Exploring Crime Trends in Washington D.C.: A Tableau Data Analysis

A project authored by

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Introduction

In an increasingly complex urban landscape, understanding crime patterns is essential to enhancing public safety and shaping effective law enforcement policies. My data analyst project, "Exploring Crime Trends in Washington D.C.," delves into the complex web of crime incidents within the nation's capital. Leveraging the power of Tableau, this project attempts to provide a comprehensive visual narrative that uncovers underlying insights and spatial correlations relating to the crime landscape of Washington D.C.

National Mall - Washington D.C.

By harnessing a rich dataset encompassing crime incidents over a five-year period, we begin on a data-driven journey to uncover trends, patterns, and potential drivers behind crime occurrences. The tableau visualizations I present highlights the relationship between crime rates and various factors, shedding light on the relationship between societal dynamics and criminal activities.

Crime rates have experienced a noteworthy surge, with data from the Metropolitan Police Department (MPD) indicating a substantial **30 percent** escalation compared to the previous year. This rise is characterized by a **38 percent** increase in violent crimes and a **29 percent** increase in non-violent offenses.

This project isn't just about data; it is a proactive effort to empower stakeholders, policymakers, and law enforcement agencies with actionable insights. Our tableau-based

analysis opens avenues for data-driven-decision-making, allowing for targeted interventions, resource allocation, and the development of strategic crime prevention strategies.

Through high-level data exploration, visual representation, and informed interpretation, "Exploring Crime Trends in Washington D.C." seeks to promote a more informed understanding of the crime landscape, ultimately contributing to safer communities and a more secure urban environment. I plan to unveil the hidden stories behind the data and unlock the potential drivers for positive change through data-driven analysis.

Table of Contents

Chapter 1

ASK

Asking the right questions is extremely important during the initial stages of data analysis. When your questions align with the criteria of being **S**pecific, **M**easurable, **A**ction-**O**riented, **R**elevant, **T**ime-**B**ound—or the **S.M.A.R.T.** framework—you can be assured that the resulting answers will show a comprehensive level of precision and accuracy. This approach then paves the way for an actionable analytical outcome.

1.1 Key Tasks

- Identify the research task
- Consider key stakeholders

1.2 Deliverable

☐ Clear statement of the research task

1.3 Research Task

Identify relationships and trends that show how crime changed in D.C.

1.4 Research Objectives

- Create a geographic visualization (map) displaying crime incidents.
- Visualize the overall crime trend over a specific time period
- Use bar charts or stacked area charts to compare different crime types
- Generate a heat-map to visualize crime density across different areas

1.5 Project Deliverables

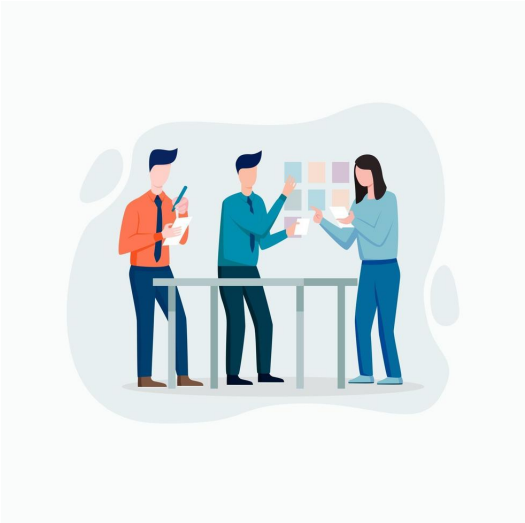
1. A clear statement of the research task.
2. A description of all data sources used.
3. Documentation of any cleaning or manipulation of data.
4. A summary of analysis.
5. Supporting visualizations and key findings.

1.6 Key Stakeholders

- Current D.C. Residents
- Prospective D.C Residents
- Policymakers
- Law Enforcement Agencies

Chapter 2

PREPARE



2.1 Key Tasks

- Download data and store it appropriately
- Identify how it's organized
- Sort and filter data

2.2 Deliverable

☐ Description of all data sources used.

2.3 Information on Data Source

- The data is stored **here** via 5 datasets saved as **.CSV (comma-separated values)** files ranging from years **2018-2022.**
- The datasets are publicly available for this case-study by Creative Commons under this **license.**
- The original attributes that were captured include: X, Y, CCN, $REPORT\_DAT$, $SHIFT$, $METHOD$, $OFFENSE$, $BLOCK$, $XBLOCK$, $YBLOCK$, $WARD$, ANC, $DISTRICT$, PSA, $NEIGHBORHOOD\_CLUSTER$, $BLOCK\_GROUP$, $CENSUS\_TRACT$, $VOTING\_PRECINCT$, $LATITUDE$, $LONGITUDE$, BID, $START\_DATE$, END_DATE, $OBJECTID$, $OCTO\_RECORD\_ID$ with a total of 25 columns.
- Housed the original files in a separate folder.
- Created sub-folders for .CSV files and .XLXS files with appropriate naming conventions.

2.4 Limitations of Data

- One limitation would be that all the data are incidents reported and just that. We only have what people had reported leaving out anything that went under reported.
- Of the historical crime data, we are only using datasets that correspond to the last **5 years.**

2.5 Is The Data ROCCC?

A credible data source is **ROCCC** which stands for **R**eliable, **O**riginal, **C**omprehensive, **C**urrent, and **C**ited.

1. **Reliable** - YES - Large sample size; representative of population.
2. **Original** - YES - Primary source of data comes internally from opendatadc.

3. **Comprehensive** - MED - Data can be easily deciphered; does contain null values but not enough to lead to an incomplete analysis.

4. **Current** - YES - The most relevant data is available; entirety of the 2018-2022 calendar years.

5. **Cited** - YES - Sources comes directly from internal databases; no third-party was involved.

Chapter 3

PROCESS/ANALYZE

3.1 Key Tasks

- Check the data for errors
- Choose your tools and format your data
- Transform the data so you can work with it effectively
- Document the cleaning process and perform calculations

3.2 Deliverable

☐ Documentation of any cleaning and manipulation of data

The processing phase stands as an important component engaging in high-level decision-making. Within this phase lies the task of refining and reshaping data, transforming it

from dirty to clean—a prerequisite for data analysis. It is imperative to recognize that the degree of cleaned data corresponds to the quality and efficacy of your analysis. Data flawed by inaccuracies or inconsistencies can cause doubt upon the reliability of your insights.

With data processing, there are an array of tools one can use, including spreadsheets, SQL, and R. In the context of our project, utilizing the ability of **Microsoft Excel** will suffice. Then, the next tool to be used will be **Tableau**, selected for its remarkable capacity to create visually appealing and dynamic representations, showcased by its capability in to create beautiful interactive dashboards.

Below will outline data cleaning process in Excel:

3.3 Removed Duplicates

1. $Data \rightarrow Data\,Tools \rightarrow Remove\,Duplicates \rightarrow Select\,Columns \rightarrow Ok$

3.4 Checked Spelling

1. $Select\ \ Column \rightarrow Review \rightarrow Proofing \rightarrow Spelling$

3.5 Searched for Null Values

1. $Home \rightarrow SelectSheet \rightarrow Editing \rightarrow Find\,and\,Select \rightarrow GoTo\,Special \rightarrow Blanks \rightarrow Highlight\,Blanks\,Yellow$

3.6 Deleted Column Called X and Y

1. This Data is the Same as $LONGITUDE$ and $LATITUDE$
2. $Select\ Column \rightarrow Delete$

3.7 Deleted Column Called $OCTO\_RECORD\_ID$

1. This Column Contained No Data

2. *Select Column → Delete*

3.8 Ensured *REPORT_DAT*, *START_DATE*, and *END_DATE* Columns Had Consistent Timestamp Format

1. *Home → Number → FormatCells → Time/Date → dd − mm − yyyyhh : mm : ss → Ok*

3.9 Used *=TRIM()* Function

1. This Is To Eliminate Extra Spaces
2. *Insert Column → = TRIM(A2, B3 etc...) → Drag Values Down → Copy New Column → Use Paste Special on Old Column → Values → Ok → Delete New Column*

3.10 Used *=LEFT()* and *=LEN()* Functions

1. This Is To Delete The Trailing Zeros (+00) in DateTime Columns
2. *Right Click Column → Insert → = LEFT(E2, LEN(E2) − 3) → Drag Values Down → Copy New Column → Use Paste Special on Old Column → Values → Ok → Delete New Column*

3.11 Created New Column called *CRIME_LENGTH*

1. Calculated Length of Each Crime by Subtracting *START_DATE* From the *END_DATE* Columns
2. *=(W2-V2)*
3. Formatted Time as HH:MM:SS (37:30:55)
4. *Home → Number → Format Cells → Time → HH : MM : SS*(37 : 30 : 55)

3.12 Created New Column Called *DAY_OF_WEEK*

1. Calculated Day of Week Each Crime Was Committed by Using the *=WEEKDAY* Command.
2. *=WEEKDAY(B2,1)*
3. Formatted as Number With No Decimals
4. $Home \rightarrow Number \rightarrow Format\,Cells \rightarrow Number \rightarrow Decimal\,Places: 01 = Sunday, 7 = Saturday$

3.13 Created New Column Called *INCIDENT_PER_WARD*

5. Calculated How Many Incidents Had Occurred in Each Ward Using the *=COUNTIF()* Function
2. $Right\,Click\,Column \rightarrow Insert \rightarrow = COUNTIF(L:L,"1") \rightarrow Repeat\,For\,All\,Wards\,(2-7)$

3.14 Created New Column Called *INCIDENTS_BY_DAY*

1. Calculated the Frequency of Each Crime Committed by Day of Week Using the *=COUNTIF()* Function
2. *=COUNTIF(Z:Z, "1")* $\rightarrow Repeat\,For\,Each\,Day\,of\,Week\,(2-7)$

3.15 Created New Column Called *TOTAL_INCIDENTS_PER_YEAR*

1. Determined How Many Incidents Had Occurred Each Year Using the *=COUNT()* Function
2. *=COUNT(Z:Z)* $\rightarrow Repeat\,For\,Each\,Year$

3.16 Created New Column Called *TOTAL_POP_YEAR*

1. Input the Total Population of D.C. by Year.

2. Data was obtained through the U.S. Census Bureau

3.17 Created New Column Called *CRIME_RATE*

1. Calculated Crime Rate by Dividing *TOTAL_POP_YEAR* by *TOTAL_INCIDENTS_PER_YEAR*

2. $Create\ New\ Column \rightarrow = (AA2/AB2) \rightarrow Repeat\ For\ Each\ Year$

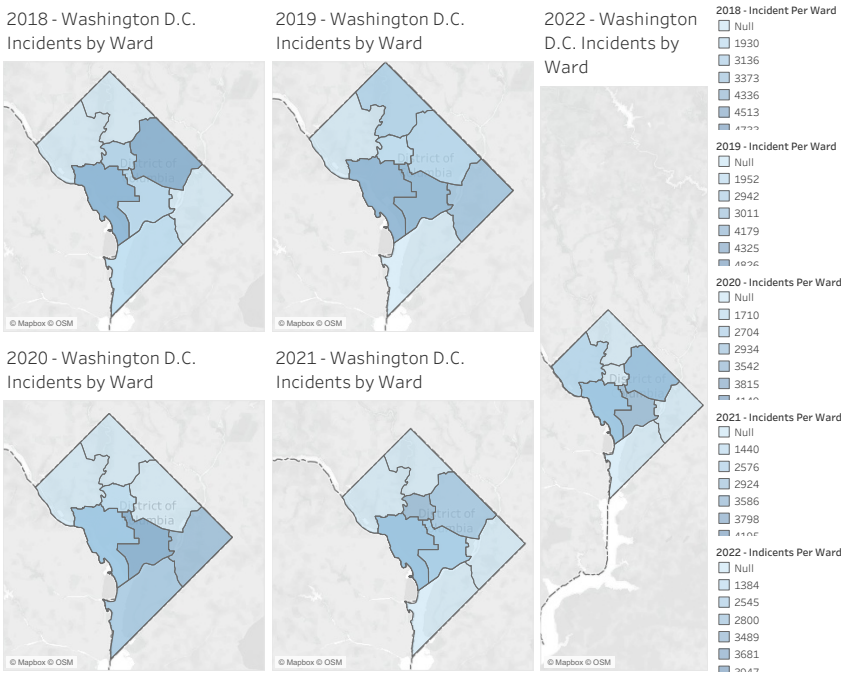
3.18 Created New Column Called *YEAR_OF_INCIDENTS*

1. Input Years 2018-2022

Subsequently, I consolidated the five datasets into a singular Excel document named *Crime_Incidents_2018_to_2022.xlsx*. The forthcoming step entails employing **Tableau** to craft visualizations based on the manipulated data.

Chapter 4

SHARE - Visualization 1: Crime Distribution Map



A link to the interactive dashboard can be found **here**. For a more specific view, you can access each sheet by clicking sheets 7-11.

4.1 Key Tasks

1. Determine the best way to share your findings
2. Create effective data visualizations
3. Present your findings
4. Ensure your work is accessible

4.2 Deliverable

☐ Supporting visualizations and key findings

4.3 Background/Key Findings

The objective of this graphic is to portray a geographical visualization (map) showcasing instances of criminal activity. The dashboard I designed aims to highlight regions with high crime incidents reported or clusters, as well as the distribution of these crimes across the city, categorized by year and separated by ward. When looking at the legends, you can observe that the color gradients are dependant on the frequency of incidents. Deeper shades of blue correspond to higher incident counts, while lighter shades indicate lower occurrences. These maps reveal two interesting trends. Firstly, a decline in overall incidents becomes apparent, and secondly, a noticeable decrease in incidents emerges from 2020-2022, particularly in wards 7 8, which encompass Southwest (SW) and Southeast (SE) D.C.

The dashboard has facilitated several noteworthy insights. The drop in reported incidents beginning in 2020 can potentially be attributed to the George Floyd protests of June 2020, during which a surge in mistrust towards law enforcement was witnessed. This shift may have led to fewer individuals reaching out to the police in situations that might warrant their involvement. This trend appears to have persisted into 2022. Additionally,

a consistent pattern emerges in which wards 7 8 consistently report fewer incidents compared to other wards, such as wards 3 4, which are notably affluent and situated deep within Northwest (NW). This phenomenon can be traced back to historical factors, such as long-standing community distrust towards law enforcement, spanning multiple generations. This pattern seems to become even more apparent after 2020. The central area of the city encompasses wards 1, 2, 5, and 6, showing a blend of economically disadvantaged and affluent communities. This contrast might contribute to the consistent reporting of incidents in this region.

4.4 Hypothesis

Prior to conducting my analysis, I formulated a hypothesis that projected a substantial surge in reported incidents within wards 7 8, particularly post-2020. Also, I anticipated a minimal occurrence in wards 3 4, with the city center falling within a moderate range of reported cases. This combination primarily came from a compilation of anecdotes, news coverage, and the sentiment associated with that particular city area.

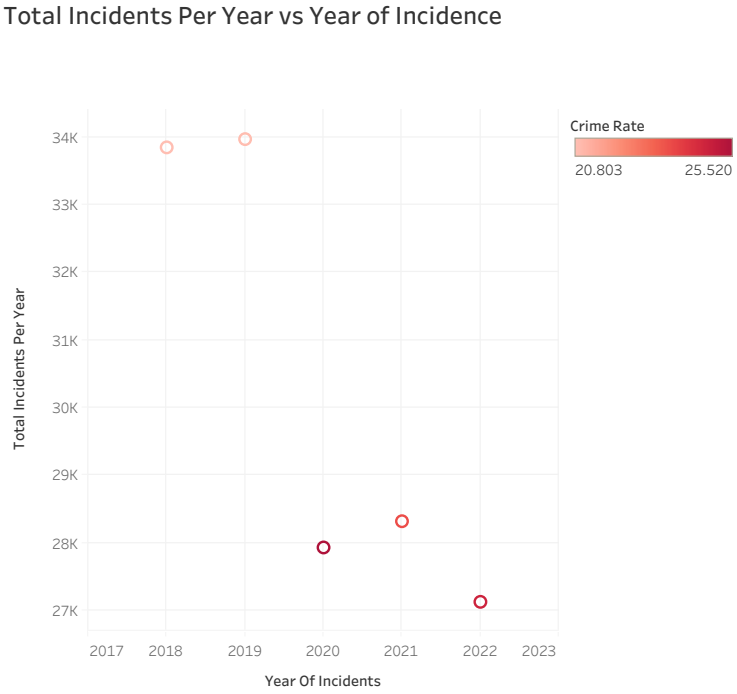
Upon conducting the analysis, it became clear that I had not accounted for the potential decrease of reported incidents in this specific region. My initial assumption of an elevated number of reports was inaccurate, prompting a realization of the societal influences that can inadvertently affect the data collection processes – in this instance, crime reporting.

This experience shows the significance of comprehending the societal dynamics that can significantly impact data patterns, serving as a lesson on the complex interplay between perception and hard- evidence.

However, an important question arises due to the reduced incident reports: How can the crime rate be on the rise? The prevailing narrative repeatedly highlights an increase in crime, which seems opposite with the lower number of reported incidents. Allow me to offer a brief explanation.

Chapter 5

SHARE - Visualization 2: Crime Trend Over Time



A link to the interactive sheet can be found **here**

5.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

5.2 Deliverable

☐ Supporting visualizations and key findings

5.3 Background/Key Findings

The concept behind this graphical representation aims to create a line chart or area chart that effectively portrays the trajectory of crime over a specified time-frame, spanning from 2018 to 2022. Within this context, our focus is directed towards measuring the crime trend over the mentioned period, comparing the total incidents per year against their respective years of occurrence.

By applying this approach, we create a comprehensive visualization of the crime trend. This graphical depiction unveils a distinct and notable drop in reported incidents, particularly from the year 2020 onward. A closer examination of the plotted data points reveals a significant transition in hue, where the shade of red changes into a deeper and richer tone between the years 2020 and 2022. This significant shift is attributed to the addition of a filtering mechanism, which effectively visualizes the crime rate for each individual year. In this context, the increase of red hue signifies an escalated crime rate.

This visualization unfolds two intriguing insights. Firstly, the decline in reported incidents becomes apparent within the 2020-2022 time-frame. Conversely, despite the dwindling number of reported incidents during this period, the crime rate experienced a

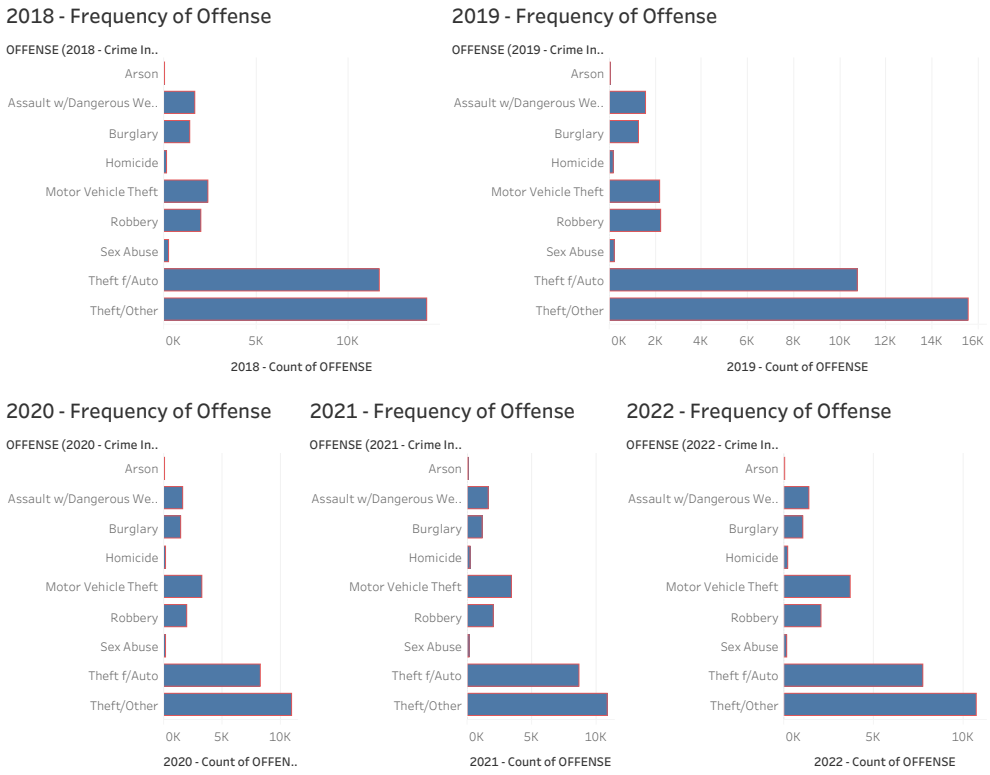
surge. This intriguing observation enforces the reality that even in instances of decreased incident reporting to law enforcement, a noticeable elevation in the crime rate persists.

5.4 Hypothesis

Prior to crafting this visualization, I formulated a hypothesis rooted in the idea that a decline in incident reporting to law enforcement would coincide with a rise in overall crime. This theory is based on online news reports. Luckily, my theory found validation as it aligned seamlessly with corroborative accounts of crime trends in D.C. This alignment of my analysis with independent crime reports show substantial validation to the accuracy of my analysis.

Chapter 6

SHARE - Visualization 3: Crime Type Comparison



A link to the interactive dashboard can be found **here**. For a more specific view, you can access each sheet by clicking sheets 7-11.

6.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

6.2 Deliverable

☐ Supporting visualizations and key findings

6.3 Background/Key Findings

The primary objective behind this visualization is to showcase bar charts for the purpose of comparing distinct categories of crimes. The goal is to underscore the prevalence or proportion of specific criminal activities, by identifying both the most and least frequent types of crimes. To provide a time-based perspective, the data is distributed by year, giving the opportunity to see fluctuations over time.

This dashboard yields interesting insights that are ready for interpretation. Across each year, a consistent pattern emerges, with theft and auto theft registering as the dominant crimes occurring in D.C. Following these, instances of robbery, assault with a dangerous weapon, and burglary are notable. In contrast, the least frequently occurring crimes are arson, sex abuse, and homicide.

One particularly noticeable trend that jumps out relates to the surge in motor vehicle theft, commencing in 2020. This observation becomes intriguing when compared with earlier data visualizations, which highlighted a substantial reduction in reported incidents from 2020 onward, in comparison to the preceding years of 2018-2019. This implies that

despite the diminished number of reported incidents, a notable increase in this specific crime statistic persists.

Furthermore, a noticeable insight is obtained from the constant reported theft occurrences across each year. This persistence underscores the nature of this specific crime category, which remains a big concern in D.C., even factoring in the decline in police reports.

Another visible trend that caught my attention involves the gradual rise in homicides on an annual basis. This observed pattern closely aligns with reports indicating an ongoing surge in homicides, particularly within the year 2023 (Hermann, 2023).

In sum, this visualization substantiates the nature of crime trends, offering insights into both overall patterns and counter intuitive variations, underscoring the intricate dynamics that shape the criminal landscape.

6.4 Hypothesis

Prior to crafting this data visualization, I found myself in a space of uncertainty, unsure of the patterns that might unfold. Earlier graphics had portrayed the notion that low incident reporting might not unveil the comprehensive narrative we seek. Despite this, I began to formulate hypotheses, in hopes that theft-related crimes would dominate the landscape, and Motor Vehicle Theft would emerge as a focal point. This speculation was rooted in the constant reports from local news and social media platforms, illuminating the pressing nature of this offense.

Simultaneously, I theorized that Homicides would surge, commencing from 2020. This projection was based on narratives stemming from news outlets and social media sources, shedding light on an alarming increase in stabbings and shootings.

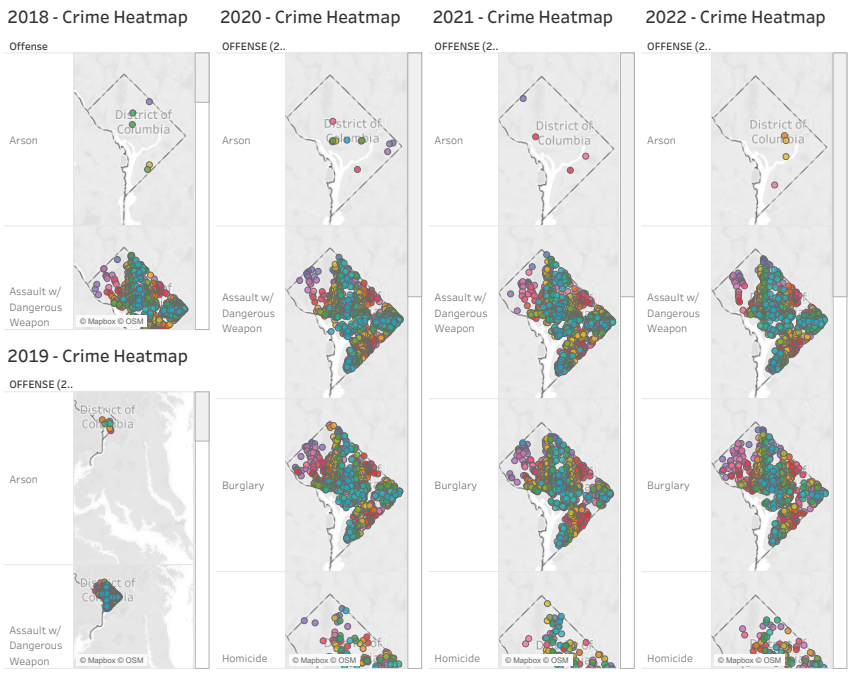
Following the unveiling of the crime comparison graphs, a sense of validation sweeps over my hypotheses. The data indicates that theft is the most persistent criminal activity. Additionally, the projection relating to Homicide trends finds assurance in the visualized data, revealing a consistent uptick in homicides year after year.

An intriguing avenue for exploration arises, one that shows comparing these yearly trends against historical data spanning over two decades. Such analysis could yield fasci-

nating insights into the changing nature of crime dynamics and their impact on society.

Chapter 7

SHARE - Visualization 4: Crime Heat-map



A link to the interactive dashboard can be found **here**. For a more specific view, you can access each sheet by clicking sheets 2-6.

7.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

7.2 Deliverable

☐ Supporting visualizations and key findings

7.3 Background/Key Findings

The fundamental objective of this visualization is the creation of a comprehensive heat map, accurately depicting the density of criminal activities across the urban landscape. Employing a spectrum of color gradients, the visualization portrays the spatial distribution of crime incidents. A technical limitation emerged while creating the map, as Tableau was unable to plot each incident in a legend capable of showing all incident types. Nonetheless, this challenge was confronted with innovative solutions, culminating in the identification of high and low crime density zones, poised for targeted analysis.

Within this dynamic dashboard, the geographical distribution of each crime unfolds across the city, categorized according to crime type. This spatial alignment of crime types on a map provides an amazing geographical portrayal that adds to the visualization's impact. Inside this heat map are a multitude of insights, though for the sake of time, we shall spotlight the major patterns.

Drawing our focus to the crime type of Homicides, a fascinating discovery materializes. Despite the lower count of incident reports, the Homicide occurrences cluster toward the Southwest (SW) and Southeast (SE) areas, setting this region apart from the

city's remaining quadrants. This concentration indicates an imcreased likelihood of life-threatening harm for individuals residing within this geographical region. Importantly, this clustering of Homicides persists consistently across each year.

Notably, the prevalence of Theft and Motor Vehicle Theft occurs prominently, with incidents clustering everywhere throughout the city, going beyond quadrant divisions. A similar trend unfolds with the crime category of Assault with a Dangerous Weapon. This pattern illuminates a crucial insight – these specific crime types possess an inherent likelihood of taking place regardless of one's location within the city.

All in all, this visualization not only empowers the audience with a solid grasp of crime density distribution but also ingrains valuable insights into crime dynamics that go beyond geographical boundaries, ultimately enhancing our understanding of urban safety considerations.

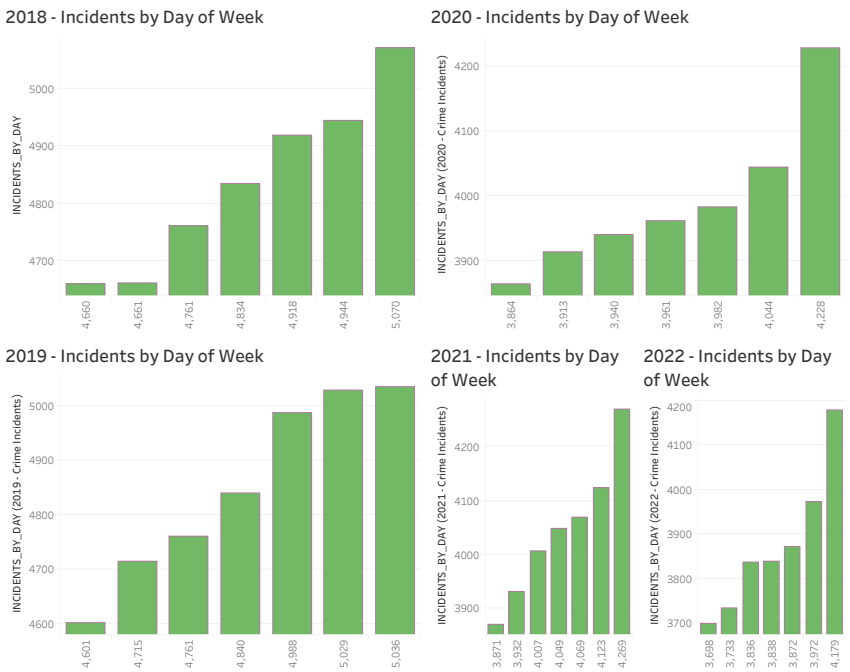
7.4 Hypothesis

Prior to constructing this map, I created a hypothesis that a collection of crime incidents would materialize in the southern quadrants of the city, due to an established precedent. As previously demonstrated, despite the diminished count of reported incidents, an escalation in the overall crime rate persisted. This observation led me to suspect that heightened activity might still be observable in this specific geographical locale.

Upon conducting the analysis and creating the visual representation, a notable discovery emerged. The crime type that displayed an overall increase commencing in 2020 was Homicide. This revelation resonates with the earlier conjecture and substantiates the hypothesis that an elevated prevalence of this specific crime would manifest within the southern region of the city.

Chapter 8

SHARE - Visualization 5: Day of Week Comparison



A link to the interactive dashboard can be found **here**. For a more specific view, you can access each sheet by clicking sheets 7-11.

8.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

8.2 Deliverable

☐ Supporting visualizations and key findings

8.3 Background/Key Findings

This bar chart effectively captures the incident frequency distribution across different days of the week, spanning the years from 2018 to 2022. Organized chronologically from Sunday to Saturday along the x-axis, each bar depicts the occurrences for their respective day.

The resulting dashboard distributes the reported incidents, giving us a total breakdown of occurrences for each day. This distribution offers an illuminating insight into the data. Interestingly, the trend exhibits a gradual increase in crime incidents as the week progresses, ending with the peak observed on Saturday, which records the highest number of reports. A clear pattern emerges, whereby the week's beginning appears more calm, slowly transitioning into a period of heightened activity. This shift warrants an exploration into the underlying factors driving these fluctuations.

One plausible interpretation for this pattern centers around the dynamics of weekends and the conclusion of the workweek. Weekends often give individuals with additional leisure time, potentially contributing to an increased likelihood for engaging in criminal activities. Moreover, the spike in reported incidents during Friday and Saturday could

be attributed not only to criminals but also to the general public enjoying their weekend freedom, partaking in various activities. This elevation in pedestrian presence creates an environment for both criminal elements and ordinary individuals to interact, thereby elevating the potential for criminal acts to transpire.

Overall, this insightful visualization unravels the complex relationship between temporal dynamics and crime trends, inviting analytical thinking into the contextual factors shaping these patterns.

8.4 Hypothesis

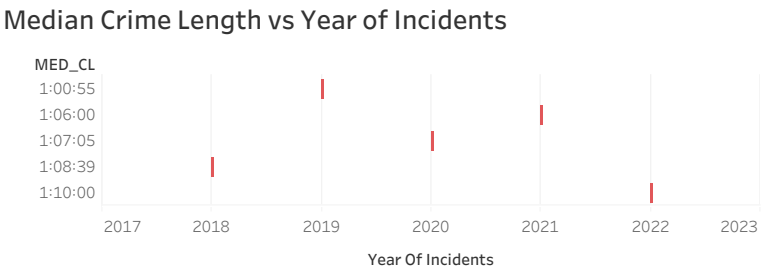
In anticipation of creating this graph, I held the belief that weekends, especially Friday and Saturday, would exhibit the highest tally of reported incidents. This theory comes from the premise that weekends give individuals more leisure time, allowing them to venture beyond their residences for recreational pursuits. Upon the completion of the visual representation, our hypothesis was affirmed.

However, one intriguing revelation came about that had not been initially considered. The gradual uptick in reported incidents throughout the week emerged as an unexpected pattern. While I had indeed envisioned lower incident counts during weekdays compared to weekends, I had believed there would be a bigger gap. As the graph came together, it became evident that while a detectable gap does exist between weekdays and weekends, it might not be immediately visible to the observer.

This observation highlights the complexities inherent in crime trends, where the interplay of factors can bring both expected and unexpected outcomes. In essence, this visual analysis indicates the value of data-driven insights in improving our understanding of human behavior and its correlation with temporal dynamics.

Chapter 9

SHARE - Visualization 6: Crime Length



A link to the interactive sheet can be found **here**. For a more specific view, you can access the sheet by clicking to sheet 1.

9.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

9.2 Deliverable

☐ Supporting visualizations and key findings

9.3 Background/Key Findings

The idea behind the development of this Gantt bar graph was to explore potential intriguing revelations that might come from analyzing the duration between the start and end times of different crimes. The objective was to detect whether any noteworthy patterns or insights could be generated from these crime duration intervals, measured in terms of median values across different years. When choosing the median as the metric of choice, the intention was to prevent the impact of outliers, which might skew results, particularly when crime lengths extend to weeks or even months.

Once the visual representation was created, a distinct observation came about: there is no substantial correlation or noticeable insights that can be readily extracted. The crime duration lengths appear consistent across the years, characterized by an even distribution with a minimal range variation of approximately 10 minutes.

It's essential to acknowledge that this visualization was created with the intent of transparency, displaying the thought process behind the exploration. It highlights a fundamental truth in data analysis: not every measured variable will yield a significant result or profound insight. This demonstration reminds us that conducting research inherently

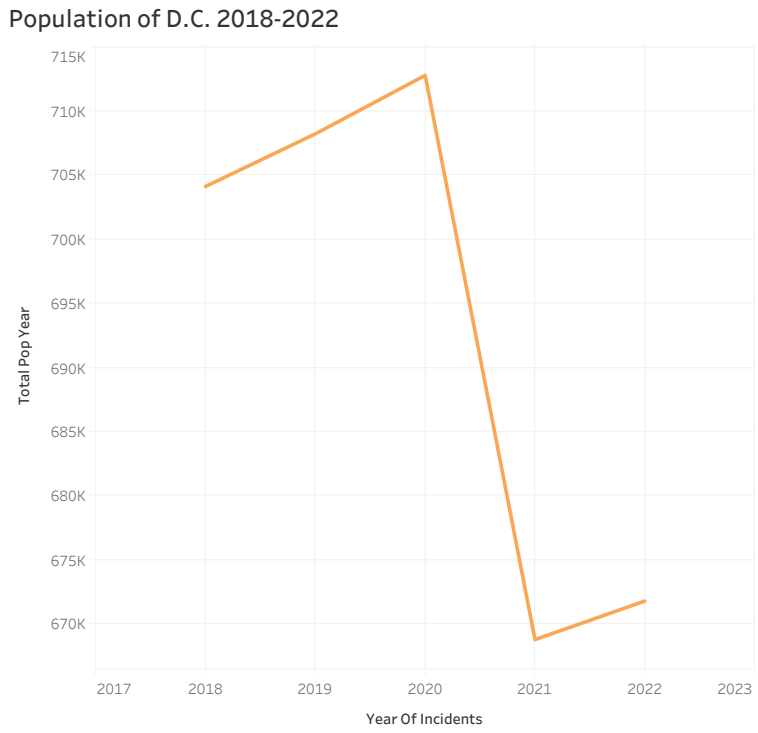
involves both profound discoveries and instances where our analysis shows no statistical significance.

9.4 Hypothesis

My original hypothesis was based on the idea of uncovering a positive correlation between crime duration and certain factors, specifically the potential impact of police workload on their ability to close cases efficiently. I suspected that a greater workload might deter officers from promptly closing cases, thereby lengthening crime duration. However, once I generated the graphic, this hypothesis did not come to fruition, as no discernible correlation materialized from the analysis. It may be important to note that as revealed earlier, the caseload diminished post-2020, indicating a potential shift in dynamics that contributed to this outcome.

Chapter 10

SHARE - Visualization 7: D.C. Population



Change in D.C. population from 2018-2022

A link to the interactive sheet can be found **here**. For a more specific view, you can access the sheet by clicking to sheet 12.

10.1 Key Tasks

1. Determine the best way to share your findings.
2. Create effective data visualizations.
3. Present your findings.
4. Ensure your work is accessible.

10.2 Deliverable

☐ Supporting visualizations and key findings

10.3 Background/Key Findings

The purpose of creating this line graph is to shed light on the population dynamics through the designated time-frame. In the context of extensive crime, the exploration seeks to determine if any correlation exists between population change and the prevalent criminal activities. To achieve this, the population data was sourced from the U.S. Census Bureau.

The line graph closely aligns population fluctuations with reported incidents by year and the corresponding crime rates. From 2018 to 2020, a steady population increase of approximately 8,000 individuals was observable. However, an interesting trend was detected beyond 2020, marked by a substantial population decline of around 44,000 fewer residents. This significant observation gains even more significance as it coincides with a decrease in reported incidents and a simultaneous increase in the crime rate post-2020. This interesting trend reveals a range of insights.

Firstly, it becomes apparent that the beginning of the 2020 pandemic appears to have prompted a mass exodus of residents from the city. This occurrence could potentially be attributed to the current surge in crime, causing a migration away from urban areas. This

population exodus might also provide an explanation for the dip in reported incidents, as fewer people remained in the city to report incidents with law enforcement.

However, a minor increase in population by around 3,000 individuals from 2021 to 2022 emerges as something to take note of. This parallel mirrors the population growth observed during the years 2018 to 2019. It indicates a potential population rebound, although the full recovery from the pandemic-induced decline might be a long process.

In summation, this insightful line graph unravels the relationship between population shifts, crime dynamics, and external factors such as the pandemic, indicating the variation that shapes urban landscapes.

10.4 Hypothesis

My initial hypothesis suggested a decline in population subsequent to 2020. This projection was due to the observation of an escalating crime rate, leading me to believe that certain individuals might choose to relocate to perceived safer environments. While the outcome proved to be intriguing, I must confess that it didn't strike me as particularly surprising, given the circumstances.

Conclusion

In the constantly changing urban fabric of Washington D.C., this data analyst project has highlighted the multi-faceted landscape of crime thanks to data-driven exploration. By using the capabilities of Tableau, we have analyzed crime incidents, discovered temporal trends, and graphed the spatial relationship of criminal activities across the city.

Through a complex interplay of visualizations, we have researched the effects of crime, diving deep into the connection between crime rates and key factors. Our insights have offered a compelling narrative of how the societal impact of crime occurrences underscores the importance of context in creating a safer urban environment.

U.S. Capitol - Washington D.C.

The tableau visualizations I present are not just data points; they represent a need for action. Equipped with evidence, our analysis empowers stakeholders and decision-makers to re imagine crime prevention strategies, allocate resources accordingly, and creating policies that resonate with the diverse communities of Washington D.C.

As we conclude this project, we recognize that data is not an endpoint, but a powerful tool for change. Our exploration of crime trends in Washington D.C. can be the start of trending towards safer neighborhoods, stronger partnerships, and a more secure future.

By taking the lessons learned from the data, we take steps towards a shared vision of vibrant, resilient communities where every line on a graph tells a story.

I strongly urge D.C. lawmakers to embrace these insights as the beginning for positive change. A special thanks to the data, technology, and the commitment of those who strive to make Washington D.C. a safer metropolis for all.

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