Diversity or disadvantage? Investigating perceptions of neighbourhood in the British Crime Survey

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TWO PARTS TO PRESENTATION

1. Substantive results

2. Getting better value for money from Government Surveys (British Crime Survey) using multilevel synthetic estimation techniques
The primary aims of the UPTAP initiative are to:

1. build capacity in secondary data analysis;
2. promote the use of large-scale social science data sets, both qualitative and quantitative;
3. improve our understanding of demographic trends and processes which affect society and the population; and
4. collaborate and communicate with user groups and policy-making individuals and organisations.
Part 1: Background and Aims

The primary aims of the UPTAP initiative are to:

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Perceptions of disorder

Studies of disorderly behaviour have a long history, dating back at least to Shaw and McKay’s 1942 study of Chicago.

“Broken windows” (Wilson and Kelling, 1982)

Sampson and Raudenbush’s extensive and detailed body of work on systematic social observation of disorder; perceptions of disorder and immigrant concentration. (1999; 2004).

Sampson (2009, 6) reasons “perceptions of disorder constitute a fundamental dimension of inequality at the neighbourhood level and beyond”.

In recent years there has been a “resurgence of interest in neighbourhood disorder in the social sciences” (Sampson and Raudenbush, 2004, 319).
The influence of ethnic diversity on perceptions

But also recent provocative statements by :-

Goodhart (2004) – “too diverse” -

Putnam (2007) – increased ethnic heterogeneity is associated with reduced levels of trust (even for one’s own race) and solidarity in the short term.

“hunker down”
“There is evidence that the more diverse an area is in racial terms, the less likely its residents are to feel that they trust each other. This is an important argument and it is important that we examine it”

(David Blunkett, 2004)

Recently Paul Wiles (2009) has questioned whether “[Sampson’s research] would apply in other countries [such as E&W]”

IMPORTANTLY:-

New policy appeals for a revival of community (e.g. Big Society initiative in the UK – withdrawal of public funds; replace with third sector and community initiatives; private and social enterprise funding)
Ethnic heterogeneity studies in the UK

UK studies of the effect of heterogeneity on people's perceptions of their neighbourhood environment have produced equivocal results...

- Levels of generalised trust in neighbours reduced (but no influence on political and other structures) (Pennant, 2005)
- Levels of social capital not influenced by diversity once everything else taken into account (Letki, 2008)
  (both based on the Communities and Local Government’s Citizenship Survey)
- Levels of interpersonal trust (Sturgis et al, BJPS forthcoming) – disadvantage far more important than diversity
  (based on the Dept. Culture, Media and Sport’s Taking Part Survey)
Our UPTAP project covered:-

1. Antisocial behaviour
2. Collective efficacy (social cohesion and trust; informal social control)
3. Perceptions of (local and national) crime trends
Today’s talk

1. Antisocial behaviour

2. Collective efficacy (social cohesion and trust; informal social control)

3. Perceptions of (local and national) crime trends
Defining collective efficacy

Sampson et al. (1997, p918) defined collective efficacy as

“social cohesion amongst neighbours combined with their willingness to intervene on behalf of the common good”

and measured it by combining two Likert scales:

(i) Social cohesion and trust

(ii) Informal social control
Aims of the Study

1. We investigate whether, after controlling for individual characteristics and local socio-economic conditions, we can identify an effect of local levels of ethnic heterogeneity on perceptions of collective efficacy.

2. In line with concerns expressed in previous literature we explore whether the effect of deprivation or diversity is more influential.
Aims of the Study

1. We investigate whether, after controlling for individual characteristics and local socio-economic conditions, we can identify an effect of local levels of ethnic heterogeneity on perceptions of collective efficacy.

2. In line with concerns expressed in previous literature we explore whether the effect of deprivation or diversity is more influential.

3. In contrast with previous work we analyse the dimensions of collective efficacy separately to determine whether the same individual, household and area factors influence both dimensions.
Data Sources: The British Crime Survey (BCS)
The first dependent variable - social cohesion and trust

The five variables included in the scale were...

1. How many people in the neighbourhood can be trusted
2. Willingness to help neighbours
3. Close knit community
4. Do not share the same values (reverse coded)
5. Different backgrounds get on well together

All five statements were on a four point scale scoring zero for the most positive response up to three for the least.
The second dependent variable - informal social control

Do something about...

(i) a group of local children who were playing truant from school and hanging around on a street corner;
(ii) children who were spray-painting graffiti on a local building
(iii) a fight near their home and someone was being beaten up or threatened;
(iv) tell off a child who was being rude to an adult and (v) participate if they were asked by a local organisation to help solve a community problem.

Score ranging from three for very unlikely through to zero for very likely.
The independent variables from the BCS

Individual / household level

*From the BCS*

- Gender
- Age
- Ethnicity
- Marital status
- Recent victim of BCS crime
- Education
- Health
- Socio-Economic Classification
- Household income
- Tenure
- Accommodation type
- Length of time at current address
External independent variables?

We were given access to a special licence version of the 2006/7 BCS (75% RR) that had Lower Layer Super Output Area codes attached to each respondent. (First researchers to make use of this development)

We could therefore link in other datasets:-

- 2001 census information (to derive measures of ethnic diversity)
- 2007 Indices of Multiple Deprivation
- Cross government rural and urban area classification
The independent variables

Individual / household level
- From the BCS
  - Gender
  - Age
  - Ethnicity
  - Marital status
  - Recent victim of BCS crime
  - Education
  - Health
  - Socio-Economic Classification
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Area level
- Attached via the SOA codes
  - Level of urbanisation
  - Population turnover
  - Percentage of teenagers
  - 2007 Index of Mult Deprivation
  - Ethnic heterogeneity
Measure of ethnic heterogeneity

Theil Entropy Score

\[ E_i = \sum_{r=1}^{R} (\pi_{ri}) \ln \left( \frac{1}{\pi_{ri}} \right) \]

\( i \) stands for a neighbourhood area.

\( r \) stands for the following ethnic groups (a) white, (b) mixed, (c) Asian or Asian British, (d) black or black British, and (e) Chinese or other.

\( \pi_{ri} \) represents the proportion of group \( r \) in area \( i \) (2001 Census).

The higher the Theil score the greater the level of diversity in an area (maximum score when all groups equally represented).
Modelling strategy

- **Multivariate** multilevel modelling
- Models both dependent variables *simultaneously* (in same model)
- Two continuous scores of SCT, ISC
Advantages of Multivariate Multilevel Modelling

The influence of any one independent variable can be assessed simultaneously for each dimension of collective efficacy.

Can test whether the effect of any one independent variable is statistically significant for social cohesion and trust compared with informal social control.

The multivariate multilevel model estimates higher-level covariance terms. This joint covariance can illustrate the extent and manner in which the two dimensions of collective efficacy covary across geographies (see paper).
Multivariate Multilevel Modelling
Results
## Individual and household factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Social cohesion and trust</th>
<th>Informal social control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.12 0.05</td>
<td>0.39 0.07</td>
</tr>
<tr>
<td>Social rented sector</td>
<td>0.67 0.08</td>
<td>0.61 0.10</td>
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<tr>
<td>Living in a flat</td>
<td>0.23 0.09</td>
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### Factors which decrease perceived levels of collective efficacy

- Male
- Social rented sector
- Living in a flat

### Factors which increase perceived levels of collective efficacy

- Age (centred around 50.4)
- Asian or Asian British
- Moved house within last five years
- High income (£40k plus)
Neighbourhood factors

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Which is most influential – diversity or deprivation?

Factors which increase levels of collective efficacy
Deprivation or diversity?

**Statistical significance versus substantive importance**
Although the Theil entropy score is statistically significant, it is not substantively important – it only explains a very small proportion of the MSOA level variation (1% for social cohesion and trust and 0.3% for informal social control).

The level of deprivation explains substantially more area level variation (19% and 7% respectively).

**Mediating effects**
Based on the methodology of Sampson and Raudenbush (1999) we found that ethnic heterogeneity does not mediate the relationship between collective efficacy and neighbourhood deprivation.

**Restricting analysis to areas with high levels of ethnic heterogeneity**
Following the work of Sampson *et al* (1997, p923) we replicated our model but based only on the MSOAs with the highest levels of diversity. In these areas deprivation still had a significant adverse association with collective efficacy.
Conclusions

- Similar individual, household and area factors influence both social cohesion and trust and informal social control. However, combining them into an overall measure of collective efficacy masks important differences.

- While both diversity and disadvantage are statistically associated with reduced levels of social cohesion and trust and informal social control, greater substantive importance is attached to neighbourhood disadvantage.
Part 2

Getting better value for money from Government Surveys (British Crime Survey) using multilevel synthetic estimation techniques

Joanna Taylor
University of Portsmouth

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Exemplar:

Estimating small area perceptions of Antisocial Behaviour (alcohol and drug-related ASB)
Why can’t we use traditional surveys to provide localised estimates?

No national survey has a large enough sample size to provide reliable neighbourhood estimates. In most small areas no residents are sampled at all and where there are some respondents they are still too few. For example, the British Crime Survey, although one of the largest surveys in England and Wales, with a sample size of 46,000 respondents per annum can only provide estimates down to the Police Force Area level.

How have neighbourhood estimates been produced to date?

By local surveys. For example, under the previous Government the Place Survey was conducted biennially by every Local Authority to provide views of residents local area at a cost of £16 million for three sweeps (DCLG 2007).
Response rates achieved by Local Authorities for the 2008 Place Survey

Source: Department for Communities and Local Government (2009)
What is Multilevel Small Area Synthetic Estimation?

Multilevel small area synthetic estimation (SASE) can be summarised as...

“modelling nationally...predicting locally”

In other words the multilevel equations are re-worked for whatever geography is needed e.g., Middle Super Output Areas or Local Authorities.
What is Multilevel Small Area Synthetic Estimation?

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“modelling nationally...predicting locally”

What is a Multilevel Model?

Risk of individual perceiving alcohol related ASB to be a problem in their local area
Small area synthetic estimation methodology

Stage 1

- **Which people perceive high levels of ASB?**
  Use the literature and secondary analysis of the British Crime Survey (BCS) to model which people are more likely to perceive high levels of anti-social behaviour (PASB).

In any SASE model all individual level variables also have to be available in the Census. Therefore the maximum number of individual characteristics is three...

- Age
- Tenure
- Health status

(1) Candidate variables identified in the literature
(2) Final three variables chosen by...
  - Reduction in LogLikelihood Statistic
  - Percentage of higher level variation explained
Small area synthetic estimation methodology (continued...)

Stage 1

- *Which people perceive high levels of ASB?*
  Use the literature and secondary analysis of the British Crime Survey (BCS) to model which people are more likely to perceive high levels of anti-social behaviour (PASB).

Stage 2

- *Which places perceive high levels of ASB?*
  Use Lower Level Super Output Codes included in the special license version of the BCS to link external area level data sources such as the Index of Multiple Deprivation and Ordnance Survey’s MasterMap Address Layer 2.
**Ordnance Survey MasterMap® Address Layer 2**

OS MasterMap® Address Layer 2 links any property address to its location on the map. It provides precise coordinates for more than 29 million residential and commercial properties in Great Britain.

From this is it possible to identify the location of every licensed premises in England.

![Map overlay of OS MasterMap® Address Layer 2 on OS MasterMap® Topography Layer](http://www.ordnancesurvey.co.uk/oswebsite/products/os-mastermap/address-layer-2/index.html)
Stage 3

• **Combine composition and context in one model**
  Use software package MLwiN to produce multilevel model, which simultaneously models for individual and area effects.

Multilevel models model both individual and area effects simultaneously.

*Composition and Context (Macintyre et al., 1993)*
Stage 4

- **Calculate PASB for every neighbourhood in England**
  Use the Census, other external data sources and the multilevel model from objective 2(iii) to calculate perceptions of anti-social behaviour for every neighbourhood in England. Use the higher level residuals to adjust these estimates to take account of regional variations.
The multilevel model from earlier...

Risk of individual perceiving alcohol related ASB to be a problem in their local area

Fn[individual factors] + Fn[area factors] + Residuals
The multilevel model from earlier...

Risk of individual perceiving alcohol related ASB to be a problem in their local area

Fn[individual factors] + Fn[area factors] + Residuals

Neighbourhood estimate of levels of problematic perceptions of ASB

Age, tenure and health status from the Census + IMD, Ordnance Survey, Census etc... + Area level residuals

Small area synthetic estimation
Thank you and any questions?
Publications related to this research:

