

Effects of Natural Hazards on Spatio-Temporal Patterns of Crime in the United States

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Overview

Past research on the connection between natural hazards and crime rates has focused on singular disasters. This produced conflicting evidence with some disasters producing an increase in crime (e.g., COVID-19) and others reducing crime rates. To bridge this gap, this research investigated crime rates across the entire spectrum of natural hazards (floods, severe storms, etc.) that occurred between 1991 and 2018 and that caused damage ranging from \$1,000 to catastrophic impacts.

NATURAL HAZARDS AND CRIME

Research on the relationship between crime and disasters is mixed. Studies related to the COVID-19 pandemic and large-scale disasters such as Hurricanes Katrina and Hugo documented an increase in violent crimes, whereas other studies highlighted pro-social behavior and a decline in crime after disasters.

In contrast to prior work, this research utilized large data sets capturing the entire range of hazards and hazard impacts as well as nationwide crime data to look broadly beyond a singular event or crime type.

Data for this research originated from the Spatial Hazard Events and Losses Database (SHELDUS) and the National Incident-Based Reporting System (NIBRS). The analysis was based on a regression discontinuity approach investigating crime rates before and after an event.

KEY FINDINGS

While there is no consistent trend across all hazard types or crime types, some pattern emerged:

- **Winter Weather dampens crime rates.**
 - shows a strong correlation with a decrease in crime rates.
 - cause an immediate drop in crime with the decline persisting for a **time** (Cody: can we add a specific time?).
- **Severe Storms provide opportunity for crime .**
 - show a strong correlation with an increase in crime rates.
 - cause an immediate increase in crime with the uptick persisting for a **time** (Cody: can we add a specific time?).
- **Hazards causing significant but not catastrophic damage bring an increase in crime.**
 - Hazards causing direct property damage between \$15 to \$55 million tend to increase crime.

EFFECTIVE RESOURCE DEPLOYMENT

This research did neither find an increase in crime after catastrophic disasters nor an increase in property crime after large scale disasters. This refutes the commonly held perception that crime goes up after a disaster. Residents should evacuate rather than staying behind to protect their property when catastrophic and life-threatening impacts are forecast.

Some hazard types (severe storms) tend to call for a greater presence of law enforcement, while others (winter weather) allow for a reduction. Winter weather seems to immobilize potential perpetrators. Severe storms, on the other hand, appears to create a “window of opportunity” for crime.

Medium-sized disasters tend to also require a higher law enforcement presence, however, this largely depends on the type of hazard and the size of the jurisdiction.

RECOMMENDATIONS

- **Local Surge Capacity**
 - Establish procedures for swift deployment of law enforcement from neighboring jurisdictions or local government presence.
 - Activate surge capacity swiftly after natural hazard events, particularly severe storms, not just for catastrophic events.
- **Coordination with Federal Agencies**
 - Collaborate with federal agencies like DHS Surge Capacity Force for effective post-disaster deployment.
- **Legislation and Agreements**
 - Explore legislative measures and agreements for immediate empowerment of law enforcement personnel arriving from other states.

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