Analyzing Crime Trends in Toronto: Insights from the Police Annual Statistical Report*

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This paper analyzes crime trends in Toronto using the Police Annual Statistical Report from 2014 to 2023. Data from Open Data Toronto is used to evaluate crime distributions across different categories and regions. Analysis reveals that some areas, particularly in divisions such as D13 and D32, report the highest number of property-related crimes like auto theft. Suburban areas also illustrate rising trends in specific crime subtypes. These findings can help optimize policing strategies and public safety resource allocations.

1 Introduction

Crime and public safety are critical concerns for urban environments like Toronto. Understanding the nature and distribution of crimes helps policymakers and law enforcement agencies allocate resources and develop effective crime prevention strategies. This paper examines Toronto's crime patterns over the past decade, using the Toronto Police Annual Statistical Report to evaluate different types of crimes across the city's divisions (n.d.).

Our analysis covers from 2014 to 2023 and focuses on two main crime categories: Crimes Against Property and Crimes Against the Person. We explore how incidents vary by division and examine clearance rates (resolved cases) to evaluate the effectiveness of law enforcement strategies. By highlighting regional crime trends, this paper provides insights into public safety concerns that can shape future policies.

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*Code and data are available at: https://github.com/YizheChenUT/STA304TermPaper1.git

2 Data

The data used in this analysis was obtained from the Open Data Toronto portal (n.d.). The data set includes reported incidents categorized by type, division, and year, covering the period from 2014 to 2023.

2.1 Reported Crimes Dataset

The dataset includes multiple fields related to crime, such as: **Crime Category**: Broad crime categories like "Crimes Against Property" and "Crimes Against the Person".
Crime Subtype: Specific types of crimes (e.g., "Auto Theft", "Break & Enter").
Division: The Toronto Police divisions where crimes occurred.
Incidents Reported: The total number of reported incidents.
Incidents Cleared: The number of resolved cases.

2.2 Data Cleaning and Transformation

The data was cleaned by removing duplicates and correcting data entry errors. Special attention was given to divisions with high and low crime rates, as well as to the clearance rate, which reflects how effectively crimes were resolved by the law enforcement.

3 Results

3.1 Crime Distribution by Year

The dataset reveals fluctuating crime rates between 2014 and 2023. Property crimes such as auto theft have shown consistent increases, while personal crimes, such as sexual violations, remain relatively stable.
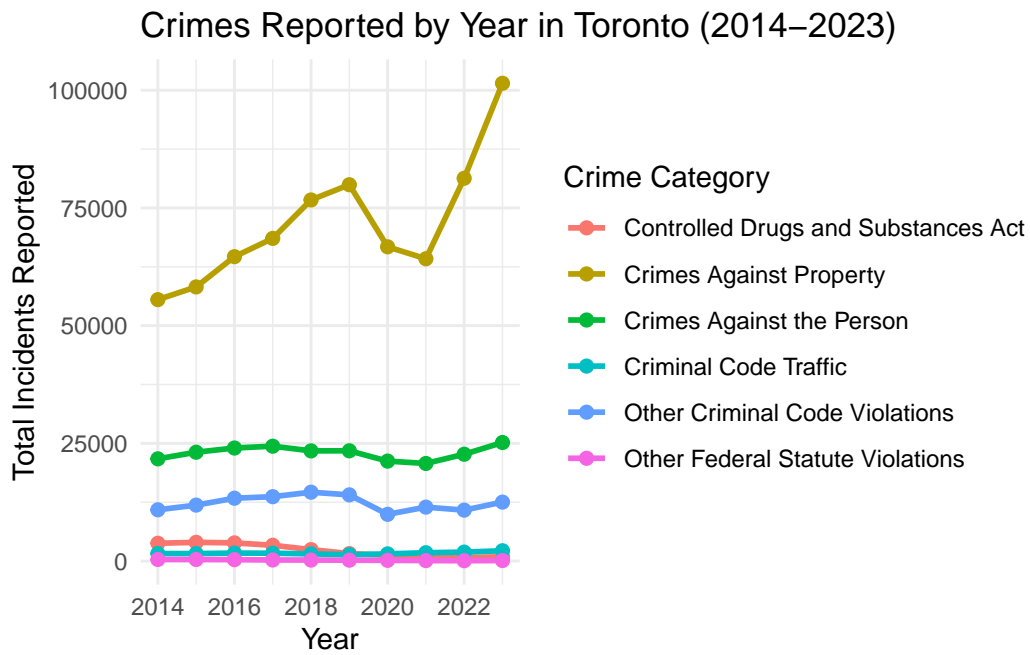
According to Figure 1,

Figure 1: Crimes Reported by Year

References

n.d. https://open.toronto.ca/dataset/.