Introduction

Around the world police are receiving greater scrutiny in all aspects of duty. In the interests of increased transparency of police operations, the United Kingdom has compiled and released detailed data covering street-level crime, outcomes, and police response. However, the database is vast, and in its raw form, the data is opaque. For our final project, we wanted to start the process of bringing order to that data in an effort to find out what it would say about crime in the United Kingdom. In particular, we will couple the data from the UK Home Office (the crime data) with data from the Office for National Statistics (Socioeconomic Status (SES) data) in an effort to gain a better idea of the overall health of society.

This project seeks to answer the question of whether or not there is a relationship between the health of society, which will be represented by the unemployment rate of residents between 16 and 64 year of age, and the crime rate within society. It is our hypothesis that higher levels of unemployment directly lead to higher levels of crime. In order to test the hypothesis, we will attempt to predict crime rates with unemployment through linear regression analysis using data available at various organizational levels of society. Those organizational levels of society are hierarchical, and we will be using the following three: Lower Layer Super Output Areas (LSOAs), Middle Layer Super Output Areas (MSOAs), and Local Authority Districts (LADs). Information at the LSOA level can be aggregated up to the MSOA level or the LAD level. The MSOA level is between the LSOA and LAD levels.

This project also strives to make the knowledge within the data more accessible to the average user. In particular, we will provide access to the data through development of descriptive statistics and an application of those statistics to maps of the UK. Visualizations of the data through maps make it much easier to see trends across the country and within output areas simultaneously and across time.

Information from the above analyses and statistics contribute to the health of society in a number of ways. First, it can educate the citizenry, helping citizens to make safe choices about where to work, live, and travel. Second, a better understanding of crime will yield further hypotheses about how to reduce it, paving the way for policies and programs in government. Finally, such groundwork can lay the foundation for future research focused around identifying what police action is contributing to crime prevention and which may be abuse.

Through this paper, each section will provide the reader with another piece of the puzzle behind the hypothesis. First, there will be a short literature review. Second, an explanation of the materials and methods we employed to explore the data and hypothesis. Third, we will present the results of testing the hypothesis directly through linear regression analysis. Finally, there will be a conclusion.