- The approach we have taken to explore empirically some of the principles governing the sentencing practice
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- These are rather elusive concepts
  - Not more complex than other concepts explored by Social Scientists, like poverty or happiness
  - Even if not been able to measure them perfectly, it is still worth trying to estimate them
- The structure I will follow
  - How we thought about operationalising these concepts
  - Present our main findings
  - Point at important issues to be resolved

# Consistency: Operationalisation

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- The main goal of the sentencing guidelines
- There isn't a universal definition
  - The extent to which 'like cases are treated alike'

# Consistency: Operationalisation

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Discussion

- The main goal of the sentencing guidelines
- There isn't a universal definition
  - The extent to which 'like cases are treated alike'
- Which we operationalised as follows
  - Defining 'like cases' as those sharing the same combination of guideline factors (including harm, culpability, mitigating, aggravating and other relevant personal factors)
  - Then, the extent to which sentences deviate from the expected outcome for that given case (e.g. the residuals of a regression model) could be considered a measure of 'inconsistency'



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- Which we operationalised as follows
  - Defining 'like cases' as those sharing the same combination of guideline factors (including harm, culpability, mitigating, aggravating and other relevant personal factors)
  - Then, the extent to which sentences deviate from the expected outcome for that given case (e.g. the residuals of a regression model) could be considered a measure of 'inconsistency'
- Such estimate of consistency/inconsistency is far from perfect
  - Particularly since the guidelines do not include an exhaustive list of aggravating and mitigating factors
  - To remedy this problem - albeit only partially - we've also suggested elevating the unit of analysis to explore disparities between courts



# Consistency: Findings & Impact

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- Using factors listed in the assault guidelines we find that...
  - 80.8% of custodial sentences imposed in the Crown Court can be predicted accurately
  - Unexplained disparities fell by 7% following the introduction of the new assault guidelines
  - Roughly 4% of the residual disparities in sentence length could be attributed to between court disparities
  - Identified those courts that might be following a different approach
  - Most factors are consistently applied across courts



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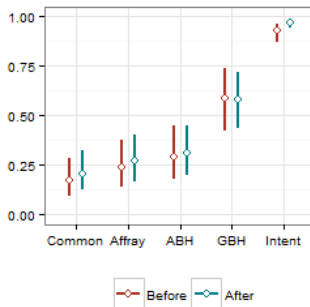
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Fig1. Probability of custody in the Crown Court before and after the introduction of the assault guideline (95% confidence intervals representing between court disparities)





## Consistency: Future Avenues

- An excessive focus placed on between court disparities
  - Possibly related to the emphasis made in the academic literature and in the political debate
  - “[...] *the aim is to increase the consistency of approach to sentencing so that offenders receive the same approach whether they’re being sentenced in Bristol, Birmingham, Bolton or Basildon*” (Lord Justice Leveson, 2011)
  - But also due to practicalities such as data made available with court ids but no judge ids

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## Consistency: Future Avenues

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  - “[...] *the aim is to increase the consistency of approach to sentencing so that offenders receive the same approach whether they’re being sentenced in Bristol, Birmingham, Bolton or Basildon*” (Lord Justice Leveson, 2011)
  - But also due to practicalities such as data made available with court ids but no judge ids
- Between-judge disparities have been neglected
  - We scraped judge ids from sentencing remarks available online
  - Three-levels multilevel model
  - Between-judge disparities 3X larger than between-court disparities

## Consistency: Future Avenues

- An excessive focus placed on between court disparities
  - Possibly related to the emphasis made in the academic literature and in the political debate
  - “[...] *the aim is to increase the consistency of approach to sentencing so that offenders receive the same approach whether they’re being sentenced in Bristol, Birmingham, Bolton or Basildon*” (Lord Justice Leveson, 2011)
  - But also due to practicalities such as data made available with court ids but no judge ids
- Between-judge disparities have been neglected
  - We scraped judge ids from sentencing remarks available online
  - Three-levels multilevel model
  - Between-judge disparities 3X larger than between-court disparities
- What about within-judge disparities?
  - Time of the day (harsher before lunch break)
  - Sport’s news (more lenient if the local team won)
  - The need for an integrated measure of consistency

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# Individualisation: Operationalisation

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- Not an easy concept to define either

- The extent to which the specific characteristics of the offence and the offender are taken into consideration

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- Not an easy concept to define either
  - The extent to which the specific characteristics of the offence and the offender are taken into consideration
- The operationalisation of this principle is severely hindered by the limitations in official data
  - Only the most severe form of punishment imposed in each sentence is recorded
  - Sentences featuring multiple conditions are indistinguishable from simpler sentences





# Individualisation: Operationalisation

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Discussion

- Not an easy concept to define either
  - The extent to which the specific characteristics of the offence and the offender are taken into consideration
- The operationalisation of this principle is severely hindered by the limitations in official data
  - Only the most severe form of punishment imposed in each sentence is recorded
  - Sentences featuring multiple conditions are indistinguishable from simpler sentences
- Facing this limitation we suggested using the phenomenon of ‘sentence clustering’ as a proxy
  - If ‘no two cases are the same’, why do we see so many cases receiving the same sentence?



# Individualisation: Findings

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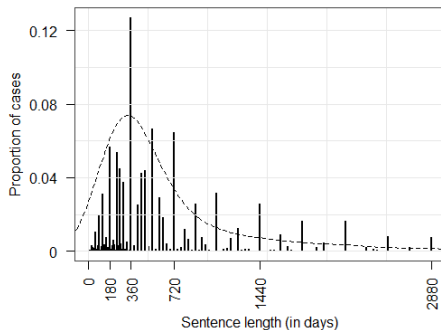
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Fig3a. Observed (vertical bars) and hypothetical (dashed line) sentence length distributions for offences of assault sentenced in the Crown Court in 2011





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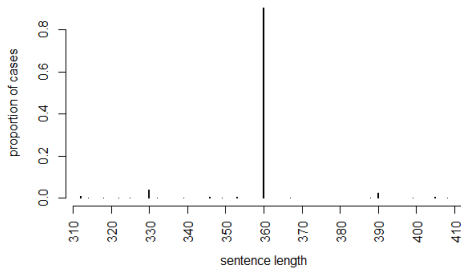
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Fig3b. Observed sentence length distributions for offences of assault sentenced in the Crown Court in 2011 (range restricted to 310 - 410 days)





# Individualisation: Findings & Unresolved Issues

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## Discussion

- We find that...
  - 56% of the custodial sentences imposed to offences of assault in 2011 in the Crown Court are concentrated within the ten most common outcomes
  - That proportion decreased from 58.3% to 53.7% after the new assault guidelines were introduced



# Individualisation: Findings & Unresolved Issues

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Discussion

- We find that...
  - 56% of the custodial sentences imposed to offences of assault in 2011 in the Crown Court are concentrated within the ten most common outcomes
  - That proportion decreased from 58.3% to 53.7% after the new assault guidelines were introduced
- This way of measuring clustering as the proportion of cases falling within the most common outcomes seems incomplete
  - What if a number of symbolic sentence outcomes are used commonly but then everything else seems much more individualised?
- We need a measure of the difference between the observed (discrete) and hypothetical (continuous) distributions
  - We have considered using the Kolmogorov-Smirnov or the Cramér-Von Mises statistics
  - If this could be done simply I reckon the Sentencing Council would be interested in adding such technique into their impact assessment toolbox



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## Discussion

- Five main sentence outcomes (aka disposal types)
  - *discharge* < *fine* < *community order* < *suspended sentence* < *custodial sentence*
- Most of those disposal types use different units of measurement
  - e.g. pounds for fines, days for custodial sentences, conditions for community orders



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  - *discharge < fine < community order < suspended sentence < custodial sentence*
- Most of those disposal types use different units of measurement
  - e.g. pounds for fines, days for custodial sentences, conditions for community orders
- For reasons of convenience we tend to focus on custodial sentences
  - However these represent only 7% of the sentences imposed in England and Wales
  - Creating a problem of selection bias



# Severity: Operationalisation

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- Most of those disposal types use different units of measurement
  - e.g. pounds for fines, days for custodial sentences, conditions for community orders
- For reasons of convenience we tend to focus on custodial sentences
  - However these represent only 7% of the sentences imposed in England and Wales
  - Creating a problem of selection bias
- Alternatively some studies focus on the probability of custody
  - This involves reducing the sentence outcome to a (0,1) variable
  - A huge loss of information





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## Discussion

- We have explored estimating a scale of severity
  - So we can analyse 100% of the sentences
  - while making the most of the information available



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## Discussion

- We have explored estimating a scale of severity
  - So we can analyse 100% of the sentences
  - while making the most of the information available
- We used...
  - The ‘sentencing ladder’
  - A sample of 21 magistrates
  - Pairwise comparisons (Thurstone method)



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Table1. Matrix of severity (frequency with which sentence outcomes at the top of each column are considered more severe than outcomes to the left of each row)

	absolute discharge	conditional discharge	fine	community order	6month suspended 1month custody	12month suspended 1month custody	6month suspended 6month custody	24month suspended 12month custody	1month immediate custody	2month immediate custody	3month immediate custody
absolute discharge	0.5	1	1	1	1	1	1	1	1	1	1
conditional discharge	0	0.5	0.69	1	1	1	1	1	1	1	1
fine	0	0.31	0.5	0.78	1	1	1	1	1	1	1
community order	0	0	0.22	0.5	0.37	1	1	1	1	1	1
6month susp 1month cust	0	0	0	0.63	0.5	1	1	1	1	1	1
12month susp 1month cust	0	0	0	0	0	0.5	0.73	1	1	1	1
6month susp 6month cust	0	0	0	0	0	0.27	0.5	1	1	1	1
24month susp 12month cust	0	0	0	0	0	0	0	0.5	0.41	0.52	0.62
1month immediate custody	0	0	0	0	0	0	0	0.59	0.5	1	1
2month immediate custody	0	0	0	0	0	0	0	0.48	0	0.5	1
3month immediate custody	0	0	0	0	0	0	0	0.38	0	0	0.5



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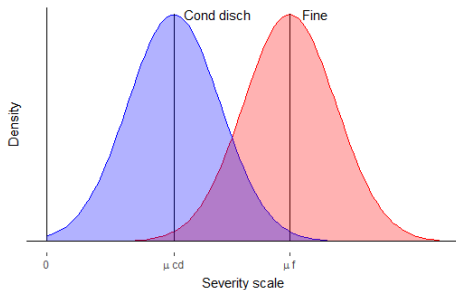
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Fig4. Visual Representation of the Thurstone Model





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Table2. Severity scores

Sentence outcome	Severity score
absolute discharge	0
conditional discharge	0.97
fine	1.33
community order	2.13
1-month custody 6-months suspended	2.34
1-month custody 12-months suspended	3.66
6-months custody 6-months suspended	3.78
12-months custody 24-months suspended	5.74
1-month custody	5.05
2-months custody	5.75
3-months custody	6.45
12-months custody	13.45
5-years custody	47.05
20-years custody	173.05



# Severity: Findings

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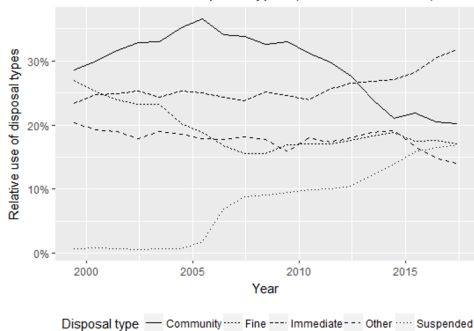
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Fig3. Relative use of disposal types (indictable offences)





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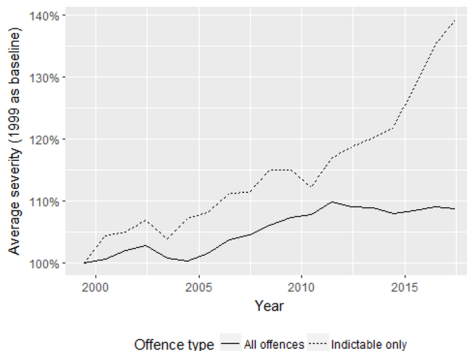
Individualisation

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## Discussion

Fig5. Trends in sentence severity in E&W





# Severity: Findings

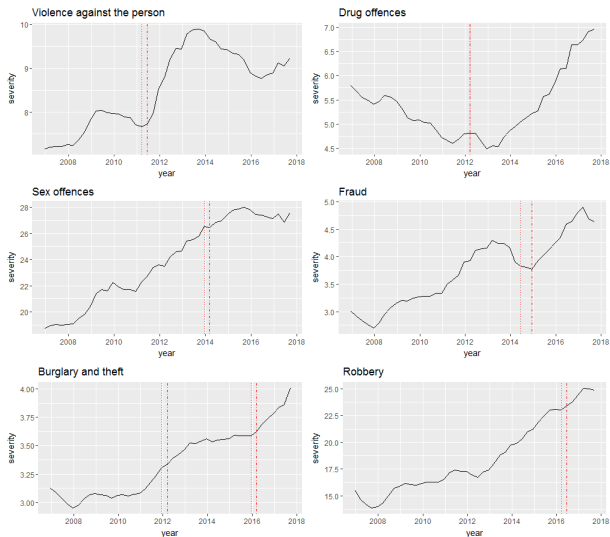
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Fig6. Assessing the impact of the guidelines







# Severity: Findings

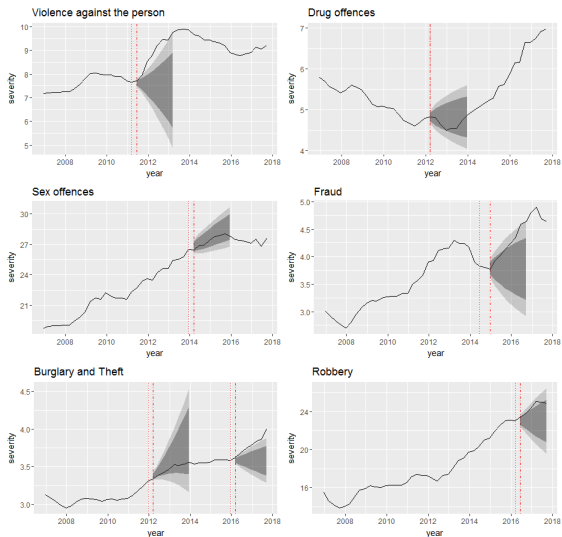
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Fig6. Assessing the impact of the guidelines





# Severity: Unresolved Issues

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- Our scale is subject to a number of limitations
  - We didn't differentiate between types of fines or community orders
  - We assume that the severity scores for each sentence outcome are normally distributed and of equal variance
  - We assume a linear relationship between months in custody and severity
- We are working on an improved scale of severity
  - Exploring different types of fines (A, B, C, D, E and F) and community orders (low, medium and high)
  - Using expert elicitation techniques to assess the validity of equal variance
  - Allowing for diminishing returns of severity



# Proportionality: Operationalisation

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Discussion

- Probably the hardest principle to operationalise because of its subjectivity
  - Normally understood as the extent to which sentence severity matches the seriousness of the crime



## Proportionality: Operationalisation

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Discussion

- Probably the hardest principle to operationalise because of its subjectivity
  - Normally understood as the extent to which sentence severity matches the seriousness of the crime
- Yet, arguably, the most important principle
  - Said to be the bedrock of the sentencing practice/guidelines in England & Wales
  - A seemingly perpetual debate going on about whether this is desirable
  - A debate based on anecdotal/partial evidence
  - The extent to which this principle is upheld is unknown



# Proportionality: Operationalisation

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Discussion

- Probably the hardest principle to operationalise because of its subjectivity
  - Normally understood as the extent to which sentence severity matches the seriousness of the crime
- Yet, arguably, the most important principle
  - Said to be the bedrock of the sentencing practice/guidelines in England & Wales
  - A seemingly perpetual debate going on about whether this is desirable
  - A debate based on anecdotal/partial evidence
  - The extent to which this principle is upheld is unknown
- I have started playing with two approaches to explore this concept empirically
  - Estimating a scale of crime seriousness/harm
  - Estimating the weight of retributive factors on the sentence outcome



# Proportionality: Measuring Crime Harm

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Discussion

- We already have a scale of sentence severity
  - If we can estimate an index of crime harm
  - We could monitor proportionality across time and offences



# Proportionality: Measuring Crime Harm

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Discussion

- We already have a scale of sentence severity
  - If we can estimate an index of crime harm
  - We could monitor proportionality across time and offences
- To avoid problems of circularity we cannot use the existing scales of crime harm
  - Bangs' and Sherman's scales are based on sentence data and the sentencing guidelines



# Proportionality: Measuring Crime Harm

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Discussion

- We already have a scale of sentence severity
  - If we can estimate an index of crime harm
  - We could monitor proportionality across time and offences
- To avoid problems of circularity we cannot use the existing scales of crime harm
  - Bangs' and Sherman's scales are based on sentence data and the sentencing guidelines
- We are exploring creating a new scale using the CSEW
  - Questions where participants were asked to rank the harm of different crimes
  - This ranking can be modelled using pairwise comparison methods to ascertain an underlying continuous scale behind them
  - More statistically principled and less arbitrary than the scales of crime harm currently used
  - Higher face validity: *sentence severity*  $\neq$  *crime seriousness*





# Proportionality: Measuring Retribution

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## Discussion

- An alternative route would be to estimate and compare the effect of different types of factors on the sentence outcome
  - What is the share of the variability explained by harm and culpability factors?
  - How does that compare to the variability explained by factors of other nature, e.g. personal mitigating factors?
  - How does that ratio vary by offence type, court location, etc.?
  - How has it changed across time, after the introduction of new guidelines, etc.?



# Proportionality: Measuring Retribution

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Discussion

- An alternative route would be to estimate and compare the effect of different types of factors on the sentence outcome
  - What is the share of the variability explained by harm and culpability factors?
  - How does that compare to the variability explained by factors of other nature, e.g. personal mitigating factors?
  - How does that ratio vary by offence type, court location, etc.?
  - How has it changed across time, after the introduction of new guidelines, etc.?
- This would be really informative and yet relatively easy to do
  - I am surprised no one has looked into that
  - Perhaps explained by the widely held belief amongst sentencing scholars that the weight attributed to different factors cannot be estimated



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	Step One: Assessed Seriousness	Step Four: Guilty Plea Reduction	Final Sentence
Assessed seriousness			
Guilty plea reduction			
<i>Step One Factors</i>			
Deliberate harm			
Intent, serious harm			
Leading role gang			
Hostility age/gender			
Premeditation			
Racially motivated			
Hostility orientation			
Targeting vulnerable			
Use of a weapon			
Serious injury			
Sustained assault			
Vulnerable victim			
Lack premeditation			
Mental disorder			
Provocation			
Self-defence			
Subordinate role			
Injury less serious			
<i>Step Two Factors</i>			
Previous convictions (1-3)			
Previous convictions (4-9)			
Abuse of trust			
Against public			
On bail			
Dispose of evidence			
Victim forced leave			
Community impact			
Failure warnings			
Failure court orders			
Gratuitous degradation			
Location			
Whilst on licence			
Ongoing effect			
Presence of others			
Previous violence			
Timing of offence			
Under drugs/alcohol			
Address addiction			
Lack of maturity			
Good character			
Isolated incident			
Lapse of time			
Medical condition			
Mental disability			
No relevant convictions			
Primary carer			
Genuine remorse			
Single blow			
<i>Step Four Factors</i>			
First opportunity			
At magistrates			
Prior to PCMH			
At PCMH			
After PCMH			



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Discussion

- Sentencing is not just an art
  - In fact, it is a relatively well defined decision-making process
  - Probably not just a science either, but we can certainly detect lots of patterns in it
  - Which tells us that quantitative research has a place in this field
- Using quantitative methods we have...
  - Challenged important misconceptions (such as the widely held view that sentencing is a ‘postcode lottery’)
  - Identified factors applied inconsistently, some of them have been redefined in the guidelines
  - Designed some analytical protocols adopted by the Sentencing Council to evaluate their guidelines



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## Discussion

- Plus other interesting findings that I did not have time to cover, such as...
  - Judges that rotate across courts sentence more consistently
  - No evidence of discrimination against Muslim offenders once you control for case characteristics
  - The sentencing guidelines do not seem to be gender neutral



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## Discussion

- Plus other interesting findings that I did not have time to cover, such as...
  - Judges that rotate across courts sentence more consistently
  - No evidence of discrimination against Muslim offenders once you control for case characteristics
  - The sentencing guidelines do not seem to be gender neutral
- Still lots to do
  - Important principles that have not been operationalised yet
  - Methodological questions on the measurement of severity and consistency
  - Much more work on discrimination needed



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## Discussion

- We need a cultural/pedagogical change
  - We need to promote the quantitative training of future social scientists
  - We need sentencing researchers trained in quantitative methods



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## Discussion

- We need a cultural/pedagogical change
  - We need to promote the quantitative training of future social scientists
  - We need sentencing researchers trained in quantitative methods
- The example of the US, where sentencing research is mostly quantitative
  - Which has contributed shed light on issues like institutional racism
  - Or to assess the effect of different guidelines in increasing (or decreasing) the prison population





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- The example of policing in the UK
  - The move towards evidence-based policing



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- We need a cultural/pedagogical change
  - We need to promote the quantitative training of future social scientists
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- The example of the US, where sentencing research is mostly quantitative
  - Which has contributed shed light on issues like institutional racism
  - Or to assess the effect of different guidelines in increasing (or decreasing) the prison population
- The example of policing in the UK
  - The move towards evidence-based policing
- If you found any of this interesting give me a shout or join our new network ERoS