Is Intrapersonal Violence Contagious?

A Proposal for a NBER – Nielsen Media Project

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Does witnessing intrapersonal violence increase the likelihood that people engage in violence themselves? Does it matter if an individual identifies with the attacker by race, ethnicity, or gender? Similarly, do the characteristics of the person being attacked influence subsequent victimization? Answers to these questions are critical to violent-crime prevention and to addressing the large differences in perpetration and victimization rates across social groups. If violence does beget violence, the benefits of programs that reduce intrapersonal violence may be far reaching, and traditional cost-benefit calculations may undervalue the welfare gains.

That witnessing violence can increase violent tendencies is often thought of through the lens of social learning theory (Bandura 1977). In this developmental framework, individuals observe the behaviors of others ("models") and consider imitating what they observe based on their own characteristics, the characteristics of the models, and the observed outcomes of the behavior.

As a framework for understanding violence, social learning theory has support from laboratory experiments that document increases in aggression shortly after subjects are shown violent videos.[1] It is an outstanding question, however, whether such a relationship exists outside of the lab and whether it exists for behaviors of substantial consequence, including acts of intrapersonal violence. The problem for researchers interested in answering these questions is a lack of measurable exogenous variation in exposure to models engaging in intrapersonal violence in real-life settings linkable to measures of violent behavior among those observing such violence. In perhaps the most convincing and extensive attempt to overcome these challenges, Dahl and Dellavigna (2009) exploit variation in the violence of blockbuster movies with detailed data on the timing of assaults reported to police agencies across the United States. Quite notably, they find no evidence of increases in assaults generated by violent blockbuster film releases. In fact, they find reductions consistent with an "incapacitation effect" driven by individuals with violent tendencies redirecting their time towards watching such films.

In this study, we will also use detailed data on the timing of violent crimes reported to police agencies across the United States. However, we will exploit variation in exposure to real-life violence generated by Ultimate Fighting Championship (UFC) events, which have drawn nearly five-million viewers when broadcast on Fox and as many as 1.6 million pay-per-view buys for "blockbuster events."[2,3] It is our intent to use data from Nielsen to measure viewership of events across designated market areas (DMAs) and across demographic groups.

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[1] This type of evidence is also consistent with models that emphasize an arousal mechanism.

[2] https://sports.yahoo.com/news/ufc-on-fox-show-peaks-at-4-8-million-during-watersons-submission-of-vanzant-002253700.html

[3] https://www.mmafighting.com/2017/1/23/14272564/ufc-has-biggest-pay-per-view-year-ever-in-2016

These viewership data will be combined with data from Fightmetric (already obtained), which includes demographic characteristics of the fighters participating in each event in addition to a rich set of information about what occurred in each fight (strikes landed, type of strike causing knockout, visible damage, etc.) We will examine the effects on local violent crimes using data from law enforcement agencies across the United States on crimes committed by hour, by perpetrator characteristics, and by victim characteristics, based on the National Incident Based Reporting System (NIBRS) collected by the Federal Bureau of Investigation (FBI). These three datasets will allow us to answer the following questions:

- Does observing real-life intrapersonal violence, in the form of UFC events, increase intrapersonal violence, as measured by violent crime reports? Or does the opportunity to view such violence reduce intrapersonal violence, consistent with an incapacitation effect? We will also investigate the potential role of alcohol through a parallel analysis of alcohol related crimes.
- As social learning theory would suggest, do the effects vary according to the degree to which individuals are similar to the models (as measured by demographic characteristics)?
- Along similar lines but worth emphasizing, we will also inquire into the role of gender. We anticipate being able to speak to this issue in a new and informative way because of the massive increase in the popularity of female mixed martial arts in recent years: females have headlined 20 percent of major UFC events since 2015 and such events have generated 56 percent more pay-per-view buys than events headlined by males.[4] We will examine this issue by comparing the effects of events involving female fighters, and headlined by female fighters, to the effects of events that do not involve female fighters. Outcomes will include violent crimes committed by females and against females (including domestic violence).
- Also worth emphasizing, we will ask whether youth are especially susceptible to these effects.

We anticipate that the answers to these questions will be important to policy for several reasons. First, they will improve on our general understanding of the determinants of intrapersonal violence, which can be helpful in the design of interventions. Second, they will provide insight into whether social spillovers need to be incorporated into benefit calculations for programs that reduce intrapersonal violence. Third, they will be informative to individuals who have influence over the production and consumption of media, including parents and ratings agencies.

In the sections that follow, we describe in greater detail how we intend to answer the research questions described above before presenting some descriptive evidence.

Data

Our analysis will use crime data from the National Incident Based Reporting System (NIBRS) collected by the Federal Bureau of Investigation (FBI). NIBRS is a voluntary program that collects detailed information on incidents of crime from law-enforcement agencies across the United States.[5] Unlike other large-scale crime data, NIBRS identifies the date and hour of crime incidents known to municipal law enforcement agencies, which will allow us to analyze

[4] Authors' calculation based on data obtained from http://thesportsdaily.com/.

[5] Participation in NIBRS has increased steadily since it began in 1991 when only three states' agencies participated. As of 2015, 6,648 agencies representing 30 percent of the U.S. population across 38 states are actively reporting incidents.

reports of crime that occur around UFC events in specific locations. Also useful for our study, NIBRS provides details on the type of crime, injury severity of violent crime, the relationship between victim and offender, the location of the incident, alcohol involvement, and demographic characteristics of the victim and offender. Our primary focus will be on various types of assaults that are likely more responsive to media violence, though we will also consider effects on other prevalent types of violent and property crimes (homicide, rape, sexual assault, robbery, burglary, motor vehicle theft, property damage). We will focus on law-enforcement agencies within Designated Market Areas (DMA) identified in the various Nielsen databases. Given the broad coverage and geographic detail available in the NIBRS, we anticipate considerable overlap of the Nielson geographical regions and NIBRS law enforcement agencies.

We intend to use Nielsen data to measure viewership and interest in UFC events by DMA, age, race/ethnicity, and gender. Specifically, the TV data will provide measures of viewership of specific events and across events. The Nielsen Scarborough survey data will measure self-reported "current level of interest in UFC" and reports of watching UFC events during the prior 12 months (separately for Pay-Per-View, broadcast networks, and cable networks). We will use these variables to construct measures of predicted viewership in a similar spirit to Kearney and Levine (2015), for each event by DMA and demographics. Our use of predicted rather than actual viewership is intended to address any potential data limitations and the fact that actual viewership may be endogenous even with the rich set of fixed effects that are available to us as controls, which we describe in the next section.

Through an agreement with the CEO of FightMetric LLC, we have obtained UFC fight statistics and fighter profiles for every fighter and event spanning 2000-2015. FightMetric is the only provider of comprehensive fight statistics and is the official statistics provider of the UFC. The fight event information includes the date and location of each fight, which will allow us to merge each fight event with crime incidents from NIBRS and predicted "exposure" measures from Nielsen by date, time, and location. FightMetric statistics also provide measures of the intensity of each fight in each event, which can be used as an additional source of variation and to better explore mechanisms. In particular, we can examine whether events that are more intense than expected have additional effects on violent crime outcomes. Measures of intensity include fight duration, total strikes landed, whether the fight ended by a strike (and, if so, the type of strike), and whether there was "visible effective damage" such as blood or swelling. Finally, these data include fighter profiles that include names, records, and demographics.

Empirical Strategy

The essence of our baseline empirical strategy is to measure how violent crime rates change differentially before, during, and after UFC events according to predicted viewership based on DMA, age, race/ethnicity, and gender. Specifically, we will estimate a Poisson model of the form

$$E\left[C_{agDdh}\right] = e(V_{gDdh}\beta + \alpha_{ag} + \gamma_{dh})$$

where C_{gadt} is the number of violent crimes reported by agency a in DMA D involving someone from group g taking place on day d during hour h. The variable $V_{gDdh}$is a measure of predicted UFC viewership for individuals in group g in DMA D on day d during hour h. This baseline model includes agency-group fixed effects α_{ag} to control flexibly for the differences that are typically observed across agencies and groups. The model includes day-hour fixed effects γ_{dh} to control for any shocks that are common across groups and areas

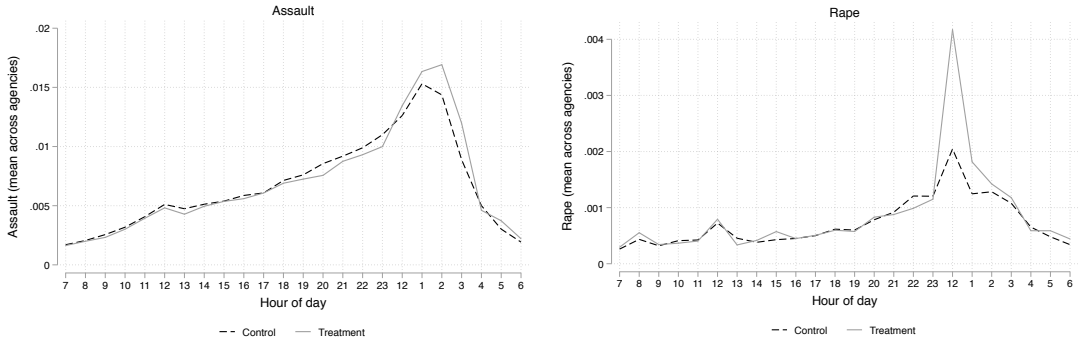
(agencies/DMAs). As such, identification is based on the degree to which violent crime changes with predicted viewership over and above any changes that are expected based on when the event occurs.

The granularity of the data will allow us to expand on this baseline model in many ways. We can go as far as including agency-by-group-by-day fixed effects and agency-by-group-by-hour fixed effects to control for time-varying differences that are typically observed across agencies and groups. Moreover, we can be more flexible in controlling for aggregate time-of-event shocks by including agency-by-day-by-hour fixed effects, thus estimating the effects of viewership using variation across different groups living in the same place.

We intend to examine the leads and lags of viewership to trace out the effects over time and to consider the sources of heterogeneity described above. We will do the latter by including interactions of predicted viewership with group and event characteristics.

Descriptive Evidence

To provide motivation for this proposed work, the figures below plot the hourly average number of crimes reported by law enforcement agencies for crimes occurring between Saturday at 6am and Sunday 5:59am. We separately consider Saturdays involving a UFC event during primetime (after 7pm EST) and Saturdays without any UFC events, from August 2010 to December 2014 to correspond with the window of dates for which we have event times. These figures provide support for the idea that UFC events influence violent crime in the aggregate. There is evidence of an incapacitation effect on assaults during events and, unlike that of Dahl and Dellavigna (2009), evidence of elevated rates of assault and rape subsequent to the event's conclusion.



Conclusion

This project will address several unanswered questions related to the determinants of intrapersonal violence using extremely rich data on violent crimes, viewership of UFC events, and detailed information about these events. As described above, the Nielsen data that is being made available though this call for proposals is critical to the project, because it will allow us to measure exposure to these extremely violent events so that we can estimate the effects of such exposure.

References

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