

## Opportunities for PhD Study in Social Statistics

### 2. Multilevel modelling

The methods of multilevel modelling as set out in, for example, Snijders and Bosker (1999) *Multilevel Analysis*. London: Sage underpin many of the developments in social statistics. We would particularly welcome proposals in:

#### **(a) Combining aggregate and individual level data in a multilevel modelling framework.**

Examples:

1. Methods for using data from complementary sources for European comparative analysis such as the European Social Survey, or the EU SILC data, with Eurostat New Cronos:

[www.esds.ac.uk/international/support/user\\_guides/eurostat/cronos.asp](http://www.esds.ac.uk/international/support/user_guides/eurostat/cronos.asp)

better to understand pan-European variations in social outcomes. See, for example, Fieldhouse Tranmer and Russell (2007) and also:

[www.mimas.ac.uk/limmd/](http://www.mimas.ac.uk/limmd/)

2. Combining census local area population totals for a population of interest with sample individual or household microdata – that does not include local area identifiers - for the same population. See, for example, Steel, Tranmer and Holt (2003) . The aim of this approach might then be to estimate local population structure, to make small area estimates, or to provide information for complex survey design.

#### **(b) Multilevel and multivariate analysis of cohort data**

Example:

The sample for the Millennium Cohort Study (MCS) comes from all live births in the UK in 2000/1. See:

<http://www.cls.ioe.ac.uk/studies.asp?section=00010002000100050004>

The sample was selected from a random sample of electoral wards, disproportionately stratified to ensure adequate representation of all four UK countries, deprived areas and areas with high concentrations of ethnic minorities. Thus, MCS consists of repeatedly measured children nested within families which are nested within neighbourhoods. Applications may include models for psychopathology outcomes that account for the hierarchical structure of the MCS data as well as for its longitudinal aspects. Multivariate response models could be employed to jointly model related outcome variables (for example, smoking behaviour of different family members).

*References:*

Fieldhouse, E; Tranmer M and Russell A (2007) 'Something about young people or something about elections? Electoral participation of young people in Europe : evidence from a multilevel analysis of the European Social Survey.' *European Journal of Political Research* Vol 46, pp797-822.

Steel, D. G., Tranmer, M. and Holt, D. (2003) Analysis combining survey and geographically aggregated data In Skinner, C.; Chambers, R.(Eds) *Analysis of survey data* New York, John Wiley.

