

## Reviewer: 1

I appreciate the main thrust of this manuscript. Documenting the broader fallout of highly visible acts of state violence, as the authors carefully do here, is certainly important work. Below are a few suggests that may help improve the impact of the manuscript:

(1) The Background section might be expanded a bit to better motivate the analysis and contextualize ideas. Questions such as, "Conceptually, why might one expect for gun-related crime to spike after a highly publicized, state sponsored murder?"; or "Why is it important to rule out explanations like changes in police behavior here?" are left a bit open in the current front end. Taking a bit more time to walk a general science audience through the logic that motivated the analysis might help them better appreciate the findings.

(2) I wonder if the authors could explain how the paper benefits from bringing in models in a bit more detail? I.e, the descriptive analyses in Figures 1 and 2 appear to provide compelling enough answers to the authors' research questions: there's very clearly a spike shortly after the murder of George Floyd (Fig 1) and this effect appears to be unevenly distributed across ZCTAs within the city (Fig 2). The modeled results don't detract from things, but I'm not entirely sure what they add. Again, maybe doing more to motivate the importance of conditioning on things like changes to police behavior could help motivate the "why" a bit more for readers here

(3) I wonder if there's a better way to display the information that's included in Figures 2 and 3? For instance, in Figure 2, we're really only marginally interested in the spatial relation of the ZCTAs (e.g., which ZCTA shares a border with another) and instead more interested in how "treatment" effects are unequally distributed according to different neighborhood characteristics (e.g., as the authors highlight, "... areas already marked by higher gun violence in the pre-treatment period experienced greater change across the time periods as compared to ZCTAs with very low firearm assault incidence" and "... the red area representing the greatest spike is North Minneapolis, a historically Black community and a longstanding site of resistance to police violence and racial injustice.") With the way that the figure is organized now, we can't make these patterns out ourselves as readers, unless we have a familiarity with Minneapolis neighborhoods. An alternative display, that sheds the map format in favor of a visual that, for example, plots changes in violence by community demographics or pre-treatment violence, might help readers better draw out the points that the authors want to highlight.

(4) In examining "whether disadvantaged communities experienced the greatest change", did the authors explicitly model interactions between the community features of interest and time? I see that the results in Figure 3 are based on a model that allows ZCTA specific time effects, identified via an interaction between ZCTA dummies and a time indicator. To support their claims using this model, the authors then pull out a few ZCTAs where interactions were significant and point out that these communities also happen to be "historically Black and economically disadvantaged."

That's OK, but also a somewhat limited, indirect way of getting at these relations of interest. For instance, wouldn't building out an interaction between time and community economic composition (or racial composition or pre-treatment violence levels) be a much more direct way of identifying systemic heterogeneity here? Such an approach would allow the authors to point to things like "a significant, population-level interaction, where communities with greater densities of Black residents also faced more post- state-murder harms." It's hard to make that sort of systematic claim from the ZCTA\*time approach that's centered in the main text; the results do \*align\* with that idea --- in that ZCTAs 55411, 55412, 55404, and 55415 all had significant time slopes --- but it's not the strongest or clearest demonstration of the authors' claim. I see that the authors do some of this more direct modeling in supplemental analyses --- i.e., Footnote 3 in the main text writes, "A random effects specification with cross-level interactions indicates that the post-killing effect was significantly higher in ZCTAs with higher proportions of Black residents. Model is available upon request from the corresponding author." This explicit modeling of the relations of interests seem like the one that should be centered in the main text, as it provides a more direct, concrete test of the authors ideas.

## Reviewer: 2

This manuscript tackles an important and pressing issue (increases in gun violence in recent years) and addresses it in an important context (in Minneapolis before and after the police killing of George Floyd).

Using an ITS and spatial design modeling strategy, the manuscript succeeds very well in demonstrating the existence of a spike in gun violence as well as its spatial distribution.

The manuscript also claims to have generated some explanation of why, providing a bit of evidence against a “de-policing” explanation. This part of the paper is not successful for two reasons. First, the de-policing narrative is just one potential explanation, and none of the other potential explanations are offered. Even the de-policing explanation is barely discussed. Second, the evaluation of the de-policing effect is brief and unclear, without sufficient explanation of either measurement or modeling assumptions. Relevant police activity is not adequately captured by one-week lags on use of force and stops, especially if the lag is measured in a period of intense social protest and its aftermath.

My sense is that an expanded version of this paper can be published in a good journal, but this project is not well suited to a piece of this length for this journal. The measurement and modeling approaches must be explained and justified. Model selection for the ITS must be discussed, in view of what the measures can and cannot reveal. And a full range of potential explanations deserves attention, at least in the writing, but also as they imply threats to the authors’ favorite interpretation of their models.

## Reviewer: 3

Thank you for the opportunity to review, "Temporal and spatial shifts in gun violence, before and after a historic police killing in Minneapolis." I found the study to be very interesting and felt like it can have a very important impact, considering the topic is on a recent racially hostile event. Below, I have feedback that I hope is useful to the authors.

### Introduction

In this section, it would be helpful if the authors can add a sentence or two on what it means when gun violence increases following Mr. Floyd's death and why this relationship would exist between a killing of an unarmed African American male and increases in gun violence for Black Americans and for communities with histories of police maltreatment/violence.

Following the sentence, "Although hospital data are not free of such biases," can the authors include a citation to direct readers to learn more about what biases exist in hospital data?

### Results

Table 1 is blurry/fuzzy. Can the authors address this?

I noticed race came up significant in a cross-level interaction and indicated that the post killing effect was significant higher in ZCTAs with higher proportions of Black residents. Can the authors clarify whether there was a non-significant effect for ZCTAs with predominantly White residents? Or is the effect significant for both groups but more positive for Black residents?

Related to my last point, can the authors consider exploring race x sex interactions to see if Black males were particularly threatened?

### Discussion

Here, I would remind the readers to let them know the theory of why a Minneapolis effect emerged. The authors communicated trauma is a likely mechanism, but the writing would be stronger if they explained why/how trauma was involved.

### Suggestion for future work

I wonder whether there was an opposite- Minneapolis effect or a White-specific Minneapolis effect following the sentence of Derek Chauvin. Did Black residents experience less identity threats following the sentence or did White residents experience greater identity threat (due to possible views of a more equitable society indicates less afforded power toward White identities)?

Thank you for doing this work!