Analyzing the Dynamics of Automobile Theft in Toronto*

A Decade of Surge in Comparison to Other Crimes, with a Focus on Persistent Spatial Disparities

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January 25, 2024

This paper investigates the changing landscape of automobile theft in Toronto over the past decade, comparing its growth to that of other crimes. Notably, this paper explores the intriguing phenomenon that despite the significant increase in automobile theft's prevalence, it has not expanded to encompass new neighborhoods. This paper aims to provide an in-depth analysis of automobile theft in Toronto, its evolution over the past decade, and its interplay with other crime categories as well as neighbourhood geography. In a broader context, this research contributes to the academic discourse on urban criminology and offers valuable insights for policymakers, law enforcement agencies, and urban planners.

Table of contents

*Code and data are available at: https://github.com/sshmuylovich/toronto-automobile-theft.git.

1 Introduction

Introduction

Toronto, Canada's largest city, has witnessed various transformations in its urban landscape over the past decade. With these changes, the city's crime dynamics, particularly pertaining to automobile theft, have evolved. This paper presents a comprehensive analysis of automobile theft in Toronto from 2014 to 2023, offering a comparison with the progression of other major crimes during the same period. These include assault, bike theft, break and enter, robbery, shooting, homicide, and theft from a motor vehicle. This study also explores the geographical distribution of automobile theft across Toronto's 158 neighborhoods, providing insights into spatial trends and patterns (Toronto Police Services 2024).

The findings of this study are significant for several reasons. Firstly, they provide a nuanced understanding of how automobile theft, as a specific crime category, fits into the broader context of urban crime in Toronto. Secondly, the spatial analysis of crime distribution aids in identifying neighbourhoods that require focused policing and community intervention. Finally, this research contributes to the academic discourse on urban criminology, offering valuable insights for policymakers, law enforcement agencies, and urban planners.

Two months ago, CP24 reported that auto theft reached 'historic highs' for Ontario in 2022 which saw Auto Insurers paying over $1 billion in theft claims (**citecp24?**). In May 2023, Ontario's solicitor general announced a budget of $51 million for the creation of a new organized crime and auto theft task force led by the Ontario Provincial Police (**citecbc?**). It is all that more prevalent, therefore, to be conducting and publishing research that might aid in the slow-down of auto theft in Toronto.

The paper is structured as follows: following this introduction, the second section provides a review of relevant literature. The third section details the methodology, followed by a presentation and discussion of the findings in the fourth section. The paper concludes with implications for policy and suggestions for future research.

2 Data

The data used by the paper is 'Neighbourhood Crime Rates' (Toronto Police Services 2024), which was sourced from Open Data Toronto Portal. This dataset was accessed using the `opendatatoronto` library (Gelfand 2022). The dataset was then simulated, cleaned, analyzed,

and tested using the statistical programming language R (R Core Team 2022), 'tidyverse' (Wickham et al. 2019), 'janitor'(Firke 2023), 'dplyr' (Wickham et al. 2023), 'ggplot2' (Wickham 2016), 'sf' (Pebesma and Bivand 2023), and 'knitr' (Xie 2023).

3 Results

3.0.1 Automobile Theft Across All of Toronto Over the Past Decade (2014-2023)

With auto theft having reached 'historic highs' for Ontario in 2022, this paper investigated how many vehicles were stolen in Toronto, Ontario's largest city, annually over the past decade. The following data was obtained:

Table 1: The number of motor vehicles reported stolen each year from 2014 to 2023.

Year	Number of Automobile Thefts
2014	3576
2015	3262
2016	3311
2017	3568
2018	4774
2019	5285

3.0.2 Automobile Theft By Neighbourhood Over the Past Decade (2014-2023)

With 158 neighbourhood's in Toronto, this paper investigated which neighbourhood has had the most difficulty with auto theft over the past decade. The following data was obtained:

4 Discussion

4.1 First discussion point

4.2 Second discussion point

4.3 Third discussion point

4.4 Weaknesses and next steps

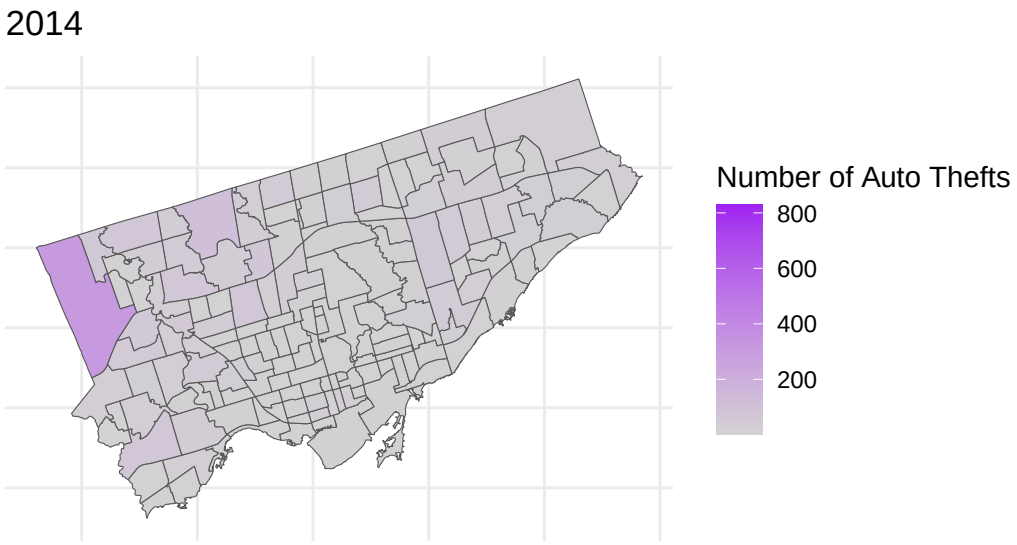

Figure 1: The number of motor vehicles reported stolen from each neighbourhood in 2014.

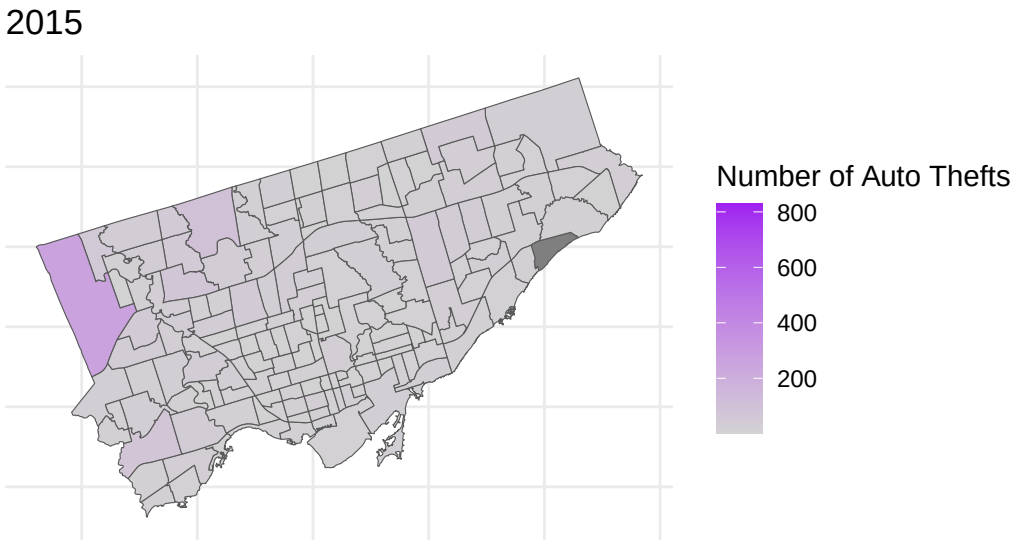

Figure 2: The number of motor vehicles reported stolen from each neighbourhood in 2015.

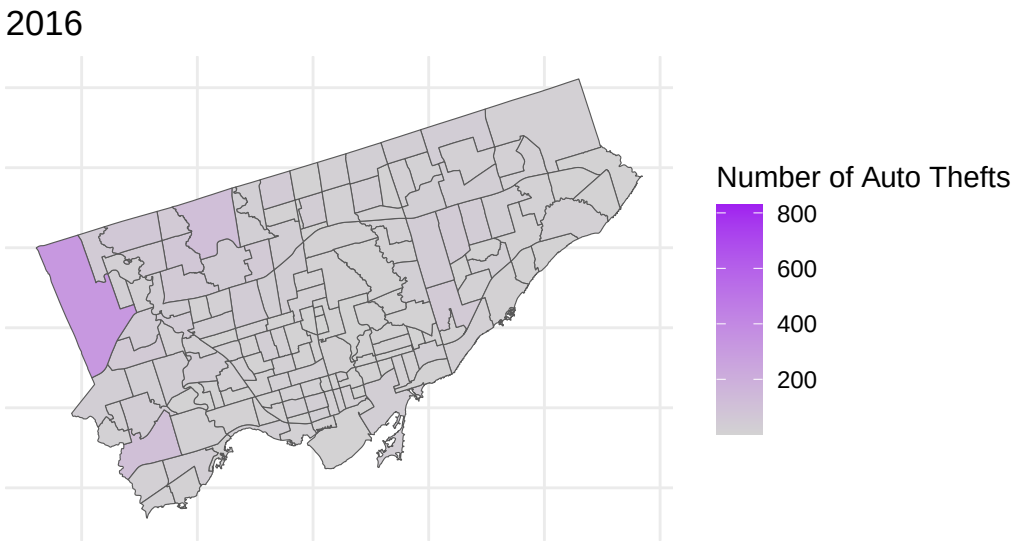

Figure 3: The number of motor vehicles reported stolen from each neighbourhood in 2016.

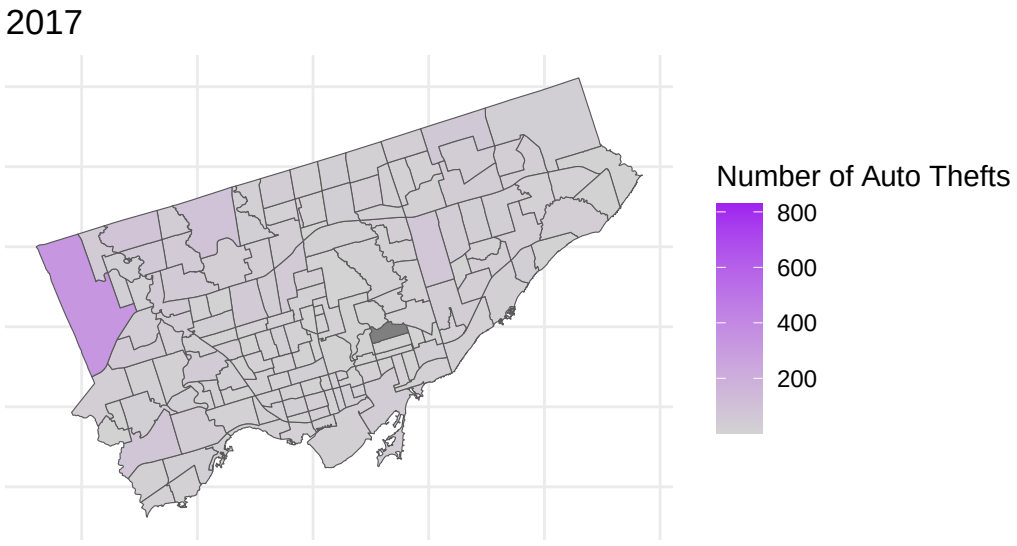

Figure 4: The number of motor vehicles reported stolen from each neighbourhood in 2017.

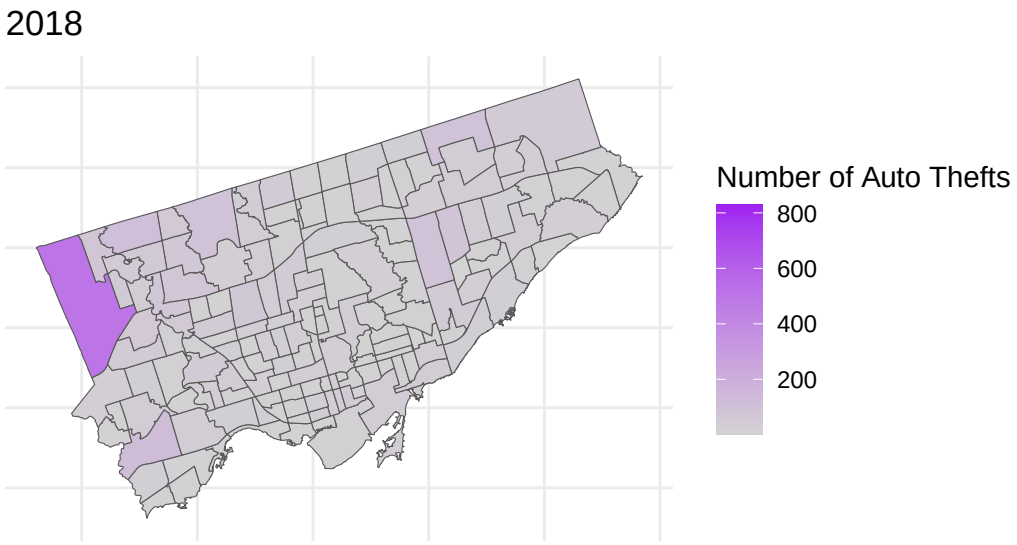

Figure 5: The number of motor vehicles reported stolen from each neighbourhood in 2018.

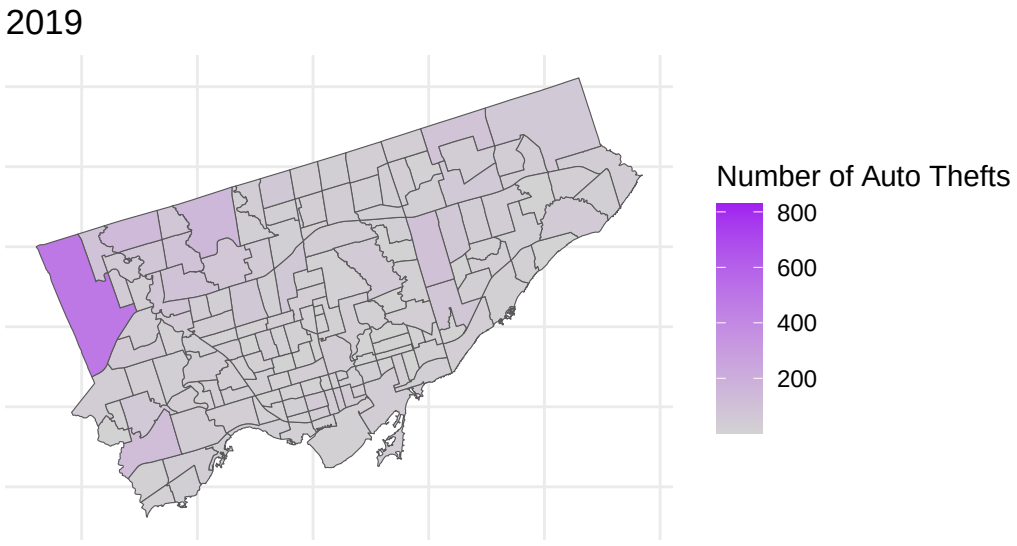

Figure 6: The number of motor vehicles reported stolen from each neighbourhood in 2019.

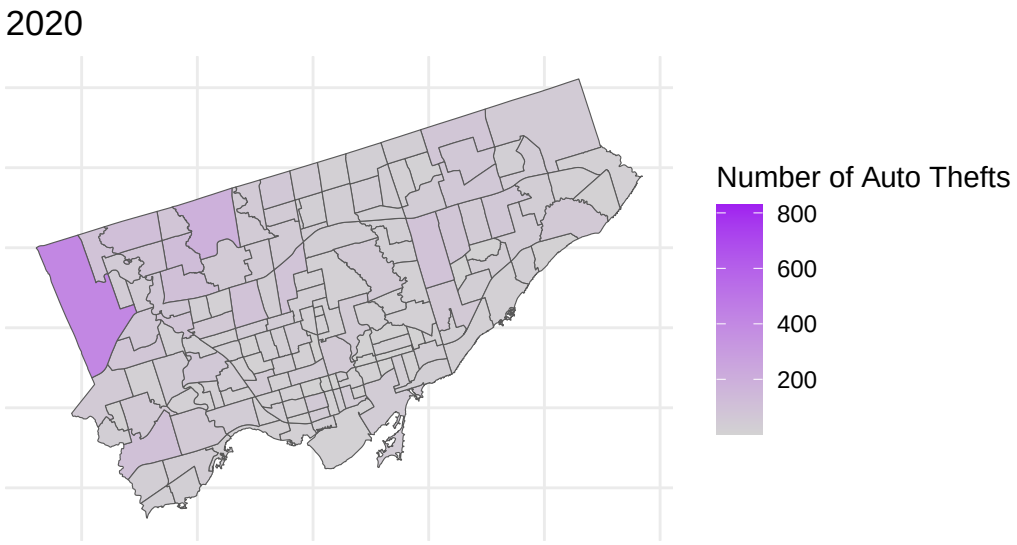

Figure 7: The number of motor vehicles reported stolen from each neighbourhood in 2020.

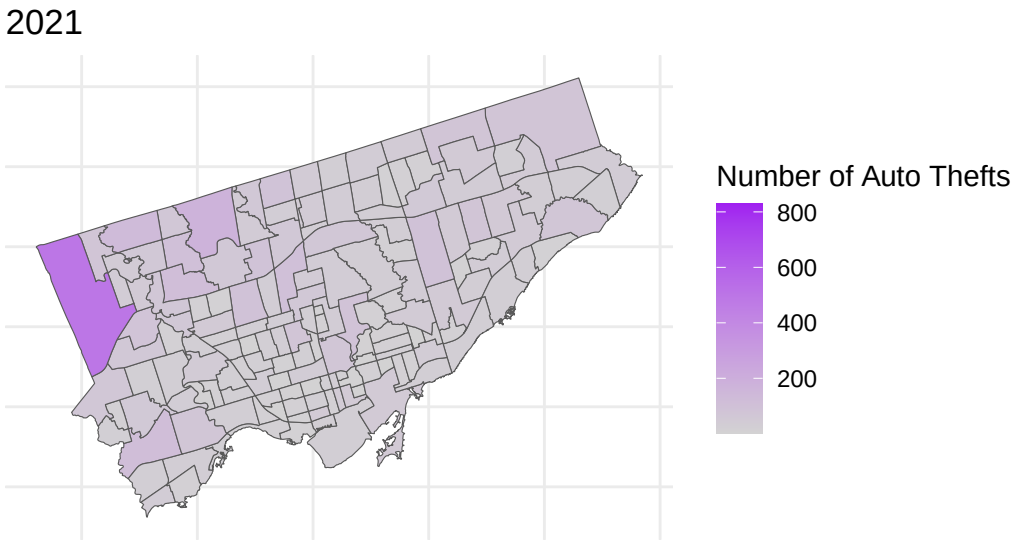

Figure 8: The number of motor vehicles reported stolen from each neighbourhood in 2021.

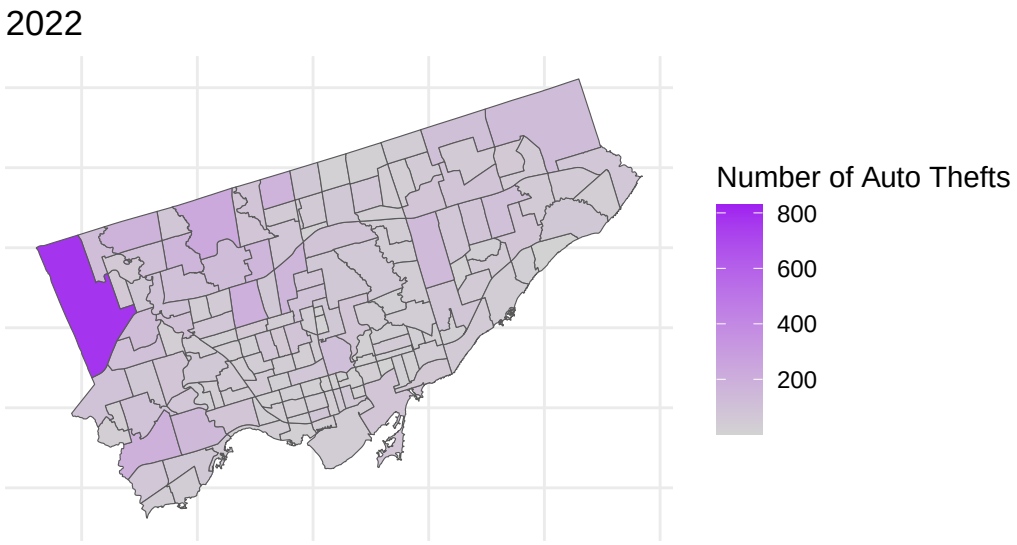

Figure 9: The number of motor vehicles reported stolen from each neighbourhood in 2022.

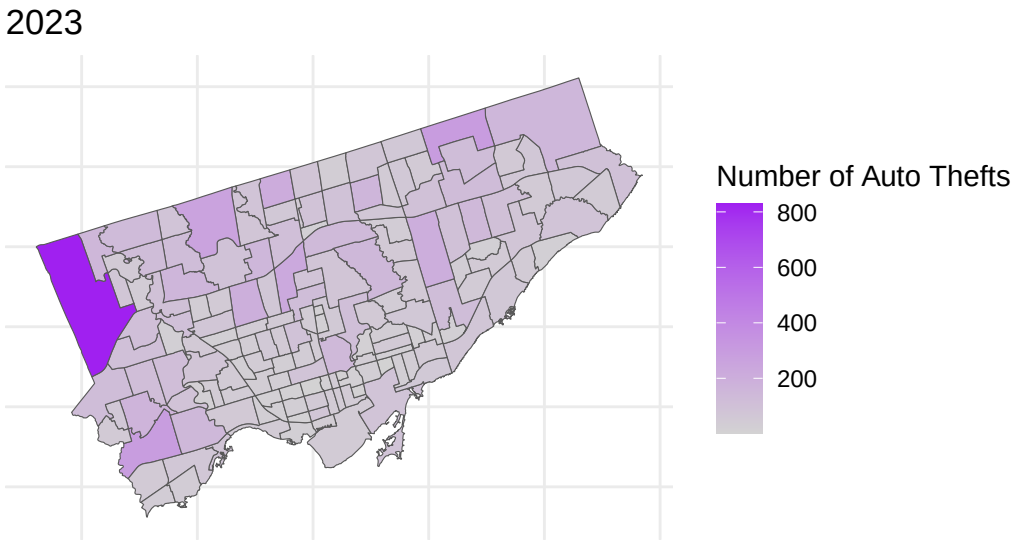

Figure 10: The number of motor vehicles reported stolen from each neighbourhood in 2023.

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