Website outline (backup of all details in case of a malfunction)

# WATCH YOUR POCKETS

FOLLOW OUR GUIDE TO SAFEGUARD YOUR POCKETS

A PROJECT EXPLORING THE SOCIAL AND PHYSICAL COMPOSITION OF THE URBAN ENVIRONMENT AND HOW IT AFFECTS STREET-LEVEL CRIME IN THE BOROUGHS OF CAMDEN AND CHELSEA

Welcome to "Watch Your Pockets"!

Looking to safeguard your pockets? You are in the right place.

We are a group of UCL undergraduates who have grown sick and tired of the constant anxiety and paranoia we face when walking the streets of London, so we decided that the best way to fight a problem is to understand it first. The aim of this website is to shed light on how the social and physical composition of the urban environment affect the incidence of street-level crime (i.e. theft of personal property) across the neighbourhoods within Camden and Chelsea, thus helping to create a better comprehension of theft and safer environment for all!

# ABSTRACT

​

Overview/Approach:

The purpose of this project is to understand the nature of when, where, how and against whom crimes of theft occur in London. We seek to investigate the reason behind the high rates, whether there are any patterns discoverable both on a temporal and spatial spectrum, and whether the variables we analyse have any significance to theft rates.

Furthermore, these points provide a detailed overview of our approach:

​

1. Investigate the understanding of why and how street theft happens through the theoretical study of crime theory.

2. Observe spatial and temporal data of how the theft of personal property rates in different boroughs have changed over time.

3. Create data visualisations from which holistic conclusions can be drawn on the nature of theft offences.

4. Analyse the tested variables and understand which could be considered as significant.

5. Contribute to the research about what contextual factors are significant to the theft of personal property rates and where offences of theft are likely to occur in London Boroughs specifically focused on the differences between Camden and Chelsea.

6. Increase awareness about the phenomenon of street-level crime in London, thus improving potential policy plans on a governmental level and further encouraging victims to report the crimes.

7. Produce an insight into how street-level crimes may be best tackled. Through investigating the link between various variables and street theft rates, our research aims to provide an answer for the Mayor of London’s Office for Policing and Crime by highlighting how resources should be allocated to cut back these crimes, through adopting new plans to influence the factors that impact the trend.

​

#### ​

BACKGROUND AND CONTEXT

Context/Motivation:

​

The idea of this project was born from our own personal feelings of fear and frustration when it came to navigating the streets of London. As a group of international students moving to London for the first time due to purposes of higher education, one of the biggest culture shocks we all had to overcome was the sudden need for increased awareness of street crimes. Every member of our group has either a personal or close-friend-based story of stolen phones, cash or credit card, not to mention attacks of more severe nature. Thus, this project is something deeply personal to each and every one of us, one that we wish to investigate on a deeper level. Other than raising awareness to the general issue, we aim to create a guide to show who, when and where is at greatest risk of property theft, thus generating a safer environment for our fellow London residents.

​

Definitions:

A person commits robbery if, in the course of stealing or attempting to steal from someone, they use force or the threat of force. This is sometimes colloquially referred to as “mugging”.

A person commits “theft from the person” if they steal property while the property is being held or carried by the victim. This includes snatch thefts (where some degree of force is directed to the property but not to the victim) and stealth thefts (where the victim is unaware of the offence being committed, for example, pick-pocketing). Unlike robbery, these offences do not involve violence or threats to the victim.

​

Background data that pushed us to undertake this project:

Based on statistics by the Metropolitan Police, between September 2018 and October 2020, around 8,2% of the total population fell subject to some form of theft in London.

These numbers become even more drastic when investigating some of the central boroughs of Greater London, with a rate of 15,2% in Camden and 15% in Chelsea.

Despite the evolution of street surveillance and law enforcement, street crime of theft still realms as one of the most prevalent social issues in the boroughs of London. Watch Your Pockets will aim to investigate the reasons, effect and statistical prevalence of theft in London, all in order to create a form of guide for our fellow students to navigate some of London’s biggest and most popular areas safely.

​

Relevant mentions in the media:

​

The prevalence of street-level crime in London becomes increasingly obvious upon investigating the number of articles written about it in various news organisations, tackling things from governmental policy strategies to personal experiences of the police officers or even victims of crime. When compared on an international scale to other, similar-sized metropolitan cities, London performs shockingly badly on some of the scales concerned with theft and overall safety of its citizens.

​

Guardian article (2019): "I’m a police officer in London. Here’s why we’ve lost control of the streets"

The Telegraph (2017): "London is now more dangerous than NYC, stats suggest"

CityA.M. (2020): "TFL launches new scheme to curb London bike theft"

AIMS

Investigate - Through methods of research and data analysis, we wish to understand and visualise the factors influencing street theft

Guide - By designing visual aids, we will create a guide for our fellow Londoners and thus generate a safer environment

Overcome - Through the combination of research and data visualisations, we wish to overcome the current epidemic of street crime by advising law enforcement of focus points

### London Metropolitan Police

The London Metropolitan Police Database holds a collection of crime-related data for specific boroughs of London. We used this site to source data with the exact coordinates of theft.

### Government Open Data

The UK Government Open Data platform stores freely accessible data covering various aspects of public affairs published by governmental bodies. We mainly used this site to investigate the social composition of the boroughs.

### Camden Council Open Data

The Camden Council Open Data covers all public affair data related to the wards of Camden. We utilised some of the detailed physical composition data available about the borough.

# METHODOLOGY

We decided to divide our research into three main sections that each required a different methodological approach but were equally necessary for achieving holistic results.

Section 1: Theoretical research

The first section of our project was researching the sociological background of how and why crime occurs through various theories. This was a necessary first step to have some form of hypothesis of the variables we need to include in our later phases, helping us cleanse the data to only focus on important factors related to crime. The findings of this section were then concluded in a summary to inform our further research.

Our initial hypotheses were thus:

1. M
2. M
3. M

Having discovered the most important relevant factors for theft, we cleared our datasets accordingly to only focus on the points detected through our research. This step helped us make an informed decision on which aspects to investigate.

In the following two sections, we will use the help of data analysis and visualisation to investigate the factors highlighted through our sociological research. Using the datasets, we will be using geomapping, scatter graphs and multiple linear regression to evaluate the relevance of both social and physical attributes influencing street-level theft.

Section 2: Geomapping

The next stage was the creation of heatmaps in Python to visualise the distribution of theft across the two boroughs used for the ‘case-study’ type analysis. This helped us to further investigate our data in a more visual way and allowed us to see patterns through specific regions. As these were the smallest spatial units we could find, the spatial scale for this map was based on wards.

At this stage, we wanted to concentrate on the spatial and temporal elements of our research, to first visualise where and when the crime was happening. For the temporal slider, we used representative data covering the whole of the UK as we were unable to find a similar dataset covering the two focus-boroughs. Nevertheless, we still felt important to include the slider, as we wanted to provide a general idea of not just the where, but also the when with regards to street-level theft.

Section 3: Correlation testing and Multiple Linear Regression

Based on our theoretical research and the mapping we had done, we were now ready to combine social and spatial factors, the former being supported by our first phase and the latter by the second. Through the use of scatter plots, we aimed to provide a visual representation of which factors were most correlated with the level of theft in the area but ultimately, the multiple linear regression was used for generating a holistic analysis of the influence of different independent variables on the dependant variable of street-level crime.

Section 1: Theoretical Research of Crime Theory

Through our data analysis, we hope to discover the nature of why crimes happen in these two boroughs. By looking at existing criminological theories based in sociology, we can greater understand the causes behind theft. Although there isn’t an isolated theory that can explain all crimes, an integration of theories can provide a strong foundation to interpret how these crimes occur.

Routine activity theory

The routine activity theory is a leading theoretical approach in criminology outlines three main factors that need to occur for a crime to take place

* a likely offender
* a suitable target
* the absence of a capable guardian (Felson, 2002)

A likely offender is anyone with an inclination to commit a crime. A suitable target can be an item that is visible and easily removable from the area. A guardian is a person or object effective in deterring the offense to occur. Theft can be prevented by modifying the physical space to increase the risks and costs and decrease the rewards of the offender. (Akers et al, 2016)

Rational choice theory

The rational choice theory examines the decision-making process of a person who is about to commit a theft (Clarke, 2005). It is based on the assumption that the behaviour is carried out to benefit the offender. This theory indicates that if the costs of committing the crime are higher than the benefits then the theft will not be carried out (e.g. CCTV, police in close proximity).

The costs could be the chances of getting caught and the severity of the expected punishment. The benefits could be the value gained from committing the crime and the extent of the need for that value. This theory is based on Maslow’s hierarchy of needs, hence assumes that certain basic needs are a higher driving force (e.g. food, sleep) than needs higher up in the hierarchy (e.g. achievement, respect).

References

Felson, M. (2002). Crime and Everyday Life. 3rd ed. Thousand Oaks, CA: Sage Publications

Akers, RL, Sellers, CDS, & Jennings, WG (2016). Criminological theories: Introduction, evaluation, & application (7th ed.). New York, NY: Oxford University Press.

Clarke, R.V. (2005). Seven misconceptions of situational crime prevention. In: N. Tilley (ed.). Handbook of Crime Prevention and Public Safety. Portland, OR: Willan Publishing.

Section 2: Geomapping of Physical Characteristics

Through our data analysis, we hope to discover the nature of why crimes happen in these two boroughs. By looking at existing criminological theories based in sociology, we can greater understand the causes behind theft. Although there isn’t an isolated theory that can explain all crimes, an integration of theories can provide a strong foundation to interpret how these crimes occur.

Routine activity theory

The routine activity theory is a leading theoretical approach in criminology outlines three main factors that need to occur for a crime to take place

* a likely offender
* a suitable target
* the absence of a capable guardian (Felson, 2002)

A likely offender is anyone with an inclination to commit a crime. A suitable target can be an item that is visible and easily removable from the area. A guardian is a person or object effective in deterring the offense to occur. Theft can be prevented by modifying the physical space to increase the risks and costs and decrease the rewards of the offender. (Akers et al, 2016)

Rational choice theory

The rational choice theory examines the decision-making process of a person who is about to commit a theft (Clarke, 2005). It is based on the assumption that the behaviour is carried out to benefit the offender. This theory indicates that if the costs of committing the crime are higher than the benefits then the theft will not be carried out (e.g. CCTV, police in close proximity).

The costs could be the chances of getting caught and the severity of the expected punishment. The benefits could be the value gained from committing the crime and the extent of the need for that value. This theory is based on Maslow’s hierarchy of needs, hence assumes that certain basic needs are a higher driving force (e.g. food, sleep) than needs higher up in the hierarchy (e.g. achievement, respect).

References

Felson, M. (2002). Crime and Everyday Life. 3rd ed. Thousand Oaks, CA: Sage Publications

Akers, RL, Sellers, CDS, & Jennings, WG (2016). Criminological theories: Introduction, evaluation, & application (7th ed.). New York, NY: Oxford University Press.

Clarke, R.V. (2005). Seven misconceptions of situational crime prevention. In: N. Tilley (ed.). Handbook of Crime Prevention and Public Safety. Portland, OR: Willan Publishing.

Section 3: Correlation and Regression Testing of Social Characteristics

As the final step of our project, we wanted to combine all of the relevant social factors discovered during the first phase of the research and test them all individually in the form of scatter graphs, as well as jointly with a multiple linear regression. Due to its multidimensional nature, visualising multiple linear regressions would be incredibly challenging, however, its results are immensely valuable to see how different social factors influence the dependant variable of street-level theft.

​

While we are still keeping with the idea of using the contrasting case studies of Camden and Kennsington, we found it important to first get a more holistic image of the factors projected on to all of the London boroughs. This way, we had enough data entries to produce predictions of greater statistical significance, thus reducing the possibility of bias or misrepresentation for a specific area.

​

Based on the findings of phase one, the social factors used were:

​

1. Population density

2. Percentage of the working-age population

3. Employment rate

4. Median household income estimate

​

Although we were unable to find data that came from the exact same year for all entries, we made sure to find close enough matches from reliable sources which are also implemented in this exact combination in governmental reports.

​

Once we had the cleansed data for all entries, we then used the #sklearn core code to produce the multiple linear regression examining all the London boroughs.

​

The core outputs were:

​

The intercept is the y-intercept of the line of best fit, coefficients are discussed below.

​

Firstly the R-squared value is 0.256, meaning that it is not a very well-fitting model (maybe the reality is not linear, but quadratic, or cubic.)

Secondly the coefficients (crime rate is measured as the number of crimes reported per 1000 people) :

​​

​

* Population density: -0.0047 (-0.00465108719) meaning that every additional 1 person in a km­2 area, crime rate decreases by 0.0047; or every additional 1000 people per km2 decrease crime rate by 4.651, or 0.465%
* % working age: every 1% increase in the working-age population increase crime rate by 8.064, or 0.806%
* Employment rate: every 1% increase in employment rate decrease the crime rate by 3.657, or 0.366%
* Median house income: every £1 extra increase in median household income increases crime rate by 0.0021, or every additional £1000 means an increase of 2.106 or 0.211%.

​

Please be wary that only correlation is indicated, not causation.

Thirdly we are confident about the statistical significance of the coefficients as their t-values are all very high, well outside the 5% two-tailed critical values, meaning that we are very sure that these factors do indeed have a correlation with the crime rate.

​