

How firearms move from legal purchase to criminal use

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Credit: *Injury Epidemiology* (2024). DOI: 10.1186/s40621-024-00491-8

Between 1996 and 2021, more than 5.2 million handguns and almost 2.9 million long guns were legally purchased in California. During 11 years of that time frame, 2010-2021, California law enforcement officers recovered 45,247 of these guns from crime scenes.

Why were some of those guns later involved in a crime, but most not?

Were there characteristics or commonalities with crime guns?
Researchers at the UC Davis Violence Prevention Research Program (VPRP) wanted to know.

Their findings are [published](#) in a new study in *Injury Epidemiology*.

"Tracking the movement of firearms from legal purchase to use in crimes can help inform prevention of [firearm](#) injuries and deaths," explained Hannah S. Laqueur, senior author of the study. Laqueur is an associate professor in the UC Davis Health Department of Emergency Medicine.

One key finding in the study is that guns reported lost are three times more likely to be used in a crime, and stolen guns are almost nine times more likely to be used in a crime.

"Theft is an important source of crime guns, whether as the proximal source to the criminal possessor or simply as an important source of firearms entering the illicit market," Laqueur said.

The team built on similar research conducted 20 years ago that was now considered dated. They analyzed gun recovery data with millions of gun sale records that California dealers are required to report to the state. They looked at characteristics of the transactions, the firearms, dealerships, and gun purchaser's demographic characteristics, purchasing history, [criminal history](#), and neighborhood socioeconomic status.

The data revealed numerous characteristics associated with an increased risk that a purchased gun would end up being recovered in a crime.

Gun characteristics associated with weapons being recovered at a crime include:

- Lost and stolen
- Cheap (made by a low-cost manufacturer)
- Semiautomatic
- Large and medium caliber (compared to small caliber)

Buyer characteristics associated with guns being recovered at a crime include:

- First-time purchasers
- Younger, female, Black, Hispanic, Native American or Pacific Islander or other race/ethnicity (versus white)
- People who bought more than 12 guns in a year
- A history of arrests during the past 10 years (gun crime, intoxication, major property crime and major violent crime)
- Those who lived in a more socially vulnerable census tract

Dealer characteristics associated with guns being recovered at a crime include:

- Average sales per year
- Percentage of transactions that were administrative denials
- Percentage of sales that were pawns or pawn redemptions in the previous calendar year
- Percentage of sales in the past calendar year that became crime guns in the next calendar year

The study noted some similarities to what researchers had discovered earlier.

"We were able to identify that associations found 20 years ago are still relevant today—cheap, semiautomatic, and larger caliber handguns are more likely to be recovered in crimes," said Sonia L. Robinson, first author of the study. Robinson is an epidemiologist and a research data

analyst at VPRP.

"We found that several additional factors were associated with firearm recovery—specifically, the purchaser having a previous criminal history and a firearm being reported lost or stolen."

The researchers also identified factors that decreased the likelihood of a gun ending up in a crime. These include:

- Dealers with more than 20% of their gun sales to police in the past calendar year
- Guns that had any previous law enforcement holds
- Guns transferred between family members

The researchers note that the study's strength is the size and thoroughness of the database, with more than 8 million firearm transactions from 1996 to 2021, plus information on each transaction type, dealer, and purchaser, including their prior criminal history and records of purchase. A limitation is that the study only examines legal purchases reported on the state's database for gun transactions, known as the Dealer's Record of Sale.

They also note that since a firearm reported lost or stolen is strongly associated with its recovery in a crime, measures to secure firearms from theft or loss should be a primary focus for the prevention of firearm-related crimes moving forward.

"Identifying upstream factors associated with firearm recovery in crimes can inform violence prevention efforts, making communities safer," Robinson said.

More information: Sonia L. Robinson et al, Purchaser, firearm, and retailer characteristics associated with crime gun recovery: a longitudinal analysis of firearms sold in California from 1996 to 2021, *Injury Epidemiology* (2024). DOI: [10.1186/s40621-024-00491-8](https://doi.org/10.1186/s40621-024-00491-8)

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