

**The evolution of compounding residential inequalities  
A multiscale analysis of neighbourhood change trajectories in Amsterdam**

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# 12TH INTERNATIONAL CONFERENCE ON POPULATION GEOGRAPHIES

Queen's University Belfast  
30 June - 3 July 2024

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CONFERENCE PROGRAMME  
AND BOOK OF ABSTRACTS

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QUEEN'S  
UNIVERSITY  
BELFAST

## 13. SOCIAL AND SPATIAL INEQUALITIES 1

### LECTURE ROOM 3

Chair: Jamie Goodwin-White (University of California, Los Angeles, USA)

#### Trajectories of neighbourhood deprivation in England

**Christopher Lloyd** (Geography, School of Natural and Built Environment, Queen's University Belfast, UK), Sara Ferguson (Geography, School of Natural and Built Environment, Queen's University Belfast, UK), Paul Norman (University of Leeds, UK), David McLennan (Deprivation.org), Gemma Catney (Geography, School of Natural and Built Environment, Queen's University Belfast, UK)

13.1

Neighbourhood deprivation measures play a major role in identifying vulnerable communities in the UK, and in targeting resources to them. Official measures of multiple deprivation in each of the four nations of the UK are used to allocate billions of pounds of government money. The success of schemes to reduce deprivation should be assessed by measuring changes in deprivation over time, yet this is rarely attempted. This is important because their impacts are likely to be a partly a function of the deprivation history of an area (e.g., deindustrialisation, population decline) and, more generally, the trajectory of deprivation, and not just its current state, is significant. This paper takes as its focus trajectories of deprivation in England using the Index of Deprivation (IoD) for several time points: 2004, 2007, 2010, 2015, and 2019 for common geographical areas (2021 Lower Layer Super Output Areas; LSOAs, which we consider as neighbourhoods). The ranks for each of the seven sets of domains which each index release comprises are classified using a variant of k-medians adapted to longitudinal data. The end result is a set of trajectory clusters which differentiate, for example, LSOAs with persistently high or low deprivation over the study period and LSOAs with deprivation levels which have fluctuated. The lessons learned from cases where deprivation has decreased, and also where it is stubbornly high, are being used to inform the work of Local Authority analysts and other analysts. Understanding possible interventions associated with decreases in deprivation may help to shape similar schemes elsewhere.

#### The evolution of compounding residential inequalities: A multiscale analysis of neighbourhood change trajectories in Amsterdam

**Ignacio Urria** (Department of Urbanism, Delft University of Technology, the Netherlands), Ana Petrović (Delft University of Technology, the Netherlands), Maarten van Ham (Delft University of Technology, the Netherlands), David Manley (School of Geographical Sciences, University of Bristol, UK)

13.2

Traditionally, studies of spatial inequalities only consider one single dimension, such as income, and one spatial scale - usually a neighbourhood determined by administrative boundaries. Although the existing literature increasingly recognises the multifaceted nature of inequalities in cities, this paper introduces a novel approach by integrating the multidimensional and multiscale perspectives to understand the evolution of social and spatial inequalities over time. Drawing on clustering techniques based on factor analysis and using individual-level geocoded register data from the metropolitan agglomeration of Amsterdam, our methodology classifies neighbourhoods by grouping detailed residential locations with similar socioeconomic, demographic and housing characteristics across multiple geographical scales. Through sequence analysis, we identify trajectories of neighbourhood change from 1999 to

	<p>2022, revealing patterns in the timing, duration, and sequencing of shifts across various dimensions. Our results bridge gaps in the multidimensional and multiscale neighbourhood classification literatures, providing a better understanding of how social inequalities interact and overlap in space. By examining the path dependence between different dimensions of spatial and social inequalities, this study provides insights into the processes that produce and reproduce social stratification in cities that may act at different geographical scales for different groups of people. Moreover, the rich and granular data paint a detailed picture of how residential contexts are segregated and how the trajectories of neighbourhood change are distributed spatially. This research offers an innovative framework for visualise and study the dynamic evolution of urban structures over time.</p>
13.3	<p><b>Temporal trends in UK individuals falling behind on household bill payments from 2010-2022</b></p> <p><b>Maya Middleton-Welch</b> (Geographic Data Science Lab, University of Liverpool, UK),  <b>Mark Green</b> (University of Liverpool, UK)</p> <p>This analysis will explore temporal trends in the extent to which individuals in the UK population have been affected by debt incurred as a result of falling behind on bills for basic necessities between 2010 and 2022. This is a particularly harmful form of debt (Salter, 2014) and can affect the ability of individuals to access basic necessities such as housing and energy (Lane et al, 2018). To my knowledge, there is currently limited empirical evidence regarding the extent to which UK populations have been affected by this form of indebtedness over time. This analysis will therefore investigate the extent to which the UK population has been affected by this form of indebtedness over time. It will also explore how individuals with different demographic, health and socioeconomic characteristics have had varying likelihoods of experiencing this form of debt over time. The analysis will involve the utilisation of descriptive analysis and regression analysis to analyse data from the Understanding Society Main Study data. This research will further understanding of social inequalities through exploring which demographic and socioeconomic groups have been particularly affected by this form of debt. Through exploring socioeconomic variables, this analysis will also offer an insight into possible drivers of temporal trends identified.</p>
13.4	<p><b>The operationalisation of contextual poverty from individual and household perspectives: Does it matter how we measure income when estimating neighbourhood effects?</b></p> <p><b>Jerome Francisco Conceicao</b> (Department of Urbanism, Delft University of Technology, the Netherlands), <b>Ana Petrović</b> (Delft University of Technology, the Netherlands), <b>Maarten van Ham</b> (Delft University of Technology, the Netherlands), <b>David Manley</b> (School of Geographical Sciences, University of Bristol, UK)</p> <p>The ever-growing neighbourhood effect literature, analysing the effects of contextual poverty on individual outcomes, predominantly uses the personal incomes of neighbourhood residents to measure contextual poverty. However, this income type does not necessarily reflect contextual poverty well since many people live in multi-person households. Moreover, the distribution of households by size and income over neighbourhoods is highly selective. In this regard, household income might provide a better insight on poverty. This paper investigates the sensitivity of the neighbourhood effect estimates to the operationalisation of contextual poverty. To what extent does selecting an income variable when creating a poverty indicator determine the modelling outcomes? The article builds upon a prior study (Francisco Conceicao et al., in progress) introducing the concept of the Uncertain Categorical Measurements Problem</p>