

# Shootings in US schools are linked to increased unemployment

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Larkmead School. Credit: CC-BY-SA-2.5,2.0,1.0

A rigorous Northwestern University study of a quarter-century of data has found that economic insecurity is related to the rate of gun violence at K-12 and postsecondary schools in the United States. When it becomes more difficult for people coming out of school to find jobs, the rate of gun violence at schools increases.

The interdisciplinary study by data scientists Adam R. Pah and Luís Amaral and sociologist John L. Hagan reveals a persistent connection over time between unemployment and the occurrence of school shootings in the country as a whole, across various regions of the country

and within affected cities, including Chicago and New York City.

"The link between education and work is central to our expectations about economic opportunity and upward mobility in America," said Hagan, the John D. and Catherine T. MacArthur Professor of Sociology in the Weinberg College of Arts and Sciences. "Our study indicates that increases in gun violence in our schools can result from disappointment and despair during periods of increased unemployment, when getting an education does not necessarily lead to finding work."

Frequent school shootings have been a major concern in American society for decades, but the causes have defied understanding. The Northwestern researchers used data from 1990 to 2013 on both gun violence in U.S. schools and economic metrics, including unemployment, to get some answers.

"Our findings highlight the importance of economic opportunity for the next generation and suggest there are proactive actions we could take as a society to help decrease the frequency of gun violence," said Pah, clinical assistant professor of management and organizations at the Kellogg School of Management.

Other key findings include:

- While Chicago is singled out in the study as one of the six cities with the most incidents from 1990 to 2013, Chicago schools are not any more dangerous than schools in other large cities.
- Gun violence at schools has not become more deadly over time.
- Most shootings are targeted, with the shooter intending to harm a specific person.
- Gang-related violence and lone mass shooters comprise only small fractions of the gun violence that occurs at U.S. schools. Gang-related violence constitutes 6.6% of all incidents.

- The results suggest that during periods of heightened unemployment, increased gun violence may be a growing risk in American college and university settings.

The study, "Economic Insecurity and the Rise in Gun Violence at US Schools," will be published Jan. 30 by the journal *Nature Human Behaviour*.

The research team also found the rate of gun violence at schools has changed over time. The most recent period studied (2007-2013) has a higher frequency of incidents than the preceding one (1994-2007), contradicting previous work in this area. This is a unique contribution made possible because of the researchers' backgrounds in data science and modeling.

"Our work helps us understand why the frequency of gun violence at schools changes, not necessarily why gun violence at schools in the United States exists at all," said Amaral, professor of chemical and biological engineering in the McCormick School of Engineering.

In the last 25 years, there have been two elevated periods of gun violence at U.S. schools, the researchers found; 2007-2013 was largely due to events at postsecondary schools while 1992-1994 more often involved events at K-12 schools.

The Northwestern study stands apart from earlier studies on gun violence in U.S. schools by bringing into play knowledge about the school-to-work transition in American society.

"Once we consider how important schools are to American ideas about economic opportunity and upward mobility, we can better understand why school settings are revealed in our research as focal points of violent responses to increased unemployment," said Hagan, who also is a

research professor at the American Bar Foundation. "Prior research about gun violence in schools has not adequately analyzed these connections."

## **How the study was conducted**

There have been a number of other studies on this topic, but the previous data sources used were incomplete and biased in their coverage of the school shooting events, Pah said. Also, the definition of gun violence at school varied among creators of these datasets.

Pah collected these previously used data sets and collated them into a single data set. He and undergraduate and graduate student co-authors then individually sourced and read reports for each event to make sure it was actually an incident of gun violence at a school. The process yielded 379 events meeting the researchers' strict criteria, and two additional events were found, for a total of 381 events for the final data set.

"We spent days doing nothing but reading about violence at schools, which is quite possibly the saddest thing I've had to do for research," Pah said.

The researchers focused on all gun violence at schools, not only mass shootings. They used the following criteria for an event to be included in the study: (1) the shooting must involve a firearm being discharged, even if by accident; (2) it must occur on a school campus; and (3) it must involve students or school employees, either as perpetrators, bystanders or victims.

Next, the researchers evaluated the timing of these events against multiple indicators of economic distress, including unemployment, the foreclosure rate and consumer confidence. They then hypothesized that increased [school shootings](#) are a response to increasing [unemployment](#)

and tested that hypothesis in two additional ways.

The results strongly support the hypothesis that a breakdown in the [school](#)-to-work transition contributes to an increase in [gun violence](#) in U.S. schools, the authors write.

**More information:** Economic insecurity and the rise in gun violence at US schools, *Nature Human Behaviour*, [nature.com/articles/doi:10.1038/s41562-016-0040](https://doi.org/10.1038/s41562-016-0040)

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