



Income inequality, crime and climate: a tri-vector cycle

Hackathon Ministry of Justice Challenge:

Studies have revealed correlations between climate change and violent crimes. Increased temperatures and other extreme events and their associated consequences are major factors.

There is a broad consensus that there is also a link between social inequality and crime. Similarly, disadvantaged groups suffer disproportionately from the effects of climate change, in a negative cyclical relationship that exacerbates inequality.

This work aims to take some initial steps to consider how the distributional effects of climate change can be combined with the understanding of links between social inequality and crime. The output includes two literature reviews and an infographic:

- The report by Rushby, Singh and Moore (2022) aims to summarise the existing literature linking social inequality with crime, supported by an analysis of deprivation indices and levels of crime in 2018, at UK administrative region level.
- The report by Pearce (2022) aims to provide an overview of how climate change can exacerbate social inequalities in a cyclical process, and will provide an overview of how key climate risks could change over the UK.
- An summary infographic of plots relating to income inequality, crime and climate

The aim of this work was to demonstrate the importance of considering the links between inequality, crime and climate as a multi-dimensional, cyclical problem that should be analysed in parallel and collectively. There are a number of areas for further work that could be explored.

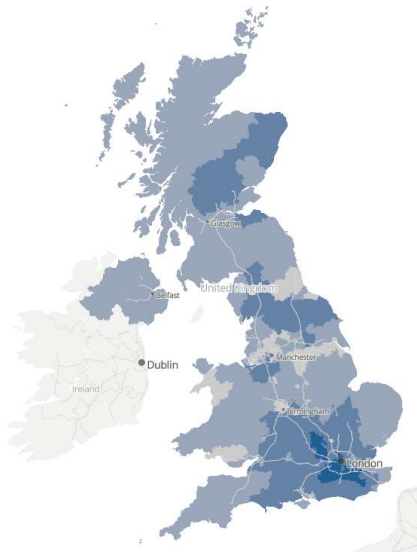
1. GIS spatial visualisation overlaying regional data of climate risks, demographics, inequality indices and crime statistics to allow further exploration of compound regional risks across the tri-vector cycle.
2. Statistical analysis of present day and future social demographic variables in the UK and their differential significance on variation in regional crime rates.
3. Combining these outputs to assess the relationship with regional climate risk.

In relation to the data collated for this challenge, the team aim to write a summary pulling together the data analysis with the regional climate information.

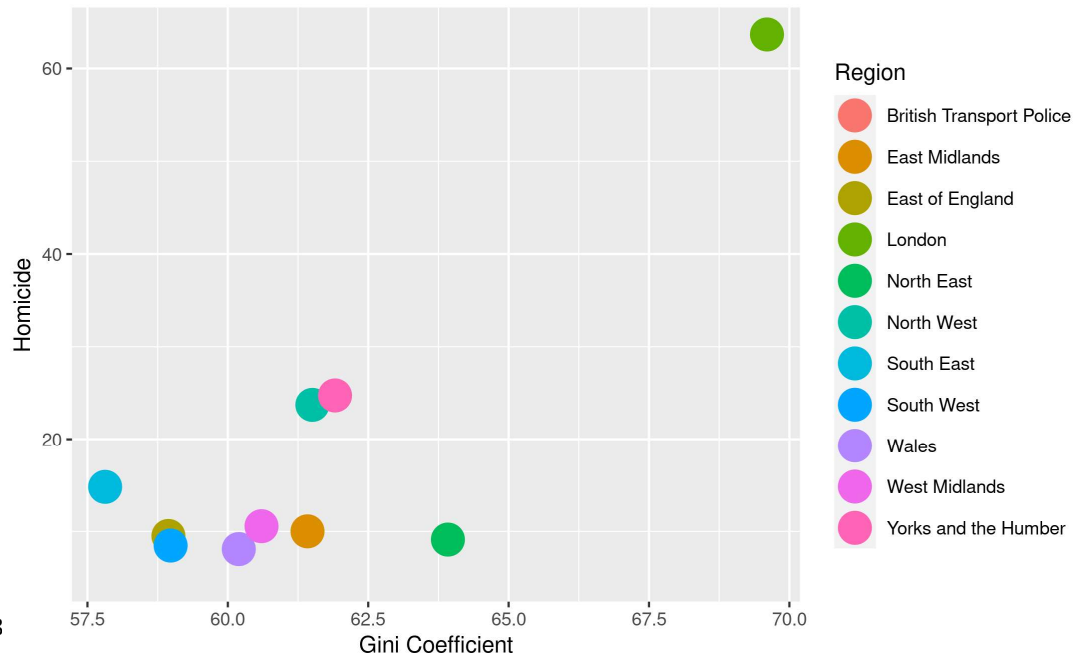


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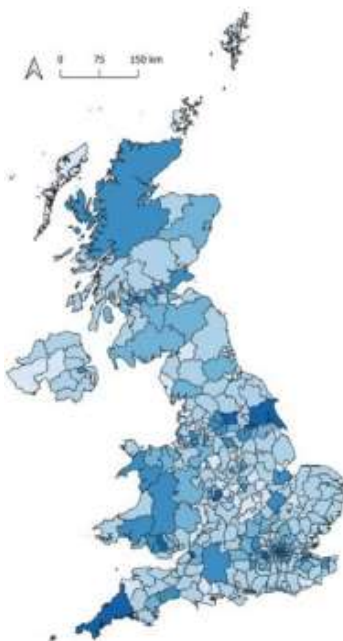
Studies have revealed correlations between climate change and violent crimes. There is a broad consensus that there is also a link between social inequality and crime. Equally, disadvantaged groups suffer disproportionately from the effects of climate change, and these can result in greater subsequent inequality.



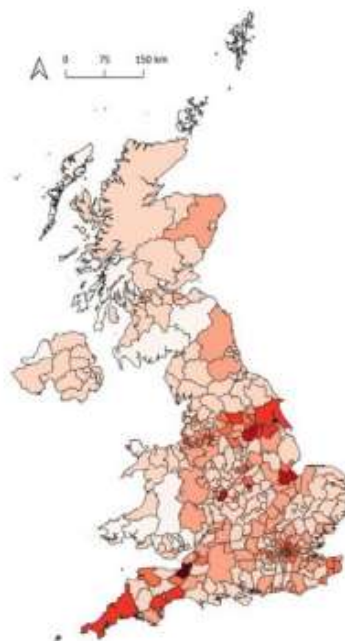
Office for National Statistics: Regional differences in household income in 2018



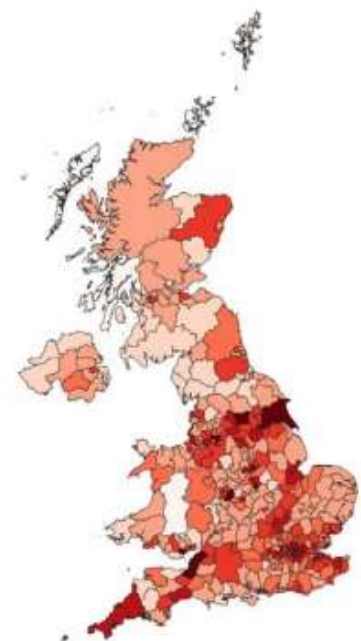
Correlation between homicide rates and Gini coefficient (an inequality index) in 2018



Present day



2°C scenario – 2050s



4°C scenario – 2080s

People

0 – 2,000	2,000 – 5,000	5,000 – 7,500
7,500 – 15,000	15,000 – 30,000	

Change in number of people from present day

< 0	0 – 2,000	2,000 – 5,000
5,000 – 7,500	7,500 – 15,000	15,000 – 30,000
		> 30,000

Climate Change Committee, 2021. Independent Assessment of UK Climate Risk: Advice to Government for the UK's third Climate Change Risk Assessment (CCRA3). Present day number of people exposed to significant flood risk (river, coastal and surface water flooding combined), and then the absolute change in number of people from the present day for 2050 (2C scenario) and 2080 (4C scenario)