



Covid and crime in the capital

Yijing Li explores how crime in the capital has been affected by the pandemic and what data-driven lessons might lead to a safer London

The nation's capital is home to 8.9 million people spread across 32 geographic boundaries and represents one in seven people living in the UK. Needless to say, Covid-19 has had a significant economic impact on the city, with many businesses suffering a loss of trade and with a concomitant rise in unemployment (Bosetti, Belcher and Quarshie, 2020). Here, we focus on the impact of the pandemic on crime rates.

The analysis documented in this article summarises the results of the Centre for Urban Science and Progress London (CUSP London)'s Data Dive 2020. This event, held from 10th to 17th July, involved teams of students from multiple universities examining London crime and policing using data analytics and data science techniques.

Data Dive for a Safer London

The Data Dive is an annual event on a different cities-related topic each year using London as its focus for study. This year's Data Dive included postgraduate students from King's College London, University of Warwick, University College London, New York University and others, and was themed "A Safer London".

The Dive was conducted in collaboration with the London Mayor's Office for Policing and Crime (MOPAC) and the Metropolitan Police Service (MPS) and brought together data analytics and policy-making with three key aims: to develop new forms of knowledge in order to target future projections around crime reduction; to help fill the gap between cutting-edge data analytics and strategic and operational policy-making, and to make

London a safer city post Covid-19 by making best use of data and digital technology.

Crucially, given the importance of the 'policing by consent' ethos practiced by London policing, it sought to understand fluctuations in key societal factors, both temporally and spatially, so as to improve services to Londoners through the use of evidence.

Cause and effect

An important topic in the event was "What has been the impact of Covid-19 on crime in London?" Following the outbreak, we have seen large reductions in the overall volume of crime across many categories (Fig. 1).

The first national lockdown in the UK was from March to May 2020. The most significant drop in crime during

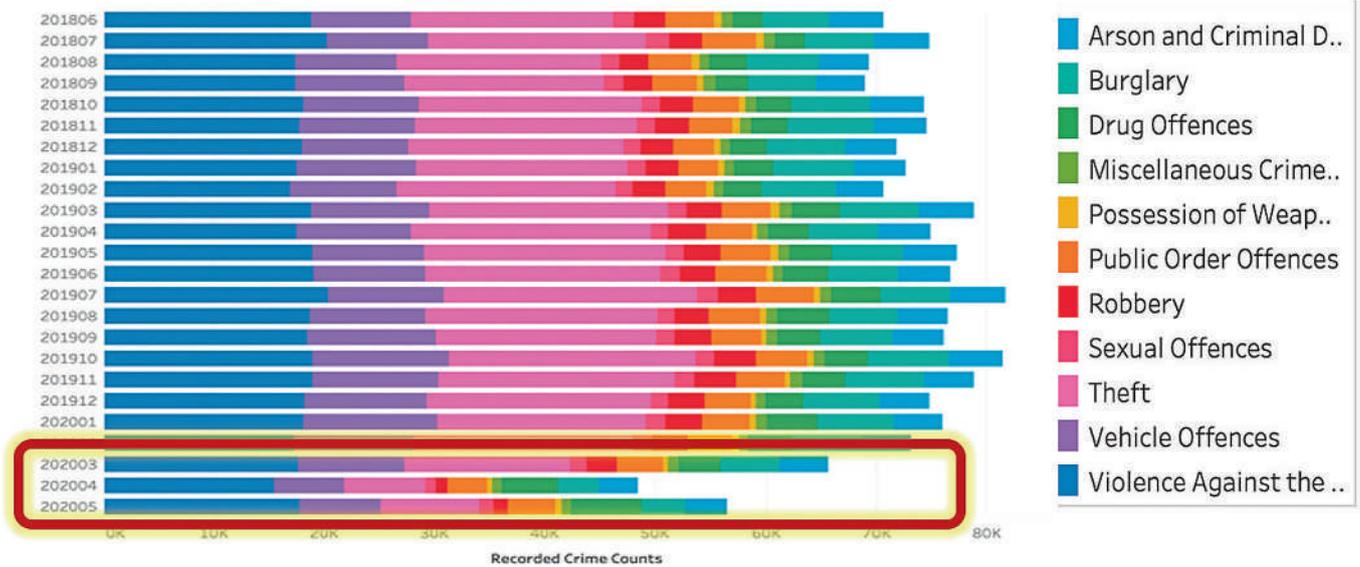


Fig.1: Crime change in London (June 2018 – May 2020)

this period was evident in the Theft and Robbery category with a 50% plus year-on-year decrease, with April seeing the most dramatic fall. There were also significant decreases in Violence Against the Person (a reduction of 30% in April) and Possession of Weapons (a 30% drop in March).

However, some other crimes such as Domestic Abuse and Anti-Social Behaviour saw large increases over the corresponding period in 2019. For example, Drug Offences saw an increase of more than 50% in May compared to 2019.

Changes in mobility

It was proposed that changes in mobility, especially the reduced use of public transport in London during the lockdown, could be considered as a driver of changes in crime (Fig. 2). The graph on the left depicted general mobility change in London from February to July using varied data sources; the graph on the right reflects mobility change in targeted

areas (i.e., Parks, High Street and Retail & Recreation) as well as in the specific activity of walking.

In order to justify the influence of mobility on crime, and to avoid data-dredging bias, students built Poisson regression models (informed by mobility data from the London Datastore) to specify two forms of interventions: Intervention I (the lockdown since 23rd March), and Intervention II (the two-week pre-lockdown period (9th to 23rd March).

With Intervention I, a step change in mobility was assumed and, accordingly, a slope change in crime, i.e., an instant drop followed by a change in trajectory; while Intervention II reflected a “pre-lockdown behaviour change” observed two weeks earlier, under the assumption of a slope change of crime.

Behavioural change

It was apparent that citizens’ mobility decreased at a relatively stable level in areas such as High Streets and Retail

& Recreation, along with the walking trajectory over the observation period. The increase of mobility in Parks was of particular interest for further exploring the most impacted geographic areas. It was assumed that the impact of the pre-lockdown behaviour change on crime would be reflected in March, while the lockdown impacts on crime would be more accurately reflected in May. Upon comparing the Total Notifiable Offences (TNOs) between 2019 and 2020 in March and May respectively, the crime changes over London LSOAs presented some spatial patterns as seen in Fig.3.

As shown in the maps, the pre-lockdown period in March presented no significant change in the average number of TNOs, with the exception of an increase in the Heathrow Airport area and a gradual decrease in the city center. From lockdown (seen in May’s data), there was a large drop-off in TNOs in the city center and in areas around the main

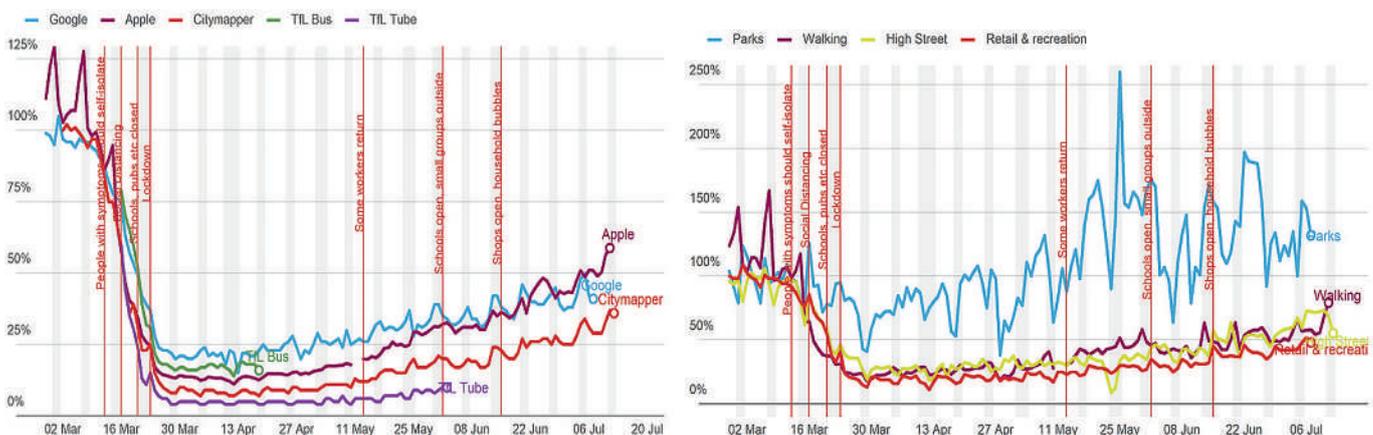


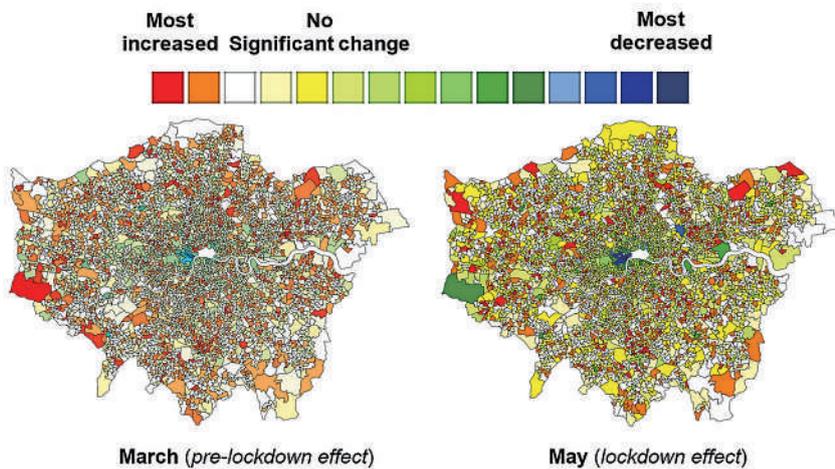
Fig.2: Mobility changes over Covid-19’ (London Datastore, 2020)



areas, signified by higher average house prices, had experienced a greater fall in TNOs, but these crime numbers also recovered at a faster rate.

In general, over the first period of Covid-19 lockdown, crime decreased significantly in the city center and main transportation hubs such as Westminster, Heathrow Airport and Stratford Station. This was highly related to the reduction of mobility. Increased crime was also observed on the city outskirts and in National parks areas. This might reflect the criminogenic conditions derived from Covid-19 impacts and, as such, requires further investigation.

Specialised crime change patterns were also observed within sub regions and Lower Layer Super Output Areas (LSOAs) in London, driven by their varied local socio-economic and demographic characteristics. To realise the goal of making London a safer and liveable city it is imperative to investigate further at finer geographical units. This will reveal localised data-driven evidence on crime change and its corresponding driving forces, and help develop evidence-based crime prevention strategies that can adapt to an ever-changing environment.



Dr Yijing Li is Lecturer in Urban Informatics with a Ph.D in the Geography of Crime at the Centre for Urban Science and Progress London, King's College London (<https://cusplondon.ac.uk/>)

Fig.3: Crime change in March and May (2020 vs. 2019)

transportation hubs such as Heathrow Airport and Stratford station.

Crime recovered quickly after lockdown, especially in those categories that witnessed the greatest fall during pre-lockdown. For example, Drug Offences were reported to have bounced back extremely quickly. However, it was spotted that Robbery had dropped by approximately 70% but without any sign of a speedy recovery.

Spatial exploration

We believe this deserves follow-up investigation of the lasting effects on robbery resulting from the change in coronavirus-related mobility. Detailed spatial explorations on hot spot and cold spot areas were conducted to further investigate the possible socio-economic drivers for the crime change caused by Covid-19 and to provide evidence relevant to future recovery. It was interesting to find that those relatively prosperous

ABOUT THE DATA DIVE ORGANISERS

London Mayor's Office for Policing And Crime (MOPAC): MOPAC supports the Mayor of London in fulfilling the role on overseeing the delivery of an efficient and effective police service for Londoners, under the lead from the Mayor's appointed statutory Deputy Mayor for Policing and Crime. MOPAC is responsible for setting the overall strategic direction for policing and safety, overseeing police performance in the capital and commissioning a wide range of services to prevent crime and support victims. More at: <https://www.london.gov.uk/what-we-do/mayors-office-policing-and-crime-mopac>

Centre for Urban Science and Progress London (CUSP London): CUSP London is a joint initiative of King's College London and the University of Warwick. Its aim is to bring together researchers, businesses, local authorities and government agencies



to apply urban science to improving citizen's lives, including their health and wellbeing. The creation of CUSP London follows the highly successful establishment of the Centre for Urban Science and Progress (CUSP) in New York, and the two units work together. More at <https://cusplondon.ac.uk/>