

Trends in Carjacking

What You Need to Know

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The COVID-19 pandemic, as well as the social justice protests of summer 2020 and other factors, altered the motives, means, and opportunities to commit crimes. Since shortly after the onset of the pandemic, the Council on Criminal Justice (CCJ) has published [a series of reports](#) tracking changing rates of violent and property crime in large cities across the United States to inform public understanding of changing patterns in a dozen types of offenses.

This report takes a closer look at carjacking, one of the most concerning categories of crime, using a sample of 10 large U.S. cities (see Figure 4 for sample cities) that have regularly reported carjacking data over the past six years. It also examines non-carjacking robberies and motor vehicle thefts, since understanding crimes with similar motives (acquisition of a vehicle) but different means (stealing with or without force or threat) may advance understanding of patterns in carjacking. In addition, the report explores carjacking at a neighborhood level in San Francisco.

The study covers the two years before the onset of the COVID-19 pandemic, which disrupted social life in the U.S. and shifted many crime trends, through 2023, the most recent year of complete data. It also analyzes incident characteristics for these crimes, including the use of firearms as well as victimization and case clearance rates, from 2018 through 2022, the most recent year for which detailed crime statistics were available at the time of the analysis. More recent topline trends in these offenses, through mid-2024, are available in CCJ's [mid-year crime trends report](#), and for robbery and vehicle theft in AH DataLytics [Real-Time Crime Index](#) and NORC's [Live Crime Tracker](#).

Key Takeaways

- **Rates of carjacking and motor vehicle theft have increased substantially** across the country in recent years, while overall robbery has declined and returned to

roughly pre-2020 levels.

- Even with increases in reported carjacking from 2020 through 2023, **long-term trends across the U.S. suggest that the carjacking rate in those years was substantially lower** than it was from the mid-1990s to the early 2020s. Like carjacking, robberies and motor vehicle theft have experienced large declines since the mid-1990s.
- In a sample of 10 large cities, eight **experienced higher reported carjacking rates in 2023 than in 2018**. Across the sample, the average carjacking rate was 20.1 (per 100,000) in 2018 and 37.9 in 2023. Each of the 10 cities experienced an increase in motor vehicle theft, with **the average rate rising from 475.6 in 2018 to 1,070.5 (more than one vehicle stolen per every 100 city residents) in 2023**. Only two cities experienced higher robbery rates, with the average rate decreasing from 306 in 2018 to 284.5 in 2023.
- From 2018 to 2022, **most carjackings (56% in 2018 and 62% in 2022) involved a firearm and about a quarter (28%) resulted in victim injury, including death**. A little fewer than half (44%) of carjackings involved two or more reported offenders. The number of reported offenders and victim injuries during carjacking incidents stayed fairly flat during the time period.
- In 2018, the rate of carjackings committed by adults (13.9 per 100,000 adults), as measured by incidents reported to police, was slightly higher than the juvenile rate (12.4 per 100,000 juveniles). **By 2023, the juvenile rate (19.8) was a little above the adult rate (18.6)**. Across the study period, the adult offending rates for robbery and motor vehicle theft were notably higher than the juvenile rates.
- **Carjacking victims and reported offenders were disproportionately male and Black**. The shares of victims and reported offenders who were reported to be male were unchanged (71% and 85%, respectively) from 2018 to 2022. From 2018 to 2022, the White carjacking victimization rate increased by 58% and the Black victimization rate increased 43%. The offending rate for White individuals committing carjackings increased 41%; for Black individuals, it increased 51%.

Glossary

- **Carjacking:** Theft or attempted theft of a motor vehicle by force or threat
- **Clearance Rate:** The number of cases cleared by arrest or other means divided by the

number of offenses

- **Motor Vehicle Theft:** Theft or attempted theft of a motor vehicle without force or threat
- **National Crime Victimization Survey (NCVS):** A survey developed by the Bureau of Justice Statistics and conducted annually by the Census Bureau that serves as the primary national data source on criminal victimization. The survey collects information from approximately 240,000 individuals in 150,000 U.S. households representative of the nation's demographics. Participants, aged 12 and above (excluding those homeless or in correctional facilities), are interviewed about their experiences with criminal victimization, including frequency, types, and impacts. Data cover non-fatal personal crimes (e.g., assault, robbery, sexual assault) and household property crimes (e.g., burglary, motor vehicle theft), along with reporting to law enforcement.
- **National Incident-Based Reporting System (NIBRS):** A comprehensive system for collecting and reporting incident-level data on crimes reported to law enforcement in the U.S. Part of the Federal Bureau of Investigation's Uniform Crime Reporting Program, NIBRS is the successor to the Summary Reporting System, which provides limited information on a select number of crimes. NIBRS captures information on a wide range of offenses, including details such as victim demographics, offender characteristics, and the relationship between victims and offenders.
- **Recovery Rate:** The rate of stolen property that was recovered by a law enforcement agency
- **Robbery:** Thefts, or attempted thefts, committed with force or the threat of force. For this report, carjacking is excluded from the robbery counts and rates.

Introduction

In its [year-end analysis of crime trends](#) in 2023, CCJ reported that carjacking rates in a sample of 10 cities increased 93% from 2019 to 2023. The rise in carjacking coincided with increased public interest in the offense. Google news data indicate that searches for "carjacking" increased by 236% from 2014 to 2023 (see Figure S1 of the [supplemental methodology report](#)). The crime made national headlines after the carjacking of a U.S. congressman in October 2023 and the murder of a former Trump Administration official¹ during a carjacking in January 2024.²

Because carjacking involves the theft of a vehicle by threat or force, it is considered a robbery. The increase in carjacking is notable, in part, because other forms of robbery dropped from 2019 to 2020 and, by 2023, were only about 1% higher than in 2019. Like carjackings, motor vehicle thefts increased from 2019 to 2023, rising 105%. Research suggests that while carjacking shares similarities between other robberies and vehicle theft, there are important differences. In a robbery, the person committing the crime can observe the intended target and wait for the right opportunity, but lacks information about what valuables or cash the victim may be carrying. People committing carjackings, by contrast, have a much narrower window of time in which to act and know exactly what they will acquire. Research finds that people who commit carjackings are distinct from those who commit vehicle thefts, or at least have a strong preference for one crime type over the other. For instance, people who carjack may elect that method because they feel they can control the situation and not damage the vehicle in the process of taking it. People who choose motor vehicle theft, on the other hand, may prefer avoiding engagement with another individual while committing the crime.³

While interviews with those who offend have provided researchers with rich insight into the process of carjacking, robbery, and vehicle theft and what motivates those who commit them, descriptive analyses comparing these crimes are lacking. Given that the number of carjackings and motor vehicle thefts [increased dramatically in 2023](#), it's reasonable to believe that some characteristics of these offenses may have shifted in recent years.

This report examines carjacking, robbery, and vehicle theft patterns from January 2018—before the onset of the COVID-19 pandemic—through December 2023. It includes three analyses. The first looks at specific trends for 10 cities that consistently reported carjacking during the timeframe.⁴ The second uses data from the U.S. Justice Department's National Incident-Based Reporting Program (NIBRS)⁵ to analyze offense characteristics of the three crimes from 2018 to 2022. (Note: At the time the analyses for this report were conducted, NIBRS data were available only through 2022.) Because there is no specific carjacking offense recorded through NIBRS, robbery in which a vehicle was the stolen property was classified as a carjacking. The third analysis examines carjacking, robbery, and vehicle theft changes in San Francisco neighborhoods from 2018 to 2023. Please see the [supplemental methodology report](#) for details.

Carjacking has decreased since the 1990s but

increased since 2020

Long-Term Trends From the NVCS

Because carjacking data are not explicitly tracked by the FBI, the only national long-term trend data source is the National Crime Victimization Survey (NCVS). A recent Bureau of Justice Statistics (BJS) publication based on the survey found that from 1995 to 2021, carjacking decreased by 78% (see Figure 1).⁶ This long-term trend is generally similar to the trajectory for total [robbery, vehicle theft, and other offenses](#).

Figure 1. Carjacking Rate per 1,000 People Age 16 or Older, 1995-2021

2018 to 2023 Trends in a Sample of 10 Cities

Figure 2 shows carjacking, robbery, and vehicle theft rates for 10 cities from 2018 to 2023. Across the sample, the average carjacking rate was 20.1 (per 100,000 people) in 2018 and 37.9 in 2023. Motor vehicle theft also increased during this period, from an average rate of 475.6 to 1,070.5, while the average robbery rate decreased from 306 per 100,000 people to 284.5. Comparing the relative change in the rates can be difficult given the large difference in overall rates. Figure 3 shows the percentage change in the rates for each offense from 2018. From 2018 to 2019 levels of all offenses slightly declined. By 2021, however, carjacking and motor vehicle theft were 89% and 39% higher, respectively, while robbery was 26% lower than in 2018. From 2022 to 2023, carjacking began trending downward while motor vehicle theft continued to climb. While robbery increased during this period, it still remained below 2018 levels. By 2023 carjacking remained 89% higher, motor vehicle theft was 125% higher, and robbery was 7% lower than in 2018. Overall, all three offenses exhibited different trends. Carjacking increased steeply from 2019 to 2021 and then flattened out. Robbery dipped and then began to increase into 2022 and 2023. Like carjacking, motor vehicle theft was elevated in 2023, and continued to increase through the end of the year.

Figure 2. Carjacking, Robbery, and Motor Vehicle Theft Rates, 2018-2023

Figure 3. Percentage Change in Carjacking, Robbery, and Motor Vehicle Theft,

2018-2023

Figure 4 shows the percentage change in offense by city. In eight of the 10 cities, carjacking was higher in 2023 than in 2018. While motor vehicle theft was also higher in 2023 than in 2018 in all 10 cities, the patterns year-over-year generally do not align. In Baltimore, for instance, carjacking peaked in 2022 (80% higher than in 2018), but motor vehicle theft increased by nearly 190% from 2022 to 2023. For most of these cities, robbery was lower in 2023 compared to 2018 (Chicago and Washington DC are exceptions). Interestingly, in Chicago and some other cities, robbery trended upward while carjacking trended downward in certain years. Overall, these patterns are too inconsistent to draw general conclusions at the city level. City-specific offense trends are available [here](#).

Figure 4. City-Specific Percentage Change in Carjacking, Motor Vehicle Theft, and Robbery, 2018-2023

Offense Characteristics

This section analyzes and compares characteristics of carjacking, other robberies, and motor vehicle theft using data from 97 law enforcement agencies, with a population of at least 100,000, that reported crime data to NIBRS. The analysis extends through 2022 because NIBRS data for 2023 were not available at the time the research was conducted. Carjacking, motor vehicle theft, and non-carjacking robbery rates can be found in Table S1 of the [supplemental methodology report](#).

Compared to carjacking, fewer robberies involved two or more offending individuals.

From 2018 to 2022, the share of carjackings and other robberies that involved two or more offending individuals remained relatively stable. On average, about 44% of carjackings and 34% of robberies were committed by two or more people. A slightly larger share of robberies had an unknown number of offending individuals involved across all five years, and the “unknown” category increased slightly in 2022 for both carjackings and robberies.

Figure 5. Number of Offending Individuals for Carjackings and Robberies, 2018-2022

Juvenile and adult carjacking offense rates were similar. Adult rates were higher for robbery and motor vehicle theft.

In 2018, the adult carjacking rate was 13.9 per 100,000 adults and the juvenile rate was 12.4 per 100,000 juveniles. By 2022, these rates increased to 18.6 for adults and 19.8 for juveniles, representing a 33% and 59% increase, respectively. Adult offending rates in 2022 were higher than juvenile rates for robbery (111.7 for adults and 64.6 for juveniles) and motor vehicle theft (187.1 for adults and 126.7 for juveniles). For both groups, robbery rates decreased (37% for adults and 48% for juveniles) in 2022 compared to 2018, while vehicle theft rates were higher (14% for adults and 13% for juveniles).

Figure 6. Juvenile and Adult Offense Rates, 2018-2022

Victims of carjacking and robberies, as well as reported offenders, were disproportionately male and Black.

About 70% of carjacking victims were male, compared to 66% of robbery victims. From 2018 to 2022, the share of male victims remained unchanged (Figure 7).

Figure 7. Share of Male Carjacking and Robbery Victims, 2018-2022

The carjacking victimization rate for Black victims was 43% higher in 2022 (38 per 100,000) than in 2018 (27 per 100,000 people). The rate was 58% higher (rising from 10 in 2018 to 17 in 2022) for White victims (Figure 8). The rate of robbery victimization, however, decreased for both Black and White victims (by 33% and 25%, respectively). As with carjacking, motor vehicle theft victimization was higher for Black (55%) and White (37%) victims in 2022 than in 2018.

People who identified as Black or White comprised about 93% of carjacking victims; 4% of victims identified with other races and 3% of victim race information was missing or

unknown. Information about Hispanic ethnicity was missing for roughly 20% of carjackings and therefore was not examined for this report.

Figure 8. Victimization Rates by Race, 2018-2022

The share of reported offenders who were male remained stable from 2018 to 2022 for carjacking, robbery, and motor vehicle theft (Figure 9). The share of reported carjacking and robbery offenders who were male held at roughly 85% throughout the study period, while about 75% of reported vehicle theft offenders were male. The sex of the reported offender was missing in about 19% of carjackings and robberies; more than 75% of vehicle theft incidents did not have information on the offender's sex. Therefore, these results should be interpreted with caution.

Figure 9. Share of Reported Male Offenders, 2018-2022

The Black offending rate was higher than the White rate from 2018 to 2022 for carjacking, robbery, and motor vehicle theft (Figure 10). The Black carjacking offending rate was 51% higher in 2022 (88.6 per 100,000 people) than in 2018 (58.8 per 100,000). Similarly, the white rate was 41% higher in 2022 (10.9 per 100,000) than in 2018 (7.8 per 100,000). Motor vehicle theft followed a similar trend, with the Black offending rate 23% higher and the White rate 10% higher in 2022. Robbery offending rates for both groups decreased from 2018 to 2022, dropping 42% for Black individuals and 29% for White individuals. These figures should be interpreted with caution as race information was missing for about 25% of reported carjacking and robbery offenders and 79% of motor vehicle theft offenders. People who identified with races other than Black or White comprised 2% or less of reported offenders, and across the three crime types.

Figure 10. Offending Rates by Race, 2018-2022

Fewer than half of carjackings and robberies occurred on a street or highway.

From 2018 to 2022, the share of carjackings that occurred on a street or highway dropped 8%, from 41% to 38% (Figure 11). About 20% of carjackings occurred at or around a

residence. The remainder of locations are classified as “various” and include gas stations, stores, and hotels. Carjackings at these establishments likely occurred in their parking lots, but the locations are not classified as such.

Over this same period, the share of robberies that occurred on a street or highway (including sidewalks) decreased by 18%, dropping from 32% to 26%. About 18% of robberies occurred in or around residences, and the remaining mostly occurred in parking lots or in businesses. Robberies that occur in the parking lot of a store may carry an offense location classified as either a store or a parking lot. NIBRS has more than 40 location codes, and information needed to determine precise incident locations is insufficient.

Figure 11. Share of Carjackings and Robberies That Occurred on a Street or Highway, 2018-2022

Most carjackings involved a firearm, though most did not end in death or injury.

Nearly nine in 10 carjackings (89%) and robberies (88%) involved a weapon. Firearms were the most common weapon used, followed by “personal weapons” (e.g., hands and feet). The share of carjackings that involved a firearm increased from 56% in 2018 to 62% in 2022 (Figure 12). In contrast, the share of robberies that involved a firearm generally stayed flat over this period, at around 43%. Personal weapons were used in about 20% of carjackings and 31% of robberies.

Figure 12. Share of Carjackings and Robberies That Involved a Firearm, 2018-2022

The share of carjacking and robbery incidents that involved injuries stayed relatively flat from 2018 to 2022 (Figure 13). Approximately 6% of carjackings involved a major injury to the victim, 23% involved a minor injury, and 72% of carjackings had no victim injury. Similarly, 7% of robberies involved a major injury to the victim, 27% involved a minor injury, and 66% of robberies had no victim injury. Looking specifically at lethal incidents, on average, there are 1.7 homicides for every 1,000 carjackings and 1.5 homicides for every 1,000 robberies (not shown).

Figure 13. Share of Carjackings and Robberies With Injuries, 2018-2022

Clearance and vehicle recovery rates were higher for carjacking than for motor vehicle theft.

Clearance rates represent the percentage of offenses for which an arrest was made or the police could have made an arrest but were unable to do so due to certain circumstances (e.g., the death of the suspected offender). From 2018 to 2022, clearance rates for carjacking, robbery, and vehicle theft all decreased (Figure 14). Carjacking clearance rates dropped from 28% to 24%, robbery clearance rates fell from 22% to 20%, and motor vehicle theft clearances dropped from 9% to 7%.

Figure 14. Clearance Rates, 2018-2022

Stolen vehicle recoveries were slightly higher for carjackings than for vehicle thefts, but by 2022, that gap narrowed (Figure 15). Carjacking vehicle recoveries were 6% lower in 2022 than in 2018, while vehicle theft recoveries were 4% lower over this period.

Figure 15. Vehicle Recovery Rates, 2018-2022

Overall, carjackings shared many characteristics with robberies and motor vehicle thefts. One important difference, however, was that while juveniles and adults reportedly carjack at similar rates, adults commit robberies and vehicle thefts at higher rates. There was also a notable difference across the offenses related to the presence of a firearm. By 2022, the share of carjacking incidents involving a firearm was 42% higher than the share of robbery incidents involving a firearm. Carjackings were slightly more likely than robberies to end in a homicide.

Carjacking in San Francisco Neighborhoods (2018 - 2023)

The previous analyses examined carjacking, robbery, and motor vehicle theft across cities; what follows explores changes in one city at the neighborhood level. A general challenge with this type of analysis is identifying neighborhoods in a city. For example, using census tracts

creates similarly populated areas to generate rates similar to city-level rates but this approach may not reflect characteristics that define distinct neighborhoods.⁷ This challenge does not exist in San Francisco, where the local government created neighborhoods for analytical purposes by grouping census tracts with common resident and real estate definitions.⁸

Figure 16 shows a map of San Francisco's 41 neighborhoods by three offense rates (carjacking, robbery, and motor vehicle theft) and by three time periods (2018-19, 2020-21, and 2022-23) to capture pre-pandemic, early pandemic, and late/post-pandemic trends. During the pre- and early-pandemic time periods, the Bayview area, on the southeast side of the city, had the highest carjacking rate. However, during the late/post-pandemic time period, the South of Market neighborhood experienced the highest carjacking rate (Bayview dropped to third highest). In South of Market, the carjacking rate increased by more than 100% from 2020-2021 to 2022-2023.

Figure 16. Carjacking, Robbery, and Motor Vehicle Theft in San Francisco, 2018-2023



During all three time periods, the Financial District and the Tenderloin neighborhoods, in the northeast of the city, had the highest robbery rates, followed by the South of Market neighborhood. In contrast to carjacking, robbery rates dropped during the early-pandemic time period, and by the late/post-pandemic period, rates remained roughly 30% below pre-pandemic levels. Across all three time periods, Bayview had the highest vehicle theft rates, which increased by 60% from 2018-2019 to 2022-2023. The Bernal Heights neighborhood had the next highest motor vehicle theft rate and was about half as high as the Bayview rate during the study period.

This analysis suggests that, at least for one city during a limited period of time, there is some geographical overlap between these offenses, but that it does not apply for all areas in the city. The Bayview neighborhood had high rates of carjacking, motor vehicle theft, and robbery. While the South of Market neighborhood also had high carjacking rate and robbery rates, the neighborhood had the 34th highest motor vehicle theft rate across the city. The high carjacking and robbery rates, relative to the low motor vehicle theft rates, could be because of the neighborhood's location in the city. The South of Market and surrounding areas are in the general downtown area and have high levels of business activity compared to the Bayview neighborhood.⁹ Thus, these business areas may have fewer parked cars in

unsecured locations for longer periods of time, resulting in fewer vehicle thefts. Consistent with research on carjacking during the pandemic in Minneapolis,¹⁰ some areas of San Francisco did not experience carjacking before 2020 but did during the pandemic. From 2018 to 2019, 11 San Francisco neighborhoods had no reported carjacking incidents. That number dropped to five from 2020 to 2021 and four from 2022 to 2023. Nonetheless, these areas still had relatively low carjacking rates compared to other parts of the city.

Conclusion

This report examines and compares recent trends and characteristics of carjacking, other robberies, and motor vehicle theft. It finds that rates of carjacking and motor vehicle theft have increased substantially across the country in recent years, while robbery declined and has since returned to roughly pre-2020 levels. The characteristics of these offenses, however, have not changed significantly over time. The Council on Criminal Justice has tracked [these and other crime trends](#) since early in the pandemic and has attributed the motor vehicle theft increase, in part, to increased targeting of vulnerable Kia and Hyundai models. Similarly, the fall and rise of robbery levels have been attributed to the implementation and subsequent lifting of COVID-19 restrictions.

The trends in carjacking are more difficult to explain. The stability of offense characteristics, such as the number of reported offenders, from the analysis of NIBRS data provides little insight into what could have contributed to the rise in carjackings. While some have suggested that the carjacking increase has been led by juveniles,¹¹ the findings show that the juvenile and adult rates follow similar trends. Though juvenile offending may not have driven the growth in carjacking, the juvenile rate for that crime was about the same as the adult rate over the study period. This was not true for motor vehicle theft and robbery; adults committed those offenses at higher rates than juveniles.

While not the case for all cities, the increase in motor vehicle theft coinciding with increased carjackings was somewhat surprising, in part because it runs counter to research that suggests the two offenses are largely interchangeable.¹² Because the goal (obtaining a vehicle) is the same for both crimes, some individuals switch from one offense to another, especially if one method becomes easier. In other words, if the obstacles to motor vehicle theft are reduced, someone who may commit a carjacking may instead choose to steal an unoccupied car because it's less risky.

There are two possible reasons why we are now seeing a different pattern—carjacking rising

along with motor vehicle theft. First, there may be an increased black-market demand for certain vehicles that are not easily obtained through vehicle theft (i.e., when the vehicle is unoccupied). Second, research suggests that carjacking may improve the social status of an individual on the street.¹³ It is possible that as stealing cars became viewed as a not-so-risky crime, carjacking emerged as the new method to increase one's reputation among peers.

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Endnotes

¹ Mayes-Osterman, C. (2024, February 5). Washington carjacking crime spree claims life of former Trump official. *USA Today*. <https://www.usatoday.com/story/news/nation/2024/02/05/michael-gill-trump-official-dc-carjacking-dies/72478161007/>

² Freking, K. (2023, October 3). US Rep. Cuellar of Texas is back at work after being carjacked by 3 armed attackers near the Capitol. *AP*. <https://apnews.com/article/congress-henry-cuellar-carjacking-capitol-texas-87eddb457f20ec6>

[14fbb473115480987](#)

³ Jacobs, B. A. (2010). Serendipity in robbery target selection. *British Journal of Criminology*, 50(3), 514-529. <https://doi.org/10.1093/bjc/azq002>. Jacobs, B. A., Topalli, V., & Wright, R. (2003). Carjacking, streetlife and offender motivation. *British Journal of Criminology*, 43(4), 673-688. <https://doi.org/10.1093/bjc/43.4.673>. Topalli, V., Jacques, S., & Wright, R. (2015). "It takes skills to take a car": Perceptual and procedural expertise in carjacking. *Aggression & Violent Behavior*, 20, 19-25. <https://doi.org/10.1016/j.avb.2014.12.001>

⁴ The data collecting process is outlined here, <https://counciloncj.org/crime-trends-in-u-s-cities-year-end-2023-update/>

⁵ Bureau of Justice Statistics. (2022). *National incident-based reporting system (NIBRS)*. <https://bjs.ojp.gov/national-incident-based-reporting-system-nibrs>

⁶ Harrell, E. (2022). *Just the stats: Carjacking victimization, 1995-2021* (NCJ 305204). Bureau of Justice Statistics. <https://bjs.ojp.gov/carjacking-victimization-1995-2021>

⁷ Hipp, J. R., & Boessen, A. (2013). Egohoods as waves washing across the city: A new measure of "neighborhoods". *Criminology*, 51(2), 287-327. <https://doi.org/10.1111/1745-9125.12006>

⁸ DataSF. (2023). *Analysis neighborhoods*. https://data.sfgov.org/-/Analysis-Neighborhoods/j2bu-swwd/about_data

⁹ San Francisco Planning Department (n.d.). *Downtown land use and density plan*. https://generalplan.sfplanning.org/images/downtown/dtn_map1.pdf. San Francisco Planning Department (n.d.) *Generalized commercial and industrial land use plan*. https://generalplan.sfplanning.org/images/I2.commerce_industry/cai_map1.pdf

¹⁰ Lind, A., Larson, R. P., Mason, S. M., & Uggen, C. (2024). Carjacking and homicide in Minneapolis after the police killing of George Floyd: Evidence from an interrupted time series

analysis. *Social Science & Medicine*, 358, 117228.

<https://doi.org/10.1016/j.socscimed.2024.117228>

¹¹ Broderick, S., Cassidy, M., & Ryu, I. (n.d.). *What's behind the rise in juvenile carjackings? What can we do about it?* National District Attorneys Association.

<https://ndaa.org/wp-content/uploads/Juvenile-Carjackings-Article-FINAL.pdf>

¹² Jacobs, B. A., & Cherbonneau, M. (2023). Carjacking: Scope, Structure, Process, and Prevention. *Annual Review of Criminology*, 6(1), 155-179.

<https://doi.org/10.1146/annurev-criminol-030421-042141>

¹³ Jacobs, B. A., Topalli, V., & Wright, R. (2003). Carjacking, streetlife and offender motivation. *British Journal of Criminology*, 43(4), 673-688. <https://doi.org/10.1093/bjc/43.4.673>.