

With Bicycle Thefts at Startlingly High Levels, Just How Safe is Your Bicycle in Toronto?

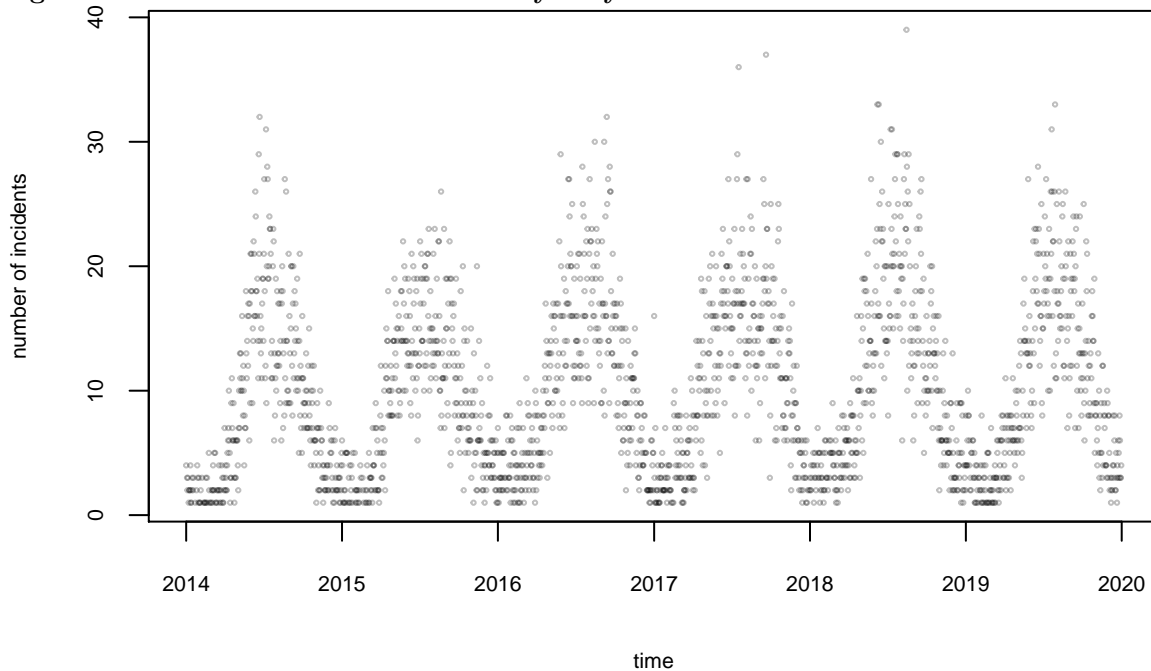
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As the population of a city grows, and as the roads of that city become more congested, residents begin to look for alternate forms of transportation. This is no different in Toronto, where residents have gradually started to ride bicycles to avoid the congestion of the city's roads and public transportation systems, especially in the summer months. As this transition takes place, it is important to examine some potential hazards of cycling in the city, including the possibility of one's bicycle being stolen. The goal of this article is to determine the safest places and the safest times of year to cycle in Toronto, assuming the safety that we are concerned with is the safety of one's bicycle.

Some Background Information

Figure 1: A Plot of the Number of Daily Bicycle Thefts in Toronto

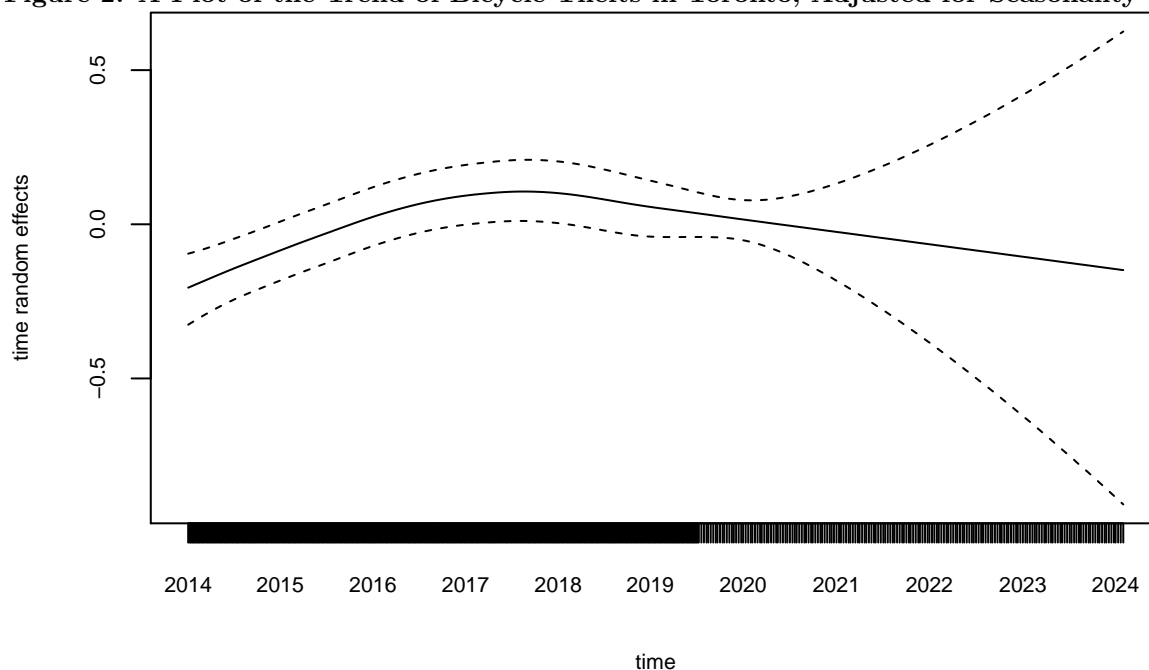


To begin our assessment of safe cycling periods in Toronto, we must first determine exactly how many bicycle thefts are occurring in the city. Figure 1 presents the number of daily bicycle thefts in Toronto between 2014 and 2019. At first glance, this figure provides us with two key revelations about bicycle thefts in Toronto. Firstly, Figure 1 allows us to observe the absurdly large amount of bicycle thefts that take place in Toronto. Knowing that each circle represents one day, we can see that both 2017 and 2018 featured days where over 35 thefts took place. Additionally, after further calculations, we can determine that 21,584 bicycle thefts took place over this six-year period. This total is staggering, and it certainly makes one question just how

safe their bicycle is in Toronto. Secondly, this figure gives an insight into an important characteristic of bicycle theft data in Toronto; namely, that it appears to be seasonal. Upon first inspection, there seems to be a clear rise in thefts through the summer months, and a sharp decline in thefts through the winter months. Intuitively, this makes sense, because more people tend to cycle in the summer when the weather is favourable. This allows us to draw the conclusion that it is safer, regarding the safety of one's bicycle, to cycle in the winter in Toronto. However, one could argue that the other difficulties one would face cycling through a cold Toronto winter could outweigh the decreased risk of having one's bicycle stolen, but that question is best left to individual cyclists.

A Troubling Trend

Figure 2: A Plot of the Trend of Bicycle Thefts in Toronto, Adjusted for Seasonality

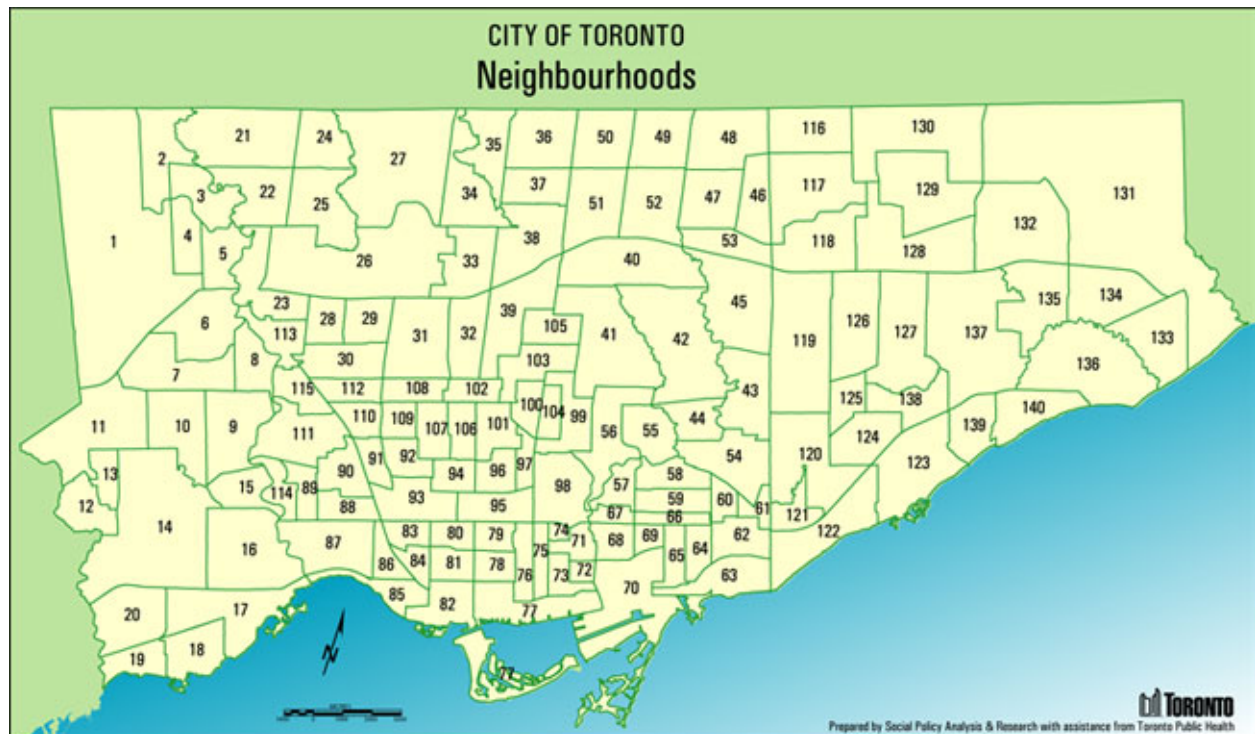


While the information we gained from our preliminary plot was valuable, it did not allow us to determine the trend of bicycle thefts in Toronto. For the answer to that question, we turn to Figure 2, which displays the overall trend of bicycle thefts in Toronto from 2014 to 2019, adjusted for seasonality, as well as a projected trend for the following five years. Figure 2 showcases a simultaneously encouraging and troubling trend. While we do notice a slight decrease in the overall number of bicycle thefts in the city between 2017 and 2019 (which is certainly a positive), the unfortunate reality is that the overall trend in the amount of bicycle thefts in Toronto is positive between 2014 and 2019, meaning that the number of bicycle thefts in Toronto has increased over that six-year period. Furthermore, the projections in Figure 2 suggest that, in all likelihood, the amount of bicycle thefts will not return to (the already high) 2014 levels until several years after 2019. And of course, we must consider the possibility that the bicycle theft rates never return to those levels, either because of an increase in bicycle usage from residents or statistical variance. Given this possibility, it would be beneficial to further break down this data, in order to determine which Toronto residents are subject to the greatest risk of having their bicycle stolen.

Not All Neighbourhoods Are Created Equal

Figure 3: The Top Ten Highest and Lowest Bicycle Theft Per Capita Neighbourhoods in Toronto

Neighbourhood	Number of Thefts	Population (2016)	Thefts Per Capita*1000
University (79)	707	7607	92.94
Bay Street Corridor (76)	1956	25797	75.82
Church-Yonge Corridor (75)	1412	31340	45.05
Kensington-Chinatown (78)	730	17945	40.68
Moss Park (73)	719	20506	35.06
Waterfront Communities-The Island (77)	2271	65913	34.45
Cabbagetown-South St.James Town (71)	382	11669	32.74
Niagara (82)	876	31180	28.09
Annex (95)	743	30526	24.34
Palmerston-Little Italy (80)	322	13826	23.29
AVERAGE	154	19511	7.73



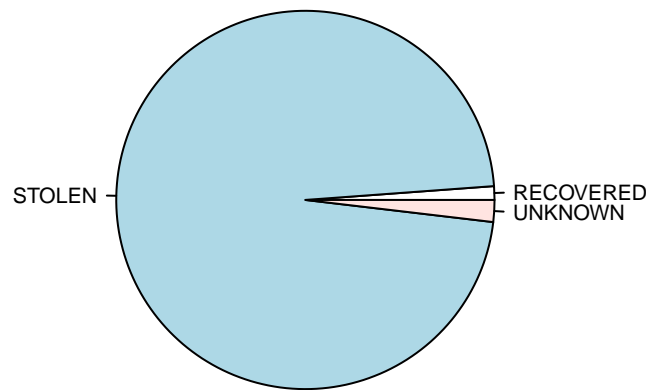
Neighbourhood	Number of Thefts	Population (2016)	Thefts Per Capita*1000
Agincourt North (129)	14	29113	0.48
Steeles (116)	12	24623	0.49
Maple Leaf (29)	5	10111	0.49
Milliken (130)	14	26572	0.53
Pleasant View (46)	10	15818	0.63
Rexdale-Kipling (4)	7	10529	0.66
Victoria Village (43)	12	17510	0.69
Rustic (28)	7	9941	0.70
Morningside (135)	13	17455	0.74
Eglinton East (138)	17	22776	0.75
AVERAGE	154	19511	7.73

One way to divide our data further is to consider each neighbourhood in Toronto individually. Figure

3 contains a list of the top ten highest and lowest bicycle theft per capita (based on 2016 population) neighbourhoods in Toronto between 2014 and 2019, as well as a map of their locations. Based on the disparity of thefts per capita present in Figure 3, it is clear that the neighbourhood that cyclists ride in will significantly affect their chance of having their bicycle stolen. This is a rather obvious statement, as it is quite clear that cyclists would face a higher risk of having a bicycle stolen while riding in University than they would if they were riding in Agincourt North; however, the locations of the neighbourhoods in both top tens provide with a much more illuminating realization. All of the neighbourhoods in the highest theft per capita list are located downtown, whereas the majority of the lowest theft per capita list neighbourhoods are located in either the northern or eastern outskirts of the city. This suggests that the downtown area is a rather unsafe place to cycle, and that the northern and eastern outskirts are relatively safe places to cycle. While Figure 3 does not contain the entirety of neighbourhood list, the consistency of both top tens allows us to be reasonably confident in this assertion; and fittingly, when we consider the full list, we reach this same conclusion.

Our Conclusions, and an Unfortunate Truth

Figure 4: The Distribution of the Statuses of Stolen Bicycle Cases in Toronto



Based on our analysis, we have concluded that the frequency of bicycle thefts in Toronto follows a seasonal pattern (they become more prominent in the summer and less prominent in the winter), has increased since 2014, and is dependent on the neighbourhood in which one is cycling. This has allowed to conclude that the safest (with regards to having one's bicycle stolen) time and place to cycle in Toronto is in the winter (though that comes with other challenges) in the northern and eastern outskirts of the city. However, before someone decides to cycle in Toronto, even in the safest manner, that person should be made aware of an unfortunate truth regarding bicycle thefts in the city. This truth is presented in Figure 4, which details the distribution of statuses of bicycle theft cases in Toronto from 2014 to 2019. Figure 4 shows us that the majority of stolen bicycles in Toronto from 2014 to 2019 remain stolen. In fact, only 1.17% of all stolen bicycles in Toronto from 2014 to 2019 are confirmed to be recovered. This is incredibly problematic, as it further increases the risk of cycling in Toronto since one's bicycle being stolen almost guarantees that it will never be seen again.

Potential Cycling Solutions

Given everything that we have considered in this article, what are some possible solutions to improve the overall safety of cycling in Toronto? One potential improvement involves improving awareness of bicycle thefts in the most problematic areas of the city: downtown neighbourhoods. This could potentially encourage increased bicycle safety among cyclists in the area, as well as increased attention from law enforcement officials, decreasing the overall number of successful bicycle thefts in Toronto. Additionally, investment in bicycle recovery programs is desperately needed, as the 1.17% recovery rate is simply unacceptably low.

However, it seems as though bicycle theft rates in Toronto will remain relatively high for the time being, as no significant improvements appear to be on the horizon.

References

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