Crime in Minneapolis

Lulu Pi
Bachelor of Accounting

Emily Sheehan
BCom

Brenwin Ang
BsC

Chengzhi Ye
BCom

Report for
Monash University

11 June 2020

Faculty of Business & Economics

(03) 9905 2478
questions@company.com

ABN: 12 377 614 630

Contents

1 Introduction

George Floyd was arrested and killed by Derek Chauvin, a U.S. police officer, on the 25th of May in Minneapolis, BBC News (2020). Chauvin knelt on George Floyd's neck for eight minutes and 46 seconds as Floyd gasped for air. His abominable death has sparked outrage on police brutality across America.

For several years, African-Americans have been the subject of racial vilification. In a study by Dottolo and Stewart (2008) students were interviewed and asked about police harassment and crime. Close analysis revealed that the students had stereotyped the criminals to be poor African American men.

This paper hopes to explore and understand crime in Minneapolis. Specifically, the crime incidence, the neighborhoods where crime is most common, the crime incidence over time, the force used by police and the areas where police have used force.

2 Data

To perform this analysis data was downloaded from the City of Minneapolis Police Department (2020). The data obtained included the shapefiles, the crime dashboard (crime incident data) and the use of force dashboard (the use of force data).

The crime incident data had a high number of missing values, where the race of the offender was not recorded. To mitigate the impact on the calculated proportions, particularly where race is concerned, they were not removed. This considered, the analysis will be impacted and the resulting proportions may be under-estimated as a result of the missing values.

The use of force data has a high number of missing values which will adversely impact the accuracy of the analysis. In addition, there is a Precinct 0 and there is no explanation on the offical Minneapolis website which will certainly impact the results. The 'ResponseDate' can be traced back to 2008, however, no records have been kept, therefore it cannot be used in analysis. Finally, the 'PoliceUseOfForceID' and 'OBJECTID' cannot be used for analysis as they are arranged in order and are independent of 'real' police officers and 'real' witnesses. While it protects the privacy of these individuals, it means that conclusions on agressive police officers cannot be drawn.

3 Methodology

3.1 Analysing the Crime Incidence

The crime incident data was wrangled, and each offense was assigned to its relevant offense type. Each offense was grouped according to year, and the incidence of each offense was calculated. The results were plotted in Figure 1.

3.2 Analysing the Neighborhoods with the Most Crime

To create Figure 2, the top ten neighborhoods with the highest crime rate were plotted, and then filled according to offense.

To create Figure 3, Figure 4 and Figure 5, the crime incident data was cleaned, using lubridate package. It was filtered for year and grouped by neighborhood. The incidence was counted, and the top 20 neighborhoods were plotted and tabulated for each year.

For Figure 6, all precincts were plotted and filled according to offense.

3.3 Analysing the Crime over Time

The crime incident data was filtered and grouped according to year, and crime was counted for each month. The results were plotted in Figure 7.

3.4 Analysing the Force Used by Police

To create Figure 8, incidence for crime and force used was counted according to weekday.

The use of force data was filtered for type of resistance. The results were plotted in Figure 9. Each resistance band was filled according to Precinct.

To create Figure 10 the use of force data was filtered for type of resistance. The results were plotted and each force type band was filled according to resistance type.

The use of force data was filtered for race. The results were plotted in Figure 11 and each force type band was filled according to race.

4 Results

4.1 Crime Incidence

Figure 1 demonstrates that across all years, theft is the most commonly committed crime in Minneapolis. Burglary and assault are the second and third highest committed crimes, respectively. It should be noted that 2019 is the only complete year, hence the higher incidence.

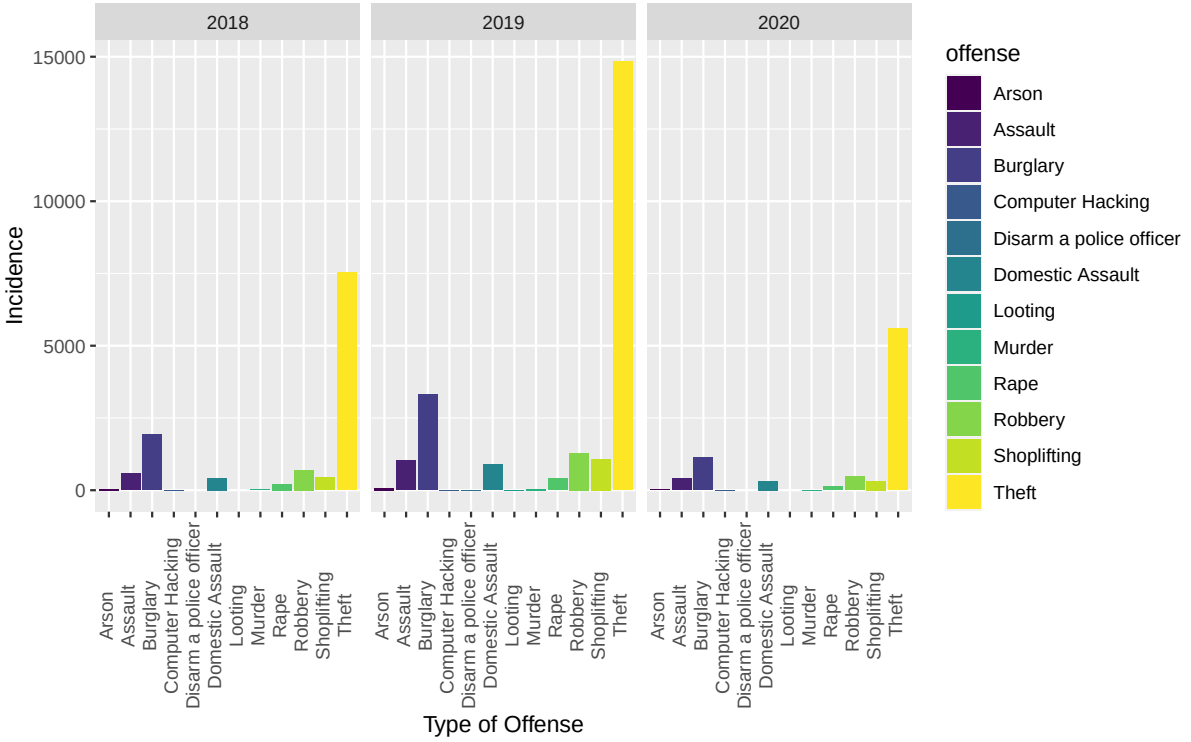


Figure 1: *Crime incidence according to Year and Offense Type*

4.2 Neighborhoods with the Most Crimes

Figure 2 captures the top five most frequent offenses in the neighborhoods with the highest crime rates. It is clear that theft is the most commonly committed crime across all neighborhoods, consistent with Figure 1. Comparitively, Longflow has a similar incidence of shoplifting and theft.

Figure 3, Figure 4 and Figure 5, show that across all years **Downtown West** and **Whittier** have the highest crime rate, followed by **Longfellow**, **Lowry Hill East** and **Marcy Holmes**.

Figure 6 explores the relationship between precinct and offense type. Across all precincts, theft is the most commonly committed crime, consistent with Figure 1. Interestingly enough, precinct 1 and 2 have a similar incidence of theft, however, precinct 5 has a much higher incidence of bulglary.

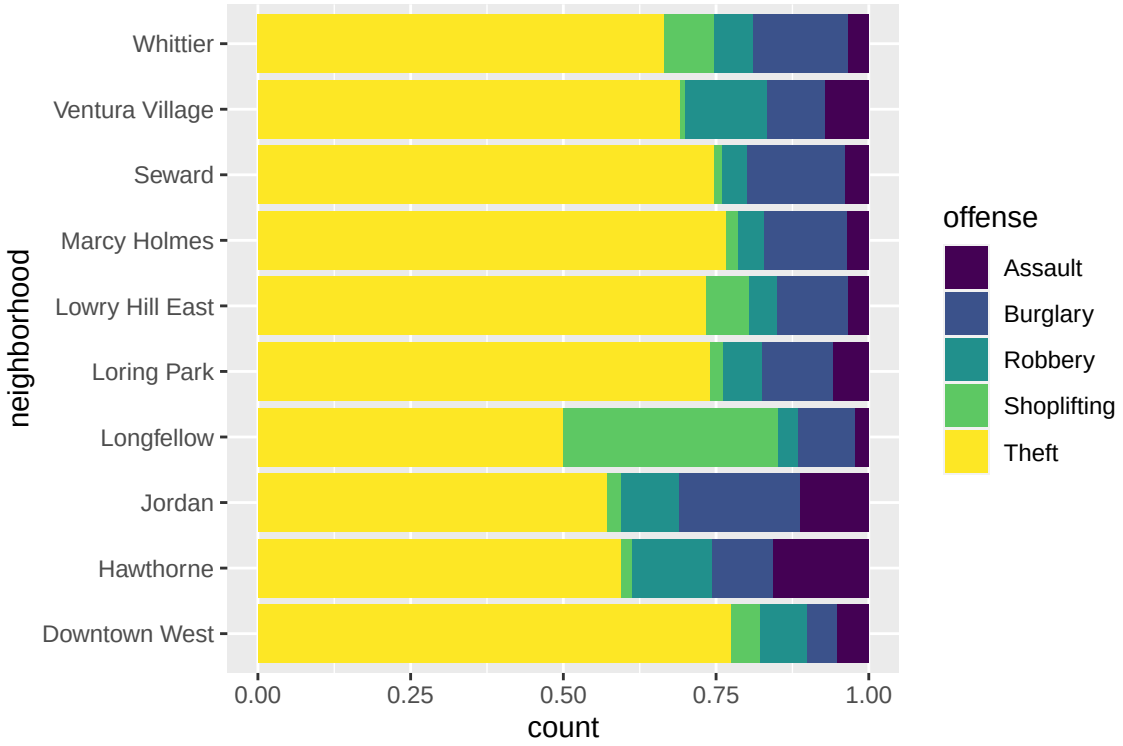


Figure 2: *The most common offence type in the Neighborhoods with the highest Crime Incidence*

Table 1: *Top 20 Neighborhoods with the Highest Crime Rate for 2018*

neighborhood	case
CARAG	194
Cedar Riverside	225
Downtown West	1199
East Phillips	250
Elliot Park	251
Folwell	191
Hawthorne	310
Jordan	305
Longfellow	378
Loring Park	254
Lowry Hill East	381
Marcy Holmes	398
Near - North	254
North Loop	235
Powderhorn Park	227
Prospect Park - East River Road	246
Seward	274
Ventura Village	259
Whittier	490
Willard - Hay	221

Table 2: *Top 20 Neighborhoods with the Highest Crime Rate for 2019*

neighborhood	case
Cedar Riverside	398
Downtown West	2612
East Phillips	439
Elliot Park	508
Folwell	363
Hawthorne	578
Jordan	483
Longfellow	768
Loring Park	515
Lowry Hill East	817
Marcy Holmes	726
Midtown Phillips	490
Near - North	506
North Loop	470
Powderhorn Park	460
Prospect Park - East River Road	414
Seward	553
Ventura Village	516
Whittier	1182
Willard - Hay	369

Table 3: *Top 20 Neighborhoods with the Highest Crime Rate for 2020*

neighborhood	case
CARAG	139
Cedar Riverside	140
Downtown West	589
East Phillips	185
Elliot Park	159
Hawthorne	177
Jordan	200
Longfellow	274
Loring Park	209
Lowry Hill East	268
Marcy Holmes	271
Midtown Phillips	174
Near - North	215
North Loop	195
Powderhorn Park	155
Prospect Park - East River Road	150
Seward	216
Ventura Village	237
Whittier	415
Willard - Hay	146

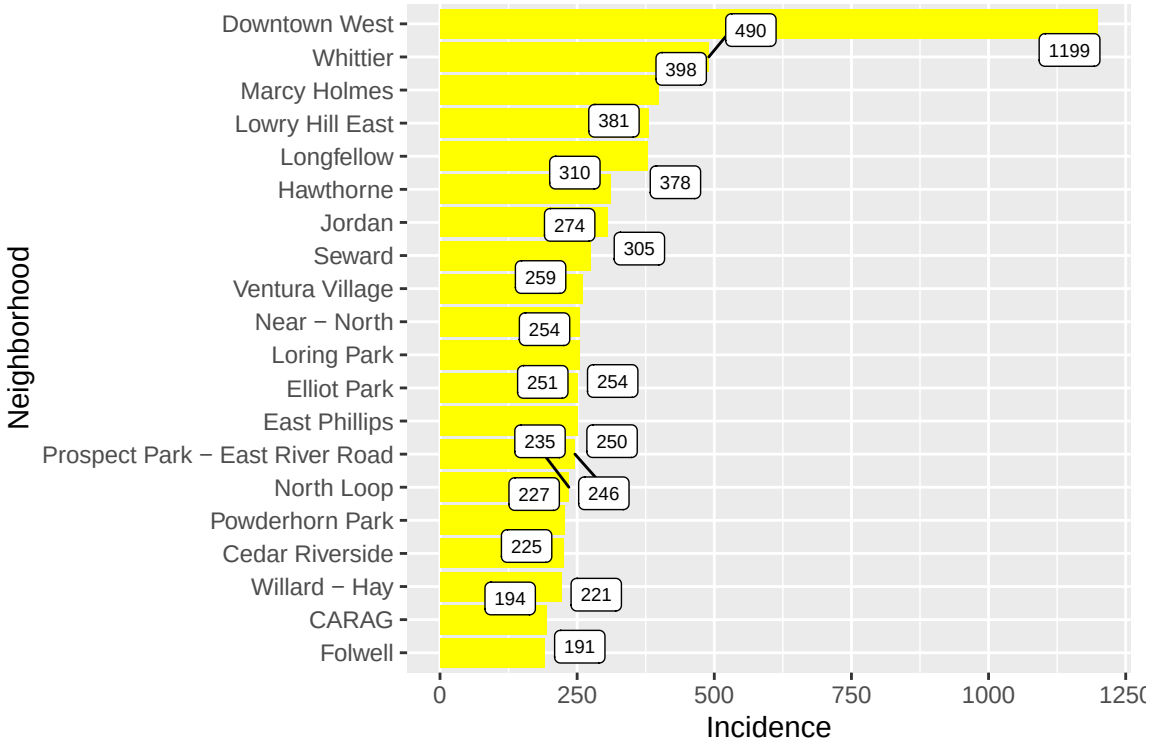


Figure 3: *Top 20 Neighborhoods with the Highest Crime Rate for 2018*

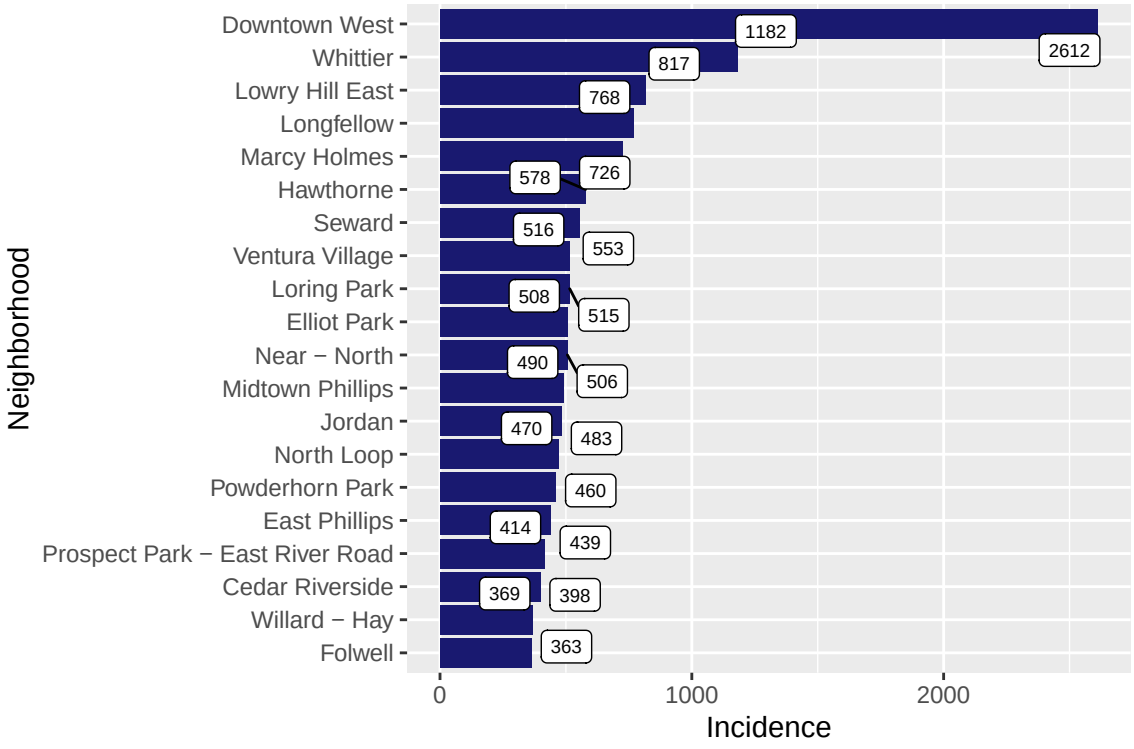


Figure 4: *Top 20 Neighborhoods with the Highest Crime Rate for 2019*

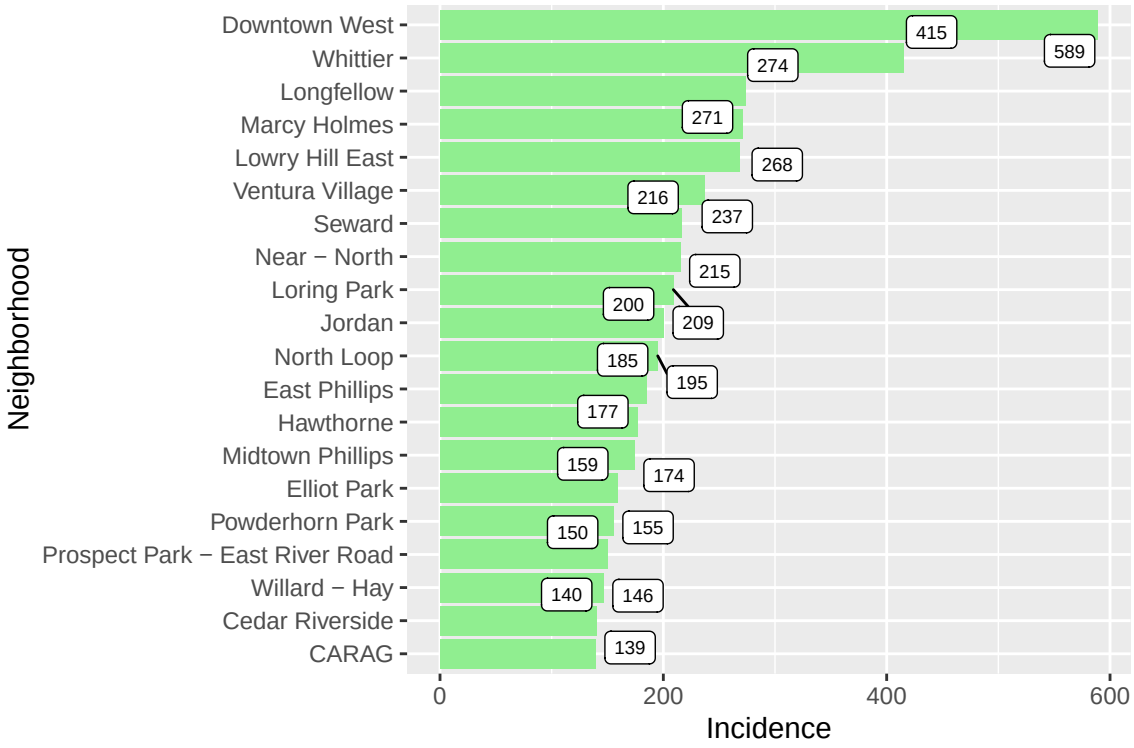


Figure 5: *Top 20 Neighborhoods with the Highest Crime Rate for 2020*

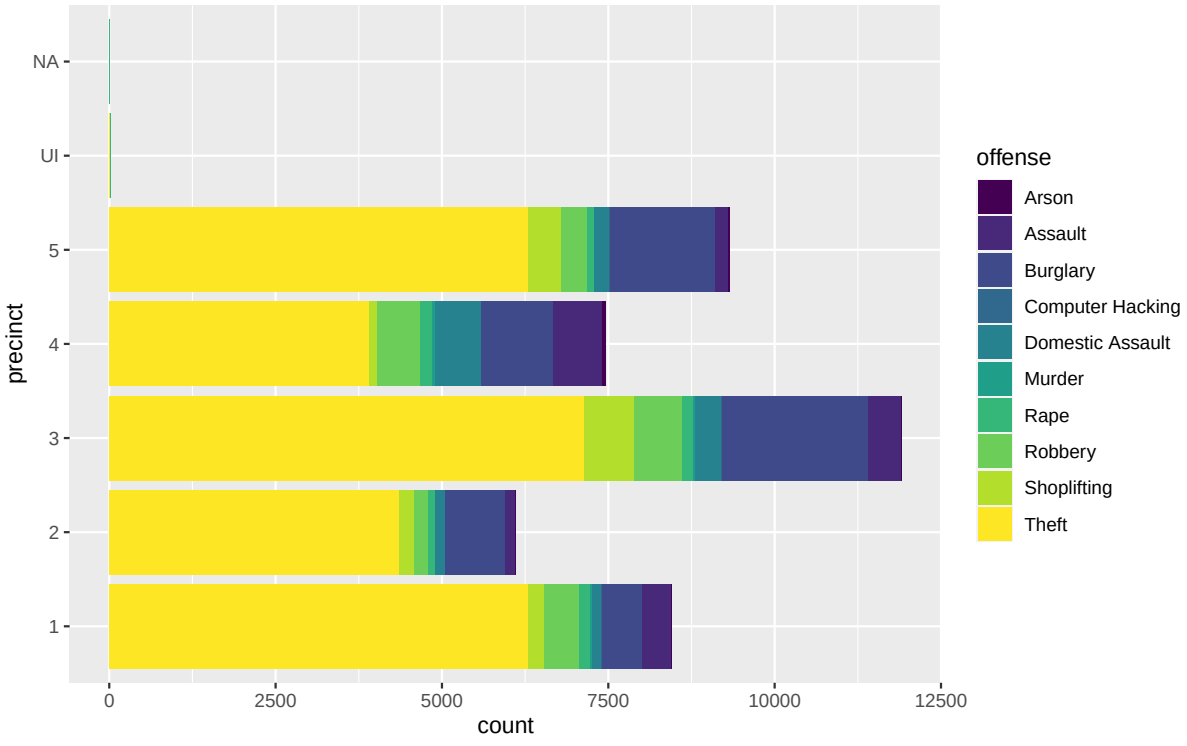


Figure 6: *Crimes comparison of different districts*

4.3 Crime over Time

Figure 7 compares the incidence of crimes in each month. As stated above, 2019 is the only complete year in the data set. In 2018, crime peaked in October, and dropped in December. In 2019, crime was very low in the colder months (January, February and March), peaking in the summer months (July and August). Comparitively, the incidence of crime in 2020 was much lower than 2019 and did not increase in May, which is likely due to the stay at home orders resulting from COVID-19.

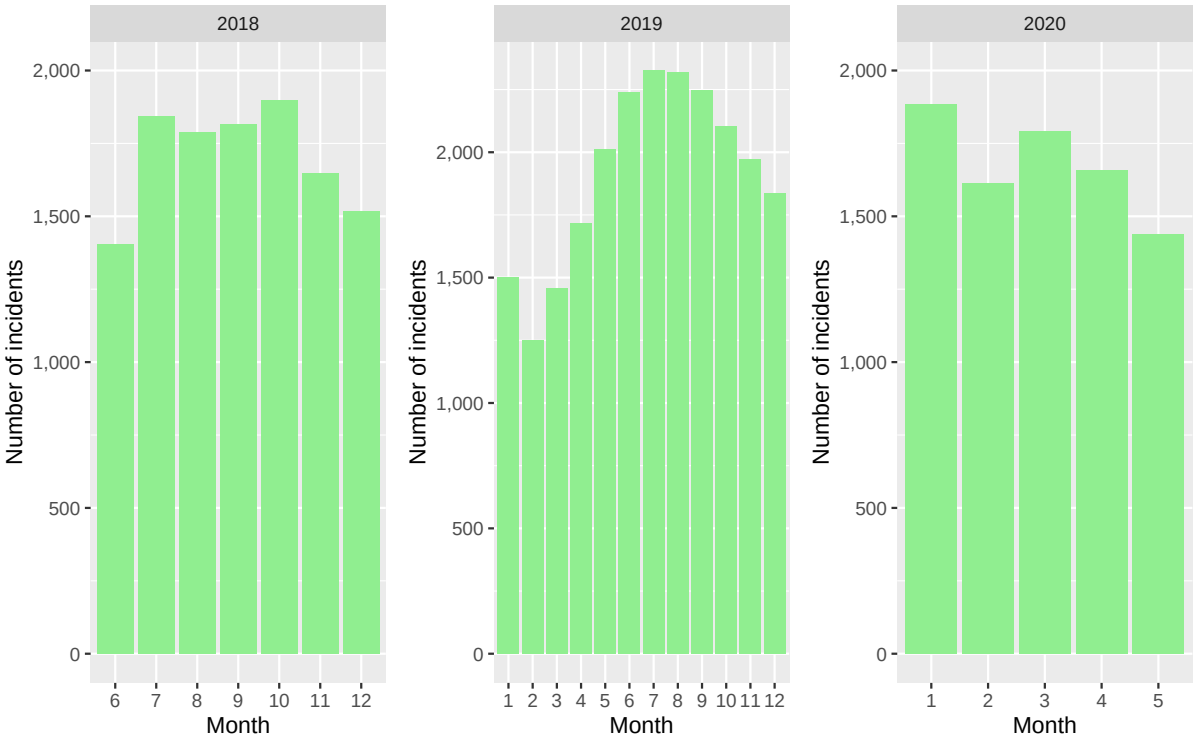


Figure 7: *Comparison of crimes in different months*

4.4 Force Used by Police Data

Figure 8 shows the distribution of the total crimes and force used over the week. There are more crimes on weekdays than on weekends, however, there is greater force use on weekends. It is likely that weekends attract larger crowds, particularly at entertainment venues, therefore attracting a larger police presence. Furthermore, it is unlikely criminals will commit crimes, particularly when police presence is so high.

Figure 9 shows the resistance used in each precinct. In essence, this figure captures the prevalance of crime and the effiency of police in controlling the crime rate. It can be inferred that the fourth precinct is significantly more dangerous than the fifth precinct, and the force use in the fourth precinct is much higher.

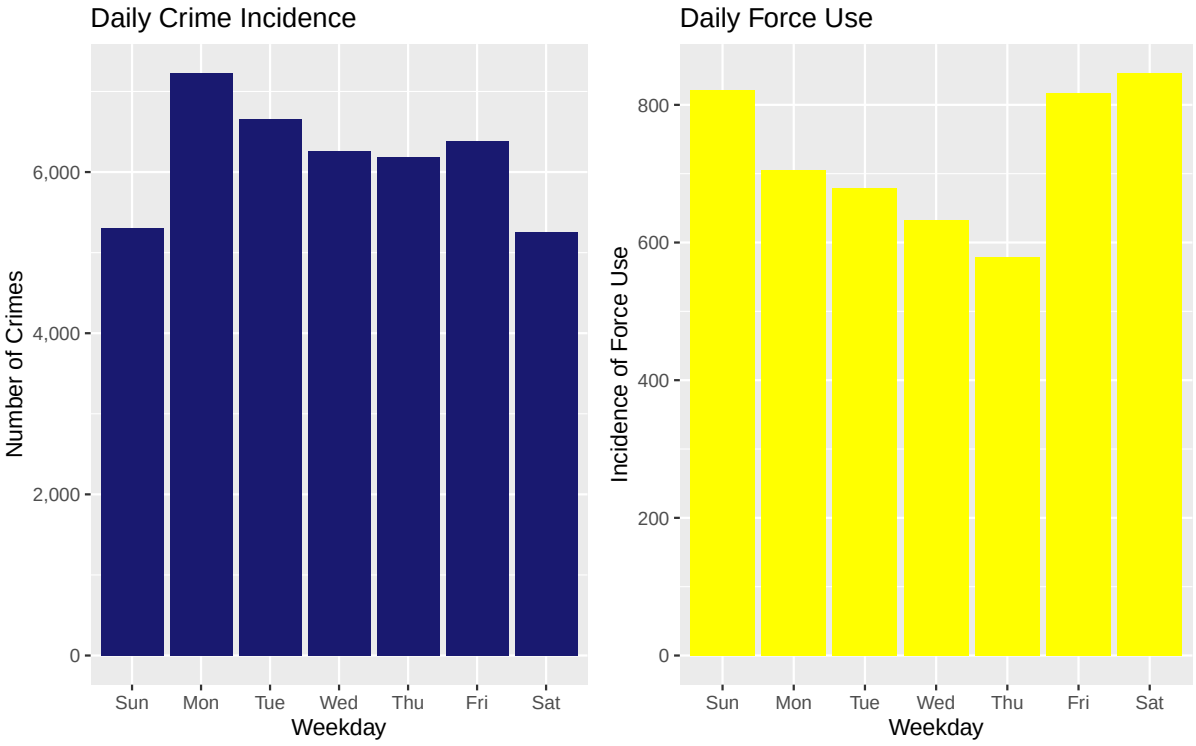


Figure 8: *The average crimes and force used in a given week*

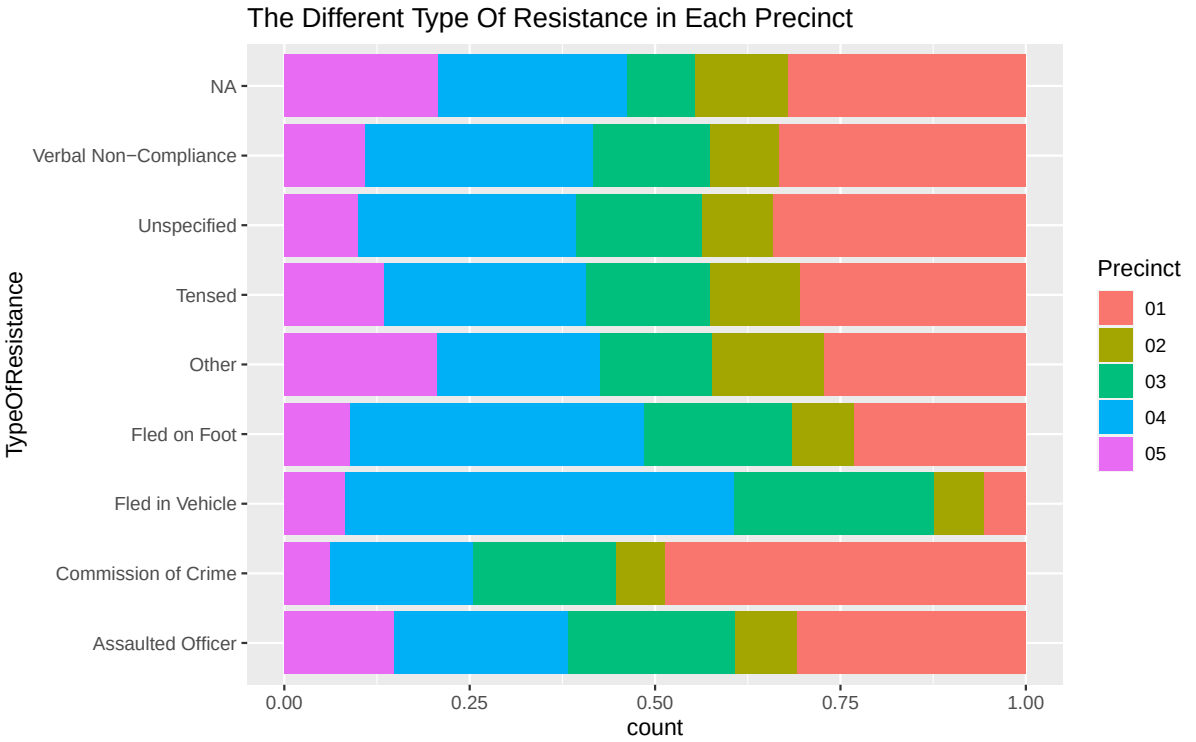


Figure 9: *The different Resistance of criminals in each Precinct*

Figure 10 shows the relationship between the force type and the type of resistance. This figure captures the effectiveness of the force type used by police. For example, if the only resistance used by police is a police dog, criminals are more likely to flee on foot. However, if a firearm or chemical irritant is used, better results will be achieved.

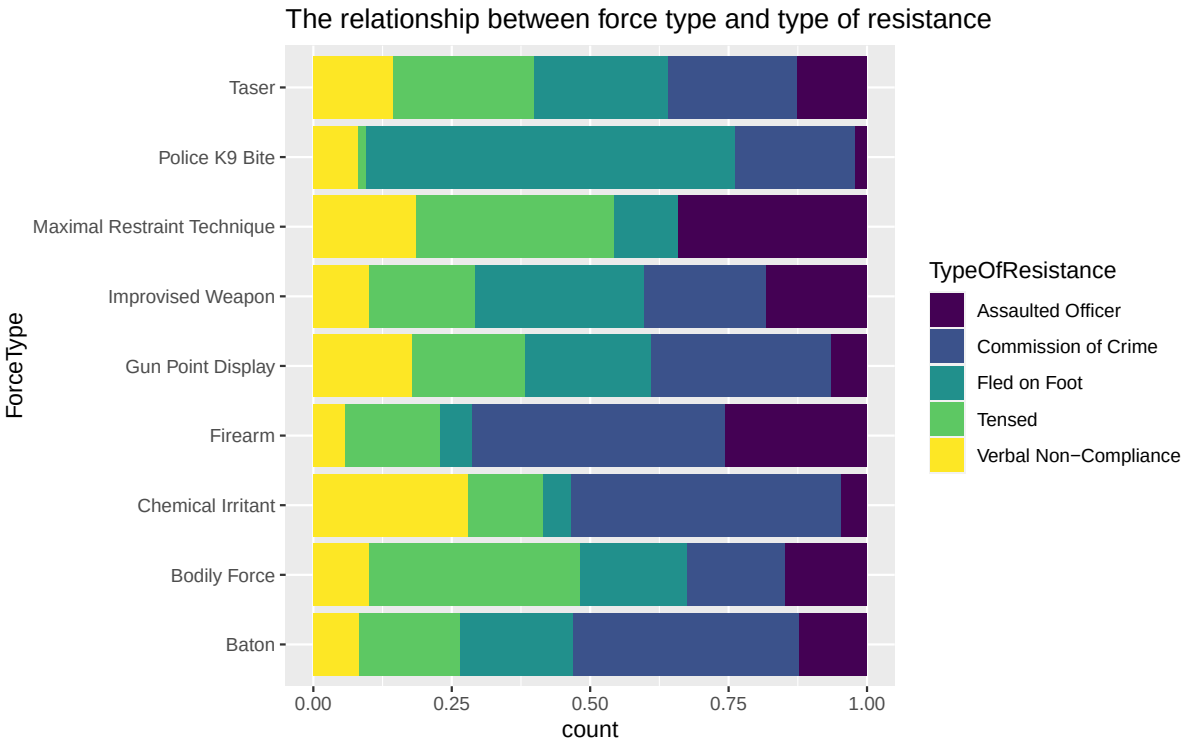


Figure 10: *The relationship between Force Type adopted by police and type of resistance of criminals*

Figure 11 shows the use of force on different races. African Americans are subject to more aggressive forms of force. The figure clearly demonstrates that police are less likely to use less lethal force on African Americans. Looking at this figure alone, it is likely that the treatment of African Americans is unnessarily barbaric at times.

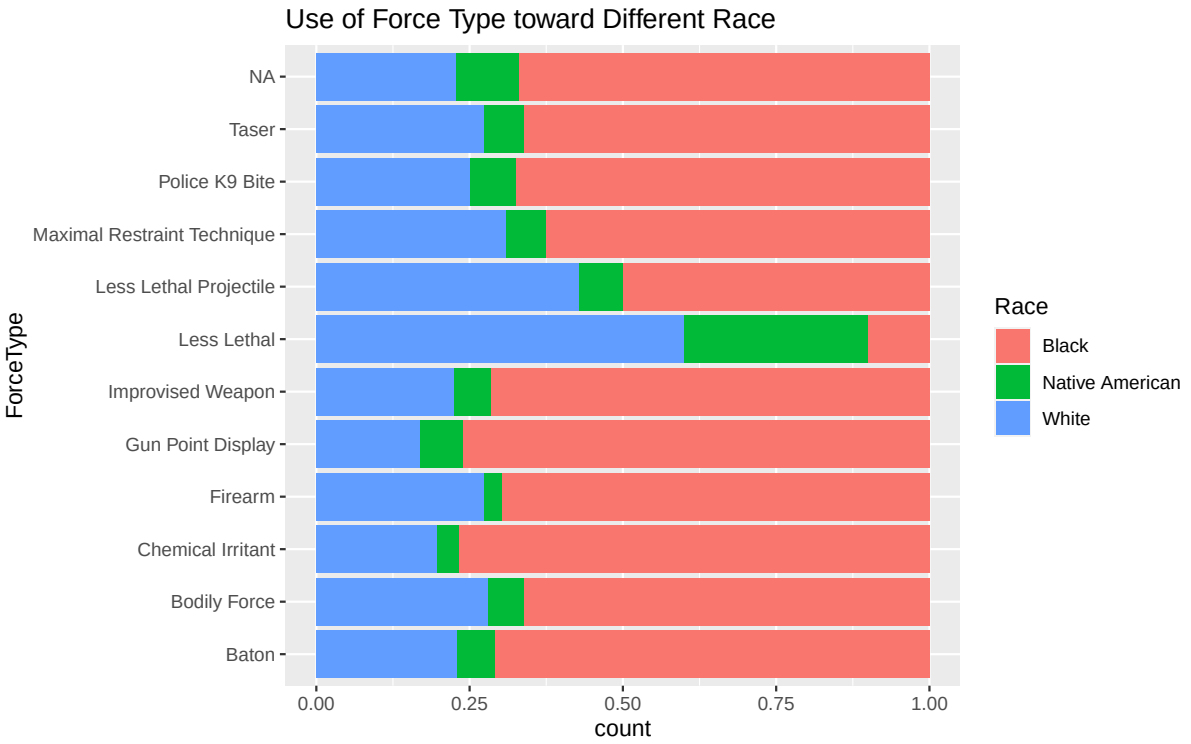


Figure 11: *Different races are treated differently*

Table 4: *Share of black in each category*

categories	share
Minneapolis Population	0.20
Police Use of Force	0.60
Police Stop	0.53

5 Mapping the data and Black composition

5.1 summary table

Black or African Americans accounts only for 19% of the total Population in Minneapolis. (Data source: Compass (2020)). However, as we can see from **table 4**, they cover the largest proportion of being subjects to police use of force. Furthermore, they also cover the biggest share in terms of their vehicles getting stopped by the police.

*Note that each share racial population share are subject to a 5% or less margin of error.

5.2 Police Use of force Data mapping

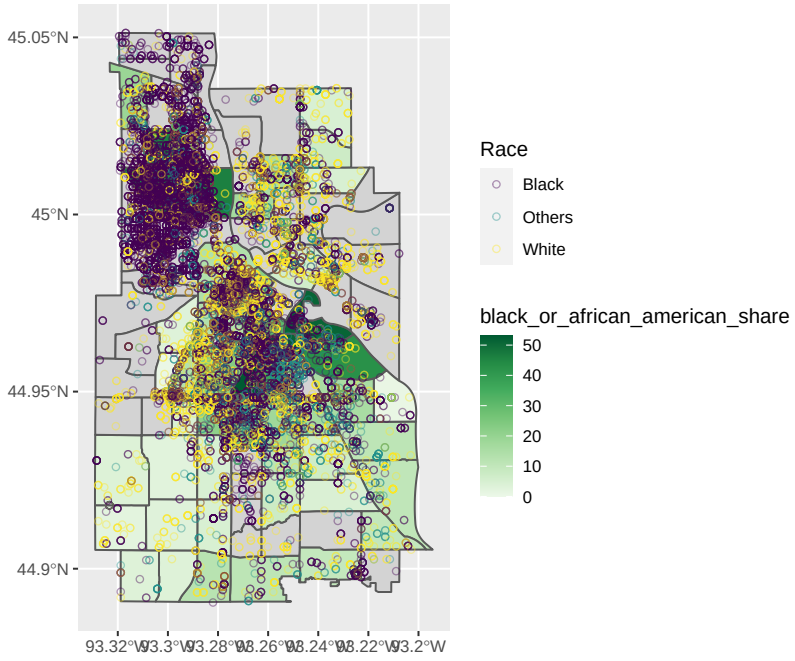


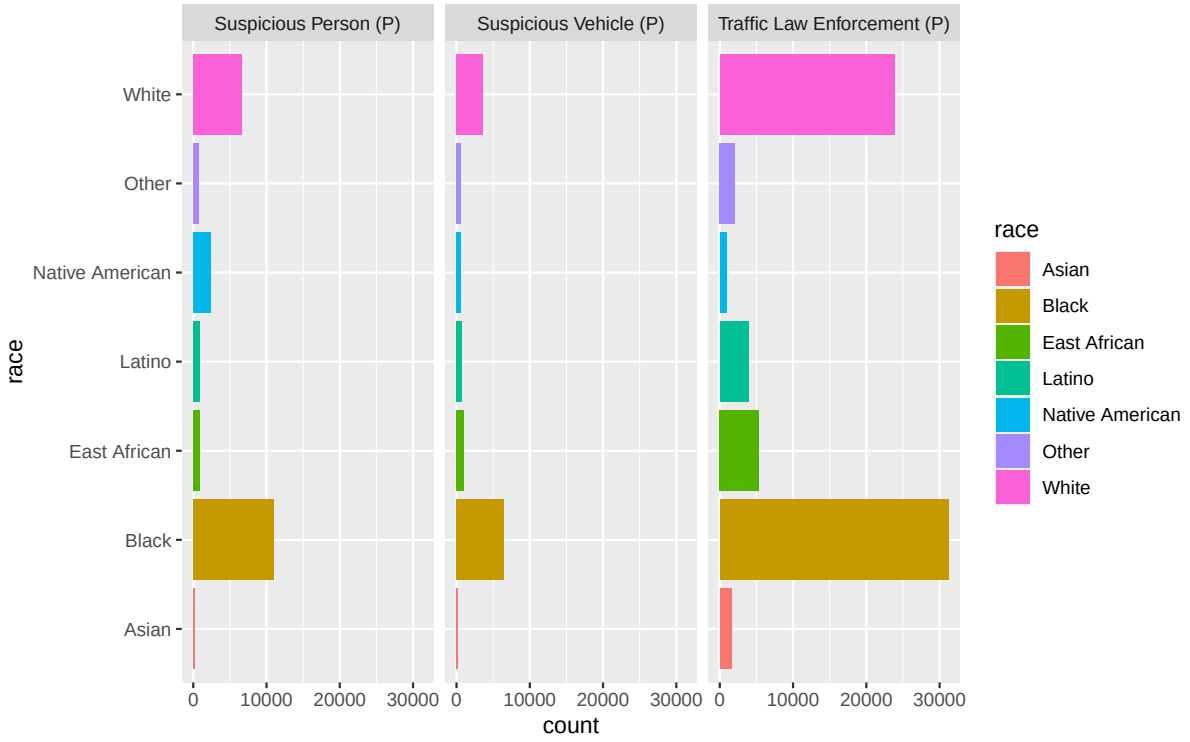
Figure 12: *Police use of force data on a Minneapolis Map*

In **Figure 12** the map layout of Minneapolis is shown. The map is segmented by neighbourhoods. The shade of green show the composition of black in each neighbourhood - with dark green indicating

a higher proportion. Each circle shows an incident where police force were used coloured by Race (either White/Black/Others) - minority groups were placed under “Others”.

Particularly in the northwest and center of the map where black communities are highly represented, there are high concentrations of police use of force incidents especially towards the black race.

5.3 Police Stop Data Mapping



With Police Stop data, in the major problems categorized (i.e. reasons to stop a vehicle), Blacks were most likely to have their vehicles stopped by Minneapolis Police.

Similar to the analysis with the police use of force map, a similar pattern were observed in police stop in **Figure 13**. Police stops are mostly concentrated in the northwestern and central parts of Minneapolis where black communities are highly represented.

References

BBC News (2020). The last 30 minutes of George Floyd’s life. *BBC*.

Compass, M (2020). *Minneapolis-St Paul Neighbourhood*. http://www.mncompass.org/profiles/neighborhoods/minneapolis-saint-paul. Accessed: 2020-06-10.

Dottolo, AL and AJ Stewart (2008). “Don’t Ever Forget Now, You’re a Black Man in America”: Intersections of Race, Class and Gender In Encounters with the Police. *Sex Roles* **59**(5), 350–364.

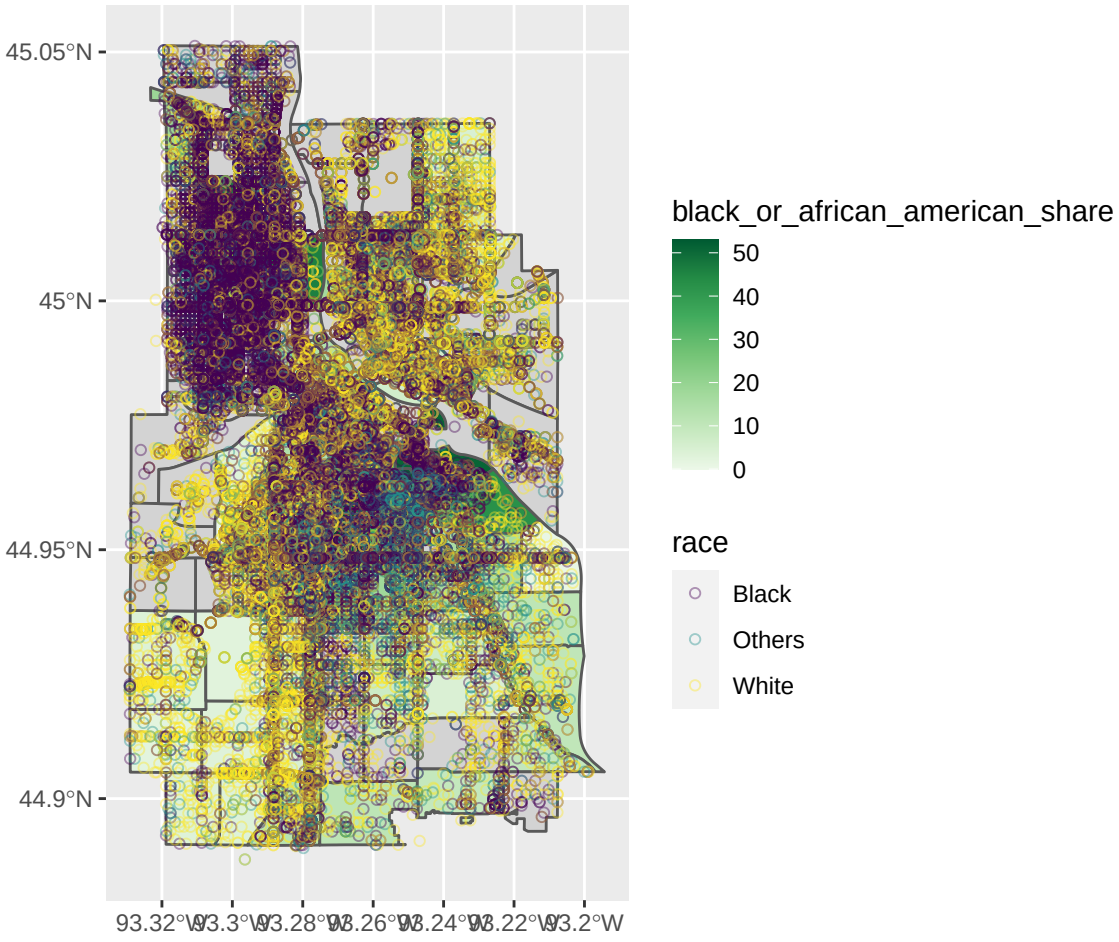


Figure 13: *Police Stop data on Minneapolis map*

Minneapolis Police Department (2020). *Use of Force Dashboard, Crime Map, Crime Dashboard*.