The Effect of Stand Your Ground Laws on Deterrence and Gun Involvement in Crime

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Abstract

Stand Your Ground laws have had a contentious history in the United States. As of 2020, 26 states have created statutes giving strict permission to "stand your ground" when being attacked outside of your home. Several other states have favored such action through precedence of prior cases. Using state level data on reported offenses and a difference-in-differences model, I estimate the effect of enacting Stand Your Ground policies on several measures of crime: gun involvement in offenses, the total number of offenses, and the number of offenses that were successfully completed. The results of this analysis indicate that Stand Your Ground policies increase gun involvement for all populations but differ in their deterrence effect depending on the population analyzed.

I. Introduction

Stand Your Ground (SYG) laws are a hotly debated and widespread policy. Arguments for these laws state that it deters potential offenders by creating the threat that a victim has a weapon. Ideally, the extra danger to the offender created by the possibility that the victim has a weapon and the permission to use it will increase the expected cost of the crime to a point where it is no longer beneficial to the offender. Those opposing the policy argue that there is no such deterrent effect, and that these laws in fact increase deaths by firearms by promoting the use of guns by both offenders and victims.

Understanding which of these competing effects is stronger can be partially determined from prior research. Homicide rates see increases in states passing SYG laws, creating an additional 30 deaths per month (McClellan and Tekin, 2017). Limiting data to urban counties sees similar results: a 7% increase in firearm homicides (Crifasi et al., 2018). The intuitive explanation for these deaths is that SYG laws lower the expected cost of escalating violence for potential victims. Considering the fuzzy nature of determining whether a victim was truly acting in self-defense, potential victims have more incentive to escalate as courts will often have little evidence to prove the defendant was not acting in self-defense. Additionally, Cheng and Hoekstra (2013) find that at most half of the estimated increase in homicides are legally justified. Together, this would indicate at least 15 more unjustified homicides each month for states with SYG laws.[1]

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[1] A large literature exists studying the effect of similar gun control policies on homicide rates. These studies have found significant increases in homicide rates due to passage of concealed carry or repealing permit-to-purchase: Donohue, Aneja, & Weber (2019); Aneja, Donohue, & Zhang (2014); La Valle & Glover (2012); Webster, Crifasi, & Vernick (2014)

While SYG laws are causing increases in homicide rates, this may be an efficient tradeoff if they create a large deterrence effect. Prior research has found no evidence of this effect for burglary, robbery, and aggravated assault (Cheng and Hoekstra, 2015). Other studies show that passage of concealed carry laws cause a deterrence effect (Bronars and Lott, 1998). Whether concealed carry laws are similar enough to SYG laws to cause the same effect is debatable. While concealed carry laws increase expected cost of crime in a similar way to SYG laws, the magnitude of the effect could be different. This deterrence element of SYG laws is still not fully understood. This paper hopes to further explore this element by estimating the influence of SYG laws on offenses.

Another important element to consider in analyzing the effects of SYG laws is understanding which populations are being affected most. Knowing which demographics are suffering or benefitting from policy can help you adjust said policy for better and more equitable outcomes. Understanding how SYG laws are influencing specific populations can also help develop new policies to reduce potential disparities. For SYG laws, two types of disparities have been studied: differences between rural and urban populations and between different racial groups.

Prior research agrees that the brunt of increased homicide rates occurs among suburban and urban populations (Ukert et al., 2018; Munasib et al., 2018). These populations are subject to large increases in firearm related homicides due to SYG laws. That rural areas often support the passage of less restrictive gun control laws – including SYG – may be because they suffer relatively little in increased homicide rates after the law is put in effect. The reason for this rural-urban dichotomy could be drawn from several possibilities. Rural populations may have a better

understanding of gun safety and more experience in handling weapons. When thrust into a dangerous and uncertain situation, an individual inexperienced with guns could be more likely to resort to escalation quicker than an experienced gun owner.

Research also shows that there is some disparity in enforcement of SYG laws. Murphy (2018) finds that being white defendant – a white individual arguing their homicide was justified – in a case involving SYG decreases conviction chance. If the victim in such cases is white, the conviction chance is increased. Similarly, other researchers have provided evidence that rates of justifiable homicide show disparity: homicides where a white individual kills a black individual are labeled justified more often than those where a white individual kills another white individual (Roman, 2013).

Both the papers researching racial influence on SYG cases and the papers studying regional differences indicate that populations are being affected by SYG laws differently. Together they would indicate that both less diverse, suburban populations and more diverse, urban populations are suffering from SYG laws, but the way in which they are suffering is different. Suburban regions with a majority white population see larger increases in firearm homicides yet are convicted in cases involving SYG less often (Ukert et al., 2018; Munasib et al., 2018; Murphy, 2018). The results of this paper are similar but a drawn from a different perspective: white populations are being influenced by the deterrence effect of SYG laws, but they are also experiencing large increases in gun involvement particularly when both victim and offender are white.

Section 2 of this paper describes the background of SYG laws. This will cover how these laws are enacted and enforced. I will also explain the difference between SYG laws and the

Castle Doctrine, the precursor to SYG laws in most states. In Section 3, I provide information on the data used during the analysis. Section 4 will contain the empirical model. Finally, Section 5 will present results and Section 6 will conclude with a discussion of potential policy implications and suggestions for future research.

II. Background

Stand Your Ground laws have seen a massive increase since the 2000s. As of 2020, 26 states have explicit statutes giving permission to use deadly force in order to defend oneself outside of your home with no duty to retreat. Many of these statutes allow law enforcement to skip criminal proceedings if the defendant can provide a reason they were in imminent danger (Light, 2017). States without SYG laws specify that when a person is endangered outside of their residence, they have a duty to retreat. They must attempt to leave or escape the situation before resorting to deadly force. The first SYG law was passed by Utah in 1994. It wasn't until 2005 that a second state, Florida, passed its own SYG law. After 2005, SYG laws rapidly spread: 12 more states passed SYG laws in 2006.

While not every state has passed SYG laws, they have all passed a similar self-defense law called the Castle doctrine. This allows for deadly force to be used when under life threatening conditions inside one's own home. SYG is a natural extension of these laws to public spaces. Eight other states have expanded the Castle doctrine to include places of work or when occupying your own vehicle, which is somewhat more restrictive than SYG. It is still unclear whether these lesser expansions to the Castle doctrine result in a similar effect on homicide rates

when compared to SYG laws. This paper will only analyze states with explicit SYG laws permitting deadly force in all locations.[2]

The exact wording of SYG laws is not standardized and differs from state to state. Most SYG laws require a "reasonable fear" of danger before a defendant is allowed to escalate to violence. Many states with SYG laws automatically assume "reasonable fear" when the offender is breaking into the defendant's car or house (Light, 2017). It can be easily seen how this would lower a defendant's expected cost of using violence against an offender in the case of home invasion. Whether the defendant's homicide is labeled justified or not often relies on the decision of a jury. These juries usually have little evidence and few witnesses to use in making this decision, possibly explaining why observable characteristics such as race and sex of the defendant and victim play such an influential role in convictions (Murphy, 2018).

The history of SYG laws indicate a racial and cultural dynamic was present in their enactment. Light (2017) argues that the ideals of "protecting one's property" and "self-defense as a natural right" can be traced back to the Reconstruction era and are intrinsically tied with race. The results of prior research indicating a disparity in justified homicides and conviction rates for cases associated with SYG laws would support this claim (Murphy, 2018; Roman, 2013). This motivates the analysis used in the results section of this paper where data is separated according to the race of victims and offenders.

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[2] States are used if their SYG law is defined as removing the duty to retreat in all places as long as reasonable fear is established. States with partial SYG law are included in the control group.

III. Data

Data on offenses, types of offenses, and gun involvement comes from the National

Incident Based Reporting System (NIBRS). This dataset, provided by the FBI, contains state

level data for all incidents occurring on a calendar day for years 2000 to 2015. These data were

collapsed to form the monthly state level data for this analysis. Incident level data from NIBRS

was also used to create monthly data separated by whether the victim or offender were of a

specific race. While NIBRS contains a large number of observations, many of these observations

must be dropped due to reporting. Reporting is voluntary, meaning not all states and counties

provide data. Since counties suddenly deciding to report can cause drastic increases in variables,

states that experience 150% increases in total offenses are dropped. An increase of this

magnitude is very unlikely to occur naturally and is likely caused by several counties or counties

with large amounts of offenses beginning to report. Voluntary reporting also leads to some

observations where states experience no crime. For the purposes of this analysis, all months

where total offenses were equal to zero – which is nearly impossible in reality – were dropped.

Data on SYG law effective dates is from the RAND State Firearm Law Database. This

database contains several different law categories, but for the purposes of this paper only SYG

laws are used. The database contains effective dates, specific policy wording, and penal codes

for all of its policies. Combined with the NIBRS data, this creates the core data used in the paper.

States that have not enacted SYG laws do not appear in the database. I randomly assign a SYG

law enactment date to states who have not enacted the law between 2005 and the end of 2009.[3]

The reasoning behind this strategy will be discussed in the following empirical model section.

Data on state population is taken from the U.S. Census Bureau. This provides estimated population based on the 2000 and 2010 census which is used as a weight for the empirical model. This is also used to create a population density control variable. The Bureau of Economic Analysis (BEA) supplies GDP per capita data which is used as a control in the model. Data on racial demographics of each state is taken from the American Community Survey (ACS). Prison population, another control variable, is taken from the Bureau of Justice Statistics (BJS). Control variables representing other firearm policies – such as private firearm sale background checks – are drawn from the RAND State Firearm Law Database, the same database that provides SYG law effective dates.

Descriptive statistics are provided in Table 1 for the control and treatment groups. The control group is made up of all states that have not enacted SYG law between 2000 to 2015. The treatment group has passed SYG law in that period. The groups exhibit a few differences in characteristics. The treatment group has higher average violent, theft, drug, and total offenses. They also tend to have lower GDP per capita than states who did not enact SYG laws. The large difference in population density between control and treatment groups provides evidence towards the claim that rural populations support SYG laws more often. Overall, states in the treatment group do not differ substantially enough from the control group to raise concerns.

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[3] Years 2000 – 2004 and 2010 – 2015 are not included in the random assignment as many control states did not have enough data when assigned to these years due to incomplete reporting. Limiting random assignment to 2005 – 2009 allows for 3 years of data before and after SYG enactment for most states.

Tables 2 and 3 contain descriptive statistics for control and treatment groups before and after enactment of SYG laws. States that enact SYG laws show decreases in all average offense measurements. In comparison, the control group – states that did not enact SYG laws and were instead given a randomly assigned enactment year – see increases in almost all average offense measurements. This analysis leads to the expectation that SYG laws will cause decreases in offenses in the empirical model and provides a small amount of evidence towards a deterrence effect. Of course, this could also be the result of a general trend in treatment states. The treatment group also experiences an increase in gun involvement of 189 per 100,000 offenses between the pre-SYG and post-SYG period. Comparatively, the control group only experiences an increase in gun involvement of 84 per 100,000 offenses. Following this comparison, the model should indicate an increase in gun involvement after SYG is enacted.

IV. Empirical Model

I rely on a natural experiment created by states' differing dates of SYG enactment to estimate the causal effect of SYG laws on offenses and gun involvement in offenses. A difference-in-differences model is used for the analysis. This type of research design allows for comparison between states that have enacted SYG laws to states that have not. The key independent variable of this model will be a causal estimate of the difference in offenses and gun involvement between states that have enacted SYG and those who have not. Additionally, year*month and state fixed effects are used to help capture variation caused by seasonal trends and time invariant state characteristics.

The regression equation is as follows:

$$Y_{smy} = \beta_0 + \beta_1 SYG_s + \beta_2 Post_{smy} + \beta_3 SYG_s * Post_{smy} + \beta_4 MonthRelative_{smy}$$

$$+ \beta_5 MonthRelative_{smy} * Post_{smy} + \beta_6 MonthRelative_{smy} * Post_{smy} * SYG_s$$

$$+ X'_{smy}\beta + \alpha_s + \alpha_{my} + \gamma_{smc}$$

Y_{smy} is the dependent variable of gun involvement or offenses in state s, month m, and year y. SYG_s is a dummy variable equal to one if state s ever enacted SYG laws and zero if it did not. *Post* is also a dummy variable, and it is set equal to one after the enactment data of SYG laws in state s. The interaction term of $SYG_s * Post$ is the key variable of interest. This variable estimates the effect of SYG laws on the dependent variable. $MonthRelative_{smy}$ measures the number of months before and after SYG laws are enacted, with zero being the month of enactment. Two more interaction terms are included with β_5 and β_6. These represent slopes of the treatment and control groups before and after SYG enactment. X'_{smy} is a vector of control variables containing GDP per capita, race demographics for the state, a private background check dummy, population density, and prison population. A state fixed effect is included with term α_s. α_{my} represents the *year*month* fixed effect. Together these fixed effects will account for time invariant variation in states and variation caused by seasonal changes in the dependent variable.

Control states are randomly assigned an effective year and effective month between 2005 and the end of 2009. This strategy is used as it best emulates the ideal randomized controlled experiment. These years are chosen to allow for three years of data before and after enactment of

SYG laws. Many states did not start reporting until the mid-2000s. Any states that do not have enough data to fully cover three years before and after SYG enactment are dropped.[4]

An important assumption in using a difference-in-differences model is parallel trends. Figure 1 provides several graphs showing the difference in trends between treatment and control states before states that experience 150% total offense increases are dropped.[5] Trends do not appear to be common between states that enact SYG laws and states that do not for all offense related variables. This motivates the dropping strategy used. Figure 2 shows trends in each dependent variable after the dropping strategy is used. Trends appear much more similar for all offense related variables, likely meaning that the trends in Figure 1 are due to increased reporting rather than actual trends in the dependent variable. The difference in levels should not raise concerns as the creation of a counterfactual representing treated states if they had not received treatment only relies on trends being equivalent between treatment and control states. The gun involvement trend appears different between treated and control states and causes my conclusions and policy recommendations in the final section to be cautious.

Other assumptions required for a difference-in-difference model include that observations cannot switch between treatment and control groups and nothing that effects the dependent variable changes across the threshold for just one group other than the treatment. One possible event that would lead to misestimation would be that specific people decide to move away from or to treatment states after they enact SYG. While some populations may have strong opinions

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[4] States that were dropped due to incomplete reporting include Alabama, Iowa, Illinois, Oklahoma, and Pennsylvania.

[5] States are dropped if they show an increase of 150% in total offenses at any point in the 6-year window. Dropped states include Arizona, Arkansas, Georgia, Kentucky, Maine, Mississippi, Missouri, Oregon, Rhode Island, South Dakota, Washington, and Wisconsin.

regarding SYG policy, it is unlikely that the benefit of being in or outside a state with SYG law outweighs the cost of moving. It is more likely that people will continue to move between treated and control states as they were before the policy. While spillover effects could be possible, they are unlikely in this case.

As for the assumption that no other shock is impacting offenses and gun involvement across the treatment threshold, no other firearm policies were passed by any state during the year of SYG enactment. This provides confidence that there is little to no omitted variable bias and that the treatment and control groups experience change only through SYG laws across the threshold. Including other policy dummies will also lessen the chance of another policy's variation creating a misestimation of the key independent variable.

V. Results

The estimations of the effect of SYG laws on total offenses, completed offenses, and gun involvement are shown in Table 4. Two of the three dependent variables – total offenses and completed offenses – are not significantly influenced immediately by passage of SYG laws. Gun involvement sees a significant increase of 188.6 per 100,000 offenses following enactment. This result is not surprising as previous literature has found increases in homicide rates, particularly firearm homicides, following SYG law enactment (McClellan and Tekin, 2017; Crifasi et al., 2018; Cheng and Hoekstra, 2015). If gun involvement is positively correlated with homicide rates, one would expect increases in homicide rates from these results.

Another noteworthy observation is that the interaction term *SYG*Post*MonthRelative* is significant and negatively signed for models using offense dependent variables. This provides evidence that states passing SYG laws are seeing decreasing trends in total and completed

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offenses after enactment of SYG. This coincides with visual evidence in Figure 2 where treatment states appear to be decreasing to similar levels seen by control states. Figure 2e, where gun involvement is plotted, does not exhibit this decreasing trend.

Further regression results analyzing the impact of SYG laws on specific crime categories can be seen in Table 5. These measurements break the total offenses measurement into violent, theft, drug, kidnapping, and other offenses. These results are similar to those found in Table 4 for total and completed offenses. No crime categories exhibit significant results. Considering the lack of significance in total offenses, completed offenses, and the specific crime categories, there is not very convincing evidence of a SYG law deterrence effect.

To see what might be driving the significance of gun involvement in the model, I separate the data into categories based on race. First, I only use data in which there was at least one white offender involved in the incident. The results of this regression are available in Table 6. *SYG*Post* is significant for all of the dependent variables, and there is still significance in the *SYG*Post*MonthRelative* interaction term for total and completed offenses. These results indicate that there is a deterrence effect occurring for incidents with white offenders: -4.274 total offenses and -4.192 completed offenses per 100,000 people. A significant and positively signed estimate for gun involvement is also present, which is the same as the model using the full sample shown in Table 4.

Next, I run the same model for only incidents in which there were only non-white offenders. Table 7 shows these results. Of note, *SYG*Post* does have a significant effect on gun involvement of 212.3 per 100,000 offenses. This is larger in magnitude than that of the white offender sample by 54.9 per 100,000 offenses. The deterrence effect seen by the white offender

sample is also gone as *SYG*Post* is not significant for both total and completed offenses.

Separating further into only incidents in which at least one offender is black, similar results are

seen in Table 8. *SYG*Post* is again significant, positive, and large in magnitude with the gun

involvement coefficient being 558.2 per 100,000 offenses. Total and completed offenses in this

model are also significant and positive at the .01 level, which would indicate that, for the black

offender sample, SYG law is increasing total and completed offenses.

Considering the significance found for the non-white sample for gun violence, I also ran

the model for the specific crime category dependent variables. Table 9 holds these estimations.

Violent offenses are significant using this sample at a .05 level. There is an increase of 2.159

violent offenses per 100,000 people after SYG law enactment. Combined with the significant

increase in gun involvement for the non-white data, this is strong evidence that SYG laws are

impacting different racial populations in different ways. Interestingly, these results do not seem

to coincide with prior literature. Ukert et al. (2018) find that suburban, white populations are

disproportionately experiencing increases in homicide rates following SYG law enactment. The

increases in violent offenses and gun involvement experienced by non-white populations is much

greater than that experienced by the white population in my results.

To explore this idea further, Tables 10 and 11 use the victim's race rather than offender's

race in the same model. For both white and non-white samples, gun involvement is positive and

significant, though the difference between the two is less than that seen between white and non-

white offenders. There is no significant effect from *SYG*Post* on total and completed offenses

except for the regression using incidents with at least one non-white victim. In this regression,

there is a significant increase of 6.824 total offenses per 100,000 people and a significant

increase of 6.361 completed offenses per 100,000 people, though it is only significant at a .1

level. Interestingly, these results indicate that SYG laws impact offenses more in the offender

race models than the victim race models. This is plausible and expected: offenders are the ones

determining whether an offense is committed or not. Their decision making is most affected by

SYG law.

Since prior literature finds that the homicide rate increases caused by SYG laws are being

driven by white, suburban neighborhoods, I include several regressions based on offender-victim

race pairings. Tables 12 to 15 show the regression results for the data broken down by each race

combination of offender and victim. Table 12 shows that for incidents with white victim and

offender, *SYG*Post* is only significant at the .05 level for gun involvement with an increase of

312.2 per 100,000 offenses. The magnitude of this estimate is much larger than that of the results

using white victim or white offender incidents. Comparatively, the white offender to non-white

victim sample shown in Table 14 has no significant effect on gun involvement, and the non-

white offender to white victim sample shown in Table 15 has a significant effect on gun

involvement of 119.1 per 100,000 offenses. Together these results indicate that white offender to

white victim incidents are driving the gun involvement increases for the white population, a

finding that prior literature supports (Ukert et al., 2018).

For total and completed offenses, *SYG*Post* only has an effect significant at the .05 or

lower level in Table 13. This regression used the sample in which the offender and victim are

both non-white. The coefficients are positive and larger in magnitude than in prior models: 8.187

for total offenses and 7.657 for completed offenses. SYG laws for non-white offender to non-

white victim incidents appear to show the opposite of a deterrence effect: increasing both total and completed crime.

The final model looks only at states with population density larger than 100 people per square mile.[6] Results are shown in Table 16. *SYG*Post* is significant and positively signed only for the model estimating impact on gun involvement. The magnitude of the coefficient is 167.1, nearly half that of the models using only incidents of white offender to white victim and non-white offender to non-white victim. Considering that prior literature has found that urban counties are experiencing higher homicide rates after SYG enactment, the rise in gun involvement for states with larger population densities found in this analysis may explain why the rise in homicide rates is occurring.

Finally, I include a robustness check using a lead variable in Table 17. *SYG*PostLead* is the lead variable used, and it is equal to one only when the *Post* is equal to one in the next month. Since *PostLead* does not represent actual enactment of SYG laws, it should be insignificant in all models. *PostLead* being insignificant will provide evidence that the estimates from the models in this paper are a causal result of SYG enactment rather than created by chance. This test is done for the three dependent variables of interest and violent offenses. *PostLead* is insignificant in all models except when predicting gun involvement. This provides some doubt towards the validity of my estimates in gun involvement models.

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[6] States with population density greater than 100 people per square mile in this analysis include Connecticut, Delaware, Massachusetts, Michigan, New Hampshire, Ohio, South Carolina, Tennessee, and Virginia.

VI. Conclusion

The debate towards SYG laws, and gun control policies in general, is still a hot topic in American politics. The economic literature regarding gun control is also active and continuing to grow as more economists attempt to answer these tough questions. The somewhat smaller literature surrounding SYG laws focused primarily on homicide rates up to this point. This paper provides another perspective on SYG law effects by analyzing their impact on total offenses, completed offenses, and gun involvement. Considering the emphasis prior literature has placed on the disparity of effects caused to specific populations by SYG, this paper has also attempted to shed some light on how SYG laws impact specific racial populations.

The extent to which this paper finds a deterrence effect caused by SYG law depends on the population analyzed. Looking at the full sample, only gun involvement is significant. While increased gun involvement does not necessarily mean more offenses are being committed, it does mean that offenses are more dangerous, and the risk of serious injury is higher. Offense measurements are a much clearer representation of deterrence but are only significant and negatively signed in incidents where the offender is white. This would indicate that a deterrence effect is being experienced by white populations. The results when using incidents involving both white offenders and victims also showed a drastic increase in gun involvement compared to the model using only white offender incidents. This is consistent with prior research finding that white, suburban populations are experiencing the brunt of increased homicide and firearm homicide (Ukert et al. 2018; Munasib et al. 2018).

On the other hand, when using only incidents with non-white offenders and victims, SYG laws appear to be creating an increase in the total and completed offenses. One plausible story

explaining why non-white populations are experiencing an opposite effect on offenses compared to white populations is that convictions in SYG cases differ depending race. The increased offenses after enactment of SYG could be caused by a larger amount of non-white convictions in cases involving SYG. Prior literature finds that convictions in cases involving SYG are more likely to end in your favor, for both offenders and victims, if you are white (Murphy et al., 2018). Since the non-white population sees higher conviction rates in SYG cases, the number of reported offenses will be larger compared to the white population. This seems more likely than offenders committing more crimes after SYG law is enacted, since SYG law should theoretically increase the expected cost of committing a crime.

It is also hard to make a concrete recommendation for the enactment of SYG laws. While they may be deterring crime in specific populations, they are also causing more justified homicides. Passing these laws in populations that are not experiencing a deterrent effect would be inefficient and likely create more cost through increased firearm homicides, gun deaths, and offenses. Further, SYG laws are creating huge racial disparities as seen by the increases in offenses for the non-white population. Due to increased racial disparity, gun involvement, and offenses SYG laws are not effective at reducing crime and would likely not pass a robust cost-benefit analysis. Regardless, this paper shows that it will be important for future research to analyze SYG laws in the context of the populations that are affected by their enactment.

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Appendix

Figure 1: Trends Before and After Enactment of Stand your Ground Laws, by Month Relative to Enactment (Pre Data Drop)
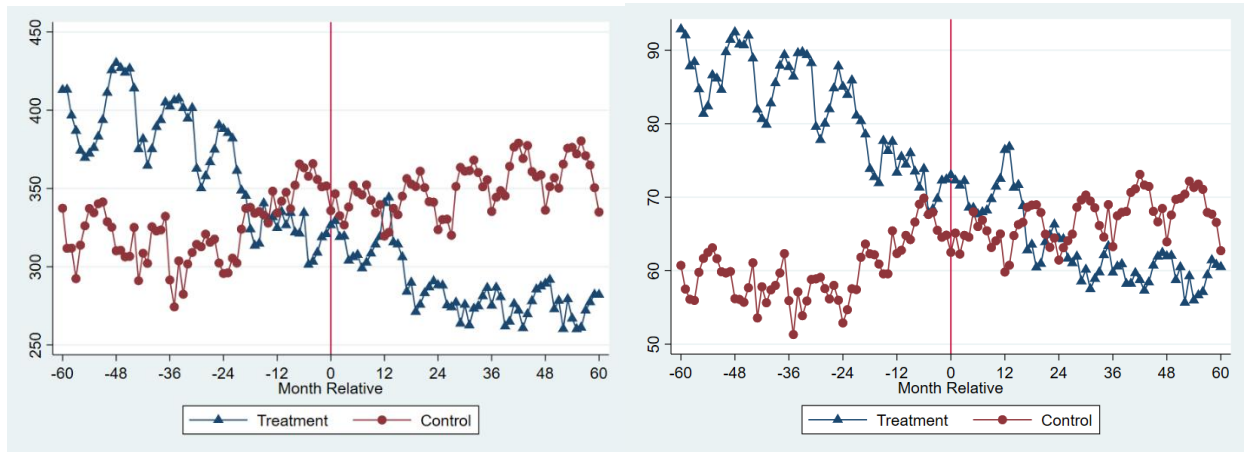
1a. Total Offenses per 100,000 people

1b. Violent Offenses per 100,000 people

1c. Theft Offenses per 100,000 people

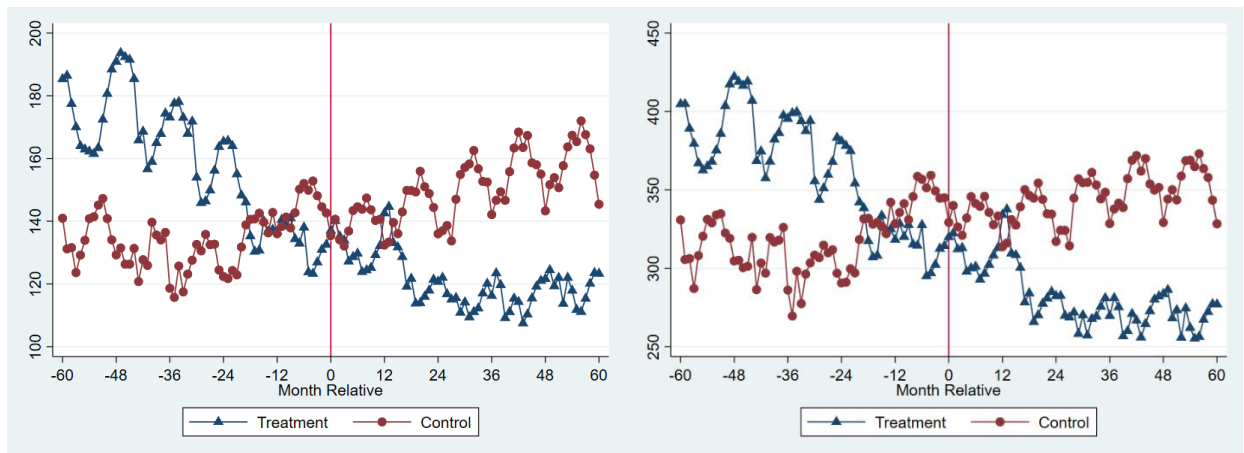1d. Completed Offenses per 100,000 people
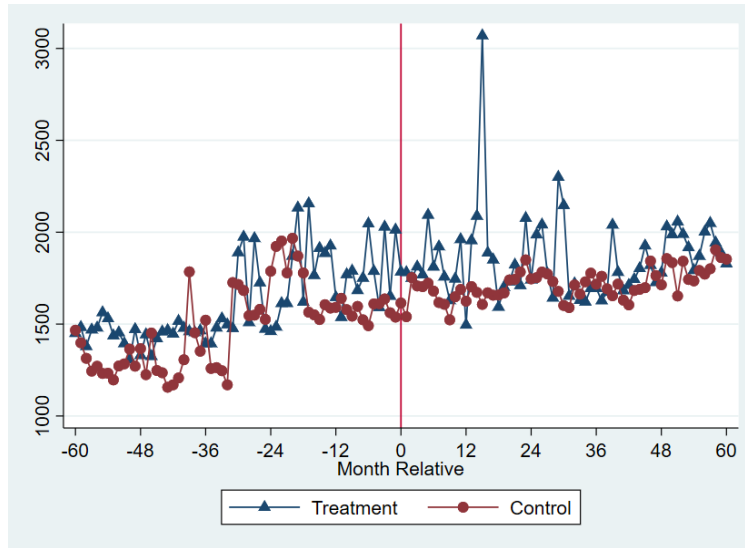
1e. Gun Involvement per 100,000 offenses

Figure 2: Trends Before and After Enactment of Stand your Ground Laws, by Month Relative to Enactment (Post Data Drop)
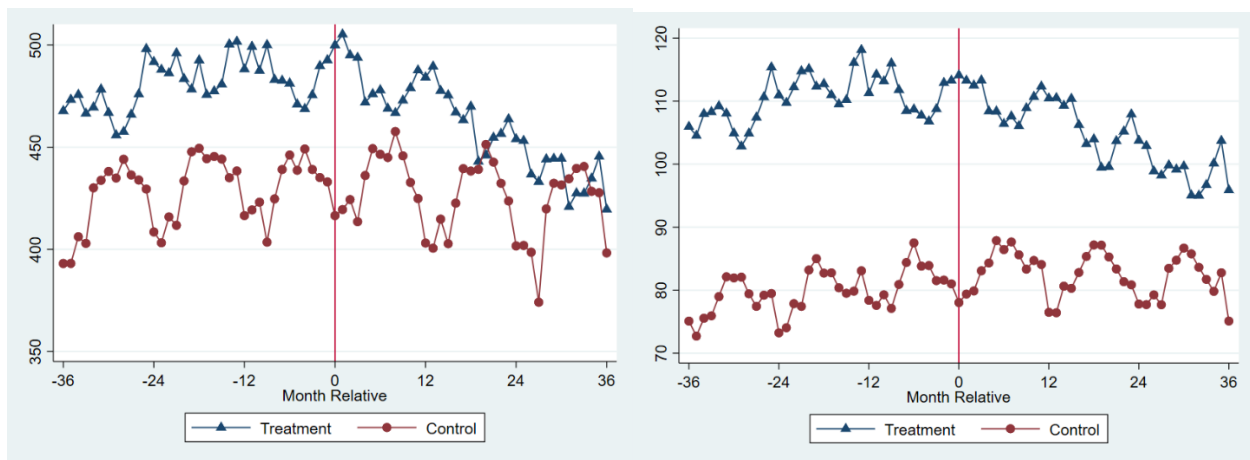
2a. Total Offenses per 100,000 people

2b. Violent Offenses per 100,000 people
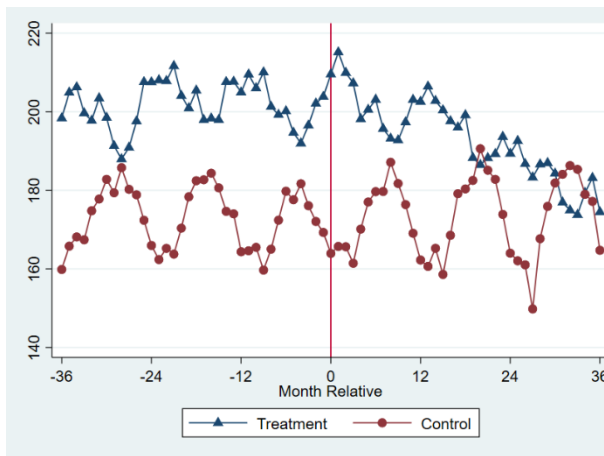
2c. Theft Offenses per 100,000 people
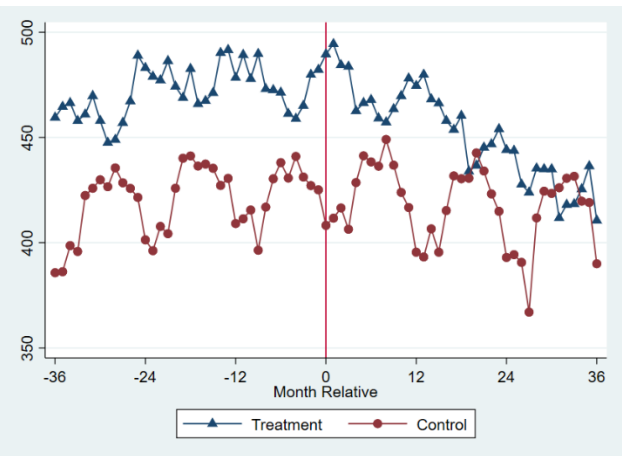
2d. Completed Offenses per 100,000 people
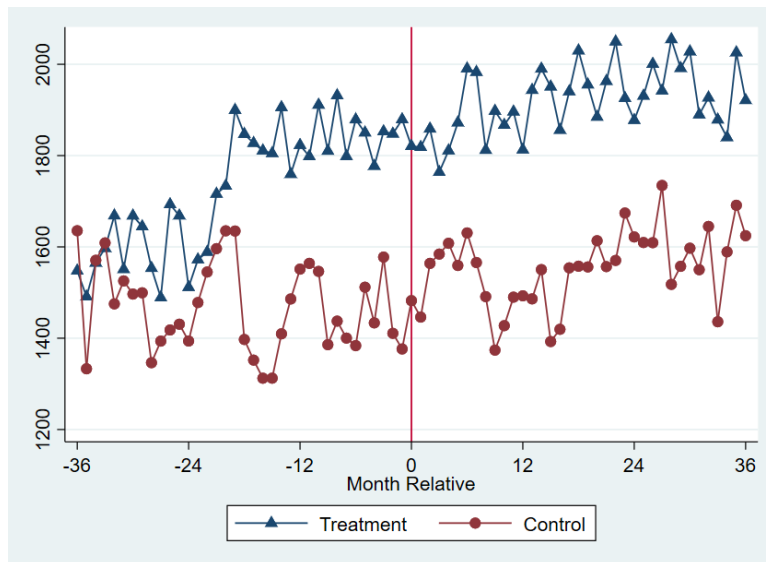
2e. Gun Involvement per 100,000 offenses

Table 1: Descriptive Statistics

Variable	Treat Mean	Treat Std. Dev.	Control Mean	Control Std. Dev.	Difference in Mean
Total Offenses	471.195	263.06	427.029	198.18	44.166
Violent Offenses	107.631	66.705	81.147	48.151	26.484
Drug Offenses	44.567	25.467	45.512	24.956	-0.945
Theft Offenses	197.365	112.624	173.032	67.556	24.333
Kidnapping and Trafficking	1.194	.831	1.388	.984	-0.194
Other Offenses	112.705	60.46	119.304	67.984	-6.599
Gun Involvement	1825.653	834.149	1510.938	896.699	314.715
Completed Offenses	461.699	257.354	419.019	193.832	42.68
Attempted Offenses	9.496	7.166	8.01	4.749	1.486
GDP per Capita	45178.044	5793.892	53990.142	10355.891	-8812.1
Population	6208512.8	6805662.2	3962141.8	3486958.5	2246371
Pop. Density (sq. miles)	103.523	53.92	264.921	290.166	-161.398
White Only %	82.339	9.99	85.968	7.803	-3.569
Prison Population	36675.122	50065.736	16264.132	15342.6	20,410.99
Observations	657	657	730	730	

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws.

Table 2: Descriptive Statistics Pre SYG Enactment

Variable	Treat Mean	Treat Std. Dev.	Control Mean	Control Std. Dev.	Difference in Mean
Total Offenses	481.237	268.423	428.366	207.088	52.871
Violent Offenses	110.449	68.188	79.889	50.63	30.56
Drug Offenses	43.582	25.376	45.608	26.498	-2.026
Theft Offenses	201.638	116.544	172.935	68.666	28.703
Kidnapping and Trafficking	1.217	.845	1.401	1.038	-0.184
Other Offenses	116.5	60.517	122.015	71.62	-5.515
Gun Involvement	1729.801	809.527	1468.522	868.329	261.279
Completed Offenses	471.783	262.532	420.529	202.723	51.254
Attempted Offenses	9.454	7.274	7.838	4.759	1.616
GDP per Capita	45127.21	5497.265	53717.472	10432.06	-8590.26
Population	6104286.9	6602175.8	3917862.8	3470053.3	2186424
Pop. Density (sq. miles)	102.498	53.551	262.442	288.293	-159.944
White Only %	82.602	10.17	86.453	7.678	-3.851
Prison Population	36354.963	49937.972	15886.625	14795.887	-13583.009
Observations (N)	324	324	360	360	

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws.

Table 3: Descriptive Statistics Post SYG Enactment

Variable	Treat Mean	Treat Std. Dev.	Control Mean	Control Std. Dev.	Difference in Mean
Total Offenses	461.424	257.764	425.727	189.384	35.697
Violent Offenses	104.89	65.215	82.371	45.645	22.519
Drug Offenses	45.526	25.556	45.419	23.394	0.107
Theft Offenses	193.208	108.689	173.127	66.55	20.081
Kidnapping and Trafficking	1.172	.818	1.375	.929	-0.203
Other Offenses	109.012	60.266	116.667	64.237	-7.655
Gun Involvement	1918.913	848.283	1552.209	922.768	366.704
Completed Offenses	451.888	252.221	417.549	185.035	34.339
Attempted Offenses	9.536	7.07	8.178	4.741	1.358
GDP per Capita	45227.505	6076.495	54255.443	10288.415	-9027.94
Population	6309921.8	7006424.4	4005224.2	3507489	2304698
Pop. Density (sq. miles)	104.52	54.339	267.334	292.346	-162.814
White Only %	82.082	9.821	85.497	7.904	-3.415
Prison Population	36986.628	50262.919	16631.435	15867.878	20355.193
Observations (N)	333	333	370	370	

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws.

Table 4: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Full Sample)

Variable	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-1114.0***	-1090.2***	-817.8
	(190.7)	(182.8)	(1198.8)
Post	3.584	3.720	-120.3**
	(5.372)	(5.232)	(48.31)
*SYG * Post*	5.111	4.546	188.6***
	(7.331)	(7.123)	(50.74)
MonthRelative	-1.064***	-1.086***	0.230
	(0.402)	(0.379)	(3.176)
*Post * MonthRelative*	1.650***	1.656***	11.33***
	(0.298)	(0.289)	(2.370)
*SYG * Post * MonthRelative*	-1.095***	-1.068***	-2.400
	(0.333)	(0.325)	(2.000)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: SYG Effect on Specific Crime Categories (Full Sample)

	(1) Violent Offenses	(2) Theft Offenses	(3) Drug Offenses	(4) Kidnapping Offenses	(5) Other Offenses
SYG	-73.28	-563.3***	-93.84***	-2.693***	-350.0***
	(45.63)	(100.0)	(13.55)	(0.753)	(48.33)
Post	2.537*	0.682	-0.590	-0.0235	0.668
	(1.335)	(2.617)	(0.555)	(0.0353)	(1.603)
SYG * Post	-0.548	5.234	0.516	-0.00339	0.293
	(1.784)	(3.732)	(0.666)	(0.0360)	(1.921)
MonthRelative	-0.165	-0.656***	0.197***	0.00220	-0.433***
	(0.102)	(0.199)	(0.0300)	(0.00171)	(0.0955)
Post * MonthRelative	0.292***	0.878***	0.00560	0.00273	0.475***
	(0.0734)	(0.156)	(0.0340)	(0.00237)	(0.0850)
SYG * Post * MonthRelative	-0.328***	-0.540***	-0.0659**	0.00136	-0.149*
	(0.0828)	(0.165)	(0.0315)	(0.00173)	(0.0899)
N	1387	1387	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. $^{*} p < 0.10$, $^{**} p < 0.05$, $^{***} p < 0.01$

Table 6: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With At Least 1 White Offender Only)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-522.3***	-513.9***	-2347.9**
	(52.20)	(51.49)	(1041.8)
Post	3.429**	3.355**	-109.7***
	(1.607)	(1.583)	(37.73)
*SYG * Post*	-4.274**	-4.192**	157.4***
	(2.056)	(2.028)	(44.40)
MonthRelative	-0.137	-0.138	-3.505
	(0.0886)	(0.0867)	(2.192)
*Post * MonthRelative*	0.344***	0.344***	7.366***
	(0.0894)	(0.0879)	(2.167)
*SYG * Post * MonthRelative*	-0.443***	-0.441***	0.119
	(0.0962)	(0.0952)	(1.848)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With Only Non-White Offenders)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-636.3***	-620.3***	-808.7
	(153.1)	(144.9)	(1623.5)
Post	0.471	0.665	-126.0*
	(4.127)	(3.996)	(67.37)
*SYG * Post*	9.053	8.433	212.3***
	(5.615)	(5.412)	(71.85)
MonthRelative	-0.878***	-0.900***	2.779
	(0.332)	(0.311)	(4.432)
*Post * MonthRelative*	1.287***	1.295***	13.01***
	(0.233)	(0.224)	(3.276)
*SYG * Post * MonthRelative*	-0.639**	-0.614**	-3.807
	(0.252)	(0.244)	(2.862)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With At Least 1 Black Offender Only)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-44.09	-45.43	-13084.7***
	(51.90)	(48.19)	(4165.3)
Post	-1.403	-1.265	-528.2***
	(1.411)	(1.361)	(151.3)
SYG * Post	7.244***	6.818***	558.2***
	(1.755)	(1.674)	(165.6)
MonthRelative	0.157	0.140	0.651
	(0.122)	(0.112)	(11.41)
Post * MonthRelative	0.0796	0.0916	19.78**
	(0.0826)	(0.0790)	(8.179)
SYG * Post * MonthRelative	-0.282***	-0.270***	-4.946
	(0.0778)	(0.0749)	(6.843)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: SYG Effect on Specific Crime Categories (Offenses With Only Non-White Offenders)

	(1) Violent Offenses	(2) Theft Offenses	(3) Drug Offenses	(4) Kidnapping Offenses	(5) Other Offenses
SYG	21.11	-400.6***	-11.38*	0.172	-234.2***
	(32.15)	(88.13)	(6.400)	(0.510)	(38.73)
Post	0.0632	-0.000934	-0.166	-0.0436*	0.491
	(0.822)	(2.288)	(0.248)	(0.0241)	(1.327)
*SYG * Post*	2.159**	5.723*	0.661**	0.0242	0.619
	(1.057)	(3.252)	(0.285)	(0.0238)	(1.567)
MonthRelative	0.0435	-0.606***	0.0215	-0.00105	-0.344***
	(0.0763)	(0.177)	(0.0159)	(0.00106)	(0.0803)
*Post * MonthRelative*	0.111**	0.732***	0.0553***	0.00343**	0.383***
	(0.0477)	(0.136)	(0.0153)	(0.00135)	(0.0704)
*SYG * Post * MonthRelative*	-0.165***	-0.367**	-0.0312**	-0.00108	-0.0677
	(0.0474)	(0.144)	(0.0123)	(0.00115)	(0.0707)
N	1387	1387	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With At Least 1 White Victim Only)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-730.0***	-715.8***	-1462.8
	(110.1)	(107.4)	(908.7)
Post	5.346*	5.255*	-123.5***
	(3.106)	(3.037)	(39.58)
*SYG * Post*	-2.045	-2.120	175.2***
	(4.342)	(4.250)	(41.31)
MonthRelative	-0.845***	-0.842***	-2.764
	(0.173)	(0.168)	(2.253)
*Post * MonthRelative*	1.117***	1.108***	4.729**
	(0.162)	(0.159)	(1.978)
*SYG * Post * MonthRelative*	-0.714***	-0.702***	0.532
	(0.197)	(0.193)	(1.723)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With Only Non-White Victims)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-428.5***	-418.4***	-1681.1
	(97.83)	(91.17)	(1763.7)
Post	-1.446	-1.235	-113.6*
	(2.755)	(2.666)	(65.30)
*SYG * Post*	6.824*	6.361*	158.2**
	(3.523)	(3.378)	(71.25)
MonthRelative	-0.169	-0.197	2.982
	(0.258)	(0.240)	(4.345)
*Post * MonthRelative*	0.514***	0.531***	18.06***
	(0.169)	(0.162)	(3.354)
*SYG * Post * MonthRelative*	-0.368**	-0.353**	-5.933**
	(0.158)	(0.153)	(2.892)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With White Offender and White Victim)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-284.8***	-280.1***	-3711.3***
	(37.91)	(37.47)	(1249.3)
Post	3.281***	3.244***	-185.6***
	(1.126)	(1.117)	(44.59)
*SYG * Post*	-2.910*	-2.896*	312.2***
	(1.492)	(1.477)	(51.61)
MonthRelative	-0.254***	-0.248***	-4.888*
	(0.0577)	(0.0569)	(2.583)
*Post * MonthRelative*	0.282***	0.280***	3.768
	(0.0610)	(0.0604)	(2.692)
*SYG * Post * MonthRelative*	-0.368**	-0.353**	-5.933**
	(0.158)	(0.153)	(2.892)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With Non-White Offender and Non-White Victim)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-191.0**	-184.6**	-3090.0
	(89.77)	(82.95)	(2222.1)
Post	-1.594	-1.346	-148.3
	(2.341)	(2.256)	(90.18)
*SYG * Post*	8.187***	7.657***	255.6***
	(3.075)	(2.932)	(98.68)
MonthRelative	-0.286	-0.307	9.754
	(0.228)	(0.210)	(5.985)
*Post * MonthRelative*	0.452***	0.467***	19.85***
	(0.144)	(0.137)	(4.664)
*SYG * Post * MonthRelative*	-0.266*	-0.252*	-7.812**
	(0.137)	(0.131)	(3.906)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With White Offender and Non-White Victim)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-237.5***	-233.8***	-1291.3
	(17.70)	(17.43)	(1790.1)
Post	0.148	0.111	-15.18
	(0.640)	(0.628)	(59.33)
*SYG * Post*	-1.363*	-1.296*	-59.52
	(0.746)	(0.733)	(68.33)
MonthRelative	0.117***	0.110***	-3.495
	(0.0401)	(0.0387)	(3.084)
*Post * MonthRelative*	0.0621	0.0640	14.68***
	(0.0406)	(0.0396)	(3.424)
*SYG * Post * MonthRelative*	-0.103***	-0.102***	-0.949
	(0.0343)	(0.0338)	(3.120)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (Offenses With Non-White Offender and White Victim)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-445.3***	-435.7***	-805.4
	(76.38)	(74.03)	(1176.7)
Post	2.065	2.011	-97.07*
	(2.150)	(2.089)	(51.60)
*SYG * Post*	0.865	0.776	119.1**
	(3.019)	(2.940)	(54.18)
MonthRelative	-0.591***	-0.594***	-1.829
	(0.122)	(0.117)	(2.731)
*Post * MonthRelative*	0.835***	0.827***	5.351**
	(0.113)	(0.110)	(2.495)
*SYG * Post * MonthRelative*	-0.373***	-0.363***	0.120
	(0.135)	(0.131)	(2.296)
N	1387	1387	1387

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16: SYG Effect on Total Offenses, Completed Offenses, and Gun Involvement (States With Population Density >= 100 people per square mile)

	(1) Total Offenses	(2) Completed Offenses	(3) Gun Involvement
SYG	-1296.2***	-1180.9***	-3759.3
	(356.3)	(340.0)	(2823.9)
Post	-1.024	-0.665	-75.71
	(5.831)	(5.650)	(65.66)
*SYG * Post*	0.387	-0.754	167.1**
	(9.910)	(9.450)	(83.64)
MonthRelative	-0.524	-0.570	-4.690
	(0.526)	(0.502)	(4.302)
*Post * MonthRelative*	2.429***	2.476***	24.85***
	(0.418)	(0.404)	(4.049)
*SYG * Post * MonthRelative*	-2.614***	-2.553***	-11.23***
	(0.371)	(0.360)	(3.554)
N	718	718	718

Note: All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: Lead Variable Placebo Test (Full Sample)

	(1) Total Offenses	(2) Violent Offenses	(3) Completed Offenses	(4) Gun Involvement
SYG	-1108.6***	-72.86	-1084.7***	-964.9
	(190.0)	(45.53)	(182.0)	(1190.9)
Post	5.074	2.519*	5.145	-114.7***
	(5.792)	(1.339)	(5.621)	(42.01)
*SYG * PostLead*	2.958	-0.590	2.440	204.0***
	(7.295)	(1.694)	(7.067)	(44.35)
MonthRelative	-1.083***	-0.163	-1.103***	-0.438
	(0.403)	(0.102)	(0.380)	(3.124)
*Post * MonthRelative*	1.632***	0.290***	1.637***	12.07***
	(0.300)	(0.0738)	(0.290)	(2.379)
*SYG * Post * MonthRelative*	-1.022***	-0.328***	-0.998***	-2.644
	(0.332)	(0.0796)	(0.323)	(1.812)
N	1387	1387	1387	1387

Note: *SYG * PostLead* represents the value of *SYG * Post* in the next month. All offense measurements are in Offenses per 100,000 people. Gun involvement is measured by Gun Involvement per 100,000 offenses. Observations used are all within 3 years before or after enactment of SYG laws. Standard errors in parentheses.
$^{*} p < 0.10$, $^{**} p < 0.05$, $^{***} p < 0.01$