SL-RS Seminar

Measurement Error in Crime Data and Its Implications for Explaining and Preventing Crime
David Buil-Gil (University of Manchester) and Jose Pina-Sánchez (University of Leeds)

Date: July 9th, 2021
Time: 14:00 – 15:00
Teams Link: Join Seminar (We'd appreciate if you could optionally register to join our mailing list)

Abstract:

It is widely acknowledged that police-recorded crime data is flawed, subject to different forms of measurement error. This data fails to reflect incidents that are not detected by the police, leading to systematic under-estimations of the true figure of crime, while it is also affected by substantial recording inconsistencies between and within police forces. Despite its questionable measurement properties, police data is still heavily relied upon by researchers as it holds important advantages over other sources of crime data in terms of accessibility and versatility – allowing for spatiotemporal resolutions unavailable to victimisation and offenders surveys. As such, police recorded crime rates are commonly used in the process of building and testing crime theory. Police data is also central in studies that, from a more exploratory perspective, seek to identify the predictors of crime, and other research that estimates the effect of crime on a wide range of phenomena (e.g., fear of crime, inequality and deprivation, police use of force). However, with some notable exceptions, researchers have generally failed to sufficiently recognise the implications of using measurement error-prone police data on the validity of their results, and on crime prevention more broadly. If variables affected by measurement error are introduced in multivariate models, they will often lead to biased estimates. Moreover, geographic analyses of police-recorded crime data are used to identify the micro places where crime is most prevalent in order to effectively target police resources. Given the large prevalence of measurement error in police statistics, it could be expected that the impact in regression models and policing operational decisions relying on this data may be substantial. It is therefore no exaggeration to suggest that police statistics represent both one of the most important data sources and biggest methodological challenges in the study of crime. The ESRC-funded project 'Re-Counting Crime' explores these issues and applies methods to obtain corrected measures of crime (https://recountingcrime.com/).

This presentation will discuss the main measurement error mechanisms affecting police-recorded crime data. We will also present the results of two simulation studies assessing the extent to which measurement error in police-recorded crime data impact the estimates of regression models exploring the causes and consequences of crime, and our knowledge of the geographic distribution of crime. Preliminary results indicate that most coefficients and measures of uncertainty from regression models where crime rates are included as dependent or independent variables in their original scale are severely biased. However, in most cases, this problem could be minimised, or altogether eliminated by log-transforming crime rates. We also observe that micro-level analyses of the geographic distribution of crime are affected by a larger risk of bias than crimes aggregated at larger geographic scales. These results raise awareness about an important shortcoming of police-recorded crime data, and further efforts are needed to improve crime estimates, quantitative criminological research, and evidence-oriented crime prevention approaches.

Bios:

David Buil-Gil is a Research Fellow in Cybercrime at the Department of Criminology of the University of Manchester, UK, and a member of the Digital Trust and Security theme at this same university. His research interests cover small area estimation applications in criminology, crime mapping, new methods for data collection, measurement error in crime data, and open data.

Jose Pina-Sánchez is an Associate Professor in Quantitative Criminology at the School of Law of the University of Leeds. Most of his work has focused on the study of sentencing decisions in the Crown Court and on the exploration of the impact and adjustment of measurement error in survey and crime data.

Twitter accounts:

@DavidBuil

@JPinaSanchez

Please contact Jennifer for any Teams connectivity issues: j.mcculloch@lancaster.ac.uk