

Trends in Gun Theft: Leveraging Data to Inform Crime Policy

The analysis, entitled <u>Trends in Gun Theft: Leveraging Data to Inform Crime Policy</u>, examined the characteristics of gun thefts reported to law enforcement in a sample of cities across the United States.

Data Sources

Several survey sources and estimation methods can be used to estimate the number of guns stolen. This report uses data from the National Incident-Based Reporting System (NIBRS); other data sources that provide information on stolen guns are summarized in Table S1.

	NIBRS (used in the current analysis)	National Crime Victimization Survey	Private Surveys	National Crime Information Center
Administering Agency	Federal Bureau of Investigation	Bureau of Justice Statistics	Various	Bureau of Alcohol. Tobacco.
0 /	0			Firearms and Explosives
Frequency of Data Collection	Ongoing	Bi-annual	Occasional	Ongoing
Scope	National and subnational, but not a census	National and regional	Generally national and regional	National and subnational (may be used as a census)
Strengths	Provides detailed information on gun theft incidents	Large, high quality in- person survey; captures gun thefts not reported to law enforcement	Captures gun thefts not reported to law enforcement	Law enforcement agencies are required to report
Limitations	Reporting is nearly national; missing data	Self-report data at the household level; subject to biases associated with surveys	Relatively small samples are used to capture relatively rare events like gun theft	Limited available data on each gun reported stolen

Table S1. Sources of Data on Stolen Guns



NIBRS DATA ON STOLEN GUN INCIDENTS

Data for the report were drawn from NIBRS, which in 2022 collected crime data from 70% of law enforcement agencies serving 76% of the U.S. population.¹

NIBRS gathers data from law enforcement agencies on a broad range of crimes, as well as information on the items stolen. These data also include incidents in which at least one gun has been stolen, seized by law enforcement, and recovered after theft by law enforcement. For each incident in which a gun is recorded as stolen, law enforcement agencies record where the incident occurred, the date of the reported theft, and the type of offense involved, enabling differentiation between incidents in which guns were stolen from residences and from other locations, such as motor vehicles or other public places. This affords the opportunity to understand how, when, and from where guns are stolen. While NIBRS collects information on guns seized or recovered, this analysis focuses only on incidents where guns were reported stolen. NIBRS data were accessed via Jacob Kaplan's Concatenated NIBRS files for incident and property segments.²

NIBRS Sample

Our sample consisted of 2,098 agencies that reported 12 months of data to the offense segment of NIBRS in each year from 2018 to 2022 and had at least one stolen gun incident during each of those five years. Because NIBRS reporting was not yet nationally adopted, we limited analysis to agencies that consistently reported data to NIBRS during this period. The year 2018 was selected as a starting point to allow for meaningful trend analysis over a five-year time span, while including as many reporting agencies as possible. The study ends in 2022, as data from that year were the most recent available at the time of analysis.

Agencies were omitted if they were associated with zero population in the FBI's Agency Participation data file, because such agencies are not well defined with respect to the exact population they serve (e.g., state law enforcement agencies and university or campus-based law enforcement). The inclusion criteria ensured that law enforcement agencies in the sample reported crime data pertaining to a discrete population. The 2,098 agencies included in the sample reported 385,679 incidents in which guns were stolen from 2018 to 2022. In Table S2, we compare our sample with the broader NIBRS sample as of 2018. Our sample consists of a majority of agencies that reported to NIBRS in medium and large cities and large metropolitan statistical area (MSA) counties by population. The sample had less coverage of agencies in lower population cities, particularly those with fewer than 10,000 residents.

¹ Federal Bureau of Investigation. (2023, October 16). *FBI Releases 2022 crime in the nation statistics*. https://www.fbi.gov/news/press-releases/fbi-releases-2022-crime-in-the-nation-statistics

² Kaplan, J. (2024). Jacob Kaplan's concatenated files: National incident-based reporting system (NIBRS) data, 1991-2022. https://www.openicpsr.org/openicpsr/project/118281/version/V9/view

Agency Population Group	Agencies in the Sample (n)	NIBRS- Reporting Agencies (n)	Sample Coverage
Cities from 10,000 thru 24,999	391	813	48.1%
Cities from 100,000 thru 249,999	72	87	82.7%
Cities from 2,500 thru 9,999	464	1,605	28.9%
Cities from 25,000 thru 49,999	241	373	64.6%
Cities from 250,000 thru 499,999	12	13	92.3%
Cities from 50,000 thru 99,999	154	186	82.7%
Cities from 500,000 thru 999,999	11	12	91.2%
Cities under 2,500	35	2,137	1.6%
MSA counties 100,000 or over	48	58	83.1%
MSA counties from 10,000 thru 24,999	91	146	62.3%
MSA counties from 25,000 thru 99,999	169	229	73.9%
MSA counties under 10,000	25	407	6.1%
Non-MSA counties from 10,000 thru 24,999	187	328	57.0%
Non-MSA counties from 25,000 thru 99,999	96	138	69.6%
Non-MSA counties under 10,000	102	932	10.9%

Table S2: Sample Agencies Relative to the Full NIBRS Reporting Sample, 2018

Note: Agencies included in the report are compared to agencies that were able to report to NIBRS in 2018.



Crime trends for all agencies included in the sample are plotted in Figure S1.



Figure S1. Annual Crime Rates in Sample Agencies, 2018-2022

Note: The figure shows crime rates per 100,000 population for all jurisdictions in the sample for criminal offenses that result in stolen guns.

Locations of Crime Incidents

To facilitate a comparison of incident locations in which guns were stolen, we combined several locations into larger categories. Specifically, we combined codes for locations including bars, restaurants, and stores into a category to measure guns stolen in public places. We combined highway, roadway, and alley locations. We separately combined parking lot/garage locations to measure guns likely stolen from parked vehicles. We combined apartments and other residential building locations into a single residential category. Finally, we combined all remaining other location codes into a single category of all other locations. We note that the UCR Program advises agencies to "use their best judgment" when reporting a specific location type, as multiple location codes may be applicable to a crime (for instance, a crime occurring at a school playground could be coded as occurring at a school or at a playground, each of which is a separate location

codes).³ In the context of stolen guns, it is possible that gun owners may not know the exact location from which their gun was stolen from, if, for example, they only realize their gun was stolen after returning home from a show or shopping trip. This makes location information for gun theft an approximation.

Examining Urban-Rural Trends

We categorized jurisdictions into rural or urban groupings using the National Center for Health Statistics (NCHS) Urban-Rural Classification scheme for 2013, the most recent available.⁴ NCHS Urban-Rural Classification schemes classify counties into six categories of urbanization across a gradient ranging from large metropolitan counties to rural, less dense counties. The gradients are defined by NCHS as follows:

- Large metropolitan counties are central metro counties in a metropolitan statistical area (MSA) of greater than or equal to 1 million population that a) contain the entire population of the largest principal city of the MSA, b) are completely contained within the largest principal city of the MSA, or c) contain at least 250,000 residents of any principal city in the MSA (counties in these areas can be considered "suburban");
- 2. Large fringe metro counties in an MSA of 1 million or more population that do not qualify as large central counties;
- 3. Medium metro counties in MSAs of 250,000-999,999 population;
- 4. Small metro counties are counties in MSAs of less than 250,000 population;
- 5. Micropolitan counties in micropolitan statistical areas; and
- 6. Noncore counties not in micropolitan statistical areas.

NIBRS agencies are matched according to the county or counties the agency spans, according to the FBI's agency participation file. For agencies that span multiple counties, the average NCHS code for each matched county was used. Two agencies did not have counties listed and were not included (the county name was "not specified"). Table S3 presents the distribution of stolen guns by year, categorized by NCHS classification.

³ Criminal Justice Information Services Division Uniform Crime Reporting Program. (2021). 2021.1 National incident-based reporting system user manual.

https://bjs.ojp.gov/sites/g/files/xyckuh236/files/sarble/data_common/nibrs-user-manual-2021-1041521.pdf

⁴ Centers for Disease Control and Prevention. (n.d.). NCHS urban-rural classification scheme for counties. https://www.cdc.gov/nchs/data-analysis-tools/urban-

rural.html?CDC_AAref_Val=https://www.cdc.gov/nchs/data_access/urban_rural.htm

	NCHS 1 n=76,678	NCHS 2 n=79,022	NCHS 3 n=109,745	NCHS 4 n=55,715	NCHS 5 n=42,160	NCHS 6 n=22,359	Overall n=385,679
2018	12,962 (17%)	15,018 (19%)	22,060 (20%)	10,932 (20%)	9,757 (23%)	5,007 (22%)	75,736 (20%)
2019	12,432 (16%)	13,701 (17%)	20,422 (19%)	10,266 (18%)	8,384 (20%)	4,600 (21%)	69,805 (18%)
2020	15,154 (20%)	16,142 (20%)	22,996 (21%)	12,052 (22%)	8,825 (21%)	4,744 (21%)	79,913 (21%)
2021	17,772 (23%)	17,017 (22%)	22,432 (20%)	11,363 (20%)	7,717 (18%)	4,204 (19%)	80,505 (21%)
2022	18,358 (24%)	17,144 (22%)	21,835 (20%)	11,102 (20%)	7,477 (18%)	3,804 (17%)	79,720 (21%)

Table S3: Stolen Gun Incidents by Year by NCHS Classification

Note: Stolen guns are tabulated by NCHS urban-rural code, where 1 is the most urban and 6 is the most rural county identifier.



City Sample

The sample of cities in NIBRS corresponds to cities that meet two criteria: population of at least 250,000 and categorized in NCHS urban codes 1 or 2 (corresponding to large metro or fringe counties). In the sample for this analysis, 16 cities met these criteria.

Estimating the Number of Stolen Guns

NIBRS does not require agencies to report the estimated quantity of guns reported stolen in a given incident, but does allow agencies to record the total value of the gun or guns that were stolen. Studies have used the value of stolen guns reported as a proxy for the quantity of guns stolen by assigning an approximate value to each gun, generally based on the average value of guns.⁵

To calculate the estimated value of stolen guns, we omitted values that exceeded the 99th percentile (\$6,200) from the sample. This resulted in fewer than 1% of observations (n=3,529) being dropped. Estimated values were missing in 9% of observations (n=34,579) and these incidents were also dropped. To obtain an estimated count of guns stolen per incident, we divided the Bureau of Justice Statistics estimated value of stolen

⁵ Donohue, J. J., Cai, S. V., Bondy, M. V., & Cook, P. J. (2022). Why does right-to-carry cause violent crime to increase? (Working Paper 30190). National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w30190/w30190.pdf; Parsons, C., & Vargas, E. (2020). Stolen guns: A state-by-state analysis. Center for American Progress.

https://www.americanprogress.org/article/gun-theft-united-states-state-state-analysis/

guns per incident by \$450 in 2012.⁶ We adjusted for inflation to 2018 dollars and used a value of \$500 per gun. Using this value, the average incident resulted in an estimated 1.3 guns stolen, while the median incident resulted in an average of one gun stolen.

⁶ Langton, L. (2012). *Firearms stolen during household burglaries and other property crimes*, 2005-2010 (NCJ 239436). Bureau of Justice Statistics. <u>https://bjs.ojp.gov/content/pub/pdf/fshbopc0510.pdf</u>