Are neighbourhoods crime prone in different ways? Toward a typology

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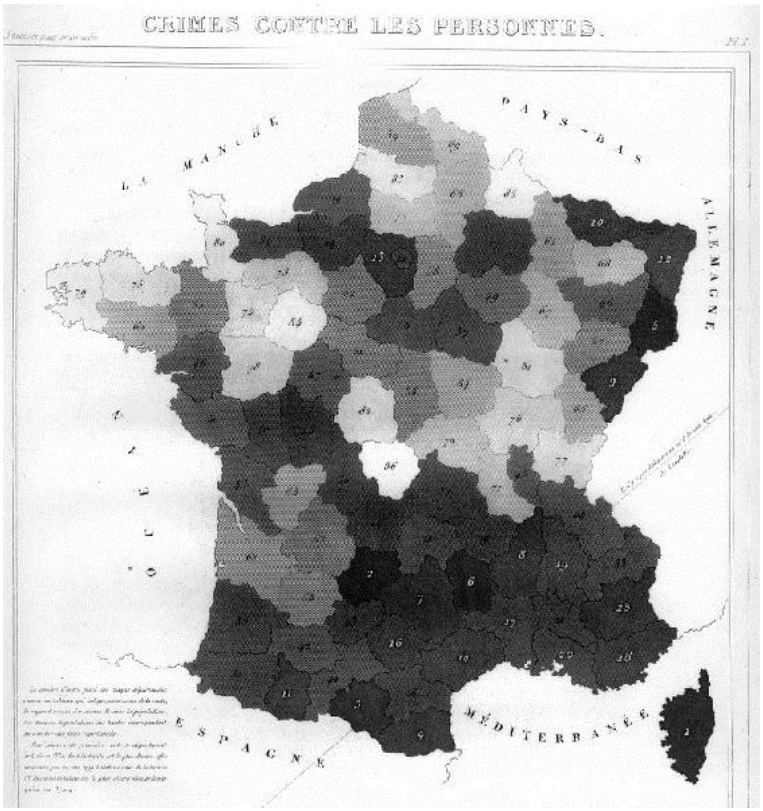
Study of crime at the macro level is generally concerned with understanding why some neighbourhoods have higher crime rates than others.

The surprising gap

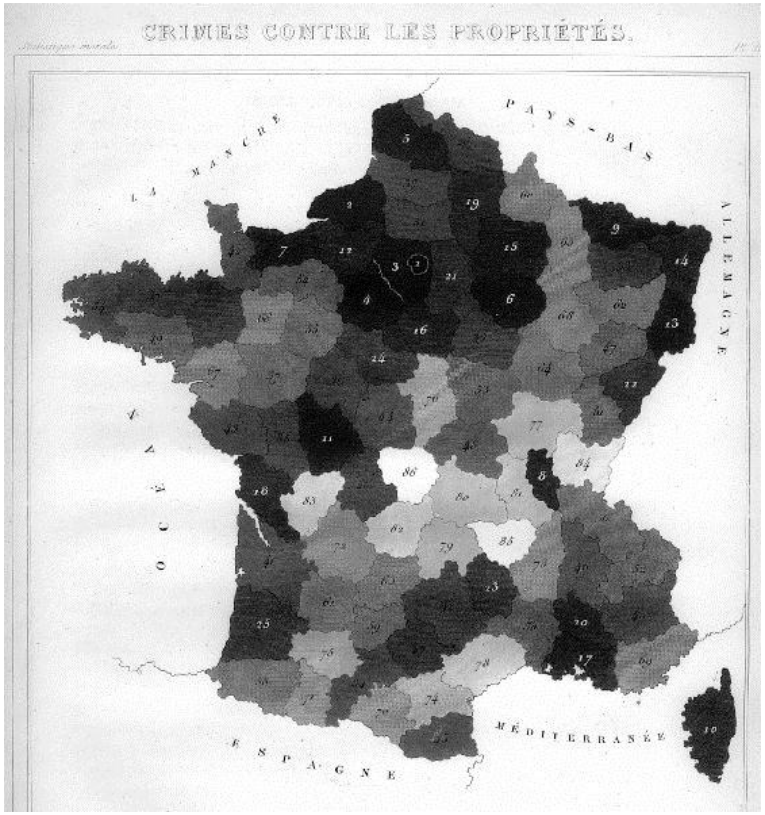
- ‘Whereas there is extensive literature on crime rates at the neighborhood level, little of it directly bears on the extent to which some neighborhoods favor particular crime types over others’ (Schreck et al 2009)

Balbi & Guerry mapped official crimes across France during the 19th century, showing that property and violent crimes concentrated in different regions.

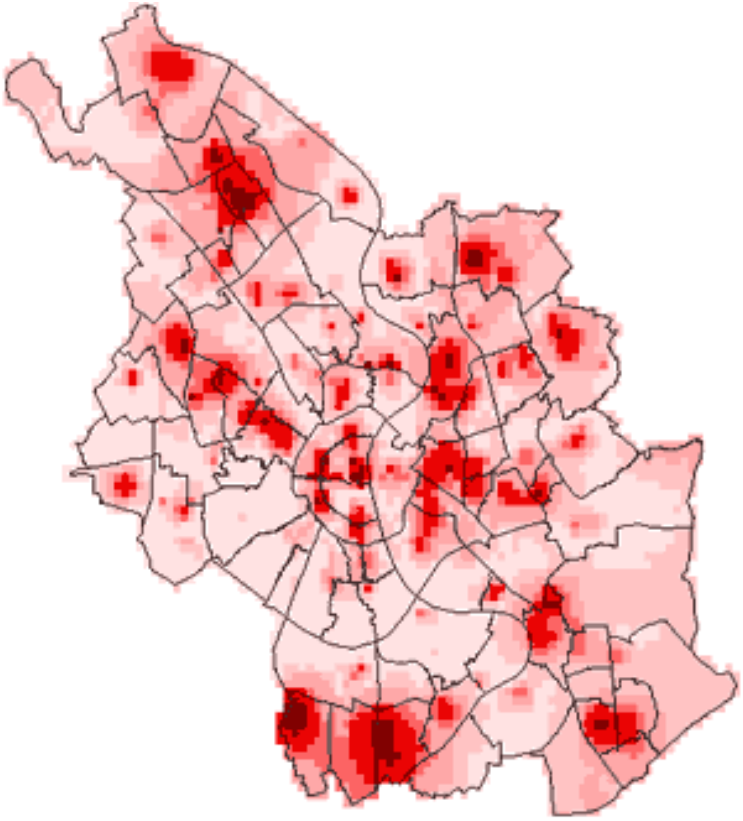
Violent crime



Property crime

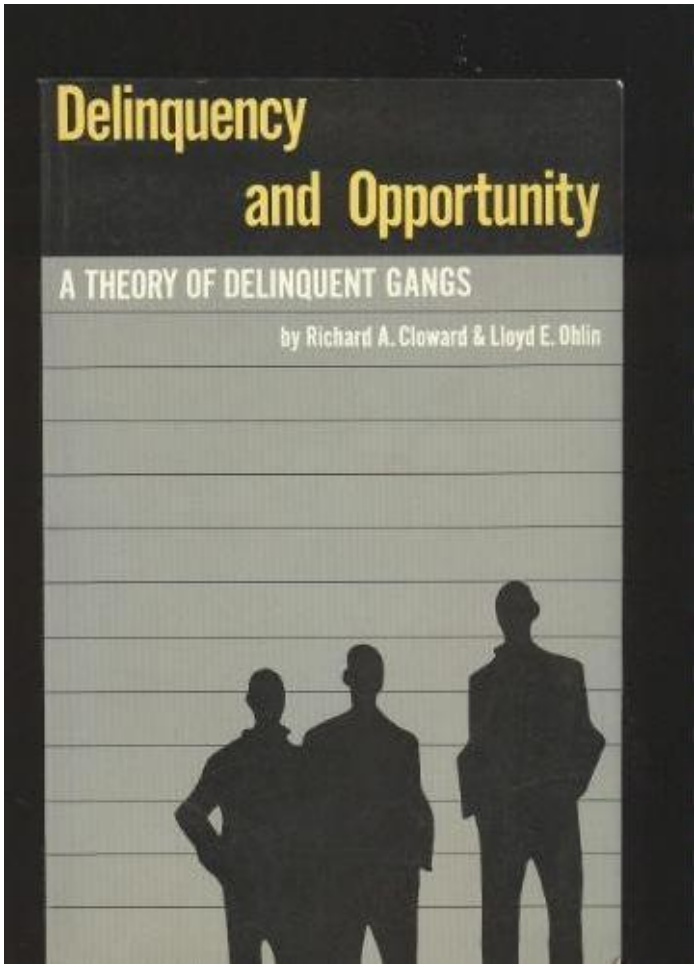


Sherman, L. W., et al (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology, 27, 27–55.*



Oberwittler 'Security in the city'.

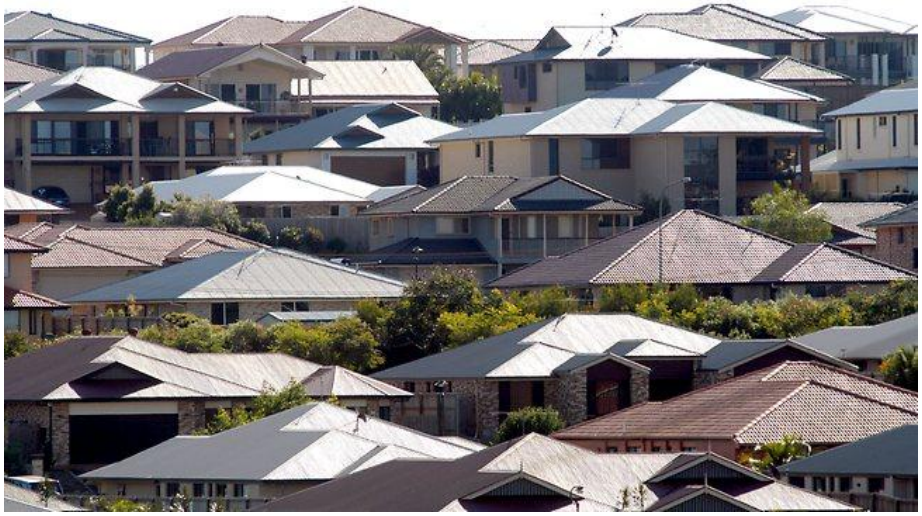
Differential opportunity theory



- Focus on proximate environment and its affect on the nature of crime.

- "The pressures that lead to deviant patterns do not necessarily determine the particular pattern that results" (Cloward & Ohlin, 1960, p. 40).

Social disorganisation leads to higher crime



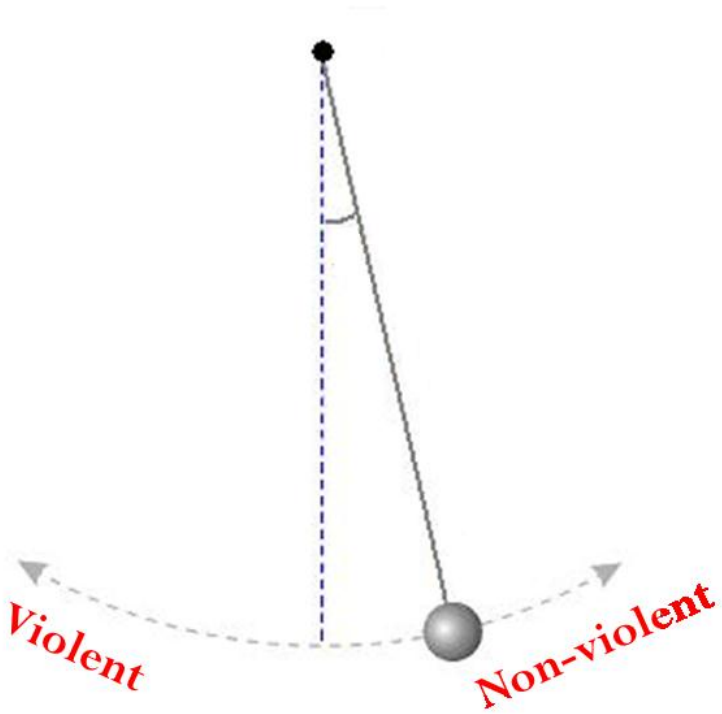
Shaw & McKay's Social Disorganisation perspective—structural indicators like heterogeneity, weak ties, disadvantage, instability → higher overall crime rate.

Cloward & Ohlin's Differential Opportunity perspective—different combinations of structural indicators like heterogeneity, weak ties, disadvantage instability → different patterns of crime.

Earlier tests of specificity of the influence of SD characteristics on neighbourhood crime rates:

1. Sampson et al.
    - SD associated with violence, but mediated by single parent families
2. Hipp
    - SD factors stronger for violent than property crime rates across cities
3. Weatherburn & Lind
    - Economic & social stress associated with aggregate violent and property juvenile crime rates

A ratio method: Schreck *et al*. (2009)

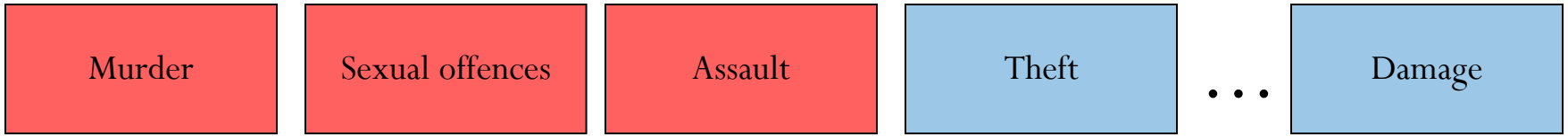


- Schreck *et al*: Look at higher and lower concentrations of violence—via ratio of violence to non-violence.
- Show (1) variability (2) n'hood characteristics distinguished where there was high violence.
- Why is this inefficient? How can it be improved?

Another way…

- Is the picture more complex than a simple violent:non-violent ratio?
- Can we use a 'person-oriented' latent variable approach to arrive at a typology of 'neighbourhood' crime?
- How might traditional neighbourhood characteristics associated with crime differently explain neighbourhood subgroup membership?
- Is there support for Cloward & Ohlin's differential opportunity theory to the extent that SD characteristics will equate differently to unique crime profiles?

A neighbourhood crime typology: The latent class model



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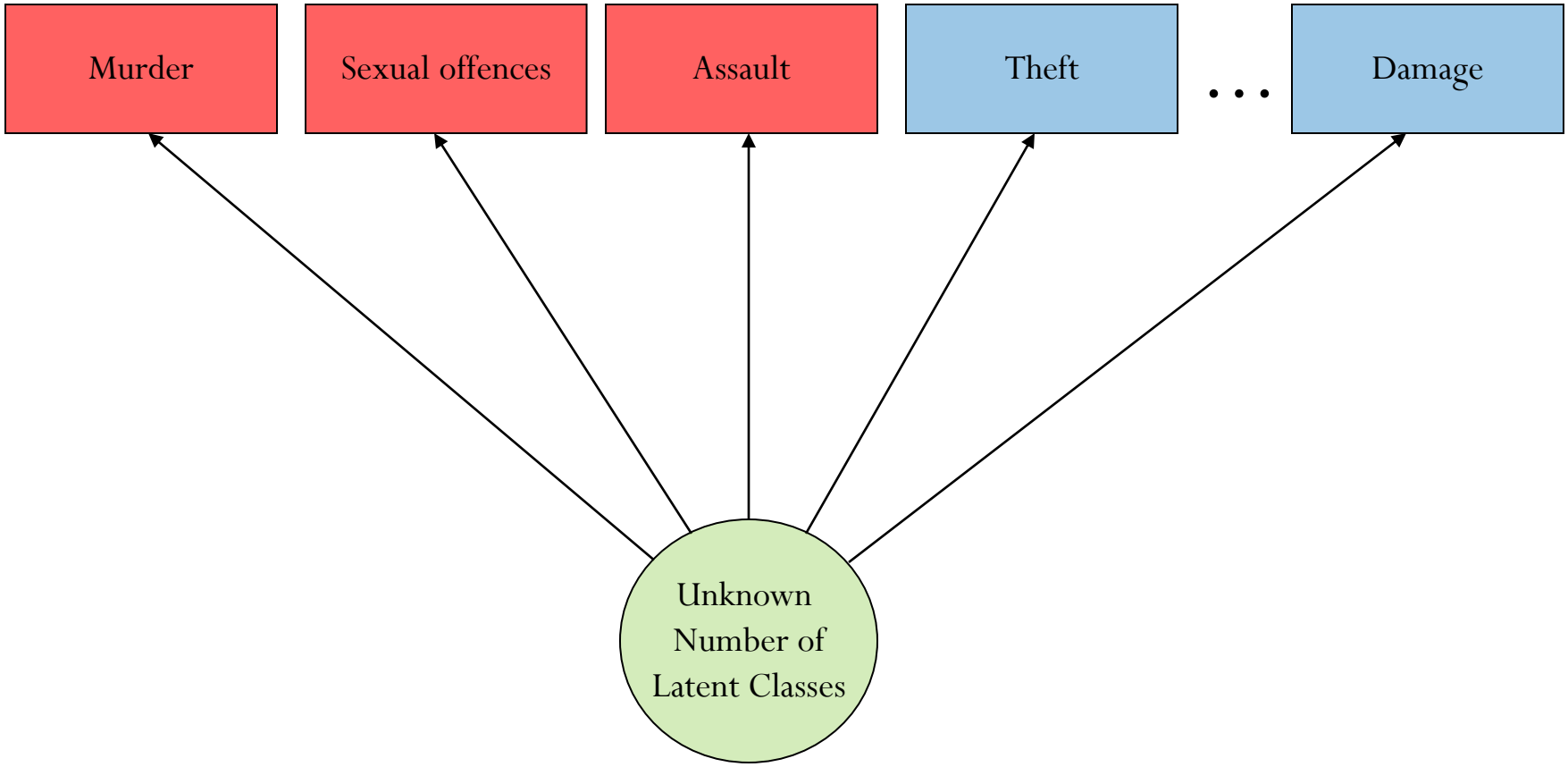
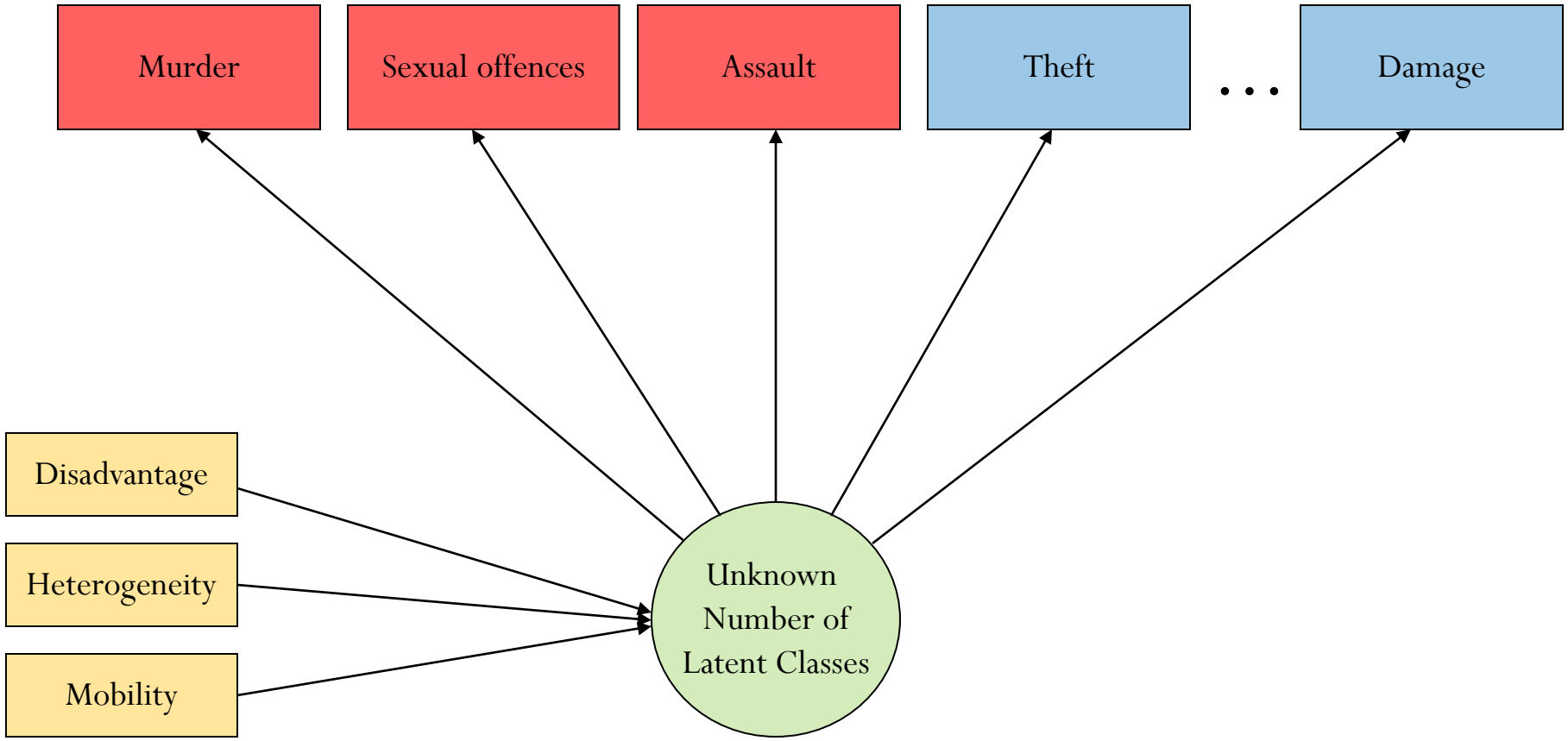


A neighbourhood crime typology: The latent class model



Are there unique neighbourhood subgroups based on crime profiles?

- Aim was to assess whether:

  1. unique subgroups of neighbourhoods could be identified based on police recorded crime types

  2. unique subgroups were differently associated with:
     a. Immigrant concentration
     b. Concentrated disadvantage
     c. High residential mobility

- Employ a latent class analysis approach (Muthén 2001) using Mplus v7.

- Models with one through six latent classes were fit to the data. Model diagnostics suggested a 4-class model should be selected.

- Association between subgroups and covariates tested using multinomial logistic regression (Agresti 2002)—probability of class membership depends on presence or absence of a covariate.

Data

- Police recorded crime aggregated to the NSW post code (n = 579)
  - (excludes low residential pop and statistical 'outlier' post codes)
- Crime variables:
  - Murder, Sexual offences, Assault, Robbery, Motor vehicle theft, Theft, Break & Enter, Fraud, Damage
  - Three-year crime rate average 2005-07. Crime rate variables dichotomized highest quartile = 1 below = 0 (c.f. murder 1=any)
- Census 2006
  - Immigrant concentration (% foreign born)
  - Concentrated disadvantage (scale includes: % unemployment, % single parent, % low income, % highest school completion year-10)
  - High residential mobility(% one-year movers)

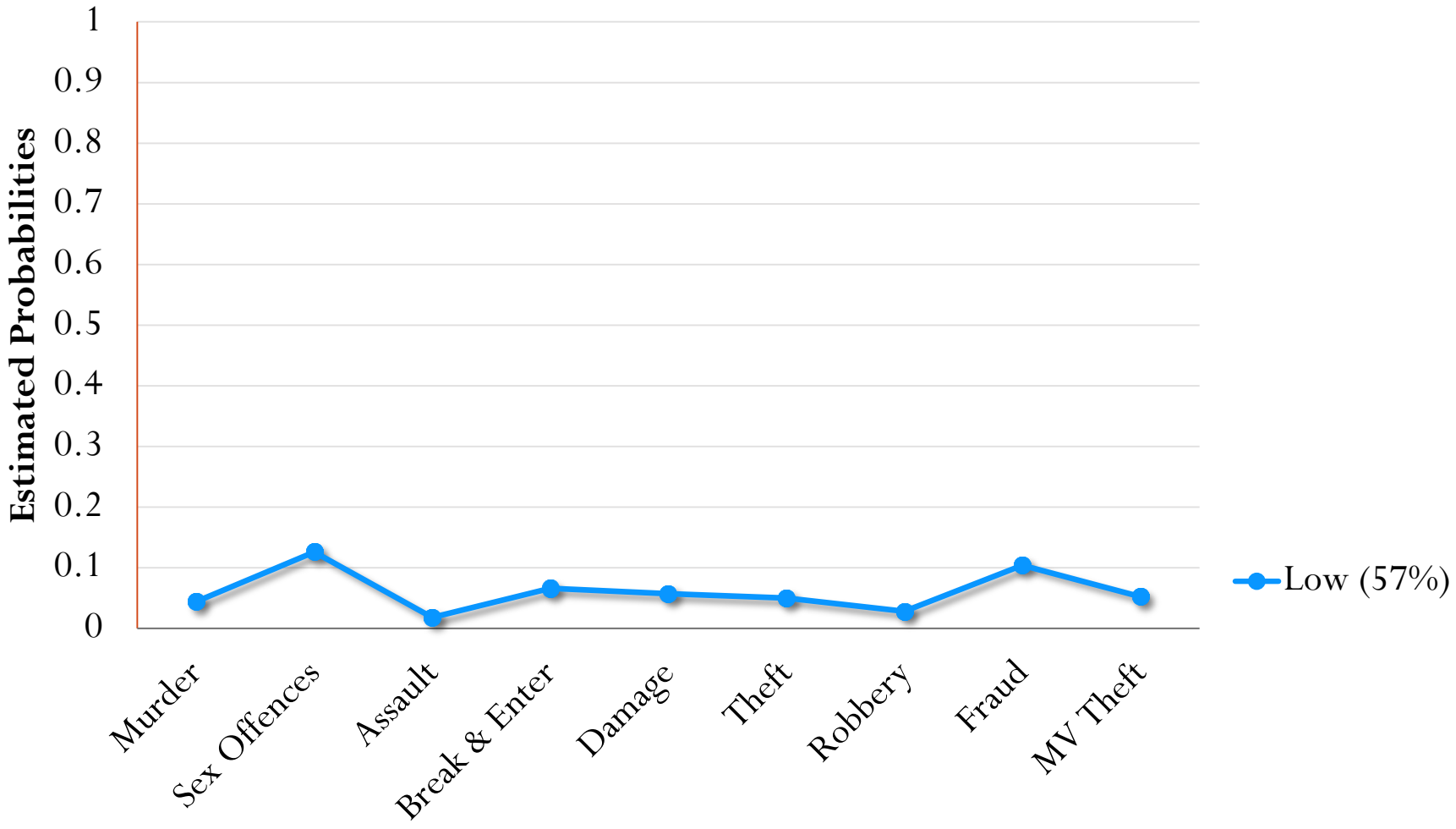
Latent class results

- Models with one through six latent classes were fit to the data.
- Model diagnostics suggested a 4-class model should be selected.

Latent class results (n = 579 POAs)

	High Crime	Robbery – Fraud- MVT	Violent - Damage	Low Crime
Latent Class Percentage	**11%**	**14%**	**18%**	**57%**
Murder	0.220	0.309	0.142	0.044
Sex Offences	**0.513**	0.036	**0.664**	0.126
Assault	**0.909**	0.076	**0.790**	0.018
Break & Enter	**0.931**	0.149	**0.506**	0.066
Damage	**0.899**	0.050	**0.636**	0.057
Theft	**0.866**	**0.561**	**0.513**	0.050
Robbery	**0.753**	**0.960**	0.049	0.028
Fraud	**0.729**	**0.639**	0.116	0.104
MV Theft	**0.916**	**0.579**	0.207	0.052

Four-class model for crime type, NSW POAs, 2004-08



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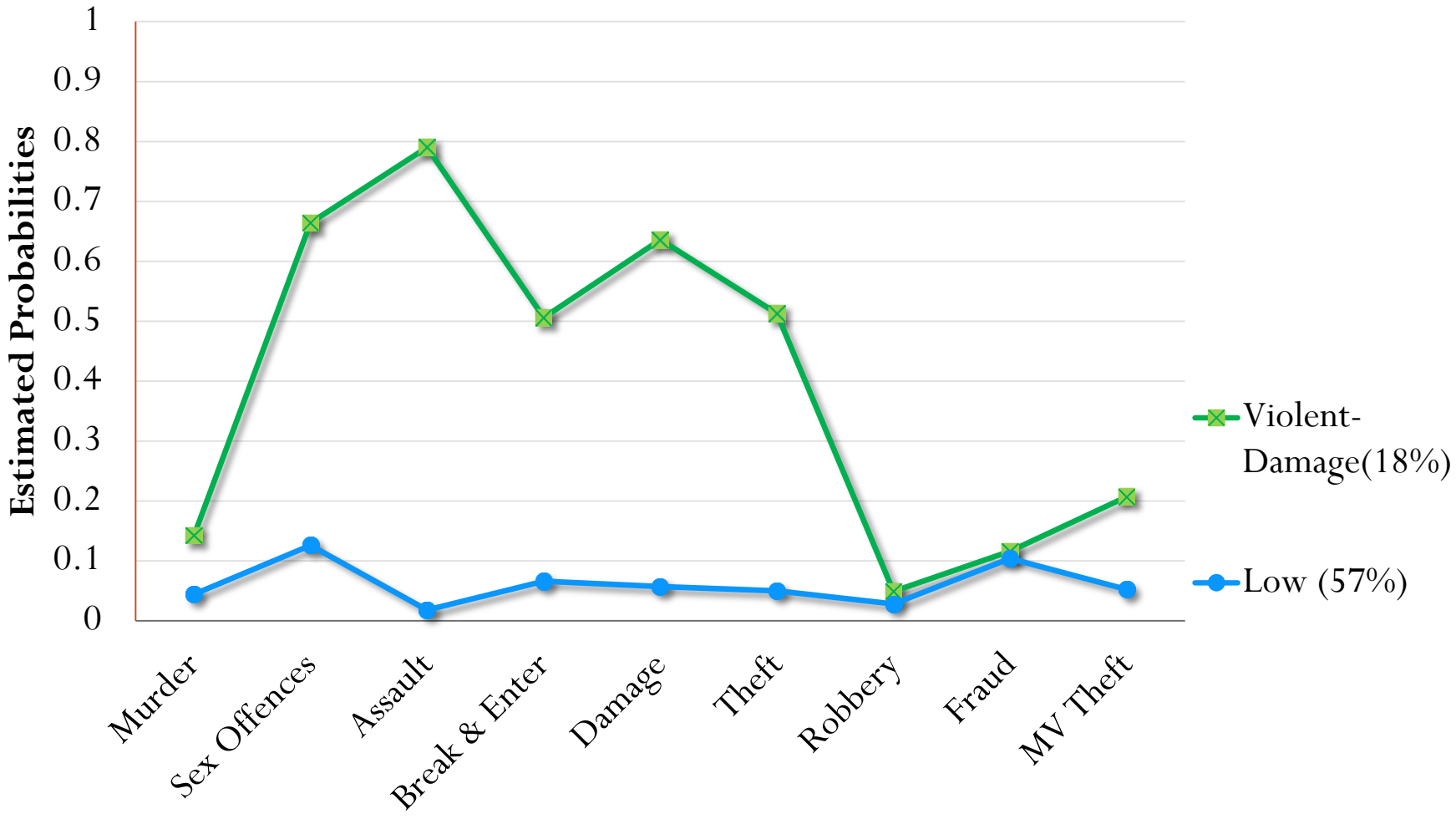

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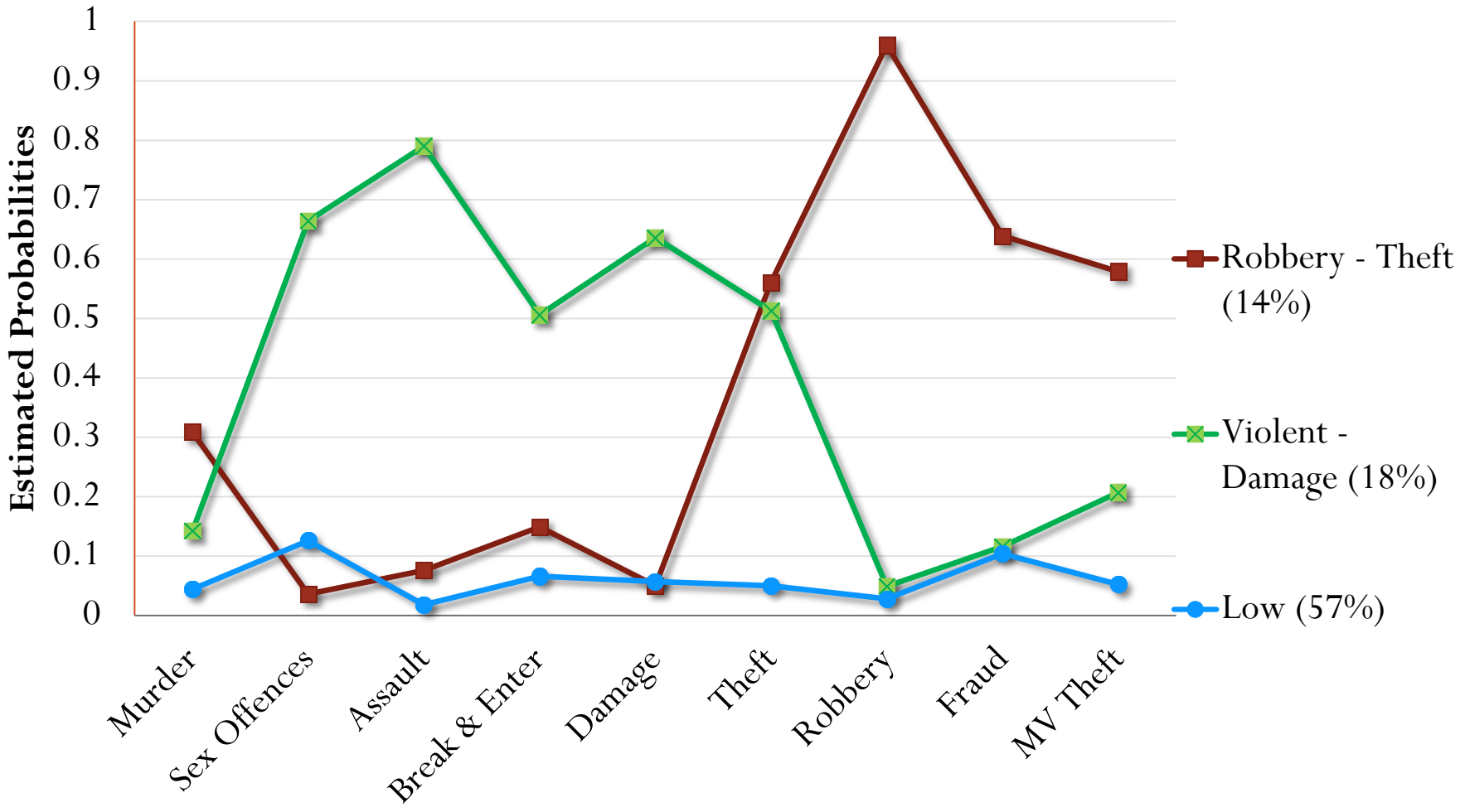

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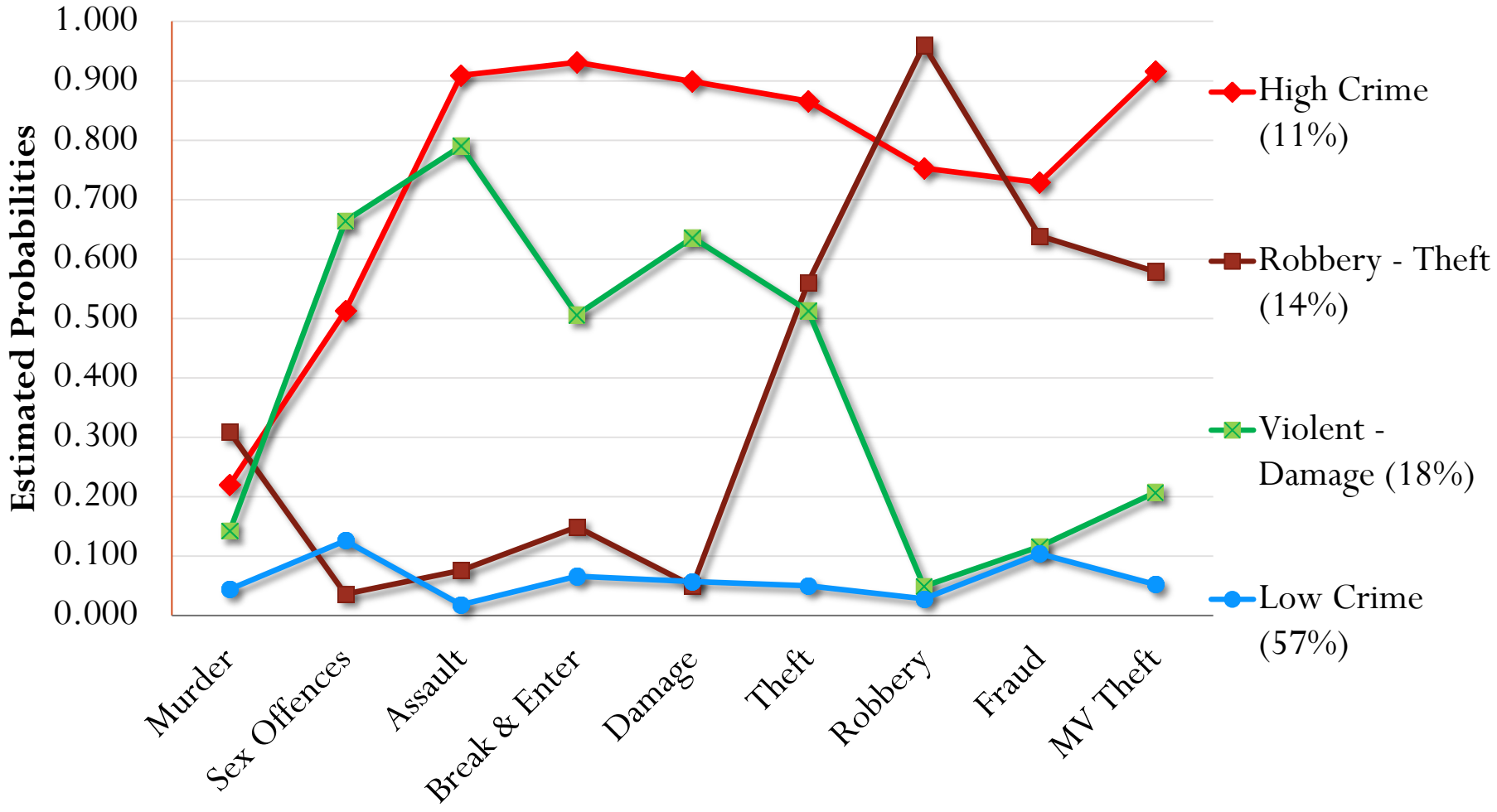

Do neighbourhood-level variables predict membership in classes?

	Planned comparisons		
	High crime v. Low crime	High crime v. Robbery-Theft	High crime v. Violent-Damage
	Odds ratios	Odds ratios	Odds ratios
Immigrant concentration	2.21**	0.86**	1.20***
Concentrated disadvantage	3.53**	1.01	0.98
High residential mobility	1.77***	1.30*	1.03

$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results of latent class analysis show

1. Evidence of differentiated crime patterns (statistically unique crime subgroups).
    a. 'Low Crime' (57%); 'Violent-Damage' (18%); 'Robbery-Theft' (14%) and 'High Crime' (11%)
2. Evidence that subgroups are differently associated with SD factors.
    a. Overall, the 'High Crime' class of neighbourhoods is most strongly associated with SD factors… that is, SD factors act as an 'accelerant' for this crime pattern.
    b. The 'High Crime' class could be differentiated from the 'Robbery-Theft' class by lower immigrant concentration, but higher mobility.
    c. The 'High Crime' class could be differentiated from the 'Violent-Damage' class by higher immigrant concentration, but similar levels of disadvantage and mobility.

Implications—a more differentiated approach

Theoretical

- Social disorganisation theory is designed to explain how neighbourhood structural breakdown yields 'undifferentiated varieties of hardship and adversity upon residents'—that is, high SD yields high crime.

- Cloward & Ohlin argue that we should expect variation in crime, where some places 'specialise' in particular varieties of crime *because* of the underlying structural conditions.

Research

- Methods that accommodate latent class structures underlying the distribution of crime: LCA, LTA, LPA

Policy and practice

- SD factors have clear implications for particular crime patterns. More detailed analyses would provide greater opportunity to target interventions.