Permitless Carry Laws and Firearm Violence

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Abstract: Firearm violence, including assault related non-fatal shootings and homicides, is among the leading causes of death in the United States. Competing narratives and theoretical interpretations regarding deregulation of firearms and their impact on safety exist nationwide. For instance, does allowing individuals to possess concealed weapons in public without testing or licensing—known as permitless carry—lead to more, less, or the same level of gun violence? Despite the recent permeation of state permitless carry policies—the number of states with these policies has roughly doubled since 2020—little has been documented concerning the causal relationship between these recent laws and firearm violence. Pairing the Gun Violence Archive (GVA) with the Callaway & Sant'Anna (2021) difference-in-differences (DiD) method and separately with a stacked DiD method, we find that permitless carry laws were generally not associated with differences in the number of victims injured, victims killed, suspects injured, or suspects killed. However, we do find weak evidence that Mississippi and West Virginia, both enacting these laws in 2016, saw increases in both victim and suspect deaths.

Keywords: Permitless Carry, Firearm Violence

There are no competing interests to report.

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Background

High rates of firearm violence, including homicides and assault-related non-fatal shootings, claim too many lives and greatly diminish community safety in the United States. Homicides are among the five leading causes of death for individuals aged 1 to 44, disproportionately affecting communities of color and youth.[1,2] Many states have recently weakened or eliminated requirements for public and concealed firearm carriage. From 2016 through 2023, twenty one states adopted permitless carry laws, allowing for individuals in the state who wish to carry concealed weapons in public to do so without special testing or licensing.[3] Some research suggests that less restrictive firearms regulations may lead to more concealed gun carrying in public, gun thefts, the availability of firearms obtained through underground markets, and ultimately allow for increased aggression and firearm assaults. Most recently, a study by Doucette et al. (2023) found that states who implemented permitless carry policies prior to 2019 (which excludes about 15 currently treated states) saw 21 additional gun assaults per 100,000 population.[4]

While there is emerging evidence suggesting that the implementation of permitless concealed carry laws may be associated with increases in non-fatal shootings and firearm homicides, results are mixed.[5-10] Some studies have found uncertain effects of adopting permitless carry policies on violent crime, homicide, and aggravated assault.[6,10] In a recent systematic review of the evidence on gun policies, Smart et al. (2023) conducted a quality assessment of studies examining the effects of permitless carry on violent crime, overall homicides, and firearm specific homicides utilizing criteria based on methodological flaws, including: threats to causal identification, violation of statistical assumptions and inaccurate inferential statistics, and risk of model overfit.[8] They found only two studies examining the

effects of permitless carry on total homicides without serious methodological issues and determined there is inconclusive evidence for this link.[8] Further, there is no clear understanding on how permitless carry law implementation may interact with other state gun policies (e.g., open-carry laws, which allow for permitted non-concealed public carry of firearms) to impact firearm violence outcomes, or how such policies differently impact different populations.

The overall goal of the paper is to strengthen the causal evidence base that links state permitless carry laws and firearm violence and utilizes (1) a fuller set of states that have expanded these laws, and (2) more recent methodological innovations that allow for pooling treatment effects that have occurred in different time periods. We will assess whether the implementation of permitless carry laws impacted fatal and non-fatal firearm violence for the suspects and victims. Further, we will examine how permitless carry laws and open carry laws may interact to influence firearm shootings.

Methodology

Data

We utilized the Gun Violence Archive (GVA) for years 2014-July 2024 (N=412,025). The GVA is a publicly available data set of firearm violence events. Automated and manual methods are used to gather daily information on fatal and non-fatal firearm injuries nationally from more than 7,500 sources, including local and state police, media, data aggregates, etc.[13] Incident data collected include date, address, and number of individuals injured or killed. Individual victim and offender details are collected including age, gender, status, and relationship to one another. GVA has been validated as a reliable epidemiological data source for examination of firearm violence,[14] and is the only existing national database including non-fatal firearm injuries beyond

2021. Key outcomes variables include victims injured, victims killed, suspects injured, or suspects killed.

Sample

Given the data, which spanned 2014 through 2024, three states—Alaska (2003), Arizona (2010), Wyoming (2011)—expanded their permitless carry laws prior to the data window and were excluded. Vermont has permitless carry in its constitution (from 1793) and we did not have policies in hand for the District of Columbia so this was also excluded. This leaves the final sample at 46 states over 11 years (see Table 2). There was a total of 412,025 incident observations. Observations were collapsed to state-by-year counts. Thus, there is a maximum sample of 506 state-by-year observations.

Descriptive Analyses

We collapsed our outcomes by year and treated cohort, plotting the outcomes in pre-COVID-19 pandemic versus COVID-19 pandemic era samples. Informed by these results, we then plotted state-level data through time for the 2016 cohort comprised of Mississippi and West Virginia against the control cohort.

Statistical Analyses

We used the Callaway and Sant'Anna Difference-in-Differences (CSDID)[12] approach to estimate the impact of permitless carry laws on gun-based injuries and death among victims and suspects. CSDID accommodates staggered treatment timing in a multi-period setting and allows for heterogeneous treatment effects across cohorts and over time. We implemented the event-

study version of CSDID to estimate dynamic average treatment effects relative to the year prior to the permitless carry law changes. We estimated the group-time average treatment effect on the treated (ATT) for states who launched permitless carry laws at time *g* and whose outcomes were observed in year *t.* This is defined as:

$$\text{ATT}(g,t) = E\left[Y_{it} - Y_{i,g-1} \mid G_i = g \right] - E\left[Y_{it} - Y_{i,g-1} \mid G_i > t \right]$$

where Y_i is the outcome in year t and $Y_{i,g-1}$ is the outcome in the pre-treatment period. The treatment group is defined by $G_i=g$ and the control group is the "never treated" cohort. We then aggregated to the group-time yearly ATT estimates, using state-by-year population weights, to obtain the event-study treatment effects.

We conducted variations to this analyses to better understand the robustness of our overall results as well to explore how sub-populations may be distinctly impacted: (1) excluding states who were impacted by the 2022 *New York State Rifle and Pistol Association (NYSRPA) vs. Bruen* Supreme Court ruling. As a result of this case, a handful of our never treated control states— California, Hawaii, New York, Maryland, and Massachusetts—were compelled to convert from "may-issue" to "shall-issue" policies on the grounds of the second amendment right to bear arms outside the home for self-defense. This case, having occurred within one year of the permitless carry law enactment of twelve states, could contaminate the control group; and (2) Focusing only on "open-carry" law states who allow fully or partially visible handguns in public. Publicly visible guns could amplify the potential impacts of increased gun availability brought about by permitless carry laws. States with open-carry laws include: Alabama, Alaska, Arizona, Arkansas, Colorado, Delaware, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina,

South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

We also conduct these analyses using the full sample, a pre-COVID-19-pandemic sample to minimize the potential confounding effects of various events during the pandemic era (e.g., the pandemic itself, various high-profile police shootings and their subsequent protests, etc.), a pandemic era sample, and on treatment group balanced samples (i.e., a pre-pandemic balanced panels with +/- 2 years of data and a balanced panel with +/- 3 years of data).

We additionally explore the role of specification in driving our results by additionally including a stacked DiD model, specified as follows:

$$Y_{jt} = \sum_{t=-X}^{+Z} (\alpha_{jt} \text{ Permitless Carry}_j * \text{Year(t)}) + \lambda_j + \tau_t + \varepsilon_{jt}$$

where Y_{jt} is the outcome varying at the state j level and time t level (which varies as either month or year, depending on the specification). The time-period ranges from -X to +Z time-periods. In some specifications, we include the entire range of years (i.e., the 2015 cohort would have one pre-period and nine post-periods while the 2024 cohort would have nine pre-periods and one post-period). In other specifications, we balanced the treatment cohort to have the same number of relative pre- and post-periods. The key vector of estimates are represented by α_{jt} which captures the time-varying associations between the outcome variable each time-period relative to the time-period just before the policy change. Control states are randomly assigned an index date to create a post-period comparison with the treated states. Otherwise, λ_j captures state fixed effects, τ_t captures time fixed effects, and ε_{jt} captures the error term that is clustered on state.

Results

Across the treated states, 8.3 (SD=5.8) victims were injured per 100,000 people while 4.6 (SD=3.1) victims were killed per 100,000 people. As for suspects, 0.7 (SD=0.3) suspects were

injured per 100,000 people while 0.9 (SD=0.3) suspects were killed per 100,000 people (see Table 1). The timing of permitless carry laws are summarized in Table 2.

The mean plots through time, starting with the pre-COVID-19 pandemic era (i.e., years 2014 through 2019) show that for victims, cohorts 2015, 2017, and 2018 imply little by way of likely DiD patterns across all outcomes. However, the 2016 cohort shows patterns suggestive of relative increases starting in the year of policy enactment for both victim injuries and killings as well as for suspect killings (see Figure 1 Panels A, B, and D). These results generally hold for the victim and suspect killing outcomes across the two states within the 2016 cohort—Mississippi and West Virginia—with the victim injury results being driven primarily by Mississippi (see Figure 2). In contrast, the mean patterns for the COVID-19 pandemic era sample suggests few discernably systematic patterns centered about the cohorts' respective index years relative to the control group (see Figure 3).

The full sample results using the Callaway & Sant'Anna (2021) method suggest relatively parallel pre-trends with no statistically significant post-period effects (see Figure 4). This result holds when removing the NYSRPA vs. Bruen control states (see Figure 5) and when focusing on just open carry state (see Figure 6). When decomposing the overall effects by cohort year, the 2016 cohort is positive and statistically significant for victims killed and suspects killed (see Figure 7, Panels B and D). The 2017 cohort is also associated with fewer suspects injured while the 2022 cohort is associated with increases in victim injuries while the 2019 cohort registers increases in suspects killed.

The pre-COVID-19 pandemic sample suggests possible increases in victims injured (starting in the fourth year after the policy) and victims killed (starting in the second year after the policy). However, both show some potential relative increases in the pre-period trends (see

Figure 8). The COVID-19 pandemic era sample generally show null effects, with noticeable jumps in the result in the final year (i.e., estimated on the 2024 effect among the 2019 cohort; though, this could be a residual effect of having incomplete 2024 data) (see Figure 9).

When focusing on balanced panels, the samples comprised of treatment cohorts 2016, 2017, and 2019 with all periods being before the COVID-19 pandemic era, there is again evidence that the number of victims killed and suspects killed increased following the law change (see Figure 10). In contrast, a balanced panel focusing on the 2017, 2019, 2020, 2021, and 2022 shows no effects across the outcomes (see Figure 11).

When using the full set of data under a stacked DiD model, we again find reasonably flat relative pre-periods and no statistically significant post-period estimates (see Figure 12). These null results hold when focusing on monthly data (see Figure 13) as well as on a balanced panel on pre-COVID-19 2017 and 2019 treatment cohorts (see Figure 14).

Discussion

Overall

In general, we do not find that permitless carry laws are associated with sustained differences in victim or suspect gun injuries or deaths among the states that enacted these laws since 2015 against the never-treated comparator states. We do, however, find limited evidence that the pre-COVID-19 pandemic era states that enacted permitless carry laws experienced increased in victim and suspect killings, driven primarily by two states that enacted these laws in 2016: Mississippi and West Virginia. Future research into this topic should explore the underpinnings and mechanisms associated with these heterogeneities in effects by states and time, as well as by sociodemographic dimensions.

Limitations

Our study has several limitations, including: (1) states selected into permitless carry laws and so, while there is potential for viewing these results as possibly causal given generally parallel trends pooled across multiple time-periods, endogeneity is always a risk in interpreting these results; (2) there is limited follow-up data, especially for the large number of states who recently enacted permitless carry laws—fourteen since 2021—which limits their contribution to the lagged effects that we measure; (3) it is possible that reporting of gun violence was altered coincident with the enactment of permitless carry laws. If this occurred, our results would be biased accordingly; and (4) all datasets in this topic area have their challenges, and the GVA is no exception as it lacks the ability to disentangle defensive versus aggressive incidents, lacks racial and ethnic details, and tends to have fewer details on the demographics of the suspects.

Conclusion

Overall, we find that permitless carry laws were generally not associated with sustained differences in the number of victims or suspects injured or killed.

Tables and Figures

Table 1: Full Sample Summary Statistics

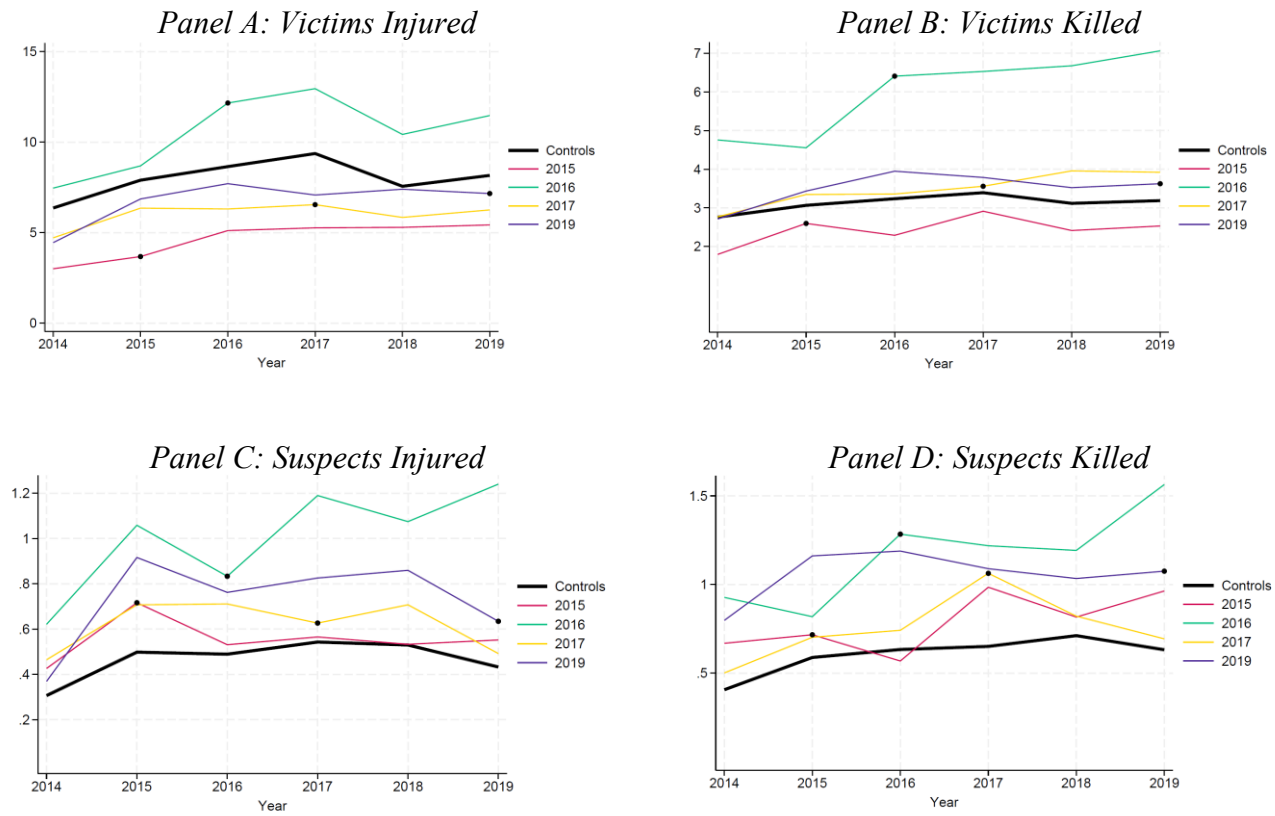
	Treated States	Control States
Victims Injured / 100,000 People	8.3 (5.8)	8.8 (6.2)
Victims Killed / 100,000 People	4.6 (3.1)	3.5 (2.0)
Suspects Injured / 100,000 People	0.7 (0.3)	0.5 (0.3)
Suspects Killed / 100,000 People	0.9 (0.3)	0.6 (0.4)
Observations	275	231
Number of States	25	21

Notes: Annual means are reported and standard deviations are in parentheses.

Table 2: States by Year of Change to Permitless Carry Laws

Year of Change	State
<2015	VT (1793), AK (2003), AZ (2010), WY (2011), ND (2017 for residents)
2015	ME, KS
2016	WV, MS
2017	NH, MO
2019	OK, SD, KY
2020	ID
2021	TX, IA, TN, UT, MT
2022	IN, OH, GA
2023	NE, AR, FL, AL
2024	LA, SC
None (Controls)	CA, CO, CT, DE, HI, IL, MD, MA, MI, MN, NV, NJ, NM, NY, NC, OR, PA, RI, VA, WA, WI

Figure 1: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Pre-COVID-19 Era States vs. Controls

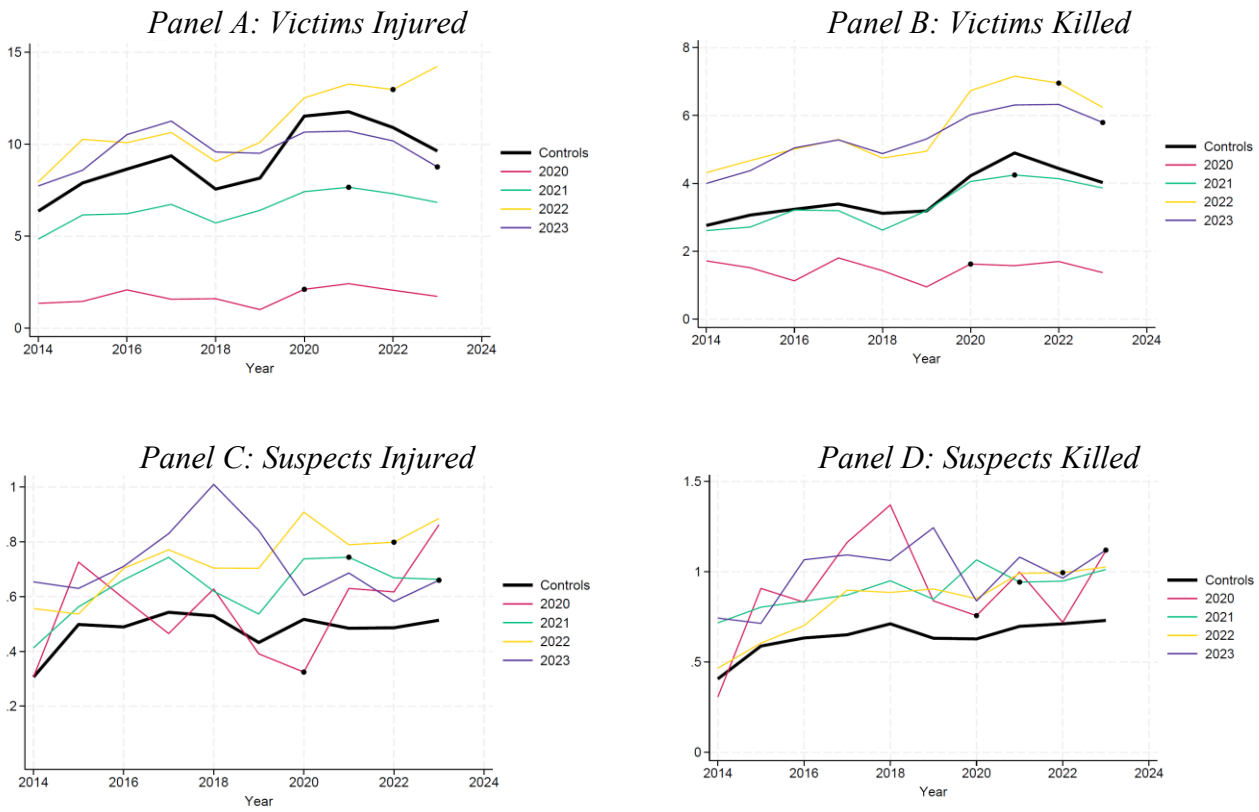


Notes: Treated states include ID, TX, IA, TN, UT, MT, IN, OH, GA, NE, AR, FL, AL, LA, and SC.

Figure 2: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Pre-COVID-19 Era States vs. Controls, by State for 2016 States

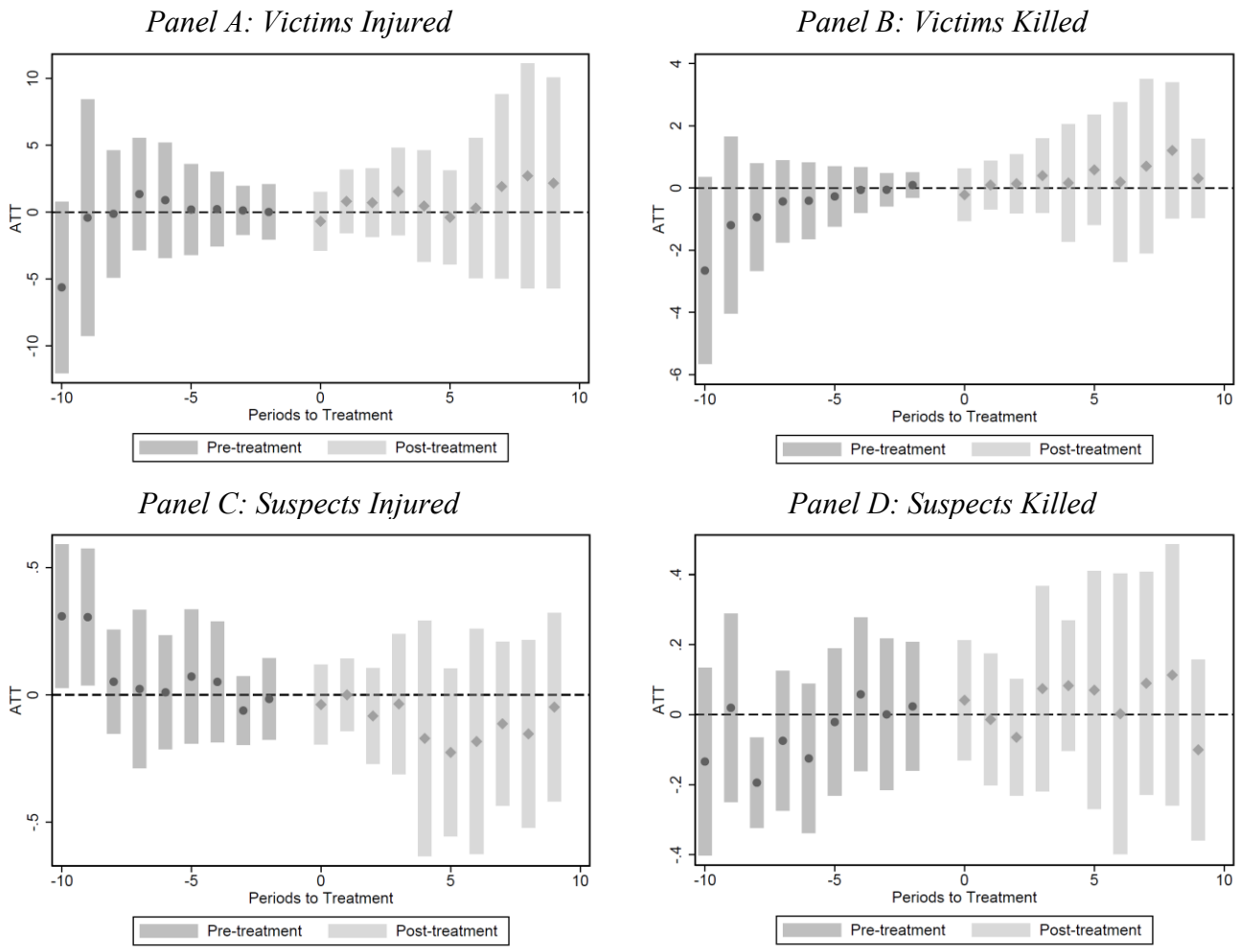
Notes: Treated states include ID, TX, IA, TN, UT, MT, IN, OH, GA, NE, AR, FL, and AL. LA, and SC become treated in 2024.

Figure 3: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), COVID-19 Era States vs. Controls (no 2024)



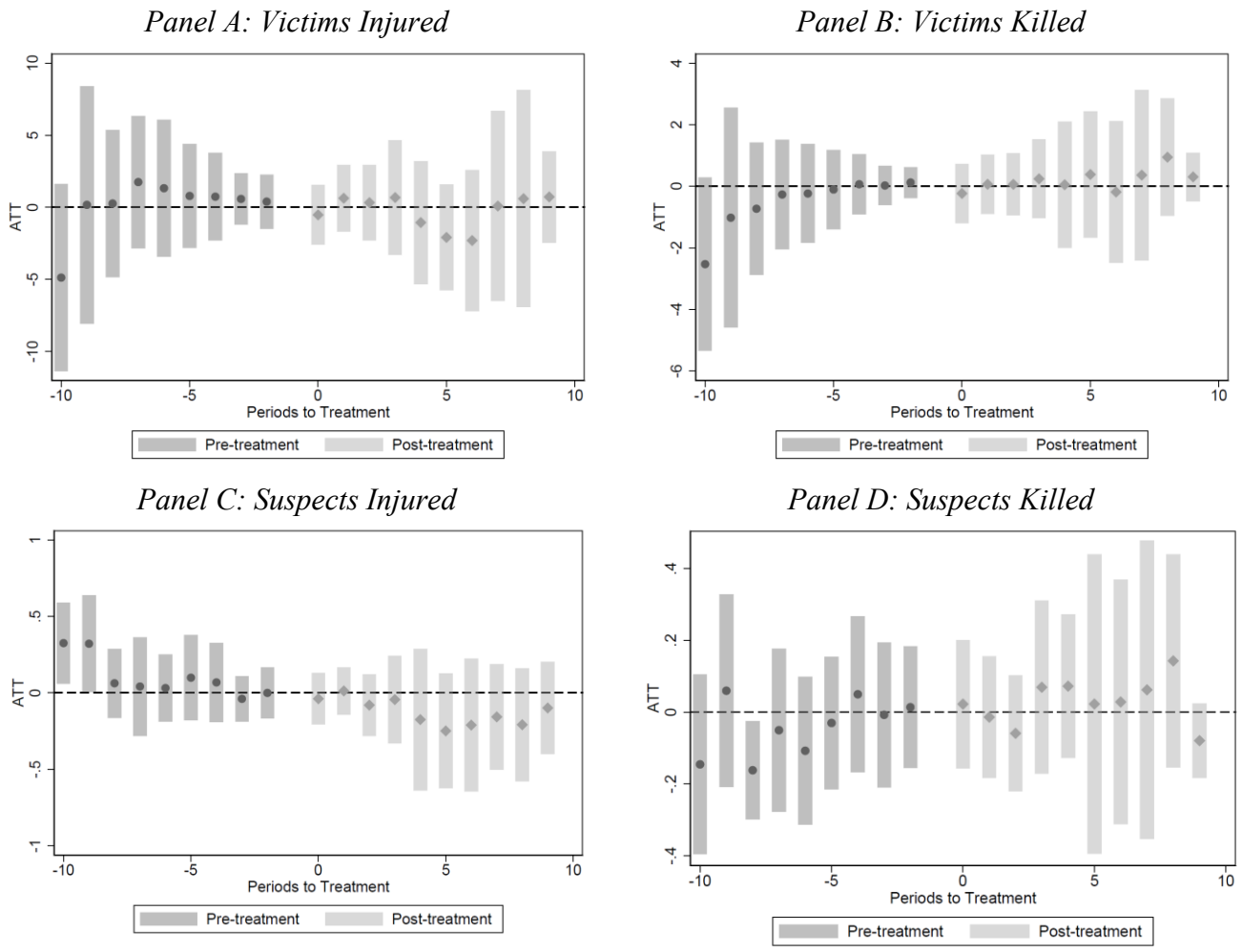
Notes: Treated states include ID, TX, IA, TN, UT, MT, IN, OH, GA, NE, AR, FL, and AL. LA, and SC become treated in 2024.

Figure 4: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), with State-by-Year Population Weights



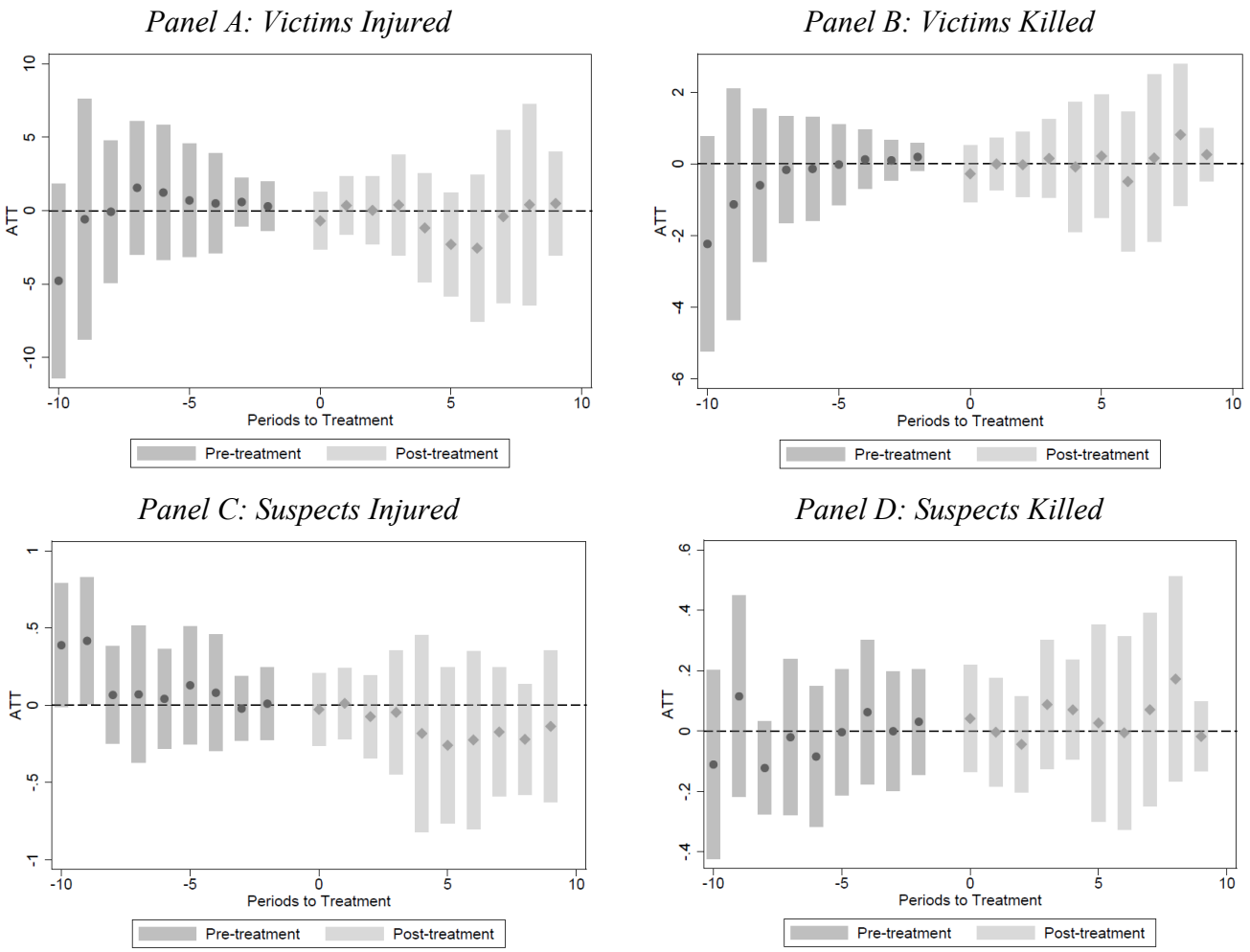
Notes: N=506 observations (46 states x 11 years). 90% confidence intervals are reported.

Figure 5: Victims Injured/Killed and Suspects Injured/Killed Per 100,000 People, Excluding NYSRPA vs. Bruen States From the Control Cohort



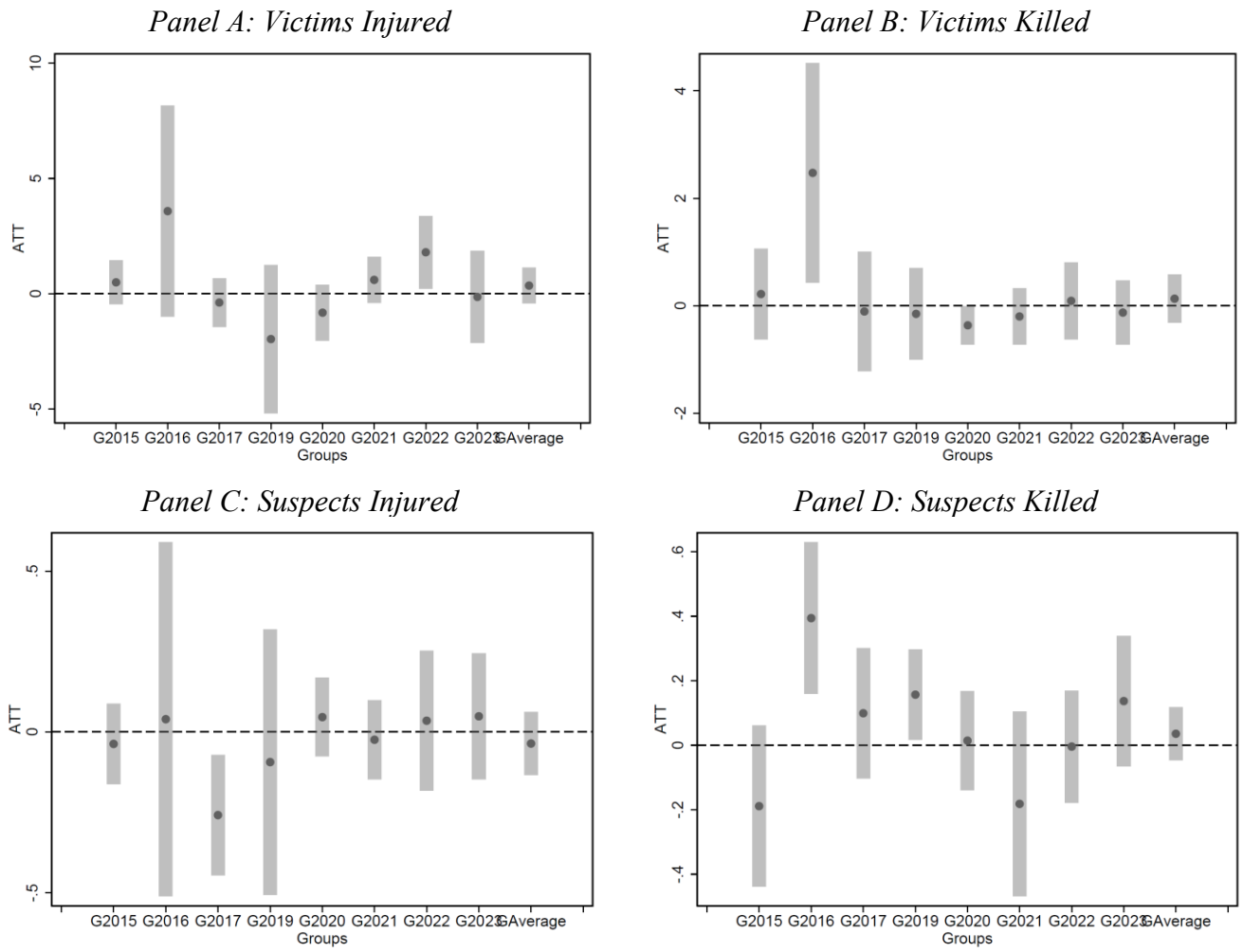
Notes: N=451 observations (41 states x 11 years). 90% confidence intervals are reported. NYSRPA vs. Bruen-affected states include California, Hawaii, New York, Maryland, and Massachusetts.

Figure 6: Victims Injured/Killed and Suspects Injured/Killed Per 100,000 People, Open Carry States Only



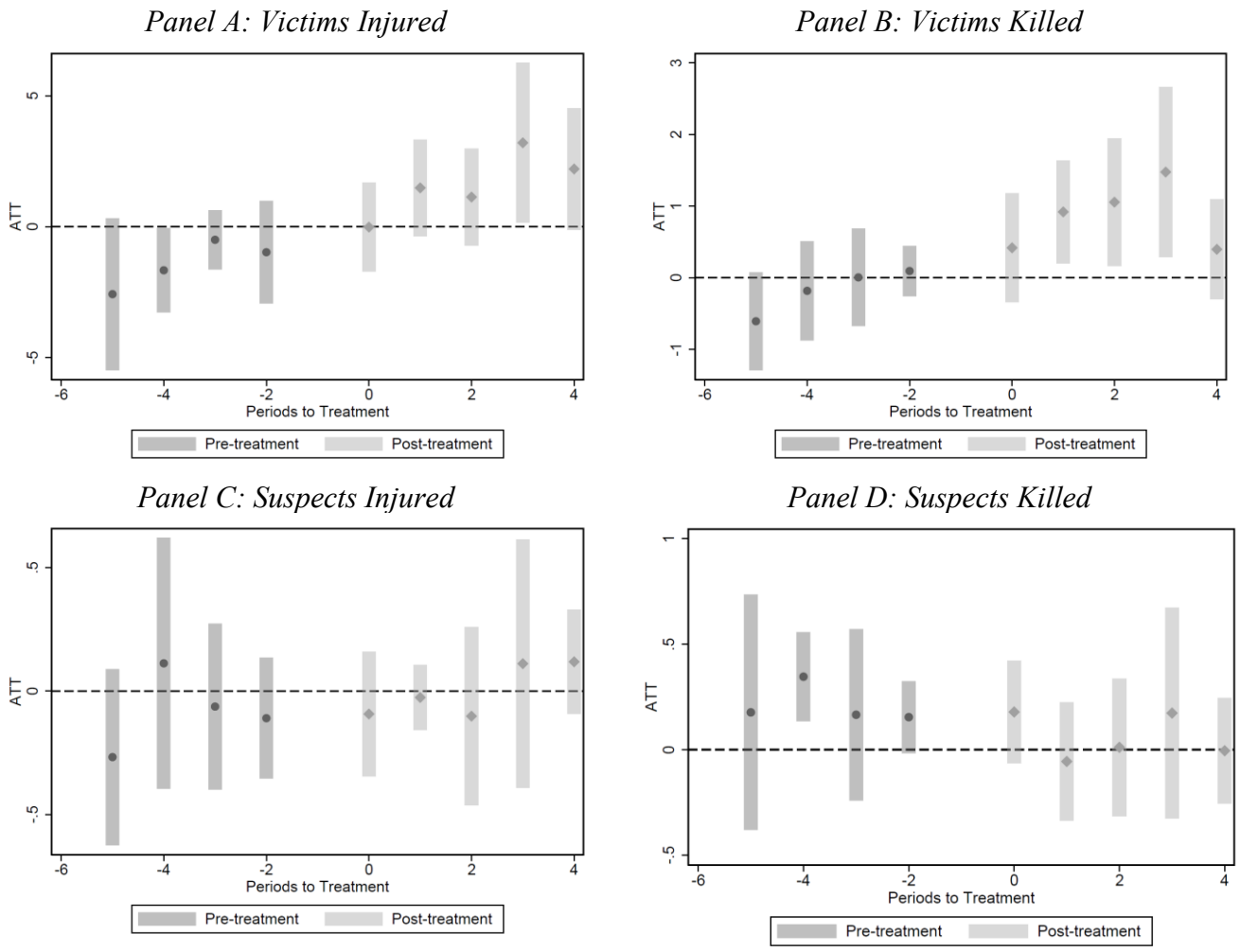
Notes: N=385 observations (35 states x 11 years). 90% confidence intervals are reported. Open carry states include: Alabama, Alaska, Arizona, Arkansas, Colorado, Delaware, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

Figure 7: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), By Cohort



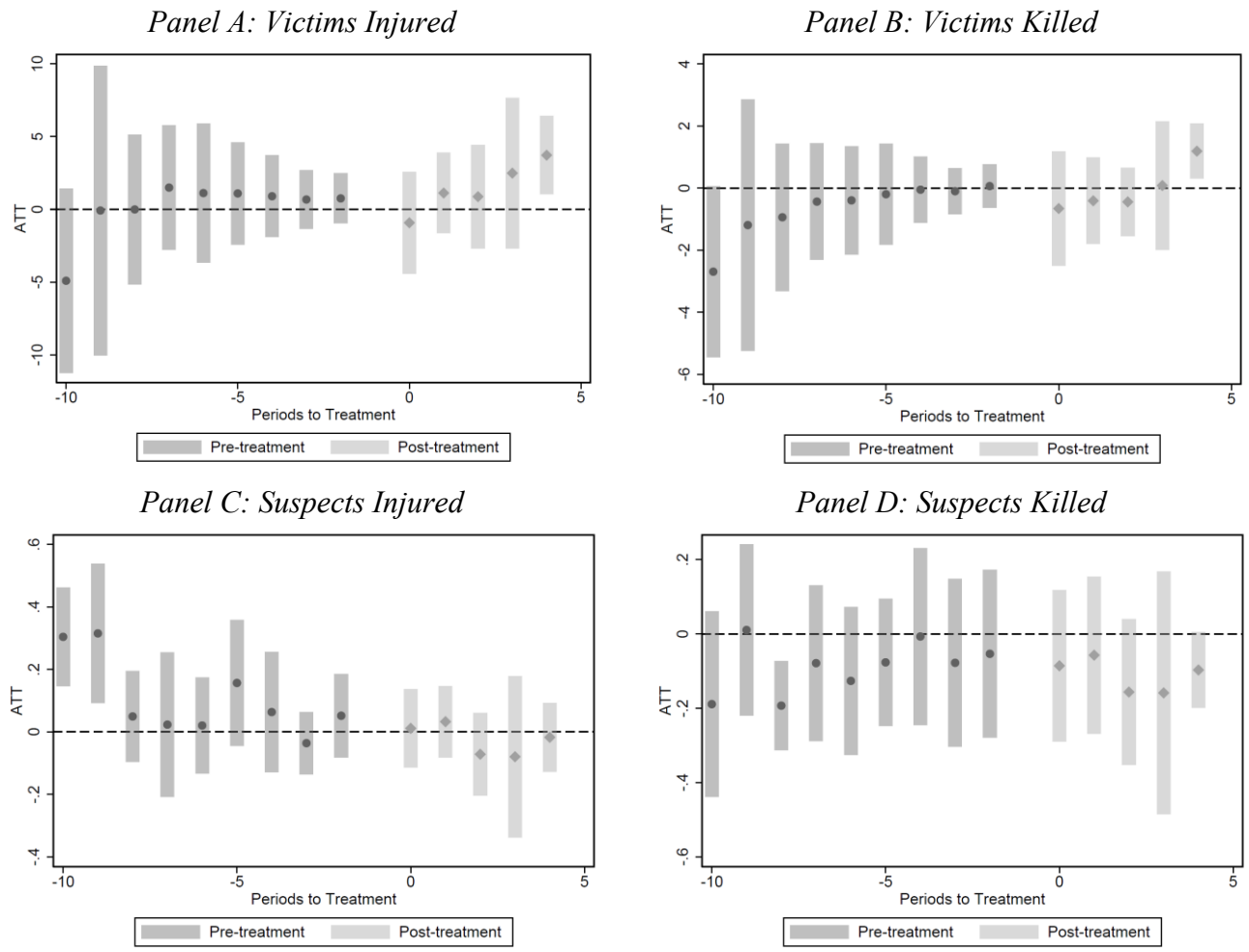
Notes: N=460 observations (46 states x 10 years). 90% confidence intervals are reported.

Figure 8: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Pre-2020 Sample Only and Weighted



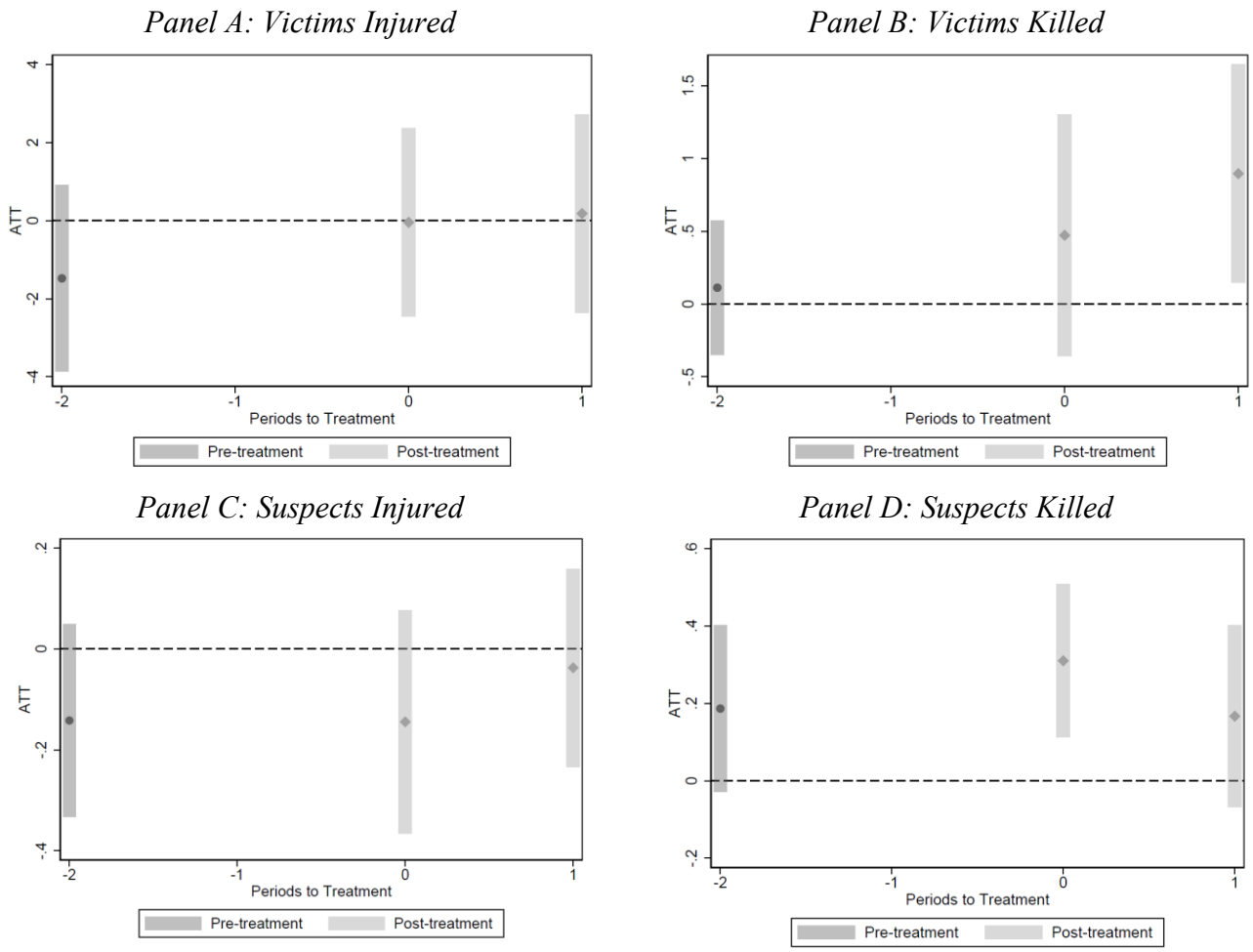
Notes: N=276 observations (46 states x 6 years). 90% confidence intervals are reported.

Figure 9: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), 2020+ Treated Samples (i.e., Excluding Earlier Treated, Including All Controls), Weighted



Notes: N=396 observations (46 states x 11 years). 90% confidence intervals are reported.

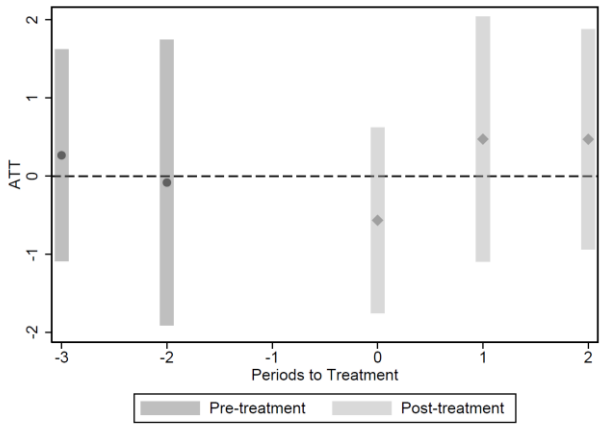
Figure 10: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Balanced Panel (2 Years +/- for Years: 2016, 2017, 2019)



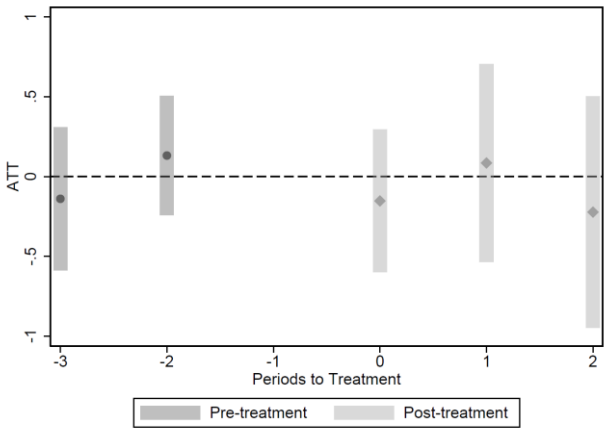
Notes: N=179 observations (8 treated states x 4 years + 147 pair-balanced control observations). 90% confidence intervals are reported.

Figure 11: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Balanced Panel (+/-3 Years: 2017, 2019, 2020, 2021, 2022) and Weighted

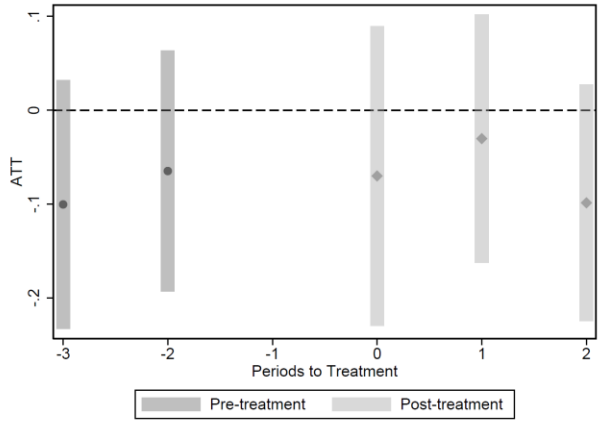
Panel A: Victims Injured



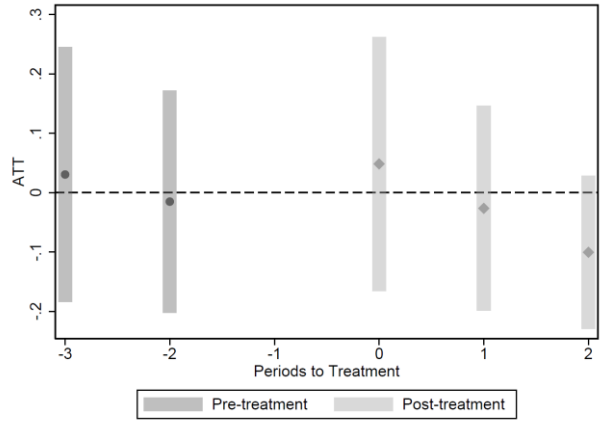
Panel B: Victims Killed



Panel C: Suspects Injured



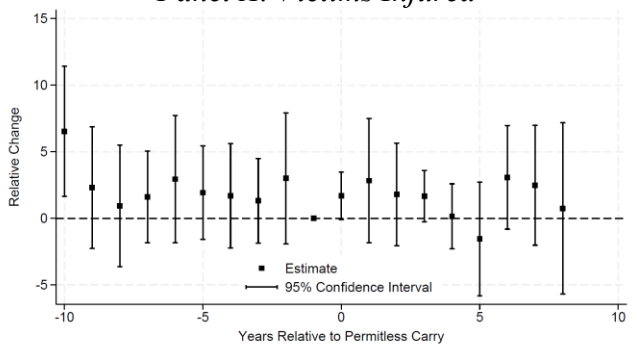
Panel D: Suspects Killed



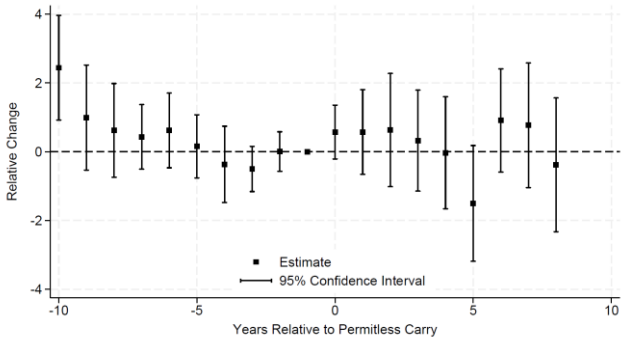
Notes: N=321 observations (15 treated states x 6 years + 21 control states x 11 years). 90% confidence intervals are reported.

Figure 12: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Yearly Data, Weighted

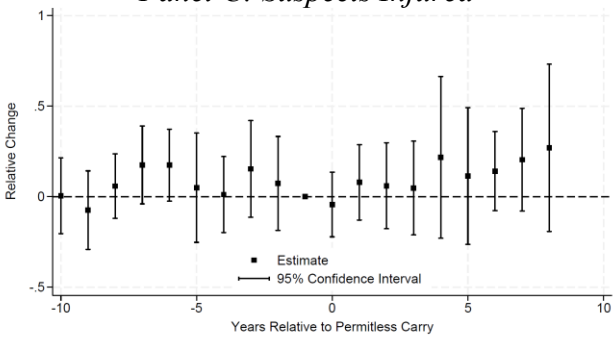
Panel A: Victims Injured



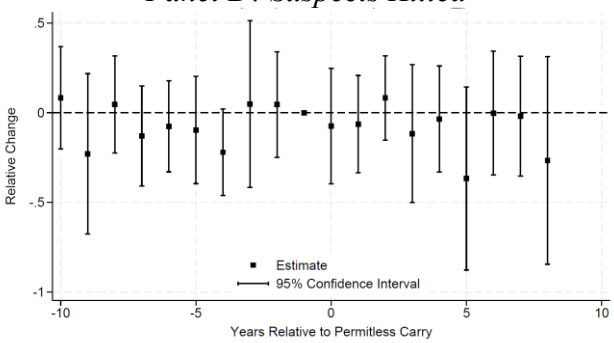
Panel B: Victims Killed



Panel C: Suspects Injured

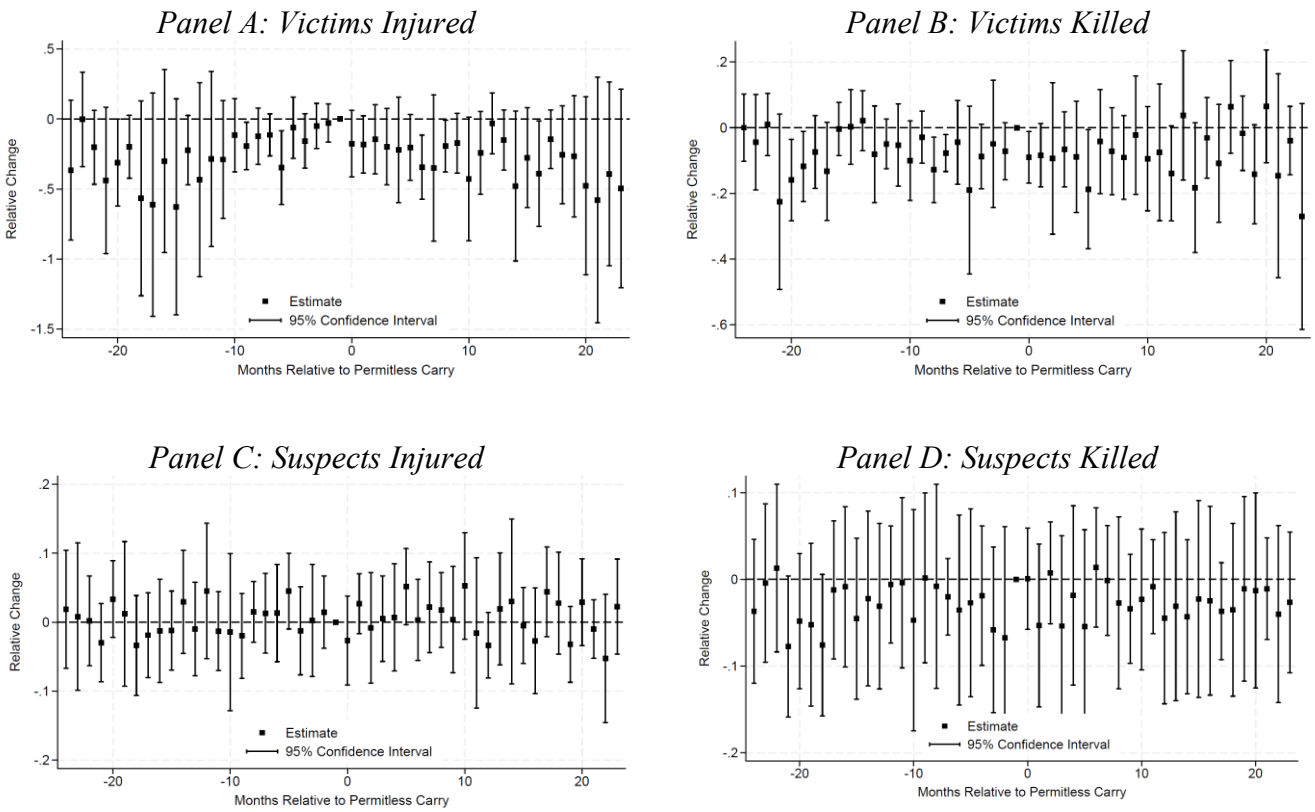


Panel D: Suspects Killed



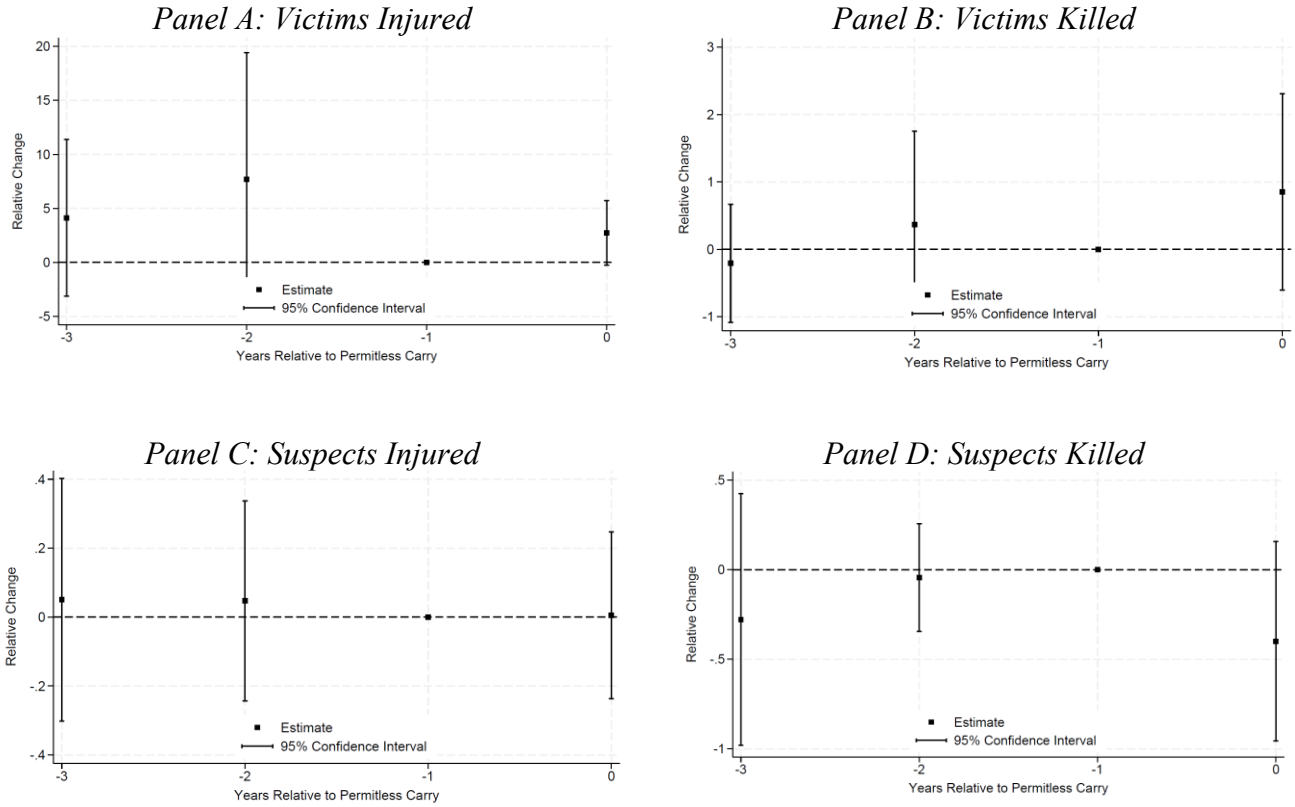
Notes: N=506 observations (46 states).

Figure 13: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Monthly Data Over 24 Months Pre/Post (Weighted)



Notes: N=2,006 observations (46 states). 95% confidence intervals are reported.

Figure 14: Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Annual Data and Pre-COVID-19 Only Balanced Sample of 2017 and 2019 Expanders, Weighted



Notes: N=48 observations (12 states x 4 years). 95% confidence intervals are reported.

Appendix Tables

Table A1 (Figure 4): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), with State-by-Year Population Weights

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	-0.37 (-2.16 to 1.42) p=0.73	-0.66 (-1.46 to 0.15) p=0.18	0.08* (<0.01 to 0.16) p=0.09	-0.05 (-0.14 to 0.05) p=0.39
Post-Period Average	0.96 (-0.42 to 2.34) p=0.25	0.36 (-0.38 to 1.10) p=0.43	-0.11 (-0.23 to 0.02) p=0.17	0.03 (-0.07 to 0.13) p=0.64
Tm10	-5.62 (-11.84 to 0.60) p=0.14	-2.65 (-5.44 to 0.13) p=0.12	0.31*** (0.16 to 0.46) p<0.01	-0.13 (-0.35 to 0.08) p=0.30
Tm9	-0.41 (-4.27 to 3.45) p=0.86	-1.20 (-2.88 to 0.49) p=0.24	0.31*** (0.16 to 0.45) p<0.01	0.02 (-0.15 to 0.19) p=0.85
Tm8	-0.12 (-2.26 to 2.01) p=0.92	-0.94 (-1.97 to 0.09) p=0.14	0.05 (-0.06 to 0.16) p=0.44	-0.19*** (-0.27 to -0.11) p<0.01
Tm7	1.35 (-0.40 to 3.10) p=0.20	-0.43 (-1.20 to 0.33) p=0.35	0.02 (-0.13 to 0.18) p=0.81	-0.07 (-0.20 to 0.05) p=0.32
Tm6	0.90 (-0.89 to 2.68) p=0.41	-0.41 (-1.14 to 0.32) p=0.35	0.01 (-0.10 to 0.12) p=0.88	-0.13 (-0.26 to 0.01) p=0.12
Tm5	0.20 (-1.20 to 1.59) p=0.82	-0.27 (-0.85 to 0.31) p=0.44	0.07 (-0.06 to 0.21) p=0.38	-0.02 (-0.15 to 0.11) p=0.78
Tm4	0.23 (-0.94 to 1.40) p=0.75	-0.06 (-0.50 to 0.37) p=0.82	0.05 (-0.07 to 0.17) p=0.48	0.06 (-0.07 to 0.19) p=0.47
Tm3	0.13 (-0.68 to 0.94) p=0.79	-0.06 (-0.37 to 0.26) p=0.76	-0.06 (-0.13 to 0.01) p=0.17	<0.01 (-0.13 to 0.13) p=0.99
Tm2	0.01 (-0.87 to 0.90) p=0.98	0.09 (-0.14 to 0.33) p=0.52	-0.02 (-0.10 to 0.07) p=0.76	0.02 (-0.09 to 0.14) p=0.73
Tp0	-0.69 (-1.69 to 0.32) p=0.26	-0.22 (-0.70 to 0.27) p=0.46	-0.04 (-0.12 to 0.04) p=0.43	0.04 (-0.07 to 0.15) p=0.55
Tp1	0.81 (-0.12 to 1.74) p=0.15	0.10 (-0.33 to 0.52) p=0.71	<0.01 (-0.07 to 0.07) p=1.00	-0.01 (-0.13 to 0.10) p=0.84
Tp2	0.71 (-0.35 to 1.77) p=0.27	0.14 (-0.39 to 0.67) p=0.66	-0.08 (-0.18 to 0.02) p=0.17	-0.06 (-0.17 to 0.04) p=0.29
Tp3	1.54* (0.1 to 2.99) p=0.08	0.40 (-0.27 to 1.07) p=0.33	-0.04 (-0.18 to 0.11) p=0.69	0.07 (-0.10 to 0.25) p=0.48
Tp4	0.46 (-1.29 to 2.21) p=0.67	0.16 (-0.91 to 1.24) p=0.80	-0.17 (-0.41 to 0.07) p=0.25	0.08 (-0.03 to 0.20) p=0.24
Tp5	-0.39 (-1.92 to 1.13) p=0.67	0.58 (-0.50 to 1.67) p=0.38	-0.23** (-0.4 to -0.05) p=0.03	0.07 (-0.15 to 0.29) p=0.59
Tp6	0.31 (-1.91 to 2.53) p=0.82	0.19 (-1.37 to 1.75) p=0.84	-0.18 (-0.43 to 0.06) p=0.23	<0.01 (-0.24 to 0.24) p=0.99
Tp7	1.92 (-0.98 to 4.82) p=0.28	0.70 (-0.88 to 2.29) p=0.47	-0.11 (-0.27 to 0.05) p=0.25	0.09 (-0.09 to 0.27) p=0.42
Tp8	2.72 (-0.64 to 6.07) p=0.18	1.21 (<0.01 to 2.42) p=0.101	-0.15 (-0.51 to 0.20) p=0.48	0.11 (-0.12 to 0.35) p=0.43
Tp9	2.17 (-1.03 to 5.37) p=0.26	0.31 (-0.45 to 1.06) p=0.50	-0.05 (-0.24 to 0.14) p=0.68	-0.10 (-0.28 to 0.08) p=0.36

Notes: N=506 (46 states x 11 years). 95% CIs in parenthesis. * p<0.10 ** p<0.05 *** p<0.01. Standard errors are generated without using wild-bootstrap methods.

Table A2 (Figure 5): Victims Injured/Killed and Suspects Injured/Killed Per 100,000 People, Excluding NYSRPA vs. Bruen States From the Control Cohort

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	0.12 (-2.12 to 2.37) p=0.91	-0.52 (-1.48 to 0.44) p=0.29	0.10** (0.01 to 0.2) p=0.04	-0.04 (-0.15 to 0.07) p=0.46
Post-Period Average	-0.30 (-1.86 to 1.27) p=0.71	0.20 (-0.53 to 0.93) p=0.59	-0.12* (-0.27 to 0.02) p=0.09	0.03 (-0.09 to 0.15) p=0.66
Tm10	-4.88 (-12.28 to 2.51) p=0.20	-2.53 (-5.81 to 0.74) p=0.13	0.33*** (0.18 to 0.47) p<0.01	-0.15 (-0.40 to 0.11) p=0.27
Tm9	0.17 (-4.32 to 4.66) p=0.94	-1.02 (-3.03 to 0.99) p=0.32	0.32*** (0.14 to 0.50) p<0.01	0.06 (-0.13 to 0.25) p=0.54
Tm8	0.26 (-2.42 to 2.94) p=0.85	-0.73 (-1.99 to 0.53) p=0.26	0.06 (-0.06 to 0.18) p=0.31	-0.16*** (-0.26 to -0.06) p<0.01
Tm7	1.75 (-0.55 to 4.05) p=0.14	-0.27 (-1.21 to 0.68) p=0.58	0.04 (-0.14 to 0.22) p=0.65	-0.05 (-0.21 to 0.11) p=0.54
Tm6	1.32 (-1.08 to 3.73) p=0.28	-0.23 (-1.14 to 0.67) p=0.61	0.03 (-0.09 to 0.15) p=0.62	-0.11 (-0.26 to 0.05) p=0.17
Tm5	0.79 (-1.03 to 2.60) p=0.40	-0.11 (-0.81 to 0.60) p=0.77	0.10 (-0.06 to 0.26) p=0.22	-0.03 (-0.17 to 0.11) p=0.67
Tm4	0.74 (-0.80 to 2.27) p=0.35	0.07 (-0.44 to 0.58) p=0.8	0.07 (-0.07 to 0.21) p=0.34	0.05 (-0.11 to 0.21) p=0.53
Tm3	0.58 (-0.36 to 1.52) p=0.23	0.03 (-0.33 to 0.38) p=0.89	-0.04 (-0.12 to 0.04) p=0.36	-0.01 (-0.15 to 0.13) p=0.92
Tm2	0.39 (-0.52 to 1.31) p=0.40	0.12 (-0.15 to 0.40) p=0.38	<0.01 (-0.10 to 0.10) p=0.99	0.01 (-0.11 to 0.14) p=0.83
Tp0	-0.53 (-1.56 to 0.50) p=0.32	-0.23 (-0.78 to 0.32) p=0.41	-0.04 (-0.13 to 0.05) p=0.40	0.02 (-0.11 to 0.15) p=0.73
Tp1	0.63 (-0.57 to 1.83) p=0.31	0.07 (-0.42 to 0.55) p=0.79	0.01 (-0.07 to 0.1) p=0.77	-0.01 (-0.14 to 0.11) p=0.83
Tp2	0.32 (-1.05 to 1.69) p=0.65	0.06 (-0.48 to 0.60) p=0.82	-0.08 (-0.19 to 0.03) p=0.17	-0.06 (-0.18 to 0.06) p=0.34
Tp3	0.67 (-1.28 to 2.62) p=0.5=	0.24 (-0.48 to 0.96) p=0.51	-0.04 (-0.21 to 0.12) p=0.60	0.07 (-0.11 to 0.25) p=0.46
Tp4	-1.06 (-3.24 to 1.12) p=0.34	0.05 (-1.04 to 1.15) p=0.93	-0.18 (-0.44 to 0.09) p=0.2	0.07 (-0.06 to 0.21) p=0.29
Tp5	-2.09*** (-4.06 to -0.12) p=0.04	0.38 (-0.80 to 1.56) p=0.52	-0.25 (-0.46 to -0.04) p=0.02	0.02 (-0.24 to 0.28) p=0.87
Tp6	-2.31 (-5.04 to 0.43) p=0.10	-0.19 (-1.58 to 1.21) p=0.79	-0.21 (-0.48 to 0.06) p=0.12	0.03 (-0.21 to 0.27) p=0.82
Tp7	0.09 (-3.32 to 3.50) p=0.96	0.36 (-1.34 to 2.06) p=0.68	-0.16 (-0.34 to 0.02) p=0.09	0.06 (-0.19 to 0.31) p=0.63
Tp8	0.60 (-3.39 to 4.58) p=0.77	0.94 (-0.22 to 2.10) p=0.11	-0.21 (-0.63 to 0.21) p=0.33	0.14 (-0.09 to 0.38) p=0.23
Tp9	0.72 (-0.87 to 2.30) p=0.38	0.30 (-0.15 to 0.76) p=0.19	-0.10 (-0.30 to 0.10) p=0.34	-0.08 (-0.16 to <0.01) p=0.05

Notes: N=451 observations (41 states x 11 years). 95% confidence intervals are reported. NYSRPA vs. Bruen-affected states include California, Hawaii, New York, Maryland, and Massachusetts. Standard errors are generated without using wild-bootstrap methods.

Table A3 (Figure 6): Victims Injured/Killed and Suspects Injured/Killed Per 100,000 People, Open Carry States Only

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	-0.06 (-2.52 to 2.39) p=0.96	-0.43 (-1.49 to 0.62) p=0.42	0.13*** (0.03 to 0.23) p=0.01	-0.01 (-0.14 to 0.11) p=0.82
Post-Period Average	-0.55 (-2.22 to 1.12) p=0.52	0.07 (-0.73 to 0.87) p=0.87	-0.13* (-0.28 to 0.02) p=0.08	0.04 (-0.09 to 0.17) p=0.53
Tm10	-4.78 (-12.22 to 2.66) p=0.21	-2.24 (-5.57 to 1.09) p=0.19	0.39*** (0.21 to 0.57) p<0.01	-0.11 (-0.38 to 0.16) p=0.42
Tm9	-0.58 (-5.57 to 4.40) p=0.82	-1.13 (-3.37 to 1.10) p=0.32	0.42*** (0.26 to 0.58) p<0.01	0.12 (-0.13 to 0.36) p=0.36
Tm8	-0.08 (-2.88 to 2.73) p=0.96	-0.6 (-2.02 to 0.82) p=0.41	0.07 (-0.07 to 0.20) p=0.33	-0.12** (-0.24 to -0.01) p=0.04
Tm7	1.56 (-1.10 to 4.21) p=0.25	-0.17 (-1.23 to 0.89) p=0.76	0.07 (-0.13 to 0.28) p=0.50	-0.02 (-0.20 to 0.16) p=0.83
Tm6	1.23 (-1.49 to 3.96) p=0.37	-0.14 (-1.17 to 0.89) p=0.79	0.04 (-0.09 to 0.17) p=0.52	-0.08 (-0.26 to 0.09) p=0.34
Tm5	0.69 (-1.50 to 2.89) p=0.54	-0.02 (-0.80 to 0.76) p=0.96	0.13 (-0.03 to 0.29) p=0.11	<0.01 (-0.15 to 0.15) p=0.96
Tm4	0.49 (-1.39 to 2.37) p=0.61	0.12 (-0.47 to 0.72) p=0.69	0.08 (-0.07 to 0.23) p=0.28	0.06 (-0.11 to 0.23) p=0.47
Tm3	0.59 (-0.34 to 1.52) p=0.22	0.09 (-0.28 to 0.47) p=0.63	-0.02 (-0.11 to 0.07) p=0.64	<0.01 (-0.15 to 0.15) p=1.00
Tm2	0.29 (-0.68 to 1.26) p=0.56	0.19 (-0.09 to 0.47) p=0.19	0.01 (-0.09 to 0.11) p=0.83	0.03 (-0.10 to 0.17) p=0.65
Tp0	-0.70 (-1.82 to 0.42) p=0.22	-0.28 (-0.84 to 0.28) p=0.33	-0.03 (-0.12 to 0.07) p=0.58	0.04 (-0.09 to 0.18) p=0.55
Tp1	0.35 (-0.83 to 1.53) p=0.56	-0.01 (-0.53 to 0.51) p=0.98	0.01 (-0.08 to 0.11) p=0.78	<0.01 (-0.14 to 0.13) p=0.96
Tp2	0.02 (-1.32 to 1.36) p=0.98	-0.03 (-0.62 to 0.56) p=0.93	-0.07 (-0.19 to 0.04) p=0.22	-0.04 (-0.17 to 0.08) p=0.48
Tp3	0.39 (-1.59 to 2.36) p=0.70	0.15 (-0.63 to 0.93) p=0.71	-0.05 (-0.21 to 0.12) p=0.60	0.09 (-0.09 to 0.26) p=0.32
Tp4	-1.18 (-3.49 to 1.13) p=0.32	-0.09 (-1.28 to 1.11) p=0.89	-0.18 (-0.45 to 0.09) p=0.18	0.07 (-0.05 to 0.20) p=0.27
Tp5	-2.3 (-4.39 to -0.21) p=0.03	0.21 (-1.03 to 1.46) p=0.74	-0.26** (-0.47 to -0.05) p=0.02	0.03 (-0.23 to 0.28) p=0.84
Tp6	-2.56* (-5.48 to 0.37) p=0.09	-0.50 (-1.98 to 0.99) p=0.51	-0.22 (-0.50 to 0.05) p=0.11	-0.01 (-0.24 to 0.23) p=0.96
Tp7	-0.41 (-3.88 to 3.07) p=0.82	0.16 (-1.62 to 1.94) p=0.86	-0.17* (-0.35 to 0.01) p=0.06	0.07 (-0.19 to 0.33) p=0.59
Tp8	0.41 (-3.66 to 4.47) p=0.85	0.81 (-0.56 to 2.18) p=0.25	-0.22 (-0.64 to 0.20) p=0.30	0.17 (-0.10 to 0.44) p=0.21
Tp9	0.49 (-1.43 to 2.41) p=0.62	0.25 (-0.28 to 0.79) p=0.35	-0.14 (-0.35 to 0.08) p=0.21	-0.02 (-0.10 to 0.07) p=0.68

Notes: N=385 observations (35 states x 11 years). 95% confidence intervals are reported. Open carry states include: AL, AK, AZ, AR, CO, DE, GA, ID, IN, IA, KS, KY, LA, ME, MI, MS, MO, MT, NE, NV, NH, NM, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, and WY. Standard errors are generated without using wild-bootstrap methods.

Table A4 (Figure 7): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), By Cohort

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Average	0.36 (-0.42 to 1.13) p=0.37	0.13 (-0.32 to 0.58) p=0.57	-0.04 (-0.13 to 0.06) p=0.47	0.04 (-0.05 to 0.12) p=0.39
2015	0.50 (-0.45 to 1.44) p=0.31	0.22 (-0.63 to 1.06) p=0.61	-0.04 (-0.16 to 0.09) p=0.56	-0.19 (-0.44 to 0.06) p=0.14
2016	3.58 (-1.00 to 8.17) p=0.13	2.47 (0.43 to 4.51) p=0.02	0.04 (-0.51 to 0.59) p=0.89	0.39*** (0.16 to 0.63) p<0.01
2017	-0.38 (-1.43 to 0.68) p=0.48	-0.11 (-1.21 to 1.00) p=0.85	-0.26*** (-0.45 to -0.07) p=0.01	0.10 (-0.10 to 0.30) p=0.34
2019	-1.96 (-5.18 to 1.25) p=0.23	-0.15 (-1.00 to 0.70) p=0.73	-0.09 (-0.51 to 0.32) p=0.66	0.16** (0.02 to 0.30) p=0.03
2020	-0.82 (-2.03 to 0.39) p=0.18	-0.36** (-0.72 to -0.01) p=0.05	0.05 (-0.08 to 0.17) p=0.46	0.01 (-0.14 to 0.17) p=0.86
2021	0.60 (-0.39 to 1.60) p=0.24	-0.20 (-0.72 to 0.32) p=0.45	-0.02 (-0.15 to 0.10) p=0.70	-0.18 (-0.47 to 0.10) p=0.21
2022	1.80** (0.23 to 3.37) p=0.03	0.09 (-0.63 to 0.81) p=0.80	0.03 (-0.18 to 0.25) p=0.75	<0.01 (-0.18 to 0.17) p=0.96
2023	-0.14 (-2.13 to 1.85) p=0.89	-0.13 (-0.72 to 0.47) p=0.68	0.05 (-0.15 to 0.24) p=0.63	0.14 (-0.07 to 0.34) p=0.19

Notes: N=460 observations (46 states x 10 years). 95% confidence intervals are reported. Standard errors are generated without using wild-bootstrap methods.

Table A5 (Figure 8): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Pre-2020 Sample Only and Weighted

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	-1.43** (-2.70 to -0.16) p=0.03	-0.17 (-0.53 to 0.19) p=0.35	-0.08 (-0.31 to 0.15) p=0.49	0.21** (0.01 to 0.41) p=0.04
Post-Period Average	1.60** (0.09 to 3.12) p=0.04	0.85*** (0.27 to 1.44) p<0.01	<0.01 (-0.16 to 0.17) p=0.99	0.06 (-0.16 to 0.28) p=0.59
Tm5	-2.58** (-4.71 to -0.44) p=0.02	-0.61** (-1.16 to -0.05) p=0.03	-0.27** (-0.52 to -0.02) p=0.04	0.18 (-0.24 to 0.59) p=0.40
Tm4	-1.66** (-3.07 to -0.26) p=0.02	-0.18 (-0.74 to 0.38) p=0.53	0.11 (-0.26 to 0.49) p=0.56	0.35*** (0.19 to 0.50) p<0.01
Tm3	-0.50 (-1.37 to 0.37) p=0.26	0.01 (-0.51 to 0.53) p=0.98	-0.06 (-0.29 to 0.17) p=0.59	0.17 (-0.11 to 0.44) p=0.23
Tm2	-0.97 (-2.68 to 0.74) p=0.26	0.10 (-0.23 to 0.42) p=0.56	-0.11 (-0.29 to 0.07) p=0.23	0.15** (0.02 to 0.29) p=0.02
Tp0	-0.01 (-1.49 to 1.46) p=0.99	0.42 (-0.20 to 1.03) p=0.18	-0.09 (-0.27 to 0.08) p=0.31	0.18** (<0.01 to 0.35) p=0.05
Tp1	1.48 (-0.31 to 3.28) p=0.11	0.92*** (0.30 to 1.54) p<0.01	-0.03 (-0.13 to 0.08) p=0.62	-0.06 (-0.29 to 0.18) p=0.64
Tp2	1.13 (-0.66 to 2.92) p=0.22	1.06*** (0.30 to 1.81) p=0.01	-0.1 (-0.35 to 0.14) p=0.42	0.01 (-0.23 to 0.25) p=0.93
Tp3	3.21*** (0.68 to 5.73) p=0.01	1.48*** (0.37 to 2.58) p=0.01	0.11 (-0.33 to 0.55) p=0.62	0.17 (-0.38 to 0.72) p=0.54
Tp4	2.21** (0.23 to 4.18) p=0.03	0.40 (-0.19 to 0.98) p=0.18	0.12 (-0.12 to 0.35) p=0.32	-0.01 (-0.19 to 0.18) p=0.96

Notes: N=276 observations (46 states x 6 years). 95% confidence intervals are reported. Standard errors are generated without using wild-bootstrap methods.

Table A6 (Figure 9): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), 2020+ Treated Samples (i.e., Excluding Earlier Treated, Including All Controls), Weighted

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	-0.10 (-2.25 to 2.05) p=0.93	-0.66 (-1.63 to 0.32) p=0.19	0.10** (<0.01 to 0.20) p=0.05	-0.08 (-0.20 to 0.04) p=0.19
Post-Period Average	1.43** (0.14 to 2.72) p=0.03	-0.04 (-0.47 to 0.38) p=0.84	-0.05 (-0.14 to 0.03) p=0.20	-0.10 (-0.23 to 0.03) p=0.14
Tm10	-5.62 (-13.04 to 1.79) p=0.14	-2.65 (-5.97 to 0.67) p=0.12	0.31*** (0.13 to 0.48) p<0.01	-0.13 (-0.39 to 0.12) p=0.30
Tm9	-0.41 (-5.01 to 4.19) p=0.86	-1.20 (-3.20 to 0.81) p=0.24	0.31*** (0.14 to 0.47) p<0.01	0.02 (-0.18 to 0.22) p=0.85
Tm8	-0.12 (-2.67 to 2.42) p=0.92	-0.94 (-2.17 to 0.29) p=0.14	0.05 (-0.08 to 0.18) p=0.44	-0.19*** (-0.29 to -0.10) p<0.01
Tm7	1.35 (-0.74 to 3.44) p=0.20	-0.43 (-1.34 to 0.48) p=0.35	0.02 (-0.16 to 0.21) p=0.81	-0.07 (-0.22 to 0.07) p=0.32
Tm6	0.90 (-1.23 to 3.02) p=0.41	-0.41 (-1.28 to 0.46) p=0.35	0.01 (-0.12 to 0.14) p=0.88	-0.13 (-0.28 to 0.03) p=0.12
Tm5	0.89 (-0.83 to 2.61) p=0.31	-0.22 (-1.00 to 0.57) p=0.59	0.15* (-0.01 to 0.31) p=0.07	-0.07 (-0.22 to 0.07) p=0.33
Tm4	0.80 (-0.58 to 2.19) p=0.26	-0.04 (-0.61 to 0.53) p=0.90	0.06 (-0.09 to 0.21) p=0.44	<0.01 (-0.17 to 0.17) p=0.99
Tm3	0.52 (-0.60 to 1.64) p=0.36	-0.10 (-0.52 to 0.32) p=0.65	-0.05 (-0.14 to 0.03) p=0.21	-0.08 (-0.25 to 0.09) p=0.37
Tm2	0.81* (-0.04 to 1.66) p=0.06	0.08 (-0.28 to 0.44) p=0.65	0.05 (-0.06 to 0.16) p=0.36	-0.06 (-0.23 to 0.10) p=0.45
Tp0	-0.97 (-2.53 to 0.59) p=0.22	-0.68* (-1.45 to 0.1) p=0.09	0.01 (-0.10 to 0.11) p=0.92	-0.07 (-0.23 to 0.09) p=0.38
Tp1	1.21** (<0.01 to 2.42) p=0.05	-0.43 (-1.1 to 0.25) p=0.21	0.02 (-0.07 to 0.11) p=0.68	-0.07 (-0.23 to 0.10) p=0.45
Tp2	1.03 (-0.51 to 2.57) p=0.19	-0.34 (-0.95 to 0.26) p=0.26	-0.07 (-0.19 to 0.04) p=0.21	-0.15* (-0.30 to 0.01) p=0.07
Tp3	2.59** (0.16 to 5.01) p=0.04	0.14 (-0.85 to 1.13) p=0.79	-0.10 (-0.30 to 0.10) p=0.33	-0.16 (-0.40 to 0.08) p=0.18
Tp4	3.29*** (0.99 to 5.6) p=0.01	1.09*** (0.32 to 1.86) p=0.01	-0.12 (-0.30 to 0.05) p=0.17	-0.04 (-0.21 to 0.12) p=0.61

Notes: N=396 observations (46 states x 11 years). 95% confidence intervals are reported. Standard errors are generated without using wild-bootstrap methods.

Table A7 (Figure 10): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Balanced Panel (2 Years +/- for Years: 2016, 2017, 2019)

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	-1.48 (-3.87 to 0.91) p=0.23	0.11 (-0.32 to 0.54) p=0.61	-0.14 (-0.31 to 0.03) p=0.11	0.19* (-0.01 to 0.38) p=0.06
Post-Period Average	0.07 (-2.15 to 2.29) p=0.95	0.68** (0.01 to 1.35) p=0.05	-0.09 (-0.28 to 0.10) p=0.35	0.24*** (0.09 to 0.38) p<0.01
Tm2	-1.48 (-3.87 to 0.91) p=0.23	0.11 (-0.32 to 0.54) p=0.61	-0.14 (-0.31 to 0.03) p=0.11	0.19* (-0.01 to 0.38) p=0.06
Tp0	-0.05 (-2.28 to 2.19) p=0.97	0.47 (-0.33 to 1.27) p=0.25	-0.14 (-0.35 to 0.06) p=0.17	0.31*** (0.13 to 0.49) p<0.01
Tp1	0.18 (-2.48 to 2.85) p=0.89	0.90*** (0.20 to 1.59) p=0.01	-0.04 (-0.24 to 0.17) p=0.72	0.17 (-0.05 to 0.38) p=0.13

Notes: N=179 observations (8 treated states x 4 years + 147 pair-balanced control observations). 95% confidence intervals are reported. Standard errors are generated without using wild-bootstrap methods.

Table A8 (Figure 11): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People), Balanced Panel (+/-3 Years: 2017, 2019, 2020, 2021, 2022) and Weighted

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Pre-Period Average	0.09 (-1.21 to 1.39) p=0.89	0 (-0.33 to 0.32) p=0.98	-0.08* (-0.18 to 0.01) p=0.09	0.01 (-0.16 to 0.18) p=0.93
Post-Period Average	0.13 (-0.85 to 1.10) p=0.80	-0.1 (-0.5 to 0.31) p=0.64	-0.07 (-0.17 to 0.03) p=0.19	-0.03 (-0.16 to 0.1) p=0.69
Tm3	0.27 (-0.98 to 1.51) p=0.68	-0.14 (-0.54 to 0.26) p=0.49	-0.10* (-0.21 to 0.01) p=0.07	0.03 (-0.16 to 0.22) p=0.76
Tm2	-0.08 (-1.66 to 1.49) p=0.92	0.13 (-0.21 to 0.47) p=0.45	-0.06 (-0.18 to 0.05) p=0.25	-0.02 (-0.19 to 0.16) p=0.86
Tp0	-0.57 (-1.6 to 0.46) p=0.28	-0.15 (-0.57 to 0.26) p=0.47	-0.07 (-0.21 to 0.07) p=0.32	0.05 (-0.14 to 0.24) p=0.62
Tp1	0.47 (-0.86 to 1.81) p=0.49	0.08 (-0.41 to 0.58) p=0.74	-0.03 (-0.15 to 0.09) p=0.61	-0.03 (-0.18 to 0.13) p=0.73
Tp2	0.47 (-0.76 to 1.70) p=0.45	-0.22 (-0.82 to 0.37) p=0.46	-0.1 (-0.21 to 0.01) p=0.08	-0.10* (-0.22 to 0.02) p=0.09

Notes: N=321 observations (15 treated states x 6 years + 21 control states x 11 years). 95% confidence intervals are reported. Standard errors are generated without using wild-bootstrap methods.

Table A9 (Figure 12): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Yearly Data, Weighted

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Tm10	6.53*** (1.65 to 11.42) p=0.01	2.44*** (0.92 to 3.96) p<0.01	<0.01 (-0.2 to 0.21) p=0.96	0.08 (-0.20 to 0.37) p=0.56
Tm9	2.30 (-2.27 to 6.86) p=0.32	0.99 (-0.53 to 2.52) p=0.20	-0.07 (-0.29 to 0.14) p=0.49	-0.23 (-0.68 to 0.22) p=0.31
Tm8	0.94 (-3.63 to 5.51) p=0.68	0.62 (-0.74 to 1.98) p=0.37	0.06 (-0.12 to 0.24) p=0.52	0.05 (-0.22 to 0.32) p=0.73
Tm7	1.60 (-1.84 to 5.04) p=0.36	0.43 (-0.51 to 1.37) p=0.36	0.17 (-0.04 to 0.39) p=0.11	-0.13 (-0.41 to 0.15) p=0.35
Tm6	2.94 (-1.84 to 7.73) p=0.22	0.62 (-0.47 to 1.71) p=0.26	0.17* (-0.03 to 0.37) p=0.09	-0.08 (-0.33 to 0.18) p=0.55
Tm5	1.93 (-1.59 to 5.44) p=0.28	0.16 (-0.76 to 1.08) p=0.73	0.05 (-0.25 to 0.35) p=0.74	-0.10 (-0.40 to 0.20) p=0.52
Tm4	1.69 (-2.22 to 5.60) p=0.39	-0.37 (-1.48 to 0.74) p=0.51	0.01 (-0.20 to 0.22) p=0.91	-0.22* (-0.46 to 0.02) p=0.07
Tm3	1.32 (-1.86 to 4.49) p=0.41	-0.50 (-1.16 to 0.15) p=0.13	0.15 (-0.11 to 0.42) p=0.25	0.05 (-0.42 to 0.51) p=0.84
Tm2	3.00 (-1.92 to 7.92) p=0.23	<0.01 (-0.57 to 0.58) p=0.99	0.07 (-0.19 to 0.33) p=0.58	0.05 (-0.25 to 0.34) p=0.76
Tp0	1.68* (-0.10 to 3.46) p=0.06	0.57 (-0.21 to 1.35) p=0.15	-0.04 (-0.22 to 0.13) p=0.62	-0.07 (-0.40 to 0.25) p=0.64
Tp1	2.83 (-1.83 to 7.49) p=0.23	0.57 (-0.66 to 1.80) p=0.35	0.08 (-0.13 to 0.29) p=0.45	-0.06 (-0.33 to 0.21) p=0.64
Tp2	1.79 (-2.06 to 5.65) p=0.35	0.63 (-1.02 to 2.28) p=0.45	0.06 (-0.18 to 0.30) p=0.61	0.08 (-0.15 to 0.32) p=0.49
Tp3	1.66* (-0.26 to 3.59) p=0.09	0.32 (-1.15 to 1.79) p=0.66	0.05 (-0.21 to 0.31) p=0.72	-0.12 (-0.50 to 0.27) p=0.55
Tp4	0.15 (-2.29 to 2.59) p=0.90	-0.03 (-1.66 to 1.60) p=0.97	0.22 (-0.23 to 0.66) p=0.33	-0.04 (-0.33 to 0.26) p=0.81
Tp5	-1.55 (-5.82 to 2.73) p=0.47	-1.50* (-3.19 to 0.18) p=0.08	0.11 (-0.26 to 0.49) p=0.55	-0.37 (-0.88 to 0.14) p=0.15
Tp6	3.08 (-0.81 to 6.97) p=0.12	0.91 (-0.59 to 2.41) p=0.23	0.14 (-0.08 to 0.36) p=0.20	<0.01 (-0.35 to 0.34) p=0.99
Tp7	2.48 (-2.02 to 6.98) p=0.27	0.77 (-1.04 to 2.59) p=0.40	0.20 (-0.08 to 0.49) p=0.16	-0.02 (-0.35 to 0.31) p=0.91
Tp8	0.75 (-5.68 to 7.17) p=0.82	-0.38 (-2.33 to 1.57) p=0.70	0.27 (-0.19 to 0.73) p=0.25	-0.27 (-0.84 to 0.31) p=0.36
Tp9	-3.48 (-7.01 to 0.05) p=0.05	-1.85** (-3.61 to -0.08) p=0.04	0.14 (-0.12 to 0.41) p=0.28	-0.15 (-0.44 to 0.14) p=0.29

Notes: N=506 observations (46 states). 95% confidence intervals are reported.

Table A10 (Figure 13): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Monthly Data Over 24 Months Pre/Post (Weighted)

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Tm24	-0.37 (-0.86 to 0.13) p=0.15	<0.01 (-0.10 to 0.10) p=1.00	0.02 (-0.07 to 0.1) p=0.66	-0.04 (-0.12 to 0.05) p=0.38
Tm23	<0.01 (-0.34 to 0.33) p=0.99	-0.04 (-0.19 to 0.10) p=0.54	0.01 (-0.10 to 0.11) p=0.88	<0.01 (-0.10 to 0.09) p=0.92
Tm22	-0.20 (-0.47 to 0.06) p=0.13	0.01 (-0.08 to 0.10) p=0.84	<0.01 (-0.06 to 0.07) p=0.95	0.01 (-0.08 to 0.11) p=0.79
Tm21	-0.44 (-0.96 to 0.08) p=0.10	-0.23* (-0.49 to 0.04) p=0.10	-0.03 (-0.09 to 0.03) p=0.30	-0.08* (-0.16 to <0.01) p=0.06
Tm20	-0.31** (-0.62 to <0.01) p=0.05	-0.16* (-0.28 to -0.04) p=0.010	0.03 (-0.02 to 0.09) p=0.23	-0.05 (-0.13 to 0.03) p=0.22
Tm19	-0.20* (-0.42 to 0.03) p=0.08	-0.12** (-0.22 to -0.01) p=0.03	0.01 (-0.09 to 0.12) p=0.82	-0.05 (-0.15 to 0.04) p=0.27
Tm18	-0.57 (-1.26 to 0.13) p=0.11	-0.07 (-0.19 to 0.04) p=0.18	-0.03 (-0.11 to 0.04) p=0.35	-0.08 (-0.16 to 0.01) p=0.07
Tm17	-0.61 (-1.41 to 0.19) p=0.13	-0.13 (-0.28 to 0.02) p=0.08	-0.02 (-0.08 to 0.04) p=0.54	-0.01 (-0.09 to 0.07) p=0.76
Tm16	-0.30 (-0.95 to 0.35) p=0.36	<0.01 (-0.09 to 0.08) p=0.92	-0.01 (-0.09 to 0.06) p=0.73	-0.01 (-0.10 to 0.08) p=0.85
Tm15	-0.63 (-1.40 to 0.14) p=0.11	<0.01 (-0.11 to 0.12) p=0.97	-0.01 (-0.07 to 0.05) p=0.67	-0.05 (-0.14 to 0.05) p=0.33
Tm14	-0.22* (-0.47 to 0.03) p=0.08	0.02 (-0.07 to 0.11) p=0.65	0.03 (-0.05 to 0.10) p=0.43	-0.02 (-0.12 to 0.08) p=0.66
Tm13	-0.43 (-1.13 to 0.26) p=0.22	-0.08 (-0.23 to 0.07) p=0.27	-0.01 (-0.08 to 0.06) p=0.77	-0.03 (-0.13 to 0.06) p=0.52
Tm12	-0.29 (-0.91 to 0.34) p=0.36	-0.05 (-0.12 to 0.03) p=0.19	0.05 (-0.05 to 0.14) p=0.36	-0.01 (-0.07 to 0.06) p=0.86
Tm11	-0.29 (-0.71 to 0.13) p=0.17	-0.05 (-0.18 to 0.07) p=0.40	-0.01 (-0.07 to 0.04) p=0.65	<0.01 (-0.10 to 0.09) p=0.94
Tm10	-0.12 (-0.38 to 0.15) p=0.38	-0.10* (-0.22 to 0.02) p=0.10	-0.01 (-0.13 to 0.10) p=0.80	-0.05 (-0.17 to 0.08) p=0.46
Tm9	-0.19** (-0.36 to -0.02) p=0.03	-0.03 (-0.11 to 0.05) p=0.47	-0.02 (-0.08 to 0.04) p=0.52	<0.01 (-0.10 to 0.10) p=0.97
Tm8	-0.12 (-0.32 to 0.08) p=0.22	-0.13*** (-0.23 to -0.03) p=0.01	0.01 (-0.03 to 0.06) p=0.50	-0.01 (-0.13 to 0.11) p=0.89
Tm7	-0.11 (-0.26 to 0.04) p=0.13	-0.08*** (-0.13 to -0.02) p=0.01	0.01 (-0.04 to 0.07) p=0.65	-0.02 (-0.06 to 0.02) p=0.37
Tm6	-0.35*** (-0.61 to -0.08) p=0.01	-0.04 (-0.17 to 0.08) p=0.49	0.01 (-0.06 to 0.08) p=0.71	-0.04 (-0.15 to 0.07) p=0.52
Tm5	-0.06 (-0.28 to 0.16) p=0.57	-0.19 (-0.45 to 0.07) p=0.14	0.05 (-0.01 to 0.10) p=0.11	-0.03 (-0.14 to 0.08) p=0.62
Tm4	-0.16 (-0.35 to 0.04) p=0.11	-0.09* (-0.19 to 0.01) p=0.08	-0.01 (-0.08 to 0.05) p=0.70	-0.02 (-0.10 to 0.06) p=0.64
Tm3	-0.05 (-0.21 to 0.11) p=0.54	-0.05 (-0.24 to 0.14) p=0.61	<0.01 (-0.08 to 0.08) p=0.95	-0.06 (-0.15 to 0.04) p=0.23
Tm2	-0.03 (-0.17 to 0.11) p=0.67	-0.07* (-0.16 to 0.02) p=0.10	0.01 (-0.04 to 0.07) p=0.58	-0.07 (-0.20 to 0.06) p=0.30

T0	-0.18 (-0.41 to 0.06) p=0.14	-0.09* (-0.17 to -0.01) p=0.03	-0.03 (-0.09 to 0.04) p=0.41	<0.01 (-0.06 to 0.06) p=0.98
T1	-0.18* (-0.39 to 0.02) p=0.08	-0.08* (-0.18 to 0.01) p=0.09	0.03 (-0.02 to 0.07) p=0.22	-0.05 (-0.15 to 0.04) p=0.26
T2	-0.15 (-0.39 to 0.10) p=0.24	-0.09 (-0.32 to 0.14) p=0.42	-0.01 (-0.09 to 0.07) p=0.84	0.01 (-0.05 to 0.07) p=0.80
T3	-0.20 (-0.47 to 0.08) p=0.15	-0.07 (-0.18 to 0.05) p=0.25	0.01 (-0.06 to 0.07) p=0.87	-0.05 (-0.16 to 0.05) p=0.30
T4	-0.22 (-0.6 to 0.16) p=0.24	-0.09 (-0.26 to 0.08) p=0.30	0.01 (-0.07 to 0.08) p=0.86	-0.02 (-0.12 to 0.08) p=0.72
T5	-0.20* (-0.44 to 0.03) p=0.09	-0.19** (-0.37 to -0.01) p=0.04	0.05* (<0.01 to 0.11) p=0.07	-0.05 (-0.17 to 0.06) p=0.33
T6	-0.34*** (-0.57 to -0.11) p<0.01	-0.04 (-0.20 to 0.12) p=0.59	<0.01 (-0.06 to 0.06) p=0.91	0.01 (-0.05 to 0.08) p=0.69
T7	-0.35 (-0.87 to 0.17) p=0.18	-0.07 (-0.20 to 0.06) p=0.28	0.02 (-0.04 to 0.09) p=0.51	<0.01 (-0.06 to 0.06) p=0.97
T8	-0.19** (-0.38 to -0.01) p=0.04	-0.09 (-0.22 to 0.04) p=0.16	0.02 (-0.04 to 0.07) p=0.51	-0.03 (-0.13 to 0.07) p=0.58
T9	-0.17 (-0.39 to 0.04) p=0.11	-0.02 (-0.20 to 0.16) p=0.80	<0.01 (-0.07 to 0.08) p=0.92	-0.03 (-0.10 to 0.03) p=0.28
T10	-0.43* (-0.87 to 0.01) p=0.06	-0.09 (-0.25 to 0.06) p=0.24	0.05 (-0.02 to 0.13) p=0.18	-0.02 (-0.10 to 0.06) p=0.57
T11	-0.24 (-0.54 to 0.05) p=0.11	-0.08 (-0.28 to 0.13) p=0.47	-0.02 (-0.12 to 0.09) p=0.77	-0.01 (-0.06 to 0.05) p=0.75
T12	-0.03 (-0.25 to 0.19) p=0.78	-0.14* (-0.28 to 0.01) p=0.06	-0.03 (-0.08 to 0.01) p=0.16	-0.04 (-0.14 to 0.05) p=0.37
T13	-0.15 (-0.36 to 0.06) p=0.17	0.04 (-0.16 to 0.23) p=0.71	0.02 (-0.06 to 0.10) p=0.64	-0.03 (-0.14 to 0.08) p=0.57
T14	-0.48 (-1.01 to 0.06) p=0.08	-0.18* (-0.38 to 0.01) p=0.07	0.03 (-0.09 to 0.15) p=0.61	-0.04 (-0.13 to 0.05) p=0.33
T15	-0.28 (-0.63 to 0.08) p=0.13	-0.03 (-0.15 to 0.09) p=0.62	<0.01 (-0.06 to 0.05) p=0.86	-0.02 (-0.14 to 0.09) p=0.69
T16	-0.39 (-0.77 to -0.01) p=0.04	-0.11 (-0.29 to 0.07) p=0.23	-0.03 (-0.10 to 0.05) p=0.48	-0.02 (-0.13 to 0.08) p=0.65
T17	-0.15 (-0.35 to 0.06) p=0.17	0.06 (-0.08 to 0.20) p=0.37	0.04 (-0.02 to 0.11) p=0.18	-0.04 (-0.09 to 0.02) p=0.19
T18	-0.26 (-0.61 to 0.09) p=0.15	-0.02 (-0.13 to 0.10) p=0.76	0.03 (-0.05 to 0.10) p=0.46	-0.04 (-0.13 to 0.06) p=0.48
T19	-0.27 (-0.70 to 0.17) p=0.22	-0.14* (-0.29 to 0.01) p=0.06	-0.03 (-0.09 to 0.02) p=0.24	-0.01 (-0.12 to 0.10) p=0.84
T20	-0.48 (-1.11 to 0.16) p=0.14	0.07 (-0.11 to 0.24) p=0.45	0.03 (-0.03 to 0.09) p=0.36	-0.01 (-0.13 to 0.10) p=0.82
T21	-0.58 (-1.45 to 0.30) p=0.19	-0.15 (-0.46 to 0.16) p=0.35	-0.01 (-0.05 to 0.03) p=0.64	-0.01 (-0.07 to 0.05) p=0.71
T22	-0.39 (-1.05 to 0.26) p=0.23	-0.04 (-0.14 to 0.06) p=0.45	-0.05 (-0.15 to 0.04) p=0.26	-0.04 (-0.14 to 0.06) p=0.43
T23	-0.50 (-1.21 to 0.21) p=0.17	-0.27 (-0.61 to 0.07) p=0.12	0.02 (-0.05 to 0.09) p=0.51	-0.03 (-0.11 to 0.05) p=0.51

Notes: N=2,006 observations (46 states). 95% confidence intervals are reported.

Table A11 (Figure 14): Victims Injured/Killed and Suspects Injured/Killed (Per 100,000 People) Using a Stacked DiD with Annual Data and Pre-COVID-19 Only Balanced Sample of 2017 and 2019 Expanders, Weighted

	A) Victims Injured (per 100,000)	B) Victims Killed (per 100,000)	C) Suspects Injured (per 100,000)	D) Suspect Killed (per 100,000)
Tm3	1.32 (-1.86 to 4.49) p=0.41	-0.50 (-1.16 to 0.15) p=0.13	0.15 (-0.11 to 0.42) p=0.25	0.05 (-0.42 to 0.51) p=0.84
Tm2	3.00 (-1.92 to 7.92) p=0.23	<0.01 (-0.57 to 0.58) p=0.99	0.07 (-0.19 to 0.33) p=0.58	0.05 (-0.25 to 0.34) p=0.76
Tp0	1.68* (-0.10 to 3.46) p=0.06	0.57 (-0.21 to 1.35) p=0.15	-0.04 (-0.22 to 0.13) p=0.62	-0.07 (-0.40 to 0.25) p=0.64

Notes: N=48 observations (12 states x 4 years). 95% confidence intervals are reported.

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