

Probable Causation, Episode 33: Jason Lindo

Jen [00:00:07] Hello and welcome to Probable Causation, a show about law, economics and crime. I'm your host, Jennifer Doleac of Texas A&M University, where I'm an Economics Professor and the Director of the Justice Tech Lab.

Jen [00:00:17] My guest this week is Jason Lindo. Jason is my colleague, actually. He is a Professor of Economics at Texas A&M University as well. Jason, welcome to the show.

Jason [00:00:26] Thanks for having me.

Jen [00:00:28] Today, we're going to talk about your research on the effects of violent media content on crime. But before we get into this paper, could you tell us about your research expertise and how you became interested in this topic?

Jason [00:00:40] Sure. So most of my work is on health behaviors and health outcomes and violence is obviously closely related to these issues since violence involves an - you know, very serious health consequences for victims. I think from a broader economic perspective, it's interesting because health economics tends to think about individuals making decisions involving risk, potentially limited information, and also sometimes a tension between short run objectives and long term objectives and so I think violence is especially interesting in that broader context.

Jen [00:01:24] So what do people mean when they talk about violent media content and what are the various mechanisms through which we might expect such content to affect criminal behavior?

Jason [00:01:34] That's a really good question and a tough question in the sense that what people mean by violent media content has changed dramatically over time. Going back to the late 1800s and early 1900s now, there were concerns about violent comics and true crime magazines that actually led to legislation. Then of course, it's movies, TV, music, rap music in particular, sports, and video games, so it seems that basically all forms of entertainment can and have been used to depict violence, oftentimes with a lot of commercial success.

Jason [00:02:17] And then typically there's been concern and pushback and often legislation when, you know, you have these content creators pushing out the boundaries of this whole big thing that we refer to as "violent media content" using air quotes here, because it is a somewhat nebulous term. But that being said - and I think maybe this is what you're getting at with your question, anyone who thinks about these issues seriously has to recognize the extraordinary variety that exists under the umbrella of violent media content, both in terms of forms - it could be written word, it could be comics, it could be something on the screen, it could be interactive, like video games, so that's one dimension. And then second, you have the way that violence is portrayed and here it could be cartoonish or it could be realistic. It could be exciting and heroic or it could be gruesome and horrifying. It can make you feel like you're a participant or like a victim or like a witness and so there are so many different forms of violent and media content and all of these specific attributes of the content could really matter in terms of how it might affect what effects we should actually expect it to have on people.

Jason [00:03:50] And so that puts me in a somewhat tricky position in answering the question and also puts researchers in a somewhat tricky position whereby there's this

issue of - that we face, which is should we focus our efforts on evaluating the effects of violent media content on average, where we are lumping together all of the different types of violent media content? And the answer to that is maybe that would be useful, but it might not be ideal because the mechanisms by which violent media content affects individuals could really depend on all of these specific attributes of the content. And it also means that the effects may not be generalizable to new types of content that might be around the corner. So that's one approach that a researcher can take. The second would be to focus on evaluating the effects of some very specific type of media content that might be of special interest. And so, you know, here - and that's what we do in our study, the results could be informative about the effects of violent media content in a - in a very specific sense, where you maybe hopefully might have a better sense of what the mechanisms are or what exactly it is that that you're evaluating.

Jen [00:05:17] And so what are those mechanisms that people have occasionally thrown out there? What are people worried about in terms of like how watching this stuff might affect a kid's behavior say?

Jason [00:05:26] Yeah, so here there are a lot and there are a lot because folks have been interested in this question for so, so long and across so many different disciplines. So I personally think it's useful when thinking about the effects of violent media content to think about two categories of mechanisms. Where the first are psychological in the sense that they these are mechanisms that involve effects on individual behaviors, holding constant the sorts of activities that an individual engages in. This is what lab based studies and psychology examine and have for quite - quite a long time. And so in these studies, they expose an individual to some sort of violent media content, have them engage in a specific activity, and evaluate how they behave. And so here they are thinking about the main mechanisms as being arousal effects as a result of being exposed to violent media content - sometimes they talk about catharsis. It could involve desensitization effects, but I would also include changing preferences and changing the information that individuals have into this broad category of psychological mechanisms.

Jen [00:06:51] And just to clarify their so arousal would be like a kind of like hypes you up and maybe makes you more aggressive to watch it. And then the catharsis would be maybe you were more aggressive to begin with and like watching people beat each other up on TV provides some relief or something, and like, satisfies your urge to beat someone up yourself. Is that - is that right?

Jason [00:07:06] Yep, that's exactly right. Thanks.

Jason [00:07:11] So the second category and one that economists in this area have focused on is a set of mechanisms that involves individuals shifting their time towards activities that involve a different risk of violence. And so for example, if being exposed to violent media content or consuming it causes an individual to shift their time towards activities that involve a relatively low risk of violence, then it can reduce violence. And similarly, if the activity causes an individual to shift their time use towards activities that involve a high risk of violence, then it would make sense to expect increases in violence. So the lab based studies, while super interesting and informative, they're not well suited to capturing this sort of behavior because they don't involve individuals making real life choices about what activities to pursue, whether it's, you know, the choice to consume the violent media content in the first place or about what activities to pursue subsequent to to make that choice.

Jen [00:08:26] Yeah, and with the activity - just to clarify again - so you're thinking like maybe there's a violent video game and that keeps you off the streets where you might have gotten into actual fights with real people. Alternatively, maybe you go join a fight club as a result of playing this video game. And so those would have different effects in the real world.

Jason [00:08:46] Yep, exactly. And for the economist or budding economists that are listening, the first type that you described would often be referred to as an incapacitation effect of sorts, because it's hard to commit a violent act when you're busy playing a video game, for example.

Jen [00:09:03] Yes. Okay, so people, as you've mentioned, have often talked about the potential negative effects that violent movies or video games might have on kids in particular, but part of the challenge here is that we don't really have good research guidance to offer policymakers on this topic. So why is it so difficult to measure the causal effects of violent media content on behavior? Is it mostly a data challenge or an identification challenge or both of those things?

Jason [00:09:29] I think there's certainly a lot of data on violent and on crime and also on viewership of violent media content. And there is a lot of correlational research out there sometimes masquerading as causal research. But the problem or the main challenge is that in general, it's hard to evaluate the effects of choices that individuals make, including choices to consume violent media content because the types of individuals who enjoy violent media content may be predisposed to engaging in violence, regardless of whether or not consuming violent media content has a causal effect on them. So this is an issue that plagues much of the research in this area outside of the lab and so, as you know, estimating causal effects in the real world often involves evaluating some policy changes or natural experiments where you have an external force that alters an individual's experiences. Now, in the lab, the experimenter plays that role. In the real world, it's up to the researcher to identify circumstances where this has also happened so we can study the effects in the real world.

Jen [00:10:58] So your paper is titled "Persistent Effects of Violent Media Content," and it's coauthored with Isaac Swensen and Glen Waddell. Before this paper what did we know about the effect of violent media content on crime?

Jason [00:11:10] Yes. I mentioned before that there is a very big psychological literature examining this question in the lab and there the evidence is quite robust that violent media content causes individuals to act in a more aggressive manner in the activities that they're asked to perform in the lab. And so it is on the basis of this robust evidence that some influential organizations have said that the debate is over - we know what the effects of violent media content are. We can go ahead and make strong policy recommendations on the basis of this evidence. But these studies don't tell us about the real world choices to consume violent media content. And they only observe behavior over a really short window of time. Just to give you a sense of what we're talking about here, there's a study where it's titled "Long Term Effects of Such and Such," and I don't remember the exact title, but there the long term effects involved observing individuals over a two day period of time as opposed to a short, say, 30 minute or one hour window at which would be typical of the lab. So the lab studies, while useful, are also pretty limited, and so I think if we want real world policy implications or recommendations, we need to look to the effects in the real world.

Jen [00:12:46] And so when you're talking about the choices to consume the content and how the lab experiment can get at that, is what you mean by that that, you know, we would think that maybe the lab experiment includes a bunch of people who would be very negatively affected by media content, but in the real world, they would just - they know that and they would avoid it. Like they would never watch that super violent movie or play that violent video game because they know it has a negative effect on them. Is that the kind of example you're thinking of? And so that shouldn't affect policy choices because those people just are taking care of the problem themselves.

Jason [00:13:18] It could be that or it could be they just don't enjoy it. And so for the types of people who would not typically consume the type of content that they're exposed to in the lab, the effects aren't that informative for the real world. The second thing is, and this is a potential problem for all lab based studies, it's - you know, the way that people behave in a laboratory environment could be different from the way they behave at home or in different more natural environments because, well, it's just different. I think it feels different to consume violent media content at home versus under the supervision of a researcher, just like, you know, if you go to a movie theater and you watch a movie versus watching at home, it feels different. If I watch a movie with my wife, it feels different and it may affect me differently than if I watch it with my kids. So these sorts of contextual factors might be really important for what the effects might be.

Jen [00:14:31] And before we get angry emails from lab researchers, we should clarify that, you know, the big - the big benefit of lab studies is that you can carefully control for all kinds of things that you could never control for in the real world, but there is this tradeoff. There's this internal validity versus external body tradeoff that just kind of is what it is. So it's nice to have all kinds of studies to be able to interpret broadly.

Jason [00:14:54] I agree 100%. I don't want listeners to think that we're the first to go outside of the lab to study - to study this question. That would be taking way too much credit. And so there are a small handful of studies that do tell us about the effects in the real world. And I think the most well known study on this is Dahl and DellaVigna's analysis of violent crime around the release of blockbuster movies and so there they compared violent crime around the time of violent blockbuster movie releases and non-violent blockbuster movie releases. And they found that violent blockbusters decrease assaults the night of the movie and they suggested a simple time-use story or that we sort of were talking about earlier, which is that there are fewer crimes being committed because people are watching a movie as opposed to doing what they they might do normally, perhaps including activities that that would involve drinking. And then there are a few other studies that have similarly analyzed the release of violent video games and there they've found either similar effects of that - its crime reducing or no evidence of causal effects. But that's basically it as far as the rigorous causal evidence is concerned. So you have this huge literature from the psychologist doing lab based studies, and then you have a handful of economists that have done analyses of exposure to violent media content in the real world. And they offer sort of a contrasting view, but a view that is not - views that aren't inconsistent with one another, but I think sort of our approach to this study is that there are still some major questions unanswered, including the fact that different types of content may have different effects. And perhaps most importantly, these earlier studies haven't been well suited to evaluating the long term effects of repeated exposure to violent media content. So that's what we're ultimately trying to get at in our study.

Jen [00:17:17] Could you say a little bit more about that? So what were the - what was the time period and the fall period that those earlier studies were looking at?

Jason [00:17:24] So the Dahl and DellaVigna study focuses primarily on the day and the evening when the movie is first released. They look over the subsequent couple of weeks, but they offer lots of caveats for that analysis and, you know, even say in their own paper that their identification strategy is not well suited to identifying the effects over a longer time horizon. The video game studies focus over a longer period of months when we would expect - you know, subsequent to a video game being released, there's a lot of enthusiasm and enjoyment and activity for several months following the release.

Jen [00:18:15] Okay, so in both cases, they're really focused on the time period when the people might be actively consuming this violent media content, which I think would push it toward that incapacitation effect you mentioned earlier. And the question is whether that persists and over the longer term and in other times and all of that.

Jason [00:18:34] Yep, exactly.

Jen [00:18:36] Great. Okay, so in this paper, you consider the launch of "The Ultimate Fighter," a hit TV show on Spike TV as the natural experiment. And I suspect that many of our listeners might be unfamiliar with this show. So tell us about the series and the type of content one might see in an average episode.

Jason [00:18:53] Sure. I was an early viewer. So I have both a mixture of memories of watching it myself as a teenager and the more recent research that I've done to refresh my memory. But in any case, I think before explaining the show "The Ultimate Fighter," I have to first explain a little bit about UFC. UFC stands for Ultimate Fighting Championship, which is an organization that started organizing and promoting mixed martial arts fights in the early 1990s. And so I would say today UFC is a household name, at least for sports watching households in that it's regularly covered on ESPN. I went on ESPN.com this morning because I like sports and sure enough, it was on the front page. And UFC is also something that gets a tremendous amount of Google search activity that's comparable to NHL, the National Hockey League, comparable to LeBron James searches, and comparable to the video game "Call of Duty," which is sort of the most popular first person shooter video game series of all time. So anyhow, the UFC really struggled early on. They struggled to make money. They struggled to hold events. UFC featured fights that had very few rules and the objective of the fight was to knock out or submit your opponent and there was a lot of controversy surrounding these fights. They were described as human cockfighting by Senator McCain and lots of states refused to let them hold events. And so the organization was really struggling, losing about ten million dollars a year. And then they decided and perhaps a last ditch effort to turn the organization around, to spend \$10 million to produce this reality show - this reality TV show called "The Ultimate Fighter" to promote UFC.

Jason [00:21:17] And so, interestingly, the same ownership group that owns the UFC had recently had some success in promoting their casinos through a different reality TV show. So in any case, the idea was that "The Ultimate Fighter" would be the Trojan horse through which the UFC would enter the homes of America and turn them into fans of UFC products. And so this show, it premiered in January of 2005, it aired on Monday night on a network called Spike TV, which isn't around anymore, but was promoted as the first network for men. And at this time, reality TV shows in the US were particularly popular. And these are shows where contestants were brought together to live and interact in the same residence under nearly constant surveillance and the highlights of their activities would be featured on the show. And so "The Ultimate Fighter" was in this genre of

television. It brought together aspiring fighters to train for fights and to participate in violent mixed martial arts fights with the goal of winning a six figure UFC contract, which they emphasized in the beginning of each episode, and so the show featured fighters training for and participating in these violent fights, which would typically involve injuries, blood, choking, and so on.

Jason [00:23:07] It also featured UFC stars as coaches and guests. And then, of course, like all reality TV shows in the genre, it featured socializing among contestants and sometimes silly - silliness and games. So the show was hugely successful. It was considered an instant ratings success. It led to lots of other UFC based TV shows, including "UFC Unleashed," UFC Fight Night, UFC countdown specials that promoted big events that were scheduled to air on pay-per-view. And also the show is actually still running. There have been 20 plus seasons of "The Ultimate Fighter" itself. And so, you know this show is really widely viewed by both commentators and the UFC itself as providing a turning point of sorts whereby the UFC broke through to the masses, maybe not to everyone, but to lots and lots of people across the U.S. and we provide some evidence for this in our paper with our analyses of Google trends data and also pay-per-view pirates, both of which skyrocketed following the show.

Jen [00:24:36] I've seen you and Glen present this paper to a roomful of economists, and I can attest that most people in those rooms have never heard of the show, which speaks to the sample selection here. And so when you want to measure the effect of this kind of content on behavior, you can't just compare the type of people who watch the show with the type of people who didn't because they might be different on other dimensions. So let's talk about the natural experiment you're exploiting here. When did "The Ultimate Fighter" launch and what is the quasi-random variation that you found in who watched the show?

Jason [00:25:10] That's - okay, that was a lot of questions. I'll - tell me if I don't answer them.

Jen [00:25:14] The main question is what's the quasi-random variation that you found in who watch the show?

Jason [00:25:19] Sure. So the show premiered in January 2005. And so one thing I should emphasize is that it would not be convincing to simply compare violence or violent crime before and after the premiere of the show because all sorts of other things could explain changes over time. So not only do we not want to do a simple comparison across watchers and non-watchers, we also don't want to do a simple comparison before and after the show's premiere. The complication here is the for - from the researcher's perspective, is that everyone got access to the show at exactly the same time when it appeared or when it - when it premiered in 2005. And then also the - those who chose to watch the show, as you mentioned, are likely to be systematically different from those who didn't watch the show, perhaps in ways that are related to violence. So ultimately, we thought we could get around these problems by leveraging the fact that there's habit persistence in TV watching, or at least there typically would have been in the mid 2000s where people watched television, usually at more regular times on more regular networks.

Jason [00:26:39] But the basic idea is that an individual who typically watch TV on Spike TV on Monday night before "The Ultimate Fighter" premiered is going to be more likely to watch "The Ultimate Fighter" once it premieres than someone who typically doesn't watch Spike TV on Monday night. So we could evaluate the effects of being exposed to this show by comparing how violent crime changes over time among the first group to how it

changes over time among the second group who is less likely to be exposed to the show. But we actually go a step farther than that because we have Spike TV ratings data both from Monday night and also for all other times of the week and so this allows us to adjust for or hold constant the overall amount of time spent watching Spike TV. And so then the thought experiment is to compare changes in violence across two groups of individuals who watch the same amount of Spike TV on average, but where one group is more likely to be watching on Monday nights than the other groups. So that's the general idea. What we actually do is a small step or perhaps a medium step removed from that because we don't actually observe individuals and so we conduct the analysis at the county level. And in that sense, we're leveraging the fact that "The Ultimate Fighter" viewership in a given county in 2005 and beyond is strongly predicted by Spike TV viewership in the same time slot in 2004 before the show premiered, even after adjusting for the county's overall 2004 Spike TV ratings.

Jen [00:28:36] Okay, so I'm going to step through that one more time for everyone. So you're going to use Spike TV ratings in the timeslot that "The Ultimate Fighter" would later occupy in 2005 as an instrument for the number of people in a county who watch the show. So Monday nights my TV night, and I'm used to turning on Spike TV on Mondays at 8:00 p.m. to watch my favorite show and so when suddenly "The Ultimate Fighter" premieres in that time slot, I'm more likely to see it and give it a chance because I was used to turning on that channel at that time anyway. So that's the natural experiment and it's great. And after controlling for overall spike TV ratings in that area, you argue that this measure provides as good as random variation in actual "Ultimate Fighter" viewership. So it essentially isolates the good or plausibly random variation in who is watching "The Ultimate Fighter" from the bad or non random variation due to individual choices about what TV to watch.

Jen [00:29:33] So a valid instrument, if we think back to our econometrics classes - a valid instrument must be correlated with the treatment variable, in this case, actual viewership. That's a straightforward correlation that you can test. But an IV must also satisfy what we call the exclusion restriction, that is, it can only be correlated with the outcome measure, in this case, local crime rates through its effect on the treatment variable, "Ultimate Fighter" viewership. This is, unfortunately, something that you can't test directly, which is a problem in lots of papers. So talk us through this a little bit more. What might we be worried about in this case and how do you convince yourself that your instrument Spike TV ratings during the same time slot in 2004 satisfies this exclusion restriction?

Jason [00:30:20] Yeah, so for the listeners who are familiar with the lingo, our specific research design is a combination of both instrumental variables and also difference-in-differences. And that's important because the difference-in-difference is part of the strategy. It means we're not simply comparing outcomes across counties. We're evaluating the degree to which outcomes change over time differentially across counties and as it relates to different levels of exposure to the show. And so basically, we're looking to see if crime rates change differently after "The Ultimate Fighter" premiered for counties that were predicted to be highly exposed to the show as a result of their prior viewing habits versus counties that were predicted to be less exposed to the show as a result of their pre-2005 viewing habits.

Jason [00:31:21] So to preview the results a bit, we find an immediate and strongly persistent reduction in violent crime for highly exposed counties relative to less exposed counties. But the exclusion restriction and the validity of the research design is always sort of first order and we have to question, is this real or might there be something else that we

have not accounted for that could possibly explain this pattern of estimates? And so to try to convince ourselves that this effect is real we verified that we don't see any such reductions several years leading up to the premiere of the show. So the highly exposed counties and the lesser exposed counties, their crime rates were trending very similarly for several years before the show premiered. And then suddenly they - and it was quite sudden, which makes us feel even more confident about our interpretation of the results - they diverged immediately when the show premiered. So I definitely - and they diverged for quite, quite some time. So I really appreciate skepticism, but I think that the pattern of estimates that we show would put a skeptic in a pretty small box. And that's because the effect that we see is so clearly not the result of longer run trends and it is so precipitous with the show's premiere that it's hard to imagine what sort of confounder could lead to such results. So we're open minded, of course, but we can't come up with alternative interpretations of these results.

Jen [00:33:20] I'm realizing we didn't talk about what shows were in that time slot before. So it wasn't - so the shows that we're in the time slot that you were watching anyway, and then suddenly in January 2005, you turn on your favorite show and it's "The Ultimate Fighter" instead. This isn't a problem if your favorite show was something equally violent, but that was not the case.

Jason [00:33:39] That was not the case. The shows that were typically airing in this timeslot, the most common show was "The Most Extreme Elimination Challenge." I may have gotten that title slightly incorrect, which was a silly show brought over from Japan, where you have contestants going through an obstacle course and falling in mud and you have comedic actors narrating what's happening on the screen. So that was the - that was the modal show that was airing in the time slot before "The Ultimate Fighter" premiered. Other times it was shows about video games, other reality television shows, "James Bond" aired once or twice, "Stripperella" aired sometimes, so it was sort of a grab bag of random shows that were intended to appeal to an audience of young males. But the shows that were airing were not particularly violent before "The Ultimate Fighter" came on and took over the time slot.

Jen [00:34:56] So when we're thinking about this, the sample of the population that's being affected by this natural experiment, it sounds like it's going to be a pretty mixed bag of just like a representative group of young men, not young men that really like violent TV or something like that.

Jason [00:35:09] I think I think that's probably accurate.

Jen [00:35:12] Okay, so before we get back to the results, what data are you using to investigate all of this?

Jason [00:35:18] So to measure TV viewership, we use Nielsen TV Ratings data, which is sort of standard data set to be used because of its comparative high quality and its breadth. So that tells us how many people in each county were watching Spike TV and how many were watching in the future "Ultimate Fighter" timeslot in 2004, and also how many were watching "The Ultimate Fighter" in February of 2005. And then we measure crime rates for police agencies across the United States for 2001 to 2006.

Jen [00:35:59] And what outcome measures are you interested in here?

Jason [00:36:04] Yeah, that's a - that's a good question.

Jason [00:36:06] So as I was sort of alluding to earlier, we were really excited in particular about the potential to assess long run effects on crime. So the long panel of data is particularly important here. As for what types of crime? I think we went into this project thinking that all sorts of crimes could be affected by violent media content, and this is consistent with, you know, that all of this robust evidence from lab based studies that have found that violent media content increases aggression, and so you could imagine that something that increases aggression could lead to all sorts of antisocial behaviors that could be affected by viewing this sort of content. So I think we're open minded that all types of crime could possibly be affected. That said, I think - you know, it's also reasonable to think that the effects might be biggest for the sorts of crimes that are most closely related to the content depicted on the show and that's assault because, you know, obviously "The Ultimate Fighter" and the UFC basically features assaults that are sanctioned by athletics commissions. So we paid as - I'd say, a special attention to looking at that specific crime outcome.

Jen [00:37:42] Okay, so let's go back to the results. Remind us again what you found is the effect of increasing "Ultimate Fighter" viewership on local crime rates.

Jason [00:37:51] We find immediate and sustained reductions in violent crime caused by early exposure to the show, and these effects are particularly evident for assault. They began the month the show premiered and they were quite persistent.

Jen [00:38:10] What do you mean by persistent? How long were you able to look forward?

Jason [00:38:14] So we can - we can look forward 10 plus years, given that, you know, the show premiered in 2005. We have a lot of data that has been collected since then, and so we have a figure in the paper where we show the effects for each quarter of each year leading up to and following the premiere of the show in early 2005. And based on this evidence, the effects appear to persist for five or more years, which is a really long time and which suggests that there's major persistence to this effect. So one of the things that's particularly interesting about these estimates by quarter of year is that the quarters of the year approximately correspond to the dates of new seasons of the show, which aired every other quarter. And so you might think, based on the earlier economics research that the effects would only be apparent in the quarter when the show first started airing or in subsequent quarters when a new season was airing, but that doesn't appear to be the case. The effect is highly persistent across all quarters of the year for five plus years.

Jen [00:39:39] And how large is the effect?

Jason [00:39:43] So the the magnitude of the effect - you know, I would say I'm a little bit reluctant to emphasize the magnitude of the effect, given the imprecision of these estimates. And so by that I mean, our estimates when we think about the uncertainty of the estimates, it's - there consistent with there being very large effects, but they're also consistent with their being very small effects. We can exclude zero, which means that, you know, we're very confident that it reduces crime. But how much exactly? I think the estimates are too imprecise to focus on the point estimates.

Jen [00:40:37] Okay, that's fine, you don't have to give us numbers, that's all right.

Jason [00:40:40] I just - I worry that they they would be cited without a appreciation for the...

Jen [00:40:49] ...the nuance.

Jason [00:40:51] And the width of the 95% confidence interval.

Jen [00:40:55] Fair enough. Fair enough. And you said that the effects vary across different types of crime?

Jason [00:41:00] That's right, yeah. So the clearest evidence of effects are on assault, but - and this is one of those cases where a lot of times estimates are not statistically significant, but they're suggestive of effects. And so I like to leave these estimates usually sort of in the eye of the beholder of readers, but I would say for those who are listening, who maybe don't have the paper in front of them, which is probably everyone, that the pattern of estimates, which suggests reductions in crime happen immediately when the show begins airing and which persist for a long period of time - that pattern of estimates is also present for rape and also for property crimes. But, you know, as I was alluding to, those estimates are a bit smaller and less precise than the estimated effects on assault.

Jen [00:41:59] What are you able to say about the mechanisms that are driving this effect?

Jason [00:42:05] The major thing we can say is that any harmful psychological effects - for example, those emphasized by psychologists who have done these very nice lab based studies, they must be outweighed either by beneficial psychological effects or by impacts on time use that are crime reducing. And so the time use effects that we have in mind could be what we call "follow-on incapacitation effects" in the paper. And so specifically, the persistence of the effects could be driven by persistent effects on time use. And I think this is something that's pretty likely in our context. As I mentioned before, the show created fans of UFC and being a fan of UFC likely led to watching UFC main events, which aired on Saturday nights at various times of the year. It could have involved renting UFC videos from the local BlockBuster video rental store. It could have involved taking up mixed martial arts and lots of other similar things that could possibly be crime reducing. That being said, if we were to focus solely on the potentially psychological explanations, I would say our results are consistent with this sort of content and these sort of activities having catharsis effects that are crime reducing or perhaps giving folks a greater awareness of the severity of the injuries that could result from real life violent encounters.

Jen [00:43:54] Yeah, that last - that last piece is something that really highlights the content of the - this particular media rise. So that's something you might not get in a video game, but on this show, if you see someone you know whose nose is broken or worse, that might actually deter you from getting into a fistfight yourself.

Jason [00:44:13] Yeah, absolutely. And so this is why I do think it's important that researchers, policymakers, and practitioners really have an appreciation for the - for the variety of content types under this big umbrella of violent media content.

Jen [00:44:31] Yeah. And so it seems like the main - for me anyway, that the main take away in terms of the mechanisms from the paper is really that, you know, what previous researchers had highlighted as the incapacitation effects of actually going to the movie theater and watching the violent movie instead of going out to a bar and drinking with your friends like that seemed to be the most likely explanation for drops in crime in those

previous papers. There's no way that can be explaining your full effect here. You really do have to have these follow-on incapacitation effects the way you're describing or some of these beneficial psychological effects. It's not just that people are sitting in front of the TV on Monday nights and don't get into fights on Monday night because you're seeing effects at other times to. Is that right?

Jason [00:45:20] Yep, no doubt about it. And indeed, even if people watching this show completely eliminated violent crime on Monday night that would be a drop in the bucket because there are so - such a small share of violent crimes are committed during the window of time when the show is airing. So that -

Jen [00:45:44] Monday's not a big crime night.

Jason [00:45:46] It's not. So that can't explain the effects that we find.

Jen [00:45:50] All right, so that's your paper. Are there any other studies that have come out more recently that add to our understanding of the effects of violent media content on crime? I know this paper is pretty new, so not a whole lot of time for new studies.

Jason [00:46:02] So I think the recent studies that I find most intriguing and interesting that are most closely related to ours are not studies of the effects of violent media, and they're not studies of the effects on crime, but there are studies that are looking at the causal effects of consuming specific types of media content that have very long lasting effects on individuals. And so the first is a really cool paper by Melissa Kearney and Phil Levine showing that access to PBS content and likely to "The Sesame Street" in particular, had positive longrun effects on children when they grow up, which is really, really cool and fascinating and also highlights how important of a role media content can play in determining important outcomes.

Jason [00:47:09] A second paper that I find really interesting and is in a similar spirit is by Kirsten Cornelson, which documents positive effects of "The Cosby Show" on black kids' educational attainment. So I know there is a temptation sometimes for people to dismiss the importance of research on media or other cultural touchstones, but it can be really important and there's a growing evidence base that shows just how important media content can be in affecting individuals' longer outcomes.

Jen [00:47:59] This makes me wonder what the impact of all of us watching lots of Netflix during the current pandemic lockdown will have on our long run outcomes. It might be difficult to isolate from the lockdown itself, but there's a paper in there somewhere.

Jason [00:48:12] It might be. This has been - this is totally been on my mind, especially with three young kids. And we're trying to find appropriate content and trying to also figure out what we ourselves find appropriate.

Jason [00:48:30] And it's tricky and there are things that are potentially inappropriate that sort of pop up where you don't expect them sometimes with, like old cartoons. I put "Yogi Bear" on for my kids - I thought that would be fun to introduce them to that show that I really enjoyed as a kid. And in, like the second or third episode, you have this guy, just this - slapstick style comedy with a guy running around with a gun, firing it like complete disregard for gun safety, and it made me really uncomfortable. And I don't know how I feel about that. And I suspect that the content creators didn't give it a second thought. But today, given what we know about the consequences of, you know, firearm accidents and

how prevalent they are, I think it would give a lot of people pause today to be having their young kids watching that sort of content.

Jen [00:49:32] The next paper for someone, the effect of "Yogi Bear" on firearms.

Jen [00:49:38] Yes. All right. Back to your paper here. What are the policy implications? What should policymakers and practitioners take away from your paper along with the other work in this area?

Jason [00:49:51] We should certainly be more skeptical about policy prescriptions based on the wealth of a lab based studies. The short run effects that might have been expected from those studies, they just haven't been found in rigorous studies of individuals in their natural, real world environments. And this is really important because influential organizations have gone on record that the debate should be over because the lab based evidence was perceived as being so conclusive. And it is conclusive in the sense that those results have been replicated many times over. It's just the problem with basing policy prescriptions on that particular type of lab based evidence is that the results just don't seem to generalize to the real world that exists beyond the labs.

Jason [00:50:50] So, you know, a related question is, you know, are the real world studies conclusive in providing evidence that exposure to violent media content is crime reducing? Because all of the evidence either suggests that there is no effect or that it is crime reducing. I don't think I would personally be willing to make a statement so strong as to say that this research is conclusive, even though I think that there are several high quality studies in this area, especially because prior to our study, we didn't know if the effects were persistent over a long period of time. And so that's actually true for both lab studies and what I've called these real world studies. And so our paper shows that, you know, the crime reducing effects in this instance persist over a very long period of time for the type of violent media content that we focus on. So now we have a handful of studies or a handful of data points, if you will, showing that violent media content is crime reducing in the short run. And we have one study showing that these effects persist over a very long period of time. So taken at face value, this evidence, you know, it might suggest or it does suggest that violent media content could actually be part of the solution to fighting crime. But, you know, unless I really had to, I would be hesitant to make any strong policy recommendations without more evidence. So I definitely hope to see more evidence in the future.

Jen [00:52:37] And speaking of that, what is the research frontier here? What are the next big questions in this area that you and others will be thinking about going forward?

Jason [00:52:45] I think the issue of affect persistence is always important to researchers who care about their research being useful to policymakers and practitioners because when something has long run effects and not just short short run effects, the cost benefit considerations can just change dramatically. So I think long term effects of violent media content will continue to be really important. So, you know, I'm proud of our study because I think it takes a big step forward in contributing to our understanding of the long run effects of violent media content. But my own view is that no single study is definitive, and that's especially true for something as varied as violent media content. So I'm very interested in future work on long run effects so that we can better - so that we can better understand whether violent media content is violent crime reducing over the long run in general, or whether there's something peculiar about the content that we examined in our own study.

Jen [00:53:52] My guest today, has been Jason Lindo from Texas A&M University. Jason, thanks so much for doing this.

Jason [00:53:58] Thank you for having me.

Jen [00:54:05] You can find links to all the research we discussed today on our website, probablecausation.com. You can also subscribe to the show there or wherever you get your podcasts to make sure you don't miss a single episode. Big thanks to Emergent Ventures for supporting the show and thanks also to our Patreon subscribers. This show is listener supported. So if you enjoy the podcast, then please consider contributing via Patreon. You can find a link on our website. Our sound engineer is Caroline Hockenbury with production assistance from Elizabeth Pancotti. Our music is by Werner and our logo is designed by Carrie Throckmorton. Thanks for listening and I'll talk to you in two weeks.