

# Daylight Saving Time spurs drop in crime rate

May 20 2013, by Alla Herman

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(Phys.org) —Researchers are no longer in the dark about when criminals are most likely to attack. William & Mary economist Nicholas Sanders teamed up with the University of Virginia's Jennifer Doleac to study the connection between Daylight Saving Time and criminal activity. They found that when it comes to crime, that one-hour shift makes all the difference.

Sanders, assistant professor of economics, explains that it's axiomatic that some criminal activity is highest when it's dark. Whether they know it or not, the trip home for commuters is riskier during the winter months, as deepening dusk makes them easy targets for muggers and other robbers.

But just how big is the Daylight Saving effect?

To answer the question, Sanders and Doleac focused on the hour where daylight is most affected by Daylight Saving Time. They used data from the National Incidence-Based Reporting System (NIBRS) to track hourly crime rates over the course of the three weeks prior to and following the day on which we set the clocks ahead. Sanders and Doleac found that robbery decreased by 40 percent in the hour most impacted by Daylight Saving Time—that hour that was dark or twilight in Standard Time, but is still daylight when DST kicks in.

"We look at robbery because it's a violent crime and it has a pretty big social cost. It's a crime that tends to be reported when it happens.

Burglary, on the other hand, tends to be reported later," Sanders said.

The team also looked at murder and sexual assault, however, Sanders said it is a challenge to deal with these crimes because, like burglary, murders and sexual assaults are frequently reported some time after the incident, making it difficult to pinpoint a specific hour during which the crime occurred. Because of this, the team geared their research towards crimes of confrontation that are reported frequently.

Some observers have speculated that the decrease in crime rates in spring is tied to warmer weather and the morale boost that comes along with it, rather than the extra hour of daylight. Sanders says they can address the warm-weather theory, thanks to the 2007 change in the week Daylight Saving Time begins. Before 2007, [Daylight Saving Time](#) began on the first Sunday of April. These days, we reset the clocks three full weeks earlier, on the second Sunday of March, when the weather is typically a lot cooler.

Comparing crime-report data from before and after 2007 allowed Sanders and Doleac to affirm that it's the longer days—not just the warmer weather—driving the decrease in criminal activity.

"If warmer weather were the cause, criminal activity would be just as less likely to occur in any daylight hour," said Sanders. The difference, he explained, is the hour in which it gets dark.

"There's an hour in the day where everything today is exactly the same as it was yesterday, except now it's light whereas it used to be dark," said Sanders.

Additionally, Sanders and Doleac found that the pattern still holds over different time zones.

A number of bloggers have picked up on Sanders and Doleac's working paper, which also notes that the effect is reversed in the fall when we turn back our clocks and it gets dark an hour earlier. As darkness returns, crime rates rise. Sanders and Doleac suspect well-lighted areas can help decrease crime rates in places where crime is a problem.

"A little extra light doesn't guarantee crime won't happen, but no one has disagreed that light in general is always going to have a positive effect on crime rates. When an area is better lit, crime is less likely," said Sanders.

In their research, Sanders and Doleac explain that every crime has a social cost; a dollar amount society loses as a result of the crime being committed. Their figures indicate that each robbery costs society \$45,000, when you take into account factors such as the cost of tracking the criminal down, the legal process, incarceration and the psychological cost of the victim. In comparison, the social cost of one murder is \$8 million.

Sanders explained that financially constrained local governments could use such numbers to make tough decisions when the debate turns to whether to turn off or curtail street lighting.

"That number that we can pull out now is a concrete number we can put on the benefit side," said Sanders. "When constrained governments are trying to make decisions, we are on the side of avoiding those crimes over shutting off electricity."

**More information:** [siepr.stanford.edu/?q=/system/apers/pdf/12-004.pdf](http://siepr.stanford.edu/?q=/system/apers/pdf/12-004.pdf)

Provided by The College of William & Mary

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