The author(s) shown below used Federal funding provided by the U.S. Department of Justice to prepare the following resource:

The Impact of Concealed and Open Carry Legislation Among Urban Settings in Kentucky and Oklahoma: Final Report to the National Institute of Justice

Award #: 2019-R2-CX-0065

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I.   EXECUTIVE SUMMARY

State and federal firearm legislation in the United States is constantly evolving to balance constitutional protections around bearing arms while simultaneously regulating the risks associated with the real-world harms associated with firearms (i.e., unnatural aggressive actions such as homicides, self-harming actions such as suicide, or unintentional accidents). One area of legislation that has changed in recent years is the growing number of states that allow citizens to open-carry and/or conceal-carry a handgun without a permit or a license, which is often referred to as 'constitutional carry' laws. As of September 2023, over half of US States (26) have constitutional carry legislation (with several more states considering its adoption beyond 2023). The majority of these legislative changes (88%, 23 out of 26 states) have passed within the last ten years.

Major Goals and Objectives

The primary goal of the current study is to fill a void in the scholarly research that has examined the potential impact of relaxed firearm carrying permit on police-citizen encounters and crime in general. The objective of this study is to assess whether (and to what extent) constitutional carry legislation facilitates changes in behavior (related to crime and police-citizen encounters). The research also assesses how officers believe constitutional carry legislation impacts their day-to-day experiences with citizen encounters.

Despite the growth of constitutional carry legislation in recent years, few studies have examined the impact on serious violent crime (RAND, 2023). And, while this legislation is enacted at the state-level, it is the densely populated urban areas within states that typically comprise a disproportionate level of violent gun crime due to structural, historical, and sociological factors (Braga, Papachristos, and Hureau, 2010). Further, we know of no research to

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date that examines officers' attitudes where such legislation exists. In virtually each state where this type of legislation has passed or is under consideration, numerous testimonials from police executives both in support of and in opposition to the legislation have surfaced in mainstream or social media, during Congressional or state hearings, or during local community meetings. While some law enforcement executives vehemently opposed the relaxed permitting for handgun legislation due to concerns for citizen and officer safety, the opinions of line-level officers are often unknown. We are unaware of any research examining officers' perceptions regarding the potential impact of constitutional carry legislation on crime and safety, or to assess their experiences with citizen post-legislation. Likewise, no study to date has assessed the potential impact of constitutional carry legislation on crime and safety outcomes beyond homicide and serious violence. Given the prevalence of these legislative changes and the lack of our current knowledge, coupled with the high-stakes associated with understanding the impact on violence and officer/citizen safety, it is imperative that research also focus on the examination of threatening, aggressive, and reckless firearm behavior beyond serious violent crime, such as pointing or brandishing a firearm in a threatening manner, pointing a firearm (without firing it), illegal discharges of firearms, and to evaluate the potential for a change in stolen firearms if a larger number of citizens are possibly more likely to be armed in public.

The current study examines three of the largest metropolitan geographic areas (Lexington, Oklahoma City, and Tulsa) across two states (Kentucky and Oklahoma) that passed constitutional carry legislation in 2019. The methodology employed in this study included a survey electronically administered to all sworn officers in the three participating agencies: Lexington Police Department, Oklahoma City Police Department, and Tulsa Police Department. Additionally, each of these agencies provided a) criminal offense reports, and b) arrest reports

that includes various charges. These data were used to conduct interrupted time series analyses (a quasi-experimental design used to assess changes across outcomes at discrete points in time, controlling for time-varying factors) on criminal activity (i.e., offenses and arrests). The primary results of this research are summarized below.

Key Findings

1. Surveyed law enforcement officers within the Lexington, Oklahoma City, and Tulsa Police Departments demonstrated various attitudes across the multitude of gun violence research questions included in the surveys, constitutional carry legislation (in general), and changes in experiences with police-citizen contacts in the post-constitutional carry period of study. Over 80% of surveyed officers either agreed or strongly agreed that firearms violence was a major problem in their city.

- Over 80% of surveyed officers either agreed or strongly agreed that it is best to assume that every citizen they encounter is armed.

- Nearly 75% of surveyed officers agreed or strongly agreed that armed law-abiding citizens make the public safer.

- Over 70% of surveyed officers agreed or strongly agreed that citizens should be required to pass safety training before being allowed to carry a firearm on their person.

Overall, officers' respondents were: a) concerned about gun violence in their cities; b) supportive of pro-firearm legislation as a general deterrent effect on crime, and c) believed that citizens who carry firearms should have some certification, training, and education before carrying in public.

2. Surveyed law enforcement officers across these three urban settings did not express significant concerns about constitutional carry legislation.

- Nearly 70% of sworn law enforcement respondents *disagreed or strongly disagreed* that citizens who may have a concealed firearm on their person is a distraction to police officers.

- There was no consensus across officers regarding their perceptions of the potential impact of constitutional carry on violent crime. For example, while 40.2% of officers agreed that constitutional carry legislation was not likely to impact violent crime, 32.7% disagreed (27.1% were neutral). Likewise, nearly 50% of officers agreed or strongly agreed that law-abiding armed citizens can help police reduce violent crime, while the other half reported either neutral or disagreement on this issue.

- Less than a quarter (21.4%) of surveyed officers indicated that the frequency of citizens brandishing weapons had gotten worse after the enactment of constitutional carry, and even fewer (11.0%) agreed that gun violence is worse. In summary, the overall attitudes about constitutional carry, and its potential impact on violent crime was mixed. Although officers highly agreed that armed citizens are not necessarily a source of distraction or concern for police officials, there was more variation regarding the potential problems of constitutional carry. More officers believe that minor reckless gun crime (e.g., brandishing of weapons) was at a higher risk than overall violent (e.g., firearm-related lethal crime).

3. Consistent with prior research, findings from interrupted time series analyses in all three cities showed no evidence of a significant direct association between changes in serious Part I violent offenses (homicides, rapes, robberies, and aggravated assaults) and the passing of constitutional carry legislation in their state.

- In Lexington, the analyses included changes in counts for homicides, aggravated assaults, robberies, sexual assaults, and Part I property offenses. In each of the outcomes there was no statistically significant change that can be attributed directly to a March 2019 (statewide adoption) onset across any of these outcomes, net of time-varying control variables.

- In Oklahoma City, the analyses were slightly more restricted to an examination of homicides, robberies, and rape/sexual assault changes (due to a change in offense reporting data management over time). For these serious Part I offense counts, no evidence of statistically significant change in any outcomes was identified that corresponded with the statewide adoption of constitutional carry in February 2019, net of time-varying control variables.

- In Tulsa, the analyses examined changes in counts for homicides, aggravated assaults, aggravated assaults with a firearm (specifically), robberies, rapes, and Part I property offenses. Across all of the outcomes modeled in Tulsa, there was no statistically significant change that can be attributed directly to the February 2019 (statewide adoption) of constitutional carry legislation, net of time-varying control variables.

In summary, once time-varying covariates and general trends in the time-series of violent crime counts were statistically controlled, there was no statistically significant association between the timing of the legislative change and changes in any serious violent crime in any of the three cities. In addition, no significant change in serious property crimes was detected.

4. Evidence was detected in all three cities of statistically significant increases in certain types of arrests where suspects were charged with a firearm-related offense. Where the data existed (Lexington), a statistically significant increase in stolen and recovered firearms was

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also detected that corresponded with the constitutional carry legislative change in the State of Kentucky.

- In Lexington, a statistically significant increase in the number of arrests for minors in possession of a firearm was found after constitutional carry laws were enacted in Kentucky. Additionally, a statistically significant increase in stolen and recovered firearm counts was observed following the legislative change, net of time-varying control variables. However, all other firearm related charges examined in Lexington (all firearm arrest incidents and felons in possession arrest counts) we did not observe any statistically significant changes, net of controls.

- In Oklahoma City, a statistically significant increase in the number of arrests for pointing of firearms and illegal firearm discharge (i.e., the firearm was illegally discharged) was observed after constitutional carry.[1] No other statistically significant differences in firearm-related charges examined in Oklahoma City (e.g., all firearm arrest incidents, felons in possession arrest counts, and shooting with the intent to kill arrest charges) were found.

- In Tulsa, a statistically significant increase in arrests for pointing of firearm corresponded with the time of the legislative change, net of time-varying control variables. For all other firearm-related charges examined in Tulsa (e.g., all firearm arrest incidents, felons in possession arrest counts, and illegal discharge of a firearm arrests) no statistically significant changes were observed.

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[1] It is important to note that the police agencies in this study did not track lawful versus unlawful possession (specifically lawful possession; in this case there were simply no charges levied against individuals'). Also, unlawful possession was not a catchall arrest charge in any of the settings. The agencies did have codes for the reason for unlawful possession (e.g., youthful possession or felon in possession). There were no other arrest-charge specific codes that allowed the current research to distinguish lawful versus unlawful possessions by citizens who came into contact with law enforcement.

Collectively, there is strong suggestive evidence that in urban settings where constitutional carry legislation is enacted, reckless firearm activity – such as pointing of firearms and illegal discharges of firearms – increased above and beyond the time-varying control variables in the time series models. Likewise, and consistent with prior research, illegal gun theft increased in urban jurisdictions where citizens are allowed to carry firearms on their person (and subsequently within their vehicles) without a permit and/or license. Future research should disentangle whether these findings are unique to densely populated urban settings in Oklahoma and Kentucky, or whether these significant changes in firearm arrests transcend the current study settings.

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II. LITERATURE REVIEW

In the United States, the gun legislation has been a topic of highly prevalent and long-standing debate at the local, state, and national levels. Although government officials, community groups, and citizen activists provide arguments both for and against specific gun laws—largely related to the expected impact of firearm possession and weapon-carrying on crime—a review of the scientific literature reveals that the effects of such legislation on crime is not well understood. Indeed, the few rigorous studies that exist are typically limited in scope and are, at best, narrowly focused (RAND, 2023).

This substantial gap in knowledge stands in the face of gradual, but significant, changes to growing firearm legislation that has taken place over the past thirty years. Beginning in the late 1990s, many states started liberalizing their weapons laws. In the first phase of this movement, numerous states passed legislation establishing licensing criteria for the concealed carrying of handguns. In general, these laws established regulatory criteria whereby citizens have the potential to receive a license after successfully passing a criminal background check and, usually, a modest training requirement. States have adopted different legal frameworks, with some electing a "shall issue" framework where a license would be granted if all legal requirements were met, while other states have elected to use a "may issue" framework, where the state could still withhold a permit even if a citizen met statutory requirements. Regardless of the legal schema employed, license gun holders could carry a concealed handgun on their person or in their vehicle within legally approved spaces.

The second phase of this legislative movement began in the early 2000s with states beginning to adopt permitless concealed carry, commonly known as "constitutional carry." Constitutional carry provisions allow citizens of legal age who have not been legislatively denied

the right to purchase or possess a firearm—such as the case of a convicted felon or an individual with a history of domestic violence—the right to carry a concealed weapon without a permit. The constitutional carry movement has gained considerable momentum over the past decade. Only two states within the United States (Vermont and Alaska) had unrestricted concealed carry laws as early as 2003; and, only two additional states (Arizona and Wyoming) had adopted these laws between 2004 and 2013. However, between 2014 and 2023, 27 states have passed constitutional carry firearm legislation (Giffords Law Center, 2023).[2] This means that over 87% of constitutional carry states have passed their gun legislation in the past ten years.

Reactions to Constitutional Carry Legislation

As constitutional carry laws have been passed in a growing number of states, the commentary surrounding this legislation is divided primarily between those who believe: a) permitless concealed carry is a constitutional right, and/or, b) the potential for negative outcomes such as increased risk for homicide and suicide are more likely to become widespread and go unchecked (see, e.g., Robertson & Williams, 2016). From these viewpoints, advocates of constitutional carry, including many government officials and citizen activists, suggest that this legislation does not "break new ground," but, instead, upholds the constitutional rights of citizens in the United States outlined within the Second Amendment (PoliceOne, 2019; WKYT, 2019). Additionally, supporters of constitutional carry often contend that these laws enhance the capacity of American citizens to defend themselves against violent crime and other threats. As one example, when speaking broadly concerning the relaxation of gun-related legislation,

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[2] The remaining 23 states and the District of Columbia continue to require a state-issued permit to carry concealed weapons in public. Six of these jurisdictions were previously classified as having "may issue" laws, where authorities could deny a concealed carry permit if an applicant did not demonstrate a particular need to carry. Yet, the Supreme Court of the United States ruled in *New York State Pistol & Rifle Association (NYSPRA) v. Bruen* that New York's "may issue" laws violated the Second Amendment to the United States Constitution. As such, all states that require a state-issued permit to conceal carry now provide those permits under a "shall issue" framework.

Jennifer Baker, a spokesperson for the National Rifle Association, suggested "these laws simply protect and expand the ability of law-abiding citizens to exercise their constitutional right to self-protection" (Robertson & Williams, 2016).

In contrast, there are many—including several law enforcement officials—that suggest the passage of relaxed gun legislation makes citizens and police officers more vulnerable to gun violence and gun-related accidents. For example, when expressing concerns regarding constitutional carry laws in the state of Oklahoma, then chief of the Oklahoma City Police Department, William Citty pointed to research regarding the increase in violence associated with gun accessibility:

> You'll have more people carrying guns, you'll have more guns accessible. Studies have already shown, legitimate studies now, show the more guns you have and the easier it is to get guns, the more deaths you're going to have. Either from homicides, accidental shootings, suicides. It's bound to increase at a time when our aggravated assaults are already higher than they have been in a while (Stanish, 2019).

Furthermore, law enforcement organizations, such as the Fraternal Order of Police across several states, have pointed to safety concerns for police officers. Police, according to the FOP, are particularly concerned that the absence of a licensing scheme, which withheld a license from those legally proscribed from having a weapon, would increase the risk of violence in police-citizen encounters. Permitless carry, they argue, may place guns in the hands of potentially volatile individuals (e.g., those with criminal histories or mental health disorders) and/or individuals inexperienced in the proper firearm safety and use.

Regardless of citizen characteristics and training, however, many police officials have argued that licensing allows for the quick identification of who is legally allowed to carry a gun, thus increasing officer and citizen safety (Skebba & Lindstrom, 2019; WKYT, 2019). With constitutional carry laws, however, law enforcement officers are perhaps safest in assuming that

everyone they interact with is carrying a deadly weapon. This assumption may alter police behavior in ways that elevate the risk of a normal police encounter ending in violence, or it may create more hostility towards the police as they treat a broader range of citizens with suspicion (Brammer, 2017). Unfortunately, virtually nothing is known about how police officers' viewpoints on constitutional carry laws or how their behavior changes after the passage of such laws—a gap in knowledge that this study aims to rectify.

The closest research that addresses this empirical void is a study by Thompson and colleagues (2006) that surveyed urban police chiefs. Their findings showed that the vast majority of police executives supported restrictive firearms legislation in order to keep handguns out of the hands of high-risk citizens, including those with arrest histories. A later study conducted by the same research group surveyed a sample of sheriffs from across the United States and found that sheriffs were far less likely to support restrictive firearm legislation compared to their police chief counterparts (Thompson et al., 2011). Both of these studies, however, do not directly address constitutional carry and can speak only to the perceptions of law enforcement executives. Less is known, therefore, about perceptions at the officer-level—though many have expressed concerns regarding public safety and officer safety and wellness following the passage of constitutional carry legislation (see, e.g., Mora, 2019; Wallace, 2019). Given that frontline officers are those who are most likely to confront firearm-carrying civilians, it is their perceptions that can truly provide key insights regarding potential changes in the situational context of police-citizen interactions. As such, it is important for research to consider officers' perceptions of their personal risk and safety, as well as the safety of the public, following the relaxation of concealed carry requirements.

Right-to-Carry Legislation and Crime

As noted previously, the key difference between constitutional carry and other legal frameworks is that constitutional carry states do not require: 1) a background check, and, 2) proficiency certification or training. The absence of a background check eliminates a key selection mechanism affecting the pool of individuals who elect to carry a concealed weapon. Prior studies on concealed carry permit holders have found very low rates of criminal commission, likely due to the fact that licensing requirements impose burdens on applicants that create pools of relatively prosocial individuals (Phillips et al., 2013). Constitutional carry laws, however, remove these mechanisms and may thus potentially change the composition of those who carry concealed weapons.

Since the absence of licensing provisions removes the criminal penalty for carrying a concealed weapon, the legal deterrent traditionally accompanying illegal weapon carrying is also removed. Absent these deterrents, handgun carrying may increase amongst high-risk individuals (e.g., gang members and others who are criminally motivated). Research suggests that survey respondents in disadvantaged and high-crime communities are more likely to view weapon (and specifically firearm) carrying as a mechanism to improve informal social control and community protection (Gau, 2008). Thus, it is plausible that changes in legislation will also elevate the risk of violence for groups already at disproportionate-risk for gun violence.

Relatedly, when considering law enforcement, constitutional carry laws remove an important policy lever used in the control of crime. One strategy employed by police during the 1990s and early 2000s was the targeting of illegal weapons carrying, especially in high crime areas. Constitutional carry states may have inadvertently removed the ability of police to effectively respond to criminal violence, especially violence engaged in by organized or semi-organized groups.

In contrast to speculations regarding rising crime rates, others have argued that constitutional carry laws provide a greater opportunity for reductions in crime because of the possible deterrent effect associated with an increased armed population at-large. The rationale follows that as more law-abiding citizens carry concealed, would-be criminals will be deterred from crime because of the enhanced probability of self-protection among would-be targets (Robertson & Williams, 2016).

As suggested above, however, research examining the impact of gun legislation, including right-to-carry laws, on crime is fairly limited. For example, previous systematic reviews (National Research Council, 2004; Hahn et al., 2005) have highlighted that the evidence-base on the impact of right-to-carry laws on crime is unclear and is based largely on limited research designs. Indeed, the available evidence has historically presented a mixed-bag of sorts, with some studies reporting right-to-carry laws reduce violent crime and homicides (e.g., La Valle, 2013; Lott & Mustard, 1997; Lott & Whitely, 2003; Moody & Lott, 2022; Moody et al., 2014; Olson & Maltz, 2001), while others find an increase (e.g., Aneja, Donahue, & Zhang, 2014; Crifasi et al., 2018; Doucette, McCourt, et al., 2022; Fridel, 2021; Knopov et al., 2019; La Valle & Glover, 2012; Siegel et al., 2017) or no change at all (e.g., Donohue, Aneja, & Weber, 2019; Hamill et al., 2019; Kendall & Tamura, 2010; Schell et al., 2020).

Perhaps not surprisingly, these mixed findings have led scholars to draw different conclusions. For example, John Donohue (2023) recently summarized the literature by writing, "[t]he best, modern research, which has benefitted from improvements in econometric methodology as well as the increase in the number of states adopting right-to-carry (RTC) laws and the longer period of years available for study, has decidedly tipped in the direction of finding that RTC laws increase violent crime" (p. 98). Yet at the same time, John Lott's (2022)

interpretation of the literature is that, "[t]he overwhelming majority of peer-reviewed academic research by economists and criminologists concludes that ownership of permitted concealed handguns causes a reduction in violent crime" (p. 47).

In a recent comprehensive review of studies examining the effects of gun policies on a range of outcomes, RAND (2023) concluded the best available evidence tends to show that shall-issue concealed carry laws may marginally increase homicides (total and firearm homicides) and that there is limited evidence that shall-issue concealed carry laws may increase violent crime. Of note, however, is that these conclusions are for the impact of shall-issue concealed carry laws because this is what the majority of studies on right-to-carry laws have examined to this point.[3] Less is known about the connection between crime and permitless (constitutional) carry laws.

In regards to specifically exploring permitless concealed carry laws, most research has observed no relationship between the legislation and homicide or violent crime (Hammill et al., 2019; Knopov et al., 2019; Siegel et al., 2019; Smith & Petrocelli, 2019), while one study observed an increase in firearm mortality (Lundstrom, Pence, & Smith, 2023). Doucette and colleagues (2023) note that the lack of statistically significant findings may be attributed to the varied approval and training criteria established within states that then transitioned to permitless carry. States previously had different requirements that had to be met in order to obtain a concealed carry permit. When stratifying their analysis to account for different requisites during shall-issue laws, Doucette and colleagues (2023) observed that for states that previously required live firearm training, the adoption of permitless concealed carry was associated with an increase in assaults with a firearm. There is also limited but suggestive evidence that permitless concealed carry laws may lead to increases in officer involved shootings (Doucette, Ward, et al., 2022). But

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[3] Many of the studies on right-to-carry legislation explore the transition from restrictive laws to unrestrictive laws. Oftentimes, these studies do not differentiate between shall-issue and permitless-carry laws.

to summarize the state of the literature on the question of permitless carrying and crime, it is extremely scant and inconclusive (RAND, 2023).

Taken collectively, these conclusions suggest it is imperative to: a) continue to contribute to this body of scholarship by relying on the latest methodological advancements in the criminal justice and evaluation literature, and b) use multi-method approaches to understand not only the impact of legislation on crime and violence, but to unravel real-world implications of such laws including the potential for changing the dynamics between police-citizen encounters—a topic of particular importance given the latest social movements are typically intended to improve police-community relations and reduce citizen and officer risks in potentially volatile encounters.

CURRENT STUDY

The relative novelty of constitutional carry laws has provided few opportunities to systematically assess their effects on crime and public and police safety. As a result, concerns regarding the impact of relaxed gun legislation on public safety and the safety of police officers are met primarily with speculation. Yet the number of constitutional carry states has been increasing. Kentucky and Oklahoma enacted constitutional carry legislation in 2019. Consequently, these are two states that present us with the opportunity to examine whether, and to what degree, changes in weapons carrying laws influence criminal conduct, especially criminal behavior linked to weapons. As a consequence, we partnered with three large and urban municipal police departments in these recent constitutional carry adoption states: Lexington (KY) Police Department, Oklahoma City (OK) Police Department, and Tulsa (OK) Police Department. A description of each study context is provided below.

Oklahoma City

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Oklahoma City is the capital and largest city in the State of Oklahoma, with a population of 687,725 residents in 2021 (US Census, 2022). Located in the West South-Central sub-region of the South, Oklahoma City is the 20th largest city in the US. The population has the largest majority of White residents (49.5%), followed by Hispanic (21.3%), Black (13.8%), Mixed (7.6%), Asian (4.6%), and Native American (3.4%). The median income for a household in the city is $56,456.

Policing services are provided to Oklahoma City by the Oklahoma City Police Department (OKCPD). The OKCPD is comprised of 1,169 sworn officers and 300 civilian employees. The OKCPD has over 2,500 police reporting districts, and covers calls for almost 700 square miles. In addition to the Patrol Bureau, the OKCPD includes an Investigations Bureau, a Bike Patrol Unit, an Airport Police Unit, a Helicopter Unit, a Motorcycle Unit, a Canine Unit, and a Lake Patrol Section. Additionally, the department operates the City's Emergency Management and 9-1-1 program. According to the 2016 LEMAS data, the OKCPD has an annual operating budget of $186,695,241, receives about 1,512,000 calls each year, and dispatches officers to about 868,000 of those calls.

Tulsa

Tulsa is the second largest city in Oklahoma, with 411,401 residents in 2021 (US Census, 2022). Located in the South Western region of the US, Tulsa is the 47th largest city in the US. The population has the largest majority of White residents (53.4%), followed by Hispanic (17.1%), Black (15.0%), Mixed (8.9%), Asian (3.5%), and Native American (4.5%) (US Census, 2022). The median income for a household in the city is $49,474.

Policing services are provided to the City of Tulsa by the Tulsa Police Department (TPD). The TPD is comprised of approximately 807 sworn officers and 180 civilian employees.

Divided across three Bureaus: Operations, Investigations, and Administration, the TPD is responsible for 197 square miles of jurisdiction. According to the 2021 TPD Annual Report, the TPD receives about 520 thousand calls each year, resulting the in the dispatch of officers to about 277 thousand of those calls. In the fiscal year 2021, the reported annual operating budget for the TPD was 123 million dollars (Sullivan & Baranauckas, 2020).

Lexington

A single site in Kentucky, the City of Lexington, was the focus of the current study.[4] Similar to Oklahoma, the State of Kentucky passed a permitless carry firearm law in March 2019; thus, we examine 2018 UCR violent crime rates for the City of Lexington to establish a framework for the study site. In terms of violent crime counts, the City of Lexington accounted for 982 out of the state's 3,454 violent crimes, or roughly 22% of the state's total among reporting cities in the 2018 Uniform Crime Reports. Likewise, the City of Lexington comprised roughly 31% of the total homicide count in 2018 across the state ($N = 22$ out of the state reported 69 homicides). Thus, the City of Lexington was a highly suitable study setting for higher-levels of urban associated violent crime rates.

Lexington is the second largest city in the State of Kentucky with a population of 322,570 residents in 2021 (US Census, 2022). Located in the center of the state, Lexington is the 60th largest city in the US. The population has the largest majority of White residents (70.7%) followed by Black (15.6%), Hispanic (7.0%), Asian (4.1%), Mixed/Multi-Racial (2.7%) and Native American (0.3%). The median income for a household in the city is $57,291.

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[4] At the onset of the project, the Louisville Metro Police Department (LMPD) was originally committed to participate in this study. However, a series of high-profile events (e.g., the Breanna Taylor shooting, the USDOJ Pattern of Practice investigation, etc.) corresponded with a series of administrative changes, and LMPD did not continue their participation in the current study.

Policing services are provided to the City of Lexington by the Lexington Police Department (LPD). The LPD is comprised of 633 sworn officers and 175 civilian employees. The LPD has 5 police reporting districts, and covers calls for almost 285 square miles. In addition to the Patrol Bureau, the LPD includes an Investigations Bureau and a Special Operations Bureau (composed of traffic and operational support) with an operational budget just over $500 million.

Research Questions

Through these partnerships, and within these three study settings, we sought to help fill the void in the extant literature by examining three primary research questions:

1. What is the impact of laws allowing citizens to carry firearms without a permit on (a) firearms violence (fatal and non-fatal) and (b) overall reported violent crime in the highest risk urban areas within states that have recently passed constitutional carry legislation?
   - Relatedly, how do constitutional carry laws affect reports of unintentional injuries and illegal gun recoveries?

2. How do the situational context and outcomes of police-citizen encounters change when urban law enforcement officials come into contact with unlicensed and armed citizens?
   - Specifically, what is the impact of constitutional carry laws on (a) officer use of force and (b) arrest in police-citizen encounters?
   - Relatedly, what affect will any changes in police behavior related to constitutional carry legislation have on citizen complaints against officers?

3. What changes to police training and protocols become necessary following the passage of constitutional carry legislation?

o   Relatedly, what are urban police officers' perceptions regarding citizen and officer risks/safety following the passing of constitutional carry legislation?

Study Changes from Original Proposal

Several important methodological changes occurred from the original NIJ proposal to the final research product. While none of these changes forced the study to abandon answering any of the three primary research questions, there were alternations to the study design that limited the and methodological design to answer specific/secondary questions. These changes and their rationales are presented here-in.

- This study did not include data from Louisville Metro Police Department. While LMPD were originally included in the study, a DOJ investigation and a change in administration at LMPD corresponded with a passive withdraw from participation. The remaining three sites still represented the vast majority of urban police departments in KY and OK, and thus the study continued without LMPD.

    o   Implications: the generalizability of the current study persists despite LMPDs exclusion due in large part to the fact these urban settings in the current study overlap with other medium-to-large urban settings in other states.

- Originally, we had proposed to conduct trend analyses across all states to assess the impact of constitutional carry legislation across multiple settings on offenses with firearms to address Research Question #1. The national trend analyses could not be completed because of the change from the UCR to the NIBRS system that occurred nationally in January 2021. The April 2020 COVID pandemic combined

with NIBRS/UCR national change limited the possibility of conducting trend analyses outside of the target cities.

- o Implications: the urban crime and arrest pattern changes (the focal point of Research Question #1) are limited to the scope of the sites included in the study.

- Originally, to address Research Question #2, we had planned to conduct police-citizen encounter analyses beyond arrest and offense date to include use of force and citizen complaints for the sites in this study. However, once we were on site, we conducted statistical power analyses on the use of force (and the even fewer counts of citizen complaints) and it became apparent that the frequency for monthly trend counts didn't lend themselves to detect effects via statistical power analyses.

- o Implications: While Research Question #2 was always intended to be heavily focused on arrest analyses, in this study it was the primary (beyond offense data) focal point with no additional breadth to include uses of force or citizen complaints.

- Finally, given the low response rate in this study, we took additional methodological steps that deviated from the original design. First, we contacted the three agencies to enhance our response rate. Second, we added focus group interviews to address this shortcoming.

- o Implications: Our attempt to enhance response rates was largely unsuccessful despite meetings with each site to address the response rate

(fewer than an additional 1% of officers completed a second wave of surveys).

- o To address this limitation, we conducted site-visits and performed focus group interviews to provide context to both the surveys as well as the outcome analyses (offense and arrest pattern changes). The contextual findings from the focus groups are woven into the results section here-in.

III DATA AND FINDINGS

The current study employs a two-phase methodological design to assess the impact of constitutional carry in urban crime contexts in Oklahoma and Kentucky: (1) Survey of police personnel in three of the state's largest urban police departments (in Lexington, KY, Oklahoma City, OK, and Tulsa, OK); and, (2) trend and interrupted time series analyses of official police data including calls for service, arrests, and criminal offenses.

We believe the applicability of this research is two-fold: First, the findings are intended to inform scholars and researchers in the social sciences and public health disciplines regarding the impact of changes in firearm legislation laws. Second, the findings are intended to inform policy makers and practitioners in the field (policing, courts, and corrections) to guide evidence-based practice to policy and practices for evolving police-citizen encounters.

1. Survey Administration

A police survey was developed with the goal of assessing law enforcement officials' perceptions of: (a) firearm carrying among the population, in general, (b) perceived risks of officer safety and to the public that is associated with an increasing armed public, and, (c) perceptions of the impact of constitutional carry. In contrast to existing surveys on public firearm carrying, we specifically examined urban police officers' perceptions of risks, rather than all law

enforcement (i.e., those in suburban, county, and rural agencies, which in total comprise roughly 90% of all law enforcement agencies) given urban officers' increased risk of exposure to overall violence, officer injury, and police involved shootings (see Hemenway et al., 2020). The survey analyses are descriptive and based on a cross-sectional research design. Survey items are summarized using frequency counts and percentages. Results and analyses below are based on valid responses (i.e., the percentages shown are based on how many officers responded to the item). As such, the *n* for each item varies across survey items.

The survey was administered electronically in February 2022 to all three agencies (Lexington, Oklahoma City, and Tulsa). To administer the surveys, our team emailed *Qualtrics* survey links to supervisors at each police agency to share using their internal communication system (e.g., Blue Team software program). As seen in Table 1, the smallest police agency by size was Lexington PD, which comprised roughly 20.6% of the total sample (and roughly 15.9% agency response rate). Comparatively, Oklahoma City comprised roughly 22.1% of the total sample of surveyed officers. In sum, Oklahoma City officers were sampled roughly equivalent to 16% of its agency response rate. Finally, surveyed officers from Tulsa Police Department represented roughly 41.2% of the sample. Tulsa officers were reasonably well represented relative to its population of officers in that 342 of their available 1,264 officers completed the study (60.6% agency response rate).

Table 1: Survey Respondents and Sworn Police Personnel by Agency (*N* = 552)

	Number of Respondents	Total % of Sample	Number of Sworn Officers	Total % of Study Population
Lexington (KY)	88	15.9%	633	20.6%
Ok City (OK)	122	22.1%	1,169	38.1%
Tulsa (OK)	342	60.6%	1,264	41.2%

A. Respondent Characteristics

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Table 2 presents the descriptive statistics of the demographic characteristics of the survey respondents. As shown, the officers who completed the survey are mostly male (79.5%), White (67.2%), and have a Bachelor's degree or higher (82.4%). In terms of age, law enforcement tenure, and tenure at current agency, the sample is fairly evenly distributed with a slightly higher proportion of respondents being older and with longer careers. The most common officer ranks in the sample are at the patrol officer (39.9%) and lieutenant (23.9%) levels. Furthermore, for additional roles held within the agency, approximately 25% identified they were detectives, 45% are field training officers, 26% are academy instructors, and 7% are peer supporters. Lastly, nearly one-quarter (24.5%) of officers reported having previously served in the military, and 21% stated they were currently or previously a member of the National Rifle Association (NRA).

Table 2: Survey Respondent Characteristics ($N = 552$)

	%	(n)		%	(n)
Gender			**Education**		
Male	79.5	(439)	High School	0.4	(2)
Female	10.7	(59)	> 2 years college	2.4	(13)
Other	0.9	(5)	Associate's Degree	5.8	(32)
Unknown	8.9	(49)	Bachelor's Degree	68.3	(377)
Age			Graduate Degree	14.1	(78)
21 - 24 years old	1.6	(9)	Unknown	9.1	(50)
25 - 29 years old	12.0	(66)	**Rank**		
30 - 34 years old	10.0	(55)	Patrol Officer	39.9	(220)
35 - 39 years old	13.2	(73)	Detective	8.0	(44)
40 - 44 years old	15.2	(84)	Sergeant	9.2	(51)
45 - 49 years old	17.0	(94)	Lieutenant	23.9	(132)
50 + years old	22.1	(122)	Captain	1.8	(10)
Unknown	8.9	(49)	Major or Above	3.6	(20)
Race			Other	4.0	(22)
Caucasian/White	67.2	(371)	Unknown	9.6	(53)
African American/Black	4.7	(26)	**Additional Agency Roles**		
Latino/Hispanic	4.5	(25)	Detective	24.6	(136)
Asian/Pacific Islander	1.6	(9)	Field Training Officer	44.9	(248)
Native American	9.1	(50)	Academy Instructor	25.9	(143)
Other	3.1	(17)	Peer Supporter	7.4	(41)
Unknown	9.8	(54)	Unknown	9.4	(52)
Law Enforcement Tenure			**Military Experience**		
Less than 1 year	2.5	(14)	Yes	24.5	(135)
1 – 4 years	14.7	(81)	No	66.5	(367)

5 – 9 years	10.9	(60)	Unknown	9.1	(50)
10 – 14 years	11.6	(64)	**Ever an NRA Member**		
15 – 19 years	17.4	(96)	Yes	21.0	(116)
20 or more years	33.9	(187)	No	69.0	(381)
Unknown	9.1	(50)	Unknown	10.0	(55)
Current Agency Tenure					
Less than 1 year	2.5	(14)			
1 – 4 years	17.6	(97)			
5 – 9 years	11.1	(61)			
10 – 14 years	10.3	(57)			
15 – 19 years	18.1	(100)			
20 or more years	31.3	(173)			
Unknown	9.1	(50)			

B. Survey Findings

This section of the report details the results of the officer responses to a survey that was designed to assess officer perceptions and attitudes regarding legislation allowing for citizens to carry concealed firearms without a license in Kentucky and Oklahoma. Respondents were asked a series of questions regarding their views on firearm violence and constitutional carry legislation in their city, views of citizens and firearm legislation, general views on constitutional carry, the frequency of activities related to constitutional carry, and the effects of constitutional carry in their city. All statistics described herein are based on valid responses (i.e., missing responses are excluded).

Views of City Firearm Violence and Constitutional Carry

Responding officers answered questions regarding their views of firearm violence, police training for firearm violence, the risk of police-citizen encounters because of constitutional carry, and perceived changes in gun violence because of constitutional carry in their city. Officers were asked to indicate their level of agreement with each statement using a five-point scale (1 = Strongly Disagree; 5 = Strongly Agree). Figure 1 graphically displays the percentage of officers who indicated they agree (combines agree and strongly agree) or disagree (combines disagree

and strongly disagree) with each statement (neither agree nor disagree responses are excluded from the figure).[5]

As demonstrated in Figure 1, a clear majority of officers in the full sample (81.0%) agreed that firearm violence is a major problem in their city. The greatest amount of agreement was observed in Lexington (95%), followed by Tulsa (81.8%) and Oklahoma City (69.0%). When it comes to agreement that police officers in their agency have been adequately trained for dealing with armed citizens, an overwhelming majority of responding officers in the full sample either agreed or strongly agreed (74.3%) with the statement. Looking across agencies, it is observed that compared to officers in both Lexington (86.3%) and Oklahoma City (81.0%), responding officers from Tulsa (69.1%) were in less agreement about officers being adequately trained for dealing with armed citizens—though, we note that a clear majority were still in agreement, regardless of geographic context.[6]

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[5] A table of full results can be found in Appendix B.
[6] The differences observed between Tulsa and the two other agencies (Lexington and Oklahoma City) were statistically significant using chi-square contingency table analyses.

Figure 1. Views of City Firearm Violence and Constitutional Carry
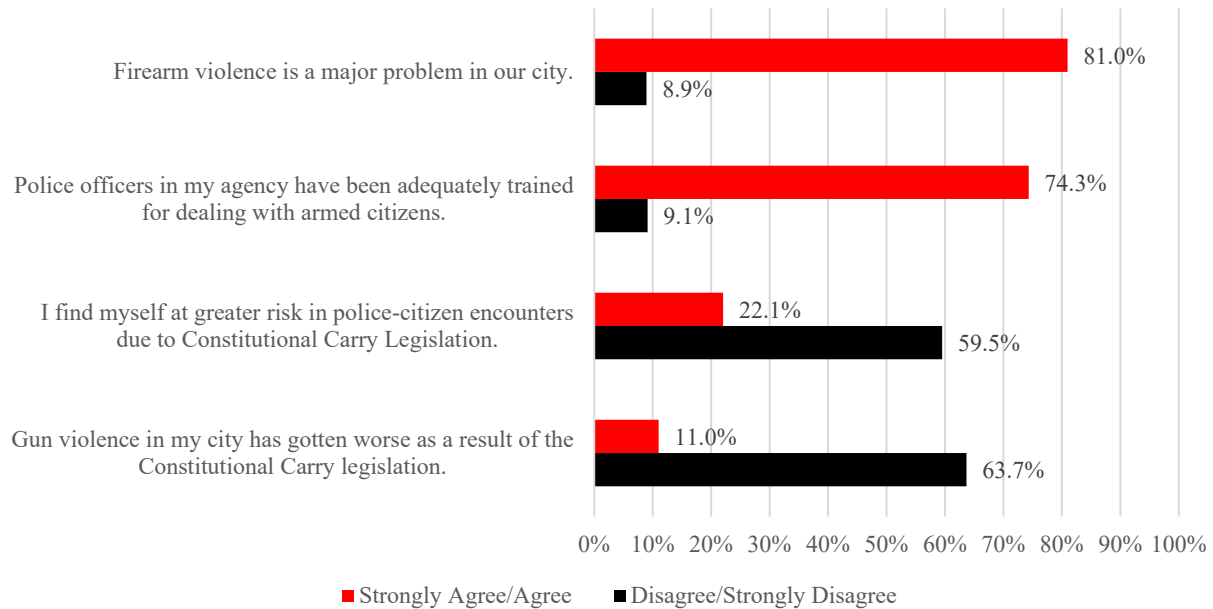
The next two statements directly addressed the perceived impact of constitutional carry legislation. First, the majority of responding officers (59.5%) disagreed that they feel at a greater risk in police-citizen encounters due to constitutional carry legislation.[7] Second, nearly two-thirds (63.7%) disagreed that gun violence has gotten worse in their city as a result of constitutional carry legislation. In sum, the majority of officers who completed the surveys in Lexington, Oklahoma City, and Tulsa did not believe constitutional carry increased crime nor elevated their risk of harm. It is also worth noting that for both of these statements, no significant variation was observed across agencies.

In summary, responding officers overwhelmingly feel that *firearm violence is a problem in their city*, but also feel that *officers have been adequately trained to deal with armed citizens*.

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[7] All survey items described here-in rely on a five-point Likert scale (ranging from strongly disagree, disagree, neutral, agree, and strongly agree). For agreement percentages, it is the combined percentage of agree and strongly agree. The same is true for disagree (disagree + strongly disagree). Neutral responses are excluded from each graph for ease of display and interpretation. To calculate the percentage in the middle/neutral, it is 100% - (percentage agree + percentage disagree). All specific item distributions are displayed in Appendix B.

When it comes to this initial view on the perceived impact of constitutional carry legislation, the majority of officers have *noted little impact*. In particular, *officers do not feel that firearm violence has gotten worse because of constitutional carry legislation nor do they feel they are at greater risk when encountering citizens*.

Views on Citizens and Firearm Legislation

To further disentangle officers' perceptions regarding constitutional carry legislation, law enforcement officials were asked to respond to 9 statements related to their views on citizens and firearm carrying in the general population. Officers were asked to indicate how strongly they agree with each statement, with most of the statements in this section phrased in a manner that corresponded to support of a citizen's constitutional right to carry a firearm. Level of agreement was measured using a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). Figure 2 displays the results for officers who indicated they agree (combines agree and strongly agree) or disagree (combines disagree and strongly disagree) with each statement (neither agree nor disagree responses are excluded from the figure).

As shown in Figure 2, the majority of responding officers were supportive of constitutional carry legislation. For example, nearly 70% agreed that more armed citizens would reduce the overall death toll of mass shooting events and approximately 73% agreed that armed law-abiding citizens make the public safer. While most officers viewed armed citizens as having a positive impact on public safety, a majority of officers questioned the impact that armed citizens have for officer safety. Fifty-four percent of officers reported disagreed that armed law-abiding citizens make police officers safer while on duty, and only 44.8% felt comfortable knowing that citizens that they interact with may have a concealed firearm. Nonetheless,

approximately 82% agreed that it was best for them to assume that every citizen they encounter is carrying a concealed firearm.[8]

Figure 2. Views of Citizens and Firearm Legislation

In prior mass shooting events more armed citizens would have reduced the overall death toll.	69.9% / 10.9%
I feel comfortable knowing that citizens I interact with may have a concealed firearm.	44.8% / 24.8%
It is best to assume that every citizen I encounter is carrying a concealed firearm.	82.1% / 8.3%
Armed law-abiding citizens make police officers safer while on duty.	45.6% / 16.5%
Armed law-abiding citizens make the public safer.	73.1% / 7.9%
Citizens should be allowed to carry a handgun on their person without any additional requirements.	20.3% / 67.3%
Citizens should be required to complete a safety training class before being allowed to buy a handgun.	44.9% / 41.0%
Citizens should be required to complete a safety training class before being allowed to carry a gun on their person publicly.	72.4% / 16.9%
Citizens brandishing weapons (to either police or other citizens) has gotten worse as a result of the Constitutional Carry Legislation.	21.4% / 52.4%

■ Strongly Agree/Agree   ■ Disagree/Strongly Disagree

The last three statements in Figure 2 were all phrased in a manner which expresses cautious views towards constitutional carry legislation. As shown, there was a near-equal split in agreement and disagreement among the officers regarding whether citizens should be required to

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[8] In terms of agency specific differences (relative to other agencies), the general finding is that officers in Tulsa were considerably more supportive and optimistic about constitutional carry legislation than were officers in Lexington. Relying on Kruskal-Wallis test followed by Dunn's test for pairwise comparisons (non-parametric one-way ANOVA), we found that Tulsa officers were more likely to agree that citizens should be allowed to carry firearms without a permit and that the officers feel safer with encountering armed citizens. Comparatively, Lexington officers were more likely to believe that citizens should be credentialed prior to allowing them to carry a firearm on their person. Oklahoma City officers were more in the middle between these two distributions.

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complete a safety training class before being allowed to buy a gun. Specifically, slightly more officers agreed with this statement (44.9%) than disagreed (41.0%). While there was a split among officers for whether safety training was necessary to purchase a firearm, the overwhelming majority of officers (72.4%) felt that citizens should be required to complete a safety training class before being allowed to carry a gun in public. Similarly, around two-thirds of responding officers (67.3%) disagreed with the statement that citizens should be allowed to carry a handgun on their person without any additional requirements, such as training, background check, or a license. As such, in the case of these two statements, the majority of officers demonstrated views that went against the tenets of constitutional carry.

We next display a comparison across two key items from the aforementioned survey items in Figure 3. Specifically, while just over 1 out of 10 sworn law enforcement officers who completed the surveys believed gun violence in their cities got worse as a result of constitutional carry legislation, roughly double the amount (21.4%, or over 2 out of 10 officers) of officers believe that brandishing of firearms (i.e., pointing or displaying a firearm in a threatening manner) has gotten worse as a result of constitutional carry legislation. Thus, officers were more likely to believe the legislation led to an increased *threat of gun violence* rather than *changes in actual gun violence*.

Figure 3. Impact of Constitutional Carry on Specific Outcomes (Gun Violence and Gun Threats)

Percent Agree/Strongly Agree
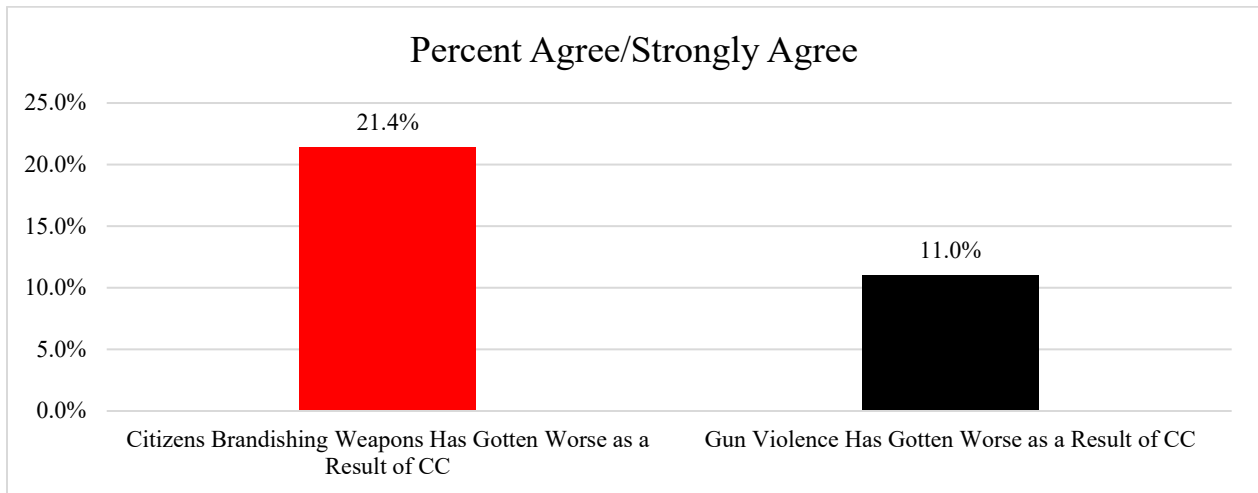
To summarize, when asked about their general views of armed law-abiding citizens, *most officers feel that armed citizens make the public safer*. Yet, m*ost officers surveyed believe there should be some degree of training or educational requirements for individuals to carry a firearm* in public. In other words, most responding officers hold views that are consistent with gun laws that existed before the passing of constitutional carry legislation, and are cautious about the idea of citizens carrying weapons without completing addition requirements or safety training.

General Views on Constitutional Carry

Officers were next asked about their general views and attitudes about constitutional carry legislation. Respondents indicated to what extent they agree with ten statements. Most of the statements were phrased where greater agreement corresponded to negative views toward constitutional carry legislation. Figure 4 graphically displays the percentage of officers who indicated they either agree or disagree with each statement. Similar to the previous figure, responses have been collapsed for simplicity and the "neither agree nor disagree" responses have been excluded.

The overwhelming majority of officers were found to support the second amendment including the right to carry firearms. For example, nearly 90% of responding officers disagreed that there should be a federal law allowing only sworn officers to carry firearms. For many, support for armed citizens in schools was also observed. The majority of officers disagreed that only law enforcement should be armed in schools (58.0%), or disagreed that arming teachers and/or administrators in public schools will have negative consequences (65.1%). Furthermore, nearly 70% of those who responded to the survey disagreed that citizens with concealed firearms are distracting and impede an officer's ability to perform their duty. Similarly, 61.4% disagreed that constitutional carry legislation makes their daily duties more difficult and 64.3% disagreed that constitutional carry legislation makes it hard for police officers to do their job.

Figure 4. General Views of Constitutional Carry Legislation
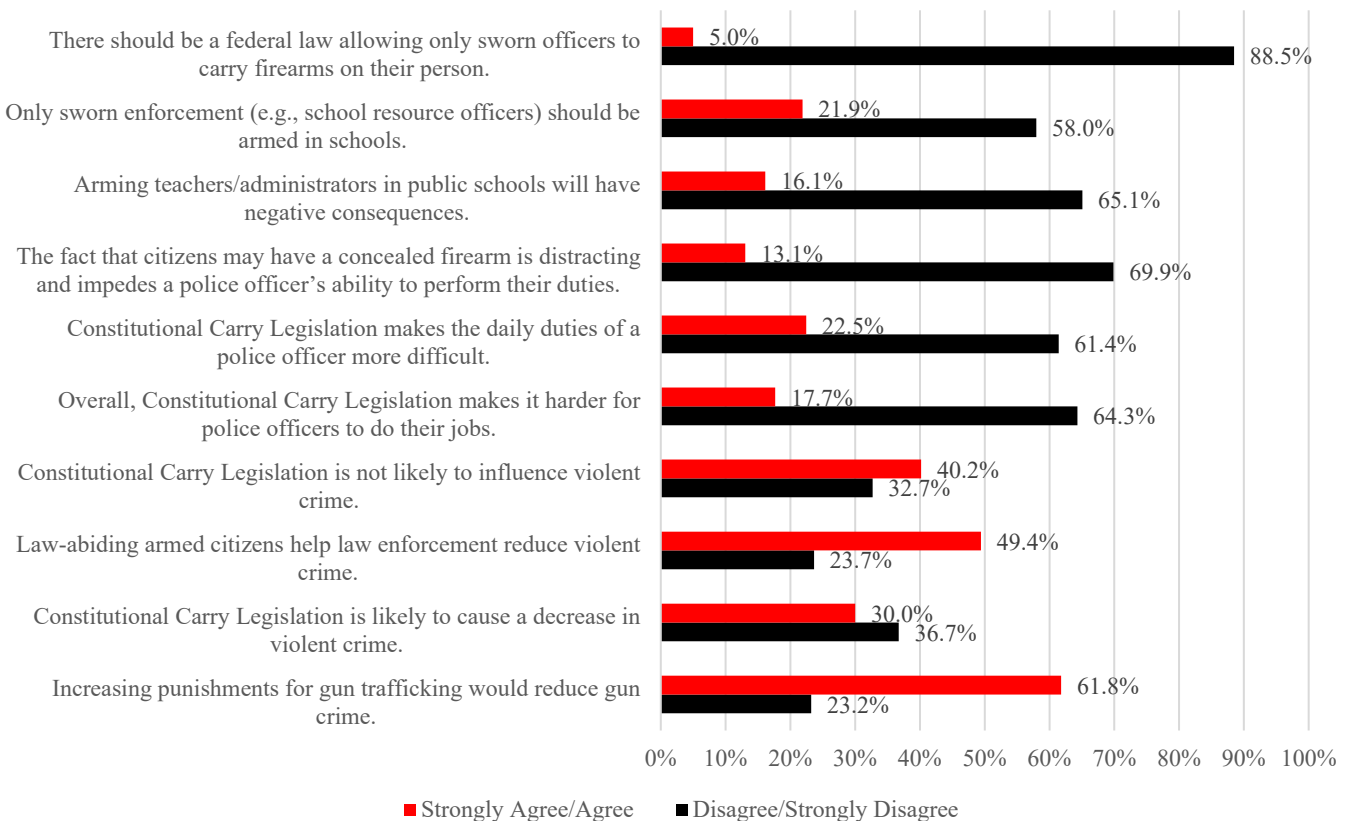
While officers tended to support the right of citizens to carry firearms and feel that

constitutional carry legislation has not had a negative impact on their ability to perform their job,

their views are not as strong regarding the ability of constitutional carry to impact violent crime.

For example, nearly 50% agreed with the statement that law-abiding armed citizens help law

enforcement reduce violent crime (nearly 25% disagreed). Speaking directly toward

constitutional carry legislation, 40.2% agreed that it is *not* likely to influence violent crime and

officers were split on whether the legislation will cause a decrease in violent crime. Specifically,

30.0% agreed that it would decrease violent crime while 36.7% disagreed. Finally, while the

responding officers tended to hold views that constitutional carry legislation would not positively

impact violent crime, the majority (61.8%) did believe that increasing punishment for gun

trafficking would reduce gun crime.[9]

Constitutional carry laws allow any citizen of legal age who has not been legislatively

denied the right to purchase or possess a firearm the right to carry a concealed weapon—i.e.,

with no permit required. We asked the officers to identify which types of misdemeanor offenses

should result in a person not being able to legally purchase a handgun and, therefore, revoke their

right to permitless carry. As shown in Table 3, approximately one-fifth of the sample (21.1%)

reported that misdemeanors should not restrict an individual's right to own a handgun. While the

number of officers who were not in support of misdemeanors taking away the right to permitless

carry was not insignificant, the clear majority of officers did identify misdemeanors they thought

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[9] While a comparative evaluation across law enforcement settings was not a primary goal of this study, we did compare/contrast survey items grouped by law enforcement agencies and note where there was statistically significant divergence. For the vast majority of survey items, there was more similarity than differences across agencies. However, we noted that law enforcement officers in Tulsa were more receptive to constitutional carry and citizen firearm carrying than was Lexington where Oklahoma City officers were mostly in the middle on most items). For example, officers in Lexington were less likely to agree that armed citizens and constitutional carry legislation can decrease violence than were officers in Tulsa. Lexington officers also had the highest degree of agreement that increasing punishment for gun trafficking would reduce gun violence (compared to Oklahoma City and Tulsa officers).

were worthy. In particular, three crime types were identified by the majority of officers: domestic violence (69.3%), brandishing a firearm in public (66.2%), and public displays of a firearm in a threatening manner (59.1%). Though less the popular, the next crime types identified were possession of illegal drug paraphernalia (33.2%) and assault and battery without a lethal weapon or serious injury (21.5%), while indecent exposure (15.5%), driving under the influence of alcohol (14.2%), drunk and disorderly conduct (11.3%), and shoplifting (6.5%) had the least amount of support for resulting in a person not being able to legally purchase a handgun.

Table 3. Misdemeanor Types in which a Person Should Not be able to Legally Buy a Handgun (*N* = 479)

	Freq.	Percent
Misdemeanors should not restrict an individual's right to own a handgun	101	21.1
Domestic violence	332	69.3
Brandishing a firearm in public	317	66.2
Public displays of a firearm in a threatening manner	283	59.1
Possession of illegal drug paraphernalia	159	33.2
Assault and battery without a lethal weapon or serious injury	103	21.5
Indecent exposure	74	15.5
Driving under the influence of alcohol	68	14.2
Drunk and disorderly conduct	54	11.3
Shoplifting	31	6.5

In summary, the officers who responded to the survey are found to be strong supporters of the second amendment and are largely in favor of citizens' rights to carry a firearm. The majority of officers were *not concerned about constitutional carry legislation having a negative impact on their ability to perform their duties as a police officer*. Officers, however, *were less supportive of the idea that constitutional carry legislation will improve the problem of gun violence and violent crime in their city*. Rather, they believe measures such as harsher punishment for gun trafficking will be more successful and decreasing violent crime. Finally, when it comes to misdemeanors that should revoke a citizen's right to permitless carry, the majority of officers suggested that crimes of *domestic violence, brandishing a firearm in public,*

and public displays of a firearm in a threatening manner should result in a person not being able to legally purchase or carry a handgun.

Frequency of Activities Related to Constitutional Carry

Next, we attempted to gain an understanding of the responding officers' perceptions of the frequency of particular situations occurring since the passage of the constitutional carry legislation. Seven different situations were prompted and officers were asked to indicate the frequency of occurrence based on a five-point scale (1 = Very Infrequently; 5 = Very Frequently). Figure 5 graphically displays the responses from the officers. As with the previous figures, responses have been collapsed into categories of infrequently and frequently for the sake of simplicity.

In support of the responses to several statements presented above, officers were more likely to indicate they infrequently encountered situations where constitutional carry was impacting their ability—or the ability of other officers—to perform their duties as a police officer. For example, the majority indicated they infrequently talk to peer officers or supervisors about the impact of constitutional carry (52.2%) or hear colleagues speak about the impact of constitutional carry on their agency (56.6%). Similarly, more officers indicated they infrequently experienced situations where they noticed changes in how they interact with citizens (43.7%) or noticed changes in how other officers interact with citizens (44.5%).[10]

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[10] Again, the primary goal of this component of the study was to gauge the general attitudes among responding police officers to the firearm-specific items in this study. However, there were some variations across agency/responses. Specifically, Lexington officers were significantly less likely to notice changes in they personally as well as their fellow officers interact with citizens when compared to Oklahoma City and Tulsa (via the Kruskal-Wallis test followed by Dunn's test for pairwise comparisons).

Figure 5. Frequency of Activities Related to Constitutional Carry

Talk to peer officers/supervisors about the impacts of constitutional carry among peers. — 12.6% / 52.2%

Hear law enforcement colleagues speak about the impact of constitutional carry on your agency. — 10.2% / 56.6%

Notice changes in how you interact with citizens. — 15.1% / 43.7%

Notice changes in how other officers interact with citizens. — 14.4% / 44.5%

Feel confident in your ability to tell armed law-abiding citizens apart from armed criminals. — 38.6% / 17.8%

Encounter citizens who are carrying firearms legally. — 43.1% / 20.0%

Encounter citizens who are carrying firearms illegally. — 39.1% / 19.8%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ Very Frequently/Frequently   ■ Infrequently/Very Infrequently

Officers were more likely to indicate the frequent occurrence of encountering a citizen who is legally carrying a firearm (43.1%) or illegally carrying a firearm (39.1%) compared to indicating that these situations were infrequent (20.0% and 19.8%, respectively). Compared to noting an infrequent occurrence, more officers indicated they frequently feel confident in their ability to tell armed law-abiding citizens apart from armed criminals (38.6% compared to 17.85). Yet, the modal response from the sample was this occurred neither infrequently nor frequently (43.5%).

In summary, officers hold perceptions that constitutional carry has not had a large impact on them nor other officers in their agency. Discussions about constitutional carry and changes in officer behavior because of constitutional carry were very infrequent. Furthermore, officers continue to frequently encounter civilians who are both legally and illegally carrying a firearm

and many officers frequently feel confident in their ability to distinguish between armed law-abiding citizens and armed criminals.

Perceived Effects of Constitutional Carry

The last section of the survey asked officers about their perceptions for how constitutional carry legislation has affected their city. Specifically, respondents were asked to indicate their perceptions of whether constitutional carry legislation has affected their city's crime rates, firearm-related incidents, and murder rate. Response options included that constitutional carry legislation has led to a decrease, no change, increase, or do not know for each crime type.

As shown in Table 4, many officers reported that they did not know what impact constitutional carry legislation has had on their city's crime rates, firearm-related incidents, or murder rate. For each item, more than 40% of the responding officers indicated this response option. For those who provided a narrative response, most indicated that the legislation has had no impact. Yet, for the minority of responding officers who indicated that constitutional carry has led to a change in crime in their city, more officers indicated that constitutional carry legislation has increased their city's crime rate, firearm-related incidents, and murder rate than those who indicated the legislation has decreased such events. In summary, consistent with the findings regarding some of the views and attitudes on the impact of constitutional carry legislation, officers predominantly perceive that the legislation had no on crime.

Table 4. Responses to How Has Constitutional Carry Effected Your City (*N* = 507)

Has Constitutional Carry Legislation affected...		Decrease	Same/No Difference	Increase	I don't know	Total
1. … your city's crime rate?	*n*	6	222	46	233	507
	%	1.2	43.8	9.1	46.0	100
2. … your city's firearm-related incidents?	*n*	5	201	82	219	507
	%	1.0	39.6	16.2	43.2	100
3. … your city's murder rate?	*n*	6	230	42	229	507
	%	1.2	45.4	8.3	45.2	100

Summary of Officer Survey Responses

In summary, the officers who completed this survey were highly and strongly supportive of legislation that allows law abiding citizens to carry a firearm. It is a reasonable assertion that the law enforcement officers represented in this sample were highly supportive of gun rights over gun legislation.[11] The patterns in the data among the officers who completed this survey highlighted this assertion based upon the following distributions:

- The vast majority (over 75%) of officers agreed that officers were adequately trained to deal with armed citizens.

- The large majority of officers (nearly 60%) disagreed that they felt at greater risk due to constitutional carry legislation.

- Nearly 90% of respondents disagreed that only sworn law enforcement officers should be allowed to carry firearms on their person.

- Over 70% of respondents disagreed that armed citizens distracted law enforcement officials from their responsibilities.

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[11] Nearly 65% of officers who responded to the surveys disagreed that arming teachers in schools would have a negative consequence. This adds further support to the assertion that the law enforcement officers who completed the survey were highly supportive of less restrictive firearm legislation.

- The large majority of officers (nearly 64%) disagreed that firearm violence has gotten worse in their cities as a result of constitutional carry legislation.

- Indeed, nearly 70% of responding officers believe that armed citizens would reduce the death toll in prior mass shooting events.

- The vast majority of officers (73%) believe armed law-abiding citizens make the public safer.

- Nearly half (45%) of officers stated they felt comfortable knowing that citizens they encounter may have a concealed firearm.

However, the officers who were surveyed were also concerned about firearm safety and gun violence in general. Additionally, while they were generally supportive of citizens having the rights to carry a firearm, they were apprehensive of the consequences of untrained/unvetted individuals doing so. And, they were more likely to be concerned that *reckless firearm activity* (e.g., brandishing a firearm) has gotten worse when *compared to overall gun violence* getting worse as a result of constitutional carry legislation. We base this interpretation on the following patterns in the survey data:

- The vast majority (over 80%) of officers agreed that firearm violence is a major problem in their cities.

- The majority of officers (62%) believed increasing punishments for gun trafficking would reduce gun crime.

- The vast majority of officers (over 72%) agreed that citizens should be required to complete a safety training class before being allowed to carry a gun on their person publicly.

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- Most officers (roughly 57%) do not believe constitutional carry has impacted their agency directly.

- Nearly half (43%, and the majority of respondents on this item) agreed that they have increased their encounters with individuals carrying firearms legally since constitutional carry legislation passed.

- Nearly twice as many officers believe citizens brandishing weapons has increased after constitutional carry relative to the officers who believe gun violence has gotten worse as a result of constitutional carry (21% compared to 11%).

To summarize, sworn law enforcement officers in Lexington, Oklahoma City, and Tulsa seemingly support firearm carrying among citizens, but are concerned with the lack of training and proficiency of those carrying firearms, and that they are encountering more armed citizens (and many officers are concerned about increases in gun threats rather than rises in gun violence specifically).

2. Quantitative Analyses of Offenses and Arrests Across Study Settings

The primary analytical approach used in this phase of the analysis centers on a series of interrupted time series analyses. In this section of the study, we employ a standard single-group interrupted time series design that compares post-intervention (in this case, the passing of conceal carry legislation in each state) across targeted crime and arrest outcomes to pre-intervention trends after controlling consistent shocks and drifts in the longitudinal data in order to better isolate potential programmatic effects within the city (Cook and Campbell, 1979). We also include series control variables in each time series to uniquely assess whether the potential changes in targeted outcomes may have been corresponded with a more general trend in crime within the city. Finally, we included a series of sensitivity tests in order to examine the parsimony of the models presented in the main body of this report. We describe each of the relevant covariates for the site-specific analyses below given that each police agency collected similar though slightly divergent data at the criminal offense level.

Lexington, Kentucky

Primary Outcome Analyses: Criminal Offense Trends

The primary outcomes of interest in this study examined in Lexington focused on serious violent and property crime. The purpose of the various analytical approaches was to assess whether (and to what extent) serious crimes in Lexington directly corresponded with changes in constitutional carry legislation in the state of Kentucky, net of other time varying factors.

The monthly count data, modeled using Poisson and negative binomial regressions (depending on the presence of observed overdispersion), were operationalized as the monthly event counts that ran from January 1, 2015 through December 31, 2022. The primary covariate, *post-CC* (Constitutional carry), reflects a reference measure operationalized as March 2019 (i.e.,

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given the signing of Senate Bill 150 signed on March 20, 2019). This measure was created as an indicator variable where months prior to the legislative change (beginning in January 2015 through February 2019 were defined as the pre-CC period (i.e., value = 0). Subsequently, the post-CC period (value = 1) serves as the point of divergence for months March 2019 through December 2022.

All analyses also included additional time varying covariates in order to have more fully specified models. *Monthly dummy variables,* using January as the reference month, were used to account for seasonal effects (i.e., seasonal shocks) that occurred during specific periods of the year (mostly in the late spring and early summer, which are also seen in bivariate trend graphs).

As noted previously, we also included a time-varying measure that captured the potential impact of the post-April 2020 COVID-19 pandemic, as well as the post-June 2020 George Floyd protests that occurred in urban areas nationally in response the unlawful murder of an unarmed Black criminal suspect by a then police-officer in Minneapolis (MN). Given the high-correlation between the post-COVID and post-Floyd measures, we present each set of models for each outcome where only one of these covariates is included at a time (rather than included both). Finally, interrupted time series analyses presume a stable time-series, and if a linear trend exists within the data, the estimated mean differences in the covariates are likely biased and unreliable. Thus, we include a linear-trend measure for all models to assess the degree to which a trend may be impacting the association between our post-CC variable and the outcomes of interest. The use of multiple models per outcome was designed to provide a series of sensitivity and supplemental checks to ensure the results presented here-in were parsimonious and consistent.
The primary criminal offense outcomes included in the Lexington time series analyses were as follows:

- Homicide counts

- Aggravated Assaults

- Rapes

- Robberies

- Pooled Part I Violent Crimes (Homicides, Aggravated Assaults, Rapes, and Robberies)

- Pooled Part I Property Crimes (Motor Vehicle Thefts, Burglaries, and Larcenies)[12]

Table 5 below shows the results for the various interrupted time series models of homicide event counts. The results for Model 1 suggested that homicide counts did experience a statistically significant increase in the post-CC period ($b = .353$, $p < .05$) when no other relevant time-varying factors were accounted for. However, when the analyses controlled for post-COVID (Model 2), post-Floyd (Model 3), and the potential impact of post-Floyd (the better fitting, lower fitting loglikelihood model) and linear trend in the data (Model 4), none of the post-CC estimates were statistically significant. These combined analyses suggest that with more fully specified time series models, there was no direct evidence of a change in homicides that corresponded with the statewide constitutional carry legislation in Lexington.

Table 5: Interrupted Time Series Analyses for Lexington Homicide Counts (1/2015-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	.985*	.227	.913*	.223	.909*	.222	.846*	.249
Post-CC	**.353***	**.126**	**.199**	**.196**	**.215**	**.176**	**.134**	**.256**
Post-COVID	--	--	.207	.191	--	--	--	--
Post-Floyd	--	--	--	--	.197	.175	.141	.203
Linear-Trend	--	--	--	--	--	--	.002	.004
Month		a		a		a		a
LogPseudo	-170.38		-169.85		-169.84		-169.75	

[12] For both the pooled Part I violent and Part I property crimes, the counts were culled as one-count per incident. For example, there could be a murder, rape, and robbery in the same incident (same victim and offender). While each count for each offense is reflected in the offense-specific incident (homicide, rape and robbery independently), for the pooled incidents we only counted one offense per incident to avoid a biased overall violent crime measure.

Likelihood			
Pseudo R^2	.049	.052	.052	.053
Best-Fitting Model	--	***	--	--

Table 6 below provides the results for the series of interrupted time series models of aggravated assault counts between 2015 and 2022. The results for Model 1 suggested that aggravated assault counts did experience a statistically significant increase in the post-CC period ($b = .041$, $p < .05$) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in aggravated assaults in the post-COVID (Model 2) period, as well as the post-Floyd (Model 3) period, and the potential impact of post-Floyd (the better fitting, lower valued loglikelihood model and higher Pseudo R^2 value) and linear trend in the data (Model 4), none of the post-CC estimates were statistically significant. These total set of analyses indicate that with more fully specified time series models, there was no direct evidence of a change in aggravated assaults that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.

Table 6: Interrupted Time Series Analyses for Lexington Aggravated Assaults Counts (1/2015-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	4.98*	.043	4.89*	.044	4.98*	.045	5.01*	.056
Post-CC	**.041***	**.020**	**.011**	**.030**	**.004**	**.030**	**.033**	**.038**
Post-COVID	--	--	.042	.029	--	--	--	--
Post-Floyd	--	--	--	--	.054	.029	.074*	.037
Linear-Trend	--	--	--	--	--	--	-.000	.000
Month	a		a		a		a	
LogPseudo Likelihood	-411.66		-410.28		-409.20		-408.37	
Pseudo R^2	.142		.145		.147		.149	
Best-Fitting	--		--		--		***	

The results for the rape count analyses per month were divergent and unique relative to all other serious offense count changes in Lexington. Table 7 below provides the results for the series of interrupted time series models of rapes between 2015 and 2022. The results for Model 1 suggested that rape counts did experience a statistically significant decrease in the post-CC period ($b = -.123$, $p < .05$) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. However, when controlling for the change in rapes in the post-COVID (Model 2) period, the once significant post-CC estimate was no longer statistically significant. Comparatively, in Model 3, controlling for the post-Floyd (Model 3) period, the point estimate once again reached statistical significance. Finally, Model 4 shows that the post-CC estimate impact of post-COVID and linear trend in the data (Model 4) retained its statistical significance ($b = -.291$, $p < .05$). Given that in three of the four models presented, rapes experienced a statistically significant decline in the post-March 2019 period warranted further and more detailed sensitivity tests to assess the degree to which the divergence occurred at the time of constitutional carry in Kentucky.

Table 7: Interrupted Time Series Analyses for Lexington Rape Counts (1/2015-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	3.01*	.083	3.01*	.083	3.01*	.083	2.92*	.093
Post-CC	**-.123***	**.045**	**-.094**	**.060**	**-.155***	**.070**	**-.291***	**.089**
Post-COVID	--	--	-.041	.070	--	--	-.162*	.080
Post-Floyd	--	--	--	--	.046	.077	--	--
Linear-Trend	--	--	--	--	--	--	.003*	.001
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-274.3		-274.1		-274.1		-272.1	
Pseudo R^2	.035		.036		.036		.043	

Best-Fitting Model	--	--	--	***

Sensitivity Analyses for Rape Counts: Timing of the Shift in Rapes

The consistently negative estimate of post-CC in the majority of the models, though not all (Model 2) and the varying effect sizes that ranged from -11.5% [(Exp(-.123)-1] in Model 1 to -25.2% [Exp(-.291)-1] in Model 4 indicated a consistently declining count of rapes over time, but unstable shift over time. Thus, it became important to assess the period of greatest decline using (a) moving average models, (b) varying intervention periods (e.g., lagged and lead estimates at different periods), and (c) an ARIMA model on the logged rape counts (to account for the variance instability that occurred post-summer 2019). The graphical results are displayed in Figure 6. Three-month moving average estimates suggested that the largest decline in rapes occurred in July 2019 (three-months post-CC in KY). Using lagged and lead estimates, the greatest point decline in rapes was July and August 2019 (bivariate estimated percentages of -14.5% and larger), net of control variables. Thus, it is plausible that the post-CC period was associated with a later summer 2019 onset. Importantly, the series seemed to shift to pre-CC counts in 2022 (averaging over 22 events per month post-July 2022 through October 2022). Finally, the Augmented Dickey Fuller Unit Root test and an ARIMA analysis of logged rape counts (using an AR1,3 lagged effect estimation, the most suitable for the data) suggested that rape counts did experience a statistically significant decline in the post-March 2019 period.

Figure 6: Monthly Rape Counts in Lexington, KY (1/2015-12/2022)

---------- = Average (Pre/Post)   ---------- = Maximum Mean Time Series Shift (July 2019-April 2022)
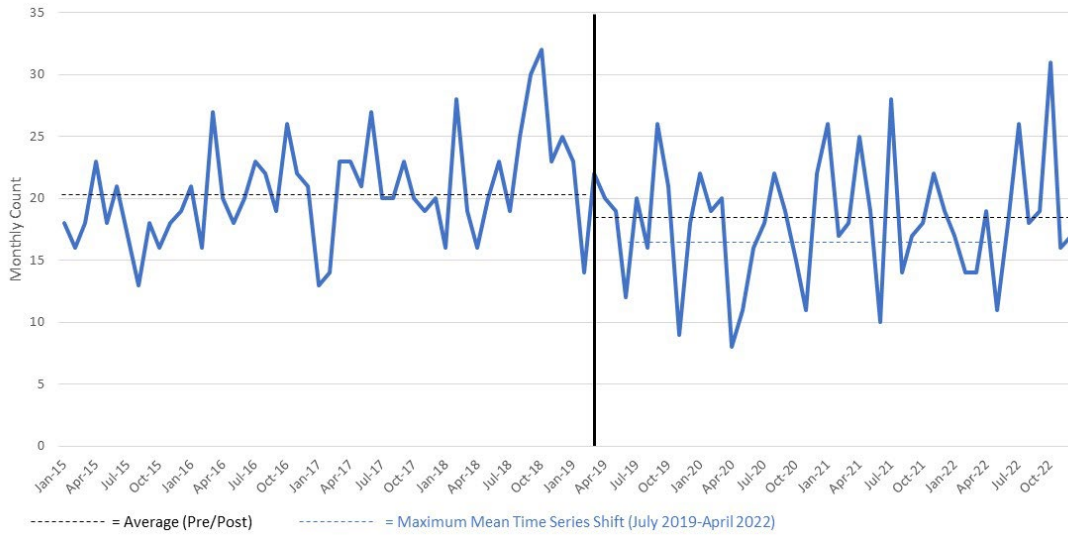
Table 8 provides the results for the series of interrupted time series models of robbery counts between 2015 and 2022. The results for Model 1 suggested that robbery counts had a statistically significant decrease in the post-CC period (b = -.563, p < .05) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in robberies in the post-COVID (Model 2) period, as well as the post-Floyd (Model 3) period, the estimated reduction in robberies declined by roughly half (b = -.353, p < .05 and b = -.366, p < .05). However, once we controlled for the statistically significant linear trend in robberies, seen in Model 4, and net of post-Floyd (the better fitting, lower valued loglikelihood model and higher Pseudo R^2 value), the once statistically significant decline seen in the post-CC estimates were no longer statistically significant. These total set of analyses indicate that with more fully specified time series models, there was little to no direct evidence of a change in robberies that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.

Table 8: Interrupted Time Series Analyses for Lexington Robbery Counts (1/2015-12/2022)

	Model 1 Post-CC Only	Model 2 Post CC + COVID	Model 3 Post CC + Floyd	Model 4 Inclusion of Trend

Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	3.67*	.041	3.66*	.038	3.67*	.037	3.84*	.060
Post-CC	**-.563***	**.048**	**-.353***	**.054**	**-.366***	**.050**	**-.140**	**.081**
Post-COVID	--	--	-.306*	.061	--	--	--	--
Post-Floyd	--	--	--	--	-.306*	.059	-.155*	.070
Linear-Trend	--	--	--	--	--	--	-.006*	.001
Month	a		a		a		a	
LogPseudo Likelihood	-335.9		-324.7		-324.1		-313.1	
Pseudo R^2	.271		.295		.297		.321	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

*$p < .05$ (with Holm correction)

The last analysis of violent crime focused on the pooled Part I violent crime counts over time. Table 9 provides the results for the series of interrupted time series models of pooled violent crime counts. The results for Model 1 suggested that overall violent crime counts had a statistically significant decrease in the post-CC period ($b = -.057$, $p < .05$) when only the monthly dummy variables accounted for seasonality. Controlling for the change in violent crime in the post-COVID (Model 2) period, the reduction in overall violent crime was no longer statistically significant. In the post-Floyd (Model 3) period, the estimated reduction in overall violence indicated a statistically significant decline ($b = -.066$, $p < .05$). However, similar to other violent crime outcomes, once we controlled for the statistically significant linear trend in violence, seen in Model 4, and net of post-Floyd (the better fitting, lower valued loglikelihood model and higher Pseudo R^2 value) the post-CC estimates were no longer statistically significant. These total set of analyses indicate that with more fully specified time series models, there was little to no direct evidence of a change in overall Part I violent crimes that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.

Table 9: Interrupted Time Series Analyses for Lexington Pooled Part I Violent Crime Counts (1/2015-12/2022)

	Model 1	Model 2	Model 3	Model 4

Parameter	Post-CC Only		Post CC + COVID		Post CC + Floyd		Inclusion of Trend	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	5.34*	.031	5.34*	.031	5.34*	.032	5.36*	.038
Post-CC	**-.057***	**.018**	**-.055**	**.025**	**-.066***	**.026**	**-.016**	**.036**
Post-COVID	--	--	-.003	.025	--	--	--	--
Post-Floyd	--	--	--	--	.013	.025	-.035	.026
Linear-Trend	--	--	--	--	--	--	-.008	.000
Month	a		a		a		a	
LogPseudo Likelihood	-433.6		-433.6		-433.4		-432.1	
Pseudo R^2	.136		.136		.137		.140	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Our final crime outcome included in the time series analyses within Lexington focused on the pooled Part I property crime counts over time. Table 10 below provides the results for the series of interrupted time series models of pooled Part I property crime counts. The results for Models 1-3 provided some suggestive evidence of a reduction in property crimes in the post-CC period. However, this association was most likely driven by a linear decline in property crimes that occurred over the course of the time series examined here. Specifically, the post-CC estimate in Model 4 failed to retain its statistically significant covariance with property crimes over time. Thus, similar to most violent crime outcomes, there was little to no direct evidence of a change in overall Part I property crimes that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.

Table 10: Interrupted Time Series Analyses for Lexington Pooled Part I Property Crime Counts (1/2015-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	6.60*	.042	6.60*	.039	6.60*	.039	6.69*	.043
Post-CC	**-.249***	**.019**	**-.110***	**.021**	**-.195***	**.025**	**-.062**	**.030**
Post-COVID	--	--	-.172*	.022	--	--	-.032	.028
Post-Floyd	--	--	--	--	-.081*	.051	--	--
Linear-Trend	--	--	--	--	--	--	-.003*	.000

Month	a	a	a	a
LogPseudo Likelihood	-716.2	-681.8	-696.5	-626.2
Pseudo R^2	.468	.494	.483	.535
Best-Fitting Model	--	--	--	***

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Primary Outcome - Offense Analysis Summary

We examined each Part I violent crime offense independently, and then pooled into a single Part I overall violent crime aggregate score. We also modeled a pooled Part I property crime count of offenses in Lexington, KY between January 2015 and December 2022. The post-Constitutional Carry indicator variable was most frequently unassociated with the change in crime counts over time. Where the post-CC indicator variable was statistically significant in the crime specific outcomes, it was almost universally when the time series models were foundational but incomplete (i.e., lacking important time-varying measures in the analyses).

Indeed, when we included time-varying covariates that were likely to be correlated with changes in crime outcomes over this period (i.e., a COVID-19 indicator variable, a post-Floyd protest variable, and a linear trend variable), all of the crime outcomes were not significantly associated with the change in constitutional carry legislation, with the lone exception of rape counts per month.

As noted previously, we conducted a series of sensitivity tests on the rape count time series per month to assess whether the shift (decline) in rapes corresponded with March 2019 or later (i.e., the onset period of constitutional carry in Kentucky). The results of the supplemental analyses indicated that the reduction was maximized in June 2019 through April 2022 (via the moving-average analyses and the use of lagged covariates in the regression models). Thus, the relationship between constitutional carry legislation with the vast majority of violent crime

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outcomes was shown to be unestablished; and where an establishment was potentially indicated (rapes), the shift was later in the summer 2019 through spring 2022. It is also feasible that there was an unmeasured factor associated with the shift (reduction) in rapes in Lexington during this period.

Viewed from the full context of analyses, the results here-in suggest that there were little-to-no statistically significant changes in Part I violent or Part I property crime that can be *attributable directly* to changes in constitutional carry legislation in Kentucky for the city of Lexington. In summation, there was no evidence the criminal offenses modeled within this section increased or decreased with the timing of conceal carry legislation in the state, meaning that the law did not appear to make things 'better or worse' on most Part I offense outcomes (i.e., those crimes that are most serious in nature) in the city of Lexington over the eight-year period of this study.

Secondary Outcomes: Firearm-Specific Arrests (Arrests with Possession of Firearm) and Stolen and Recovered Firearm Counts

While the research project was primarily interested in assessing the potential relationship with CC and violent crime, there were other potentially linked outcomes examined in Lexington, which had the potential to be associated with a change in permitless carry activity among the general population, including: firearm related arrests, firearms stolen and/or recovered. The secondary outcomes included in the Lexington time series analyses were as follows:

- Dispute with a Firearm Arrests

- Possession of a Defaced Firearm Arrests

- Handgun in Possession of a Felon Arrests

- Minor in Possession of a Handgun (Youth)

- Stolen and Recovered Firearms[13]

Table 11 below shows that 'dispute with a firearm' did not experience any statistically significant change in any of the models estimates (Models 1-4) in the post-CC period. Additionally, none of the control variables (COVID-19 and Floyd protests) seemingly corresponded with this outcome either.

Table 11: Interrupted Time Series Analyses for Lexington Dispute with a Firearm Arrest Counts (1/2015-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	-0.33	.439	-.328	.426	-.334	.439	-.456	.506
Post-CC	**.119**	**.215**	**-.144**	**.292**	**.108**	**.289**	**-.298**	**.387**
Post-COVID	--	--	.353	.322	--	--	.238	.389
Post-Floyd	--	--	--	--	.015	.323	--	--
Linear-Trend	--	--	--	--	--	--	.004	.008
Month	a		a		a		a	
LogPseudo Likelihood	-110.7		-110.3		-110.7		-110.1	
Pseudo R^2	.037		.041		.037		.042	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

There was a change in charges of a defaced firearm in possession arrest counts over time that may have corresponded with the March 2019 legislation in the state for permitless carry. Table 12 shows in Model 1, the foundational model, that defaced firearm possession arrest counts experience a statistically significant reduction that corresponded with the post-March 2019 period ($b = -.595$, $p < .05$). However, this result appeared to driven entirely by the COVID-19 pandemic in April 2020 (given that the COVID estimate in Model 2 is statistically significant but that none of the estimates in Model 3 accounting for the Floyd protests were statistically

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[13] While all other outcomes in this analysis are modeled as January 2015 – December 2022, stolen and recovered firearm counts had a data collection onset of July 2015 (through December 2022 for this study).

significant). Additionally, none of the post-CC estimates in Models 2-4 approach statistical significance indicating the shift did not correspond directly with the change in constitutional carry legislation.

Table 12: Interrupted Time Series Analyses for Possession of Defaced Firearm Arrest Counts (1/2015-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	-.509	.503	-.521	.518	-.513	.514	-.531	.672
Post-CC	**-.595***	**.302**	**-.085**	**.403**	**-.183**	**.414**	**-.161**	**.564**
Post-COVID	--	--	-.809*	.483	--	--	-.864	.564
Post-Floyd	--	--	--	--	-.671	.497	--	--
Linear-Trend	--	--	--	--	--	--	-.003*	.012
Month		a		a		a		a
LogPseudo Likelihood	-80.7		-79.5		-79.9		-79.5	
Pseudo R^2	.045		.059		.054		.059	
Best-Fitting Model	--		***		--		--	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Table 13 below provides the results for the series of interrupted time series models for possession of a handgun by a convicted felon counts between 2015 and 2022. The results for Model 1 suggested that handgun possession by a felon had a statistically significant increase in the post-CC period ($b = .332$, $p < .05$) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in handgun possessions by felons in the post-COVID (Model 2) period, as well as the post-Floyd (Model 3) period, the estimated increase in charges was reduced to roughly half the amount ($b = .199$, $p < .05$ and $b = .187$, $p < .05$). However, once we controlled for the statistically significant linear trend in handgun possessions by felons, seen in Model 4, and net of post-Floyd (the better fitting, lower valued loglikelihood model and higher Pseudo R^2 value) the once statistically significant increases seen in the post-CC estimates were no longer statistically

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significant. These total set of analyses indicate that with more fully specified time series models, there was little to no direct evidence of a change in handgun possessions by felons that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.

Table 13: Interrupted Time Series Analyses for Lexington Possession of Handgun by Felon Arrest Counts (1/2015-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	2.07*	.176	2.07*	.166	2.07*	.165	1.75*	.200
Post-CC	**.332***	**.081**	**.199***	**.102**	**.187***	**.098**	**-.193**	**.141**
Post-COVID	--	--	.180	.101	--	--	--	--
Post-Floyd	--	--	--	--	.207*	.097	-.071	.133
Linear-Trend	--	--	--	--	--	--		
Month	a		a		a		a	
LogPseudo Likelihood	-256.5		-254.9		-254.2		-246.1	
Pseudo R^2	.070		.075		.078		.107	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Table 14 provides the results for the series of interrupted time series models of handgun possession by a minor arrest counts between 2015 and 2022. The results for Model 1 suggested that minor in possession of a handgun had a statistically significant increase in the post-CC period ($b = 1.81$, $p < .05$), which is roughly a 5x increase in counts over this period [Exp(1.81) – 1] when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in handgun possession by a minor post-COVID (Model 2) period showed that largest increase in this period was in the post-COVID (April 2020 period).[14] However, net of the impact of COVID-19, there was still a

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[14] We conducted 3-month moving average analyses and the largest spike in the average counts occurred during the COVID-19 pandemic on this outcome (see Figure 7 below for a graphic which displays this effect).

129% increase in handgun possessions by minors attributable to the post-CC estimate [Exp(.831) – 1].

The results controlling for the post-Floyd estimate (in Model 3) indicates that the post-CC retained a large statistically significant association as well (b = 1.21, p < .05). Finally, even after we controlled for the statistically significant linear trend in handgun possessions by minor arrests, seen in Model 4, and net of post-COVID estimate (the better fitting, lower valued loglikelihood model and higher Pseudo R^2 value), the statistically significant increase seen in the post-CC estimate (b = 1.38, p < .05) retained its statistically significant positive association. These total set of analyses indicate that with more fully specified time series models, there was clear and consistent evidence of an increase of 2x to 4x more arrests of minors in possession of a handgun that corresponded with the statewide constitutional carry legislation in Lexington beginning in March 2019.[15]

Table 14: Interrupted Time Series Analyses for Lexington Possession of Handgun by a Minor Arrest Counts (1/2015-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	-1.36*	.447	-1.32*	.446	-1.36*	.447	-.926	.483
Post-CC	**1.81***	**.231**	**.831***	**.350**	**1.21***	**.299**	**1.38***	**.454**
Post-COVID	--	--	1.20*	.294	--	--	1.58*	.347
Post-Floyd	--	--	--	--	.799*	.234	--	--
Linear-Trend	--	--	--	--	--	--	-.016*	.008
Month	a		a		a		a	
LogPseudo Likelihood	-146.7		-135.4		-140.0		-133.4	
Pseudo R^2	.279		.335		.313		.345	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*p < .05 (with Holm correction)

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[15] Each sensitivity test (ARIMA modeling, lagged and lead variables, and the use of a 3-month moving average estimate each month) affirmed this positive association.

Figure 7 below shows that the average number of arrests per month of a minor in possession of a handgun changed from 0.4 per month in January 2015 – February 2019 to 2.82 per month in March 2019 through December 2022. The largest increase appeared to be in March 2020 through January 2022 (over 4.6 per month in this period). However, the entire series shifted post March 2019 and the result of the shift appeared to be sustained over time.

Figure 7: Possession of Handgun by a Minor Arrests in Lexington (January 2015 – December 2022)
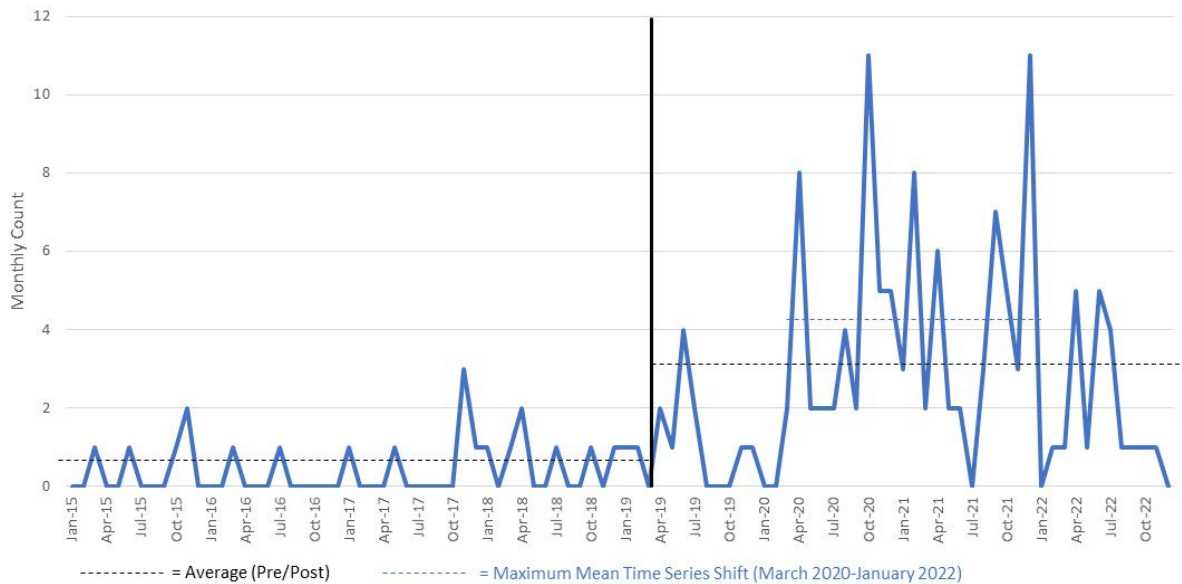
Our last secondary outcome modeled was for stolen and recovered firearms tracked by Lexington PD during this period. Table 15 shows the results for the series of interrupted time series models of stolen and recovered firearm counts between July 2015 and December 2022. The results for Model 1 suggested that stolen and recovered firearms had a statistically significant increase in the post-CC period ($b = 982$, $p < .05$), of nearly 166% [Exp(.982) – 1] when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in stolen and recovered

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firearms in the post-COVID (Model 2) and post-Floyd periods (Model 3) had no impact on the

significant association of the post-CC estimate, suggesting the increase had no relationship with

those specific sentinel events. Finally, Model 4 adjusted for the linear trend in the data, and the

post-CC estimate retained its statistically significant association ($b = .344$, $p < .05$), or an

increase of 41% [Exp(.344) – 1] net of any trends in the data. A series of sensitivity analyses

indicated the shift in stolen and recovered firearms was robust and consistent (relying on

ARIMA estimation, 3-month moving averages, and the use of lagged and lead variables). Thus,

the series of results show that stolen and recovered firearms in Lexington experienced a sizable

and persistent increase in the post-CC period.

Table 15: Interrupted Time Series Analyses for Lexington Stolen and Recovered Firearm Counts (7/2015-12/2022)

|	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	1.27*	.165	1.27*	.165	1.27*	.165	.403	.226
Post-CC	**.982***	**.095**	**1.07***	**.120**	**1.06***	**.116**	**.344***	**.157**
Post-COVID	--	--	-.131	.106	--	--	-.793*	.157
Post-Floyd	--	--	--	--	-.122	.103	--	--
Linear-Trend	--	--	--	--	--	--	.027*	.004
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-244.9		-244.2		-244.2		-225.9	
Pseudo R^2	.218		.221		.220		.279	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Figure 8 below shows the trends in stolen and recovered firearms in Lexington over time.

The counts of stolen and recovered firearms changed from 3.4 per month in July 2015 –

February 2019 to 9.3 per month in March 2019 through December 2022. The largest increase

appeared to be in March 2020 through November 2020 (over 13 per month in this period).

However, the entire series shifted post March 2019 and the result of the shift appeared to be sustained over time.

Figure 8: Stolen and Recovered Firearm Counts (July 2015 – December 2022)

---------- = Average (Pre/Post)   ---------- = Maximum Mean Time Series Shift (March 2020-November 2020)
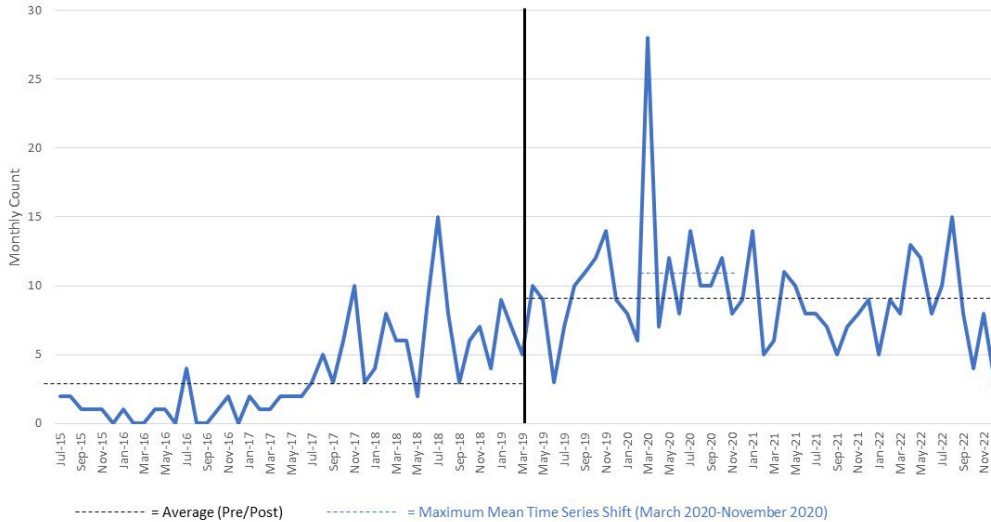
Summary of Lexington Time Series Analyses on Primary and Secondary Outcomes

The interrupted time series analyses of criminal offenses with particular respect to serious violent and property crimes indicated that there is little (in the monthly count of rapes) to no evidence (in homicides, assaults, robberies, overall violent crimes, and overall property crimes) of any statistically significant association between the statewide constitutional carry legislation and direct shifts in criminal offenses in Lexington, KY. For rapes, the reduction cannot be ruled out since a statistically significant shift occurred in Summer 2019 (post- constitutional carry in Kentucky which was signed into legislation in March 2019). The shift occurred in the post-CC period, though it is unlikely attributable to the shift in legislation due to its lagged association (four-month lagged decline). However, the overall shift occurred in the post-CC period, and the analyses captured this reduction. In short, the reduction in rapes was highly suspect, but possible (and should be noted for future studies to assess if replication in that outcome shift is observed elsewhere).

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The change in secondary outcomes, particularly firearm related arrests, and stolen and recovered firearms was (a) observed in the time series analyses presented here, and (b) was highly more probable in its relationship with the change in constitutional carry legislation. Specifically, minors in possession of a handgun increased from less than 0.5 per month to 2.8 per month over the study period. Interestingly, felons in possession of a firearm count did not experience a similar shift in Lexington during this same period.

Additionally, stolen and recovered firearms tripled over time, increasing from roughly 3 per month to 9 per month in the post-CC period. The findings for these outcomes suggest to the extent that constitutional carry had a direct impact on minors in possession of a handgun arrests (increase) and/or stolen and recovered firearms (increase), the effects likely operated through the impact of the COVID-19 pandemic shift. This is due to the fact that the maximum likelihood shift in each of these outcomes occurred in both the post-constitutional carry (March 2019) and post-COVID 19 (April 2020) combined, based upon the sensitivity analyses (three-month moving average estimates) on each of these outcomes. Future analyses should discern the unique association with cities in settings where conceal carry legislation occurred versus those where it did not occur, given that the impact on COVID-19 appeared to be somewhat consistent across multiple urban settings.

Oklahoma City, Oklahoma

Primary Outcome Analyses: Criminal Offense Trends

We wanted to assess whether the change in constitutional carry in the state of Oklahoma corresponded with a shift in violent criminal offenses in Oklahoma City. However, Oklahoma City Police Department experienced a change in their offense reporting system beginning in 2019 (to the National Incident Based Reporting System). While criminal offense counts are

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consistently measured at the incident level (using the incident unique identifier) over time and across each of the reporting systems, the counts for multiple-offense incidents shifted (increased) as a result in the reporting system change. For example, in the pre-NIBRS system a robbery and homicide in the same incident would only be reported as a homicide (the higher order offense using the UCR code). For offenses such as aggravated assaults, which could have higher order charges in those incidents, the number of events increased as a result of the change in reporting. This was also particularly true for different property offenses as well.

Thus, we only examined criminal offenses that had (a) measurement consistency over time, and (b) were likely to be impacted by the change in constitutional carry legislation (i.e., violent offenses). For this study, we examined two outcomes consistent with prior research (Smith and Petrocelli, 2019) for constitutional carry legislation in Oklahoma City: (1) homicide counts and (2) robbery counts.[16] Research indicates that the two most common violent offenses that are firearm related are homicides (with a greater than 50% likelihood of being firearm related – see Gramlich, 2023) and robberies (with a greater than 33% likelihood of a firearm being used in the commission of the offense).

The monthly count data, modeled using Poisson and negative binomial regressions (depending on the presence of observed overdispersion), were operationalized as the monthly event counts that ran from January 1, 2010 through December 31, 2022. The primary covariate, *post-CC* (Constitutional carry), reflects a reference measure operationalized as February 2019

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[16] The other common UCR violent crimes to assess are aggravated assaults and rapes. However, aggravated assaults shifted considerably due to the fact that in the past there were multiple designations describing the characteristics of the assault (e.g., assault with injury; assault with a weapon; simple assault, etc.). The same problem emerged with rape (and its evolving definition with the NIBRS system). Any changes in counts would be calibrated with the change in measurement for these offenses. Additionally, we wanted to examine firearm offense characteristics (e.g., homicides with a firearm), but in the pre-NIBRS data most of the time the offense category was 'weapon' and not firearm specific. In the post-NIBRS switch firearm offense characteristics became designated specific to other weapons in Oklahoma City, but this did not allow for a trend analysis over time.

(i.e., given the signing of House Bill 2597 signed into legislation on February 27, 2019). This measure was created as an indicator variable where months prior to the legislative change (beginning in January 2010 through January 2019 were defined as the pre-CC period (i.e., value = 0). Subsequently, the post-CC period (value = 1) serves as the point of divergence for months February 2019 through December 2022.

The primary criminal offense outcomes included in the Oklahoma City time series analyses were as follows:

- Homicide counts

- Robbery counts

Table 16 below shows the results for the various interrupted time series models of homicide event counts. The results for Model 1 suggested that homicide counts did not experience any statistically significant change in the post-CC period. This same non-association was observed when controlling for shifts in the for post-COVID (Model 2) period, and post-Floyd (Model 3) period (though it is noteworthy that the post-Floyd estimate had a statistically significant increase in homicides). Finally, the results also showed that when controlling for a linear trend in the outcomes, the post-CC estimate still was statistically insignificant. Thus, across all the models, there was never any direct evidence of a change in homicides that corresponded with the statewide constitutional carry legislation in Oklahoma City.

Table 16: Interrupted Time Series Analyses for Oklahoma City Homicide Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	1.64*	.164	1.64*	.163	1.64*	.122	1.22*	.187
Post-CC	**.037**	**.071**	**-.125**	**.138**	**-.135**	**.113**	**-.115**	**.169**
Post-COVID	--	--	.221	.145	--	--	--	--
Post-Floyd	--	--	--	--	.247*	.126	.476*	.158
Linear-Trend	--	--	--	--	--	--	.014*	.003
Quadratic-Trend	--	--	--	--	--	--	-.000*	.000

	Month							
		a		a		a		a
LogPseudo Likelihood	-376.1		-374.6		-374.1		-365.	
Pseudo R^2	.032		.036		.037		.059	
Best-Fitting Model	--		--		***		--	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

*p < .05 (with Holm correction)

Table 17 shows the results for the series of interrupted time series models of robbery counts between 2010 and 2022. The results for Model 1 suggested that robbery counts did experience a statistically significant decrease in the post-CC period (b = -.337, p < .05) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. The reductions in robberies was persistent when controlling for the change associated with the post-COVID (Model 2) period (b = -.178, p < .05), as well as the post-Floyd (Model 3) period (b = -167, p < .05). However, once we controlled for the potential of an overall linear decrease in robberies (seen in Model 4), the results show that the post-CC estimate was no longer statistically significant. These total set of analyses indicate that with more fully specified time series models, there was no direct evidence of a change in robberies that corresponded with the statewide constitutional carry legislation in Oklahoma City beginning in February 2019.

Table 17: Interrupted Time Series Analyses for Oklahoma City Robbery Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	4.45*	.055	4.45*	.055	4.45*	.054	4.45*	.064
Post-CC	**-.337***	**.033**	**-.178***	**.038**	**-.167***	**.035**	**-.061**	**.045**
Post-COVID	--	--	-.231*	.048	--	--	--	--
Post-Floyd	--	--	--	--	-.265*	.044	-.227*	.045
Linear-Trend	--	--	--	--	--	--	-.002*	.000
Month		a		a		a		a
LogPseudo Likelihood	-661.4		-644.65		-637.9		-624.7	

Pseudo R^2	.237	.264	.264	.279
Best-Fitting Model	--	--	--	***

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

*$p < .05$ (with Holm correction)

In Oklahoma City, the two primary criminal offense outcomes that had measurement consistency over the duration of the study period (2010-2022) showed that the legislative change to constitutional carry had no bearing or change in two of the most common firearm related offenses collected by the Uniform Crime Reporting system. There were higher counts of homicide and lower counts of robbery in the post-COVID and post-Floyd periods, respectively. However, the outcome of interest did not change in any meaningful way upon the passing of constitutional carry in Oklahoma.

Secondary Outcomes: Firearm-Specific Arrests (Arrests with Possession of Firearm) and Stolen and Recovered Firearm Counts

There were other potentially associated crime-related outcomes that had the potential to change with constitutional carry legislation that we examined in Oklahoma City. We focused primarily on arrests for specific firearm related charges to assess whether police came into contact with individuals at a differential rate in the post-CC period relative to the pre-CC period. The secondary outcomes we included in our analyses in Oklahoma City were:

- Total Arrests (to assess whether arrest counts changed over time)

- Any Firearm Related Charge in the Arrest

- Shooting with Intent to Kill Arrests

- Possession of a Firearm by a Convicted Felon in the Arrest

- Illegal Discharge of a Firearm

- Pointing of a Firearm

Given that the majority of secondary outcomes were arrest specific, and that Oklahoma City experienced a change in their offense reporting system, we wanted to assess whether total arrests changed (so that if there were any changes in specific arrest counts we knew whether and to what extent it was associated with general arrest reporting changes). Table 18 below shows that total arrests (i.e., regardless of charges the number of individuals taken into custody) in Model 1 had a statistically significant decline ($b = 0.111$, $p < .05$). However, once we controlled for the impact of COVID-19, the post-CC estimate was no longer statistically significant (and the reduction in total arrests was most likely associated with a reduced count of arrests in the post-April 2020 period). When no other time-varying covariates except for seasonal monthly dummy variables were modeled, total arrests did not experience any statistically significant change in any of the models estimates (Models 1-4) in the post-CC period. Additionally, none of the control variables (COVID-19 and Floyd protests) seemingly corresponded with this outcome either. Finally, Model 4 showed a similar pattern, when controlling for a linear trend in the data and net of post-Floyd, there was no relationship with the timing of constitutional carry on arrest counts. In sum, there was no evidence whatsoever of a change in arrests that corresponded with constitutional carry, and in fact the only significant changes seemed to correspond with the post-COVID and post-Floyd estimates, which corresponded with a reduction in total arrests over time.

Table 18: Interrupted Time Series Analyses for Total Arrest Counts (1/2010-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	7.59*	.039	7.59*	.037	7.59*	.037	7.65*	.038
Post-CC	**-.111***	**.021**	**-.026**	**.041**	**-.024**	**.036**	**.039**	**.044**
Post-COVID	--	--	-.117*	.053	--	--	--	--
Post-Floyd	--	--	--	--	-.134*	.037	-.111*	.003
Linear-Trend	--	--	--	--	--	--	-.000*	.000
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-2807.9		2677.8		-2640.4		-2533.6	
Pseudo R^2	.270		.304		.314		.342	

	Model 1		Model 2		Model 3		Model 4	
Best-Fitting Model	--		--		--		***	

We next looked at arrests that had any firearm related charge (one charge or greater). Table 19 provides the results for the series of interrupted time series models for arrest counts that had any firearm related charge between 2010 and 2022. The results for Model 1 suggested that any firearm related arrest count had a statistically significant increase in the post-CC period ($b = .464, p < .05$) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in any firearm related arrest in the post-COVID (Model 2) period, as well as the post-Floyd (Model 3) period, the estimated increase in charges was reduced to some degree ($b = .364, p < .05$ and $b = .436, p < .05$ respectively). However, once we controlled for the statistically significant linear trend in any firearm related arrest, seen in Model 4, and net of post-COVID (the best fitting, lower valued loglikelihood model and higher Pseudo R^2 value) the once statistically significant increase seen in the post-CC estimate was no longer statistically significant. These total set of analyses indicate that with more fully specified time series models, there was little to no direct evidence of a change in any firearm related arrest that corresponded with the statewide constitutional carry legislation in Oklahoma beginning in February 2019.

Table 19: Interrupted Time Series Analyses for Oklahoma City Any Firearm Charge Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	4.08*	.054	4.08*	.053	4.08*	.053	3.80*	.051
Post-CC	**.464***	**.035**	**.364***	**.054**	**.436***	**.064**	**.076**	**.058**
Post-COVID	--	--	.139	.060	--	--	.027	.060
Post-Floyd	--	--	--	--	.040	.066	--	--
Linear-Trend	--	--	--	--	--	--	.004*	.000
Month	[a]		[a]		[a]		[a]	
LogPseudo	-707.8		-700.0		-707.1		-628.8	

	Likelihood						
Pseudo R^2	.289		.297		.290		.368
Best-Fitting Model	--		--		--		***

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

*$p < .05$ (with Holm correction)

We next looked at arrests with violent firearm charges with a particular attention on the monthly counts of shooting charges with intent to kill. Table 20 below provides evidence that there was no significant association between the change in constitutional carry legislation in Oklahoma with shooting with the intent to kill charges from 2010 to 2022 in Oklahoma City. Specifically, the post-CC estimate in Models 1-4 was consistently nonsignificant alone (in Model 1) and net of all controls (in Models 2-4). Thus, for violent and lethal intent with a firearm, there was no change in the monthly counts centering on the February 2019 change in legislation.

Table 20: Interrupted Time Series Analyses for Shooting with Intention to Kill (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	0.43*	.201	0.43*	.201	0.43*	.201	0.43*	.250
Post-CC	**-.001**	**.259**	**-.333**	**.189**	**-.182**	**.257**	**-.156**	**.295**
Post-COVID	--	--	.422	.231	--	--	--	--
Post-Floyd	--	--	--	--	.240	.291	.249	.301
Linear-Trend	--	--	--	--	--	--	-.000	.002
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-240.3		-239.2		-239.9		-239.9	
Pseudo R^2	.013		.018		.015		.015	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

*$p < .05$ (with Holm correction)

Table 21 below provides the results for the series of interrupted time series models of possession of a firearm by a convicted felon counts between 2010 and 2022. The results for Model 1 suggested that felons in possession had a statistically significant increase in the post-CC

period (b = .575, p < .05), which is roughly a 77% increase in counts over this period [Exp(.575) – 1] when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. Controlling for the change in handgun possession by a felon post-COVID (Model 2) period showed that an increase in this period was in the post-COVID (April 2020 period). However, net of the impact of COVID-19, there was still a 61% increase in handgun possessions by felons attributable to the post-CC estimate [Exp(.478) – 1]. Model 3 shows there was no impact of the post-Floyd protest periods on felons in possessions, while the post-CC retained its level of statistical significance (b = .562, p < .05). However, Model 4 shows that the once significant estimated impact of constitutional carry on felons in possession counts diminished to the level of non-statistical significance once we account for the impact of a linear trend in the data. Thus, there is not enough evidence to attribute the increase of felons in possession counts to the constitutional carry legislation in the state.

Table 21: Interrupted Time Series Analyses for Oklahoma City Possession of a Firearm by a Convicted Felon Charge Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	3.47*	.077	3.47*	.076	3.47*	.077	3.11*	.063
Post-CC	**.575***	**.043**	**.478***	**.065**	**.562***	**.073**	**.116**	**.070**
Post-COVID	--	--	.135*	.068	--	--	-.007	.071
Post-Floyd	--	--	--	--	.019	.074	--	--
Linear-Trend	--	--	--	--	--	--	.006*	.000
Month	a		a		a		a	
LogPseudo Likelihood	-625.0		-620.6		-624.9		-559.3	
Pseudo R^2	.277		.282		.277		.353	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*p < .05 (with Holm correction)

Our final arrest specific outcomes focused on firearm related crimes consistent with reckless handling of a weapon: (1) illegal discharges of a firearm, and (2) pointing of a firearm counts. Table 22 shows that illegal discharge of a firearm charges experienced statistically significant increases in Model 1 by roughly 53.5% (Exp(.429) – 1) in the post-February 2019 period. When accounting for COVID-19 (Model 2), the post-CC estimate no longer retained its statistical association with illegal discharges of firearms. The same was true in the post-Floyd estimates (Model 3). However, once we accounted for a linear trend in the series, and the post-Floyd impact, the estimated impact of constitutional carry reemerged as a salient predictor of the increase in illegal discharge of a firearm counts in Oklahoma City. Net of all other factors, there was an increase of illegal discharges of a firearm by roughly 55.1% in the post-CC period (Exp(.439) – 1).

Table 22: Interrupted Time Series Analyses for Oklahoma City Illegal Discharge of a Firearm Charge Counts (1/2010-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	1.51*	.174	1.51*	.169	1.51*	.171	1.66*	.183
Post-CC	**.429***	**.087**	**.022**	**.153**	**.245**	**.169**	**.439***	**.194**
Post-COVID	--	--	.537*	.161	--	--	--	--
Post-Floyd	--	--	--	--	.269	.177	.337	.184
Linear-Trend	--	--	--	--	--	--	-.002*	.001
Month	a		a		a		a	
LogPseudo Likelihood	-386.1		-377.5		-383.4		-381.1	
Pseudo R^2	.086		.106		.092		.098	
Best-Fitting Model	--		***		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Figure 9 shows that the average number of monthly illegal discharge of firearm arrests was very stable from January 2010 to January 2019 averaging roughly 4.2 arrests per month during that period. Comparatively, the number of monthly illegal discharge of a firearm arrests

increased to 6.5 per month from February 2019 through December 2022. The moving average counts indicated that the rise was immediately after the February 2019 change in legislation, with the largest spike average beginning in May 2019.

Figure 9: Illegal Discharge of a Firearm Arrests in Oklahoma City, OK (January 2010 – December 2022)
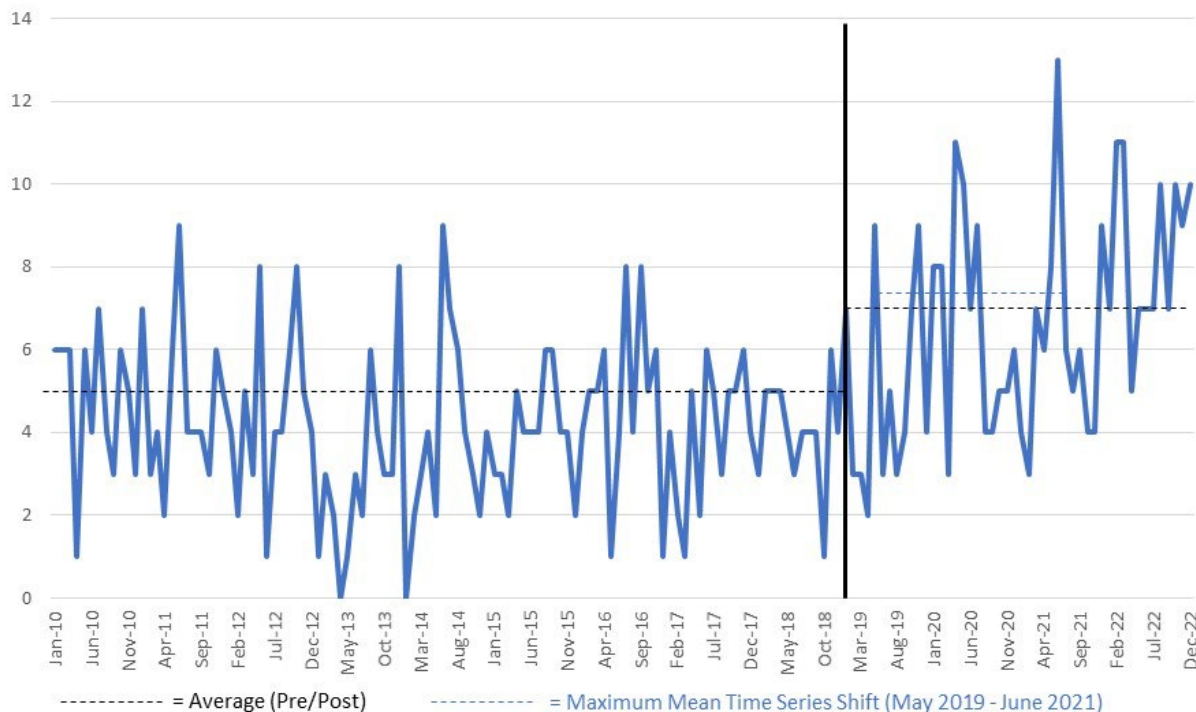
---------- = Average (Pre/Post)   ---------- = Maximum Mean Time Series Shift (May 2019 - June 2021)

Finally, we examined the change in the number of pointing of firearm charges that emerged in the post-February 2019 period. Table 23 in Model 1 shows that net of time-varying seasonal variables only, there was a statistically significant increase in pointing of firearm charges by roughly 56% (Exp(.445) – 1). Model 2 indicates that over half of this estimated effect occurred in the post-COVID period ($b = .327$, $p < .05$). Model 3 shows that accounting for seasonality and the post-Floyd period, there remained a significant association between post-CC and pointing of firearms ($b = .332$, $p < .05$). Finally, net of seasonality and the post-Floyd period, the post-CC estimate retained its level of statistical significance, indicating that pointing of a firearm increased by roughly 37% (Exp(.315) – 1). Thus, net of all other factors, there was a

statistically significant increase in pointing of firearms in Oklahoma City after constitutional carry was enacted, and this relationship was robust to multiple influences of time-series trends. We conclude that the increase in pointing of firearms was unlikely due to some time-varying external influence but rather corresponded with the timing of the change in the statewide conceal carry legislation.

Table 23: Interrupted Time Series Analyses for Oklahoma City Pointing of a Firearm Charge Counts (1/2010-12/2022)

| Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	1.37*	.135	1.37*	.143	1.37*	.139	1.35*	.148
Post-CC	**.445***	**.073**	**.203**	**.133**	**.332***	**.131**	**.315***	**.148**
Post-COVID	--	--	.327*	.142	--	--	--	--
Post-Floyd	--	--	--	--	.164	.139	.158	.143
Linear-Trend	--	--	--	--	--	--	.000	.001
Month	a		a		a		a	
LogPseudo Likelihood	-336.0		-332.9		-335.1		-335.1	
Pseudo R^2	.058		.067		.061		.061	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Figure 10 below shows that the shift in pointing of firearm arrests corresponded after the implementation of the constitutional carry legislation in Oklahoma. Specifically, the monthly number of pointing of firearm arrests increased from 4.8 per month in January 2010 through December 2022 to 7.4 per month between February 2019 and December 2022. The largest rise in the increase in pointing of firearm arrests seemingly took place during the post-COVID period (beginning in May 2020) and stayed roughly stable thereafter. The lag between the February 2019 constitutional carry change in legislation and the May 2020 surge indicates the increase was likely a combination of constitutional carry (given its stable point estimate in the time series models above) and the post-COVID shift in the series seen below.

Figure 10: Pointing of Firearm Arrests in Oklahoma City, OK (January 2010 – December 2022)

---------- = Average (Pre/Post)   ---------- = Maximum Mean Time Series Shift (May 2020 - May 2022)
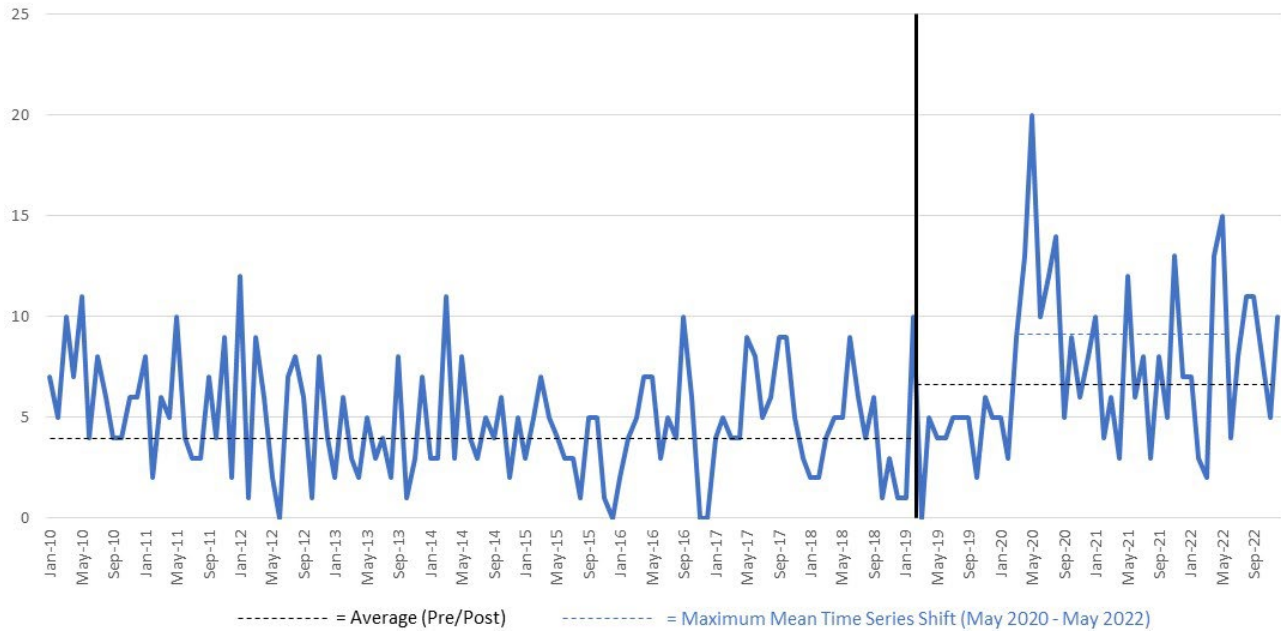
Summary of Oklahoma City Time Series Analyses on Primary and Secondary Outcomes

The interrupted time series analyses of criminal offenses with particular respect to serious violent crime showed there was no evidence of a change in homicides or robberies that corresponded with the statewide constitutional carry legislation in Oklahoma City, OK. The other UCR violent crimes that are typically examined (rapes and aggravated assaults) as well as property crimes experienced a data coding change (from the UCR to NIBRS systems), and thus those outcomes were excluded from all analyses here-in. However, the two outcomes examined here (robberies and homicides) were consistently measured over time in Oklahoma City, and have been shown to be the most highly correlated with firearms violence in prior research. The absence of significant association on these outcomes suggests no real alteration in predatory firearms violence associated with the statewide change in constitutional carry legislation in Oklahoma City.

We next sought to examine changes in secondary outcomes, primarily arrest-based outcomes, such as total arrests (to assess if there was stability across all arrests combined over time), firearm specific charge arrests, shooting with intention to kill arrests, felon in possession arrests, illegal discharge arrests, and pointing of firearm arrest counts. The findings indicated that total arrests did not change; firearm specific arrests did not change; felon in possession arrests did not change; and, predatory violent arrests (shooting with intent to kill) did not change in the time series analyses. In sum, there was no evidence of a global change in arrests, all firearm arrests, felon in possession of firearms, or predatory violent firearm arrests.

However, two firearm related arrest types did experience statistically significant changes in Oklahoma City after constitutional carry legislation was passed: illegal discharge of a firearm arrests and pointing of firearm arrests. These arrests are consistent with disorderly and reckless firearm related behavior rather than violent behavior (which did not change). Net of control and other time-varying covariates, we estimated the increase in illegal discharges of a firearm to increase by 55%, while pointing of a firearm increased by 37%. Both of these outcomes were also higher in the post-COVID and post-Floyd periods of study. It is impossible to assess whether the increase in reckless firearm arrests were specific to the change in constitutional carry, or whether they were a result of changes in the post-COVID and post-Floyd protest periods, or whether it was a combination across each of these factors. Net of controls, and linear trends, the increase in reckless firearm arrests was associated with the post constitutional carry period. Future analyses should discern the unique association with cities in settings where conceal carry legislation occurred versus those where it did not occur, given that the impact on COVID-19 and Floyd protests appeared to be somewhat consistent across multiple urban settings.

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Tulsa, Oklahoma

Primary Outcome Analyses: Criminal Offense Trends

We wanted to assess whether the change in constitutional carry in the state of Oklahoma corresponded with a shift in violent criminal offenses in the city of Tulsa. We were able to examine trend and patterns in serious Part I offenses, particularly itemized violent crime (aggravated assaults, aggravated assaults with a firearm, homicides, rapes, and robberies) and pooled property crime (the aggregated count of larcenies, burglaries, and motor vehicle thefts) between January 2010 and December 2022. While the Tulsa offense reports specifically designated aggravated assaults as firearm related, the same was not true for rapes, robberies, or homicides.[17] Thus, we conducted time series analyses for the only Part I UCR violent crime that was specifically firearm related and not others that were 'weapon' related.

The monthly count data, modeled using Poisson and negative binomial regressions (depending on the presence of observed overdispersion), were operationalized as the monthly event counts that ran from January 1, 2010 through December 31, 2022. The primary covariate, *post-CC* (Constitutional carry), reflects a reference measure operationalized as February 2019 (i.e., given the signing of House Bill 2597 signed into legislation on February 27, 2019). This measure was created as an indicator variable where months prior to the legislative change (beginning in January 2010 through January 2019 were defined as the pre-CC period (i.e., value = 0). Subsequently, the post-CC period (value = 1) serves as the point of divergence for months February 2019 through December 2022.

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[17] Homicides and rapes (sexual assaults) did not have electronic coding for firearm related incidents. Robbery incidents had designations of weapon-related, which was most likely firearm related – but without a clear and consistent electronic methodology we did not feel comfortable in pooling firearm and knife/other weapon related robberies into a firearm-specific outcome (as was the case for aggravated assaults with a firearm).

The primary criminal offense outcomes included in the Tulsa time series analyses were as follows:

- Homicide counts

- Aggravated Assault counts

- Aggravated Assault with a Firearm counts

- Robbery counts

- Rape counts

- Part I Property crime counts (pooled burglaries, larcenies, and motor vehicle thefts)

Table 24 shows the results for the series analyses of homicide event counts. The results for Model 1 suggested that homicide counts did not experience any statistically significant change in the post-CC period. This same non-association was observed when controlling for shifts in the for post-COVID (Model 2) period, and post-Floyd (Model 3) period (though it is noteworthy that the post-Floyd estimate had a statistically significant increase in homicides). Finally, the results also showed that when controlling for a linear trend in the outcomes, the post-CC estimate still was statistically nonsignificant. Thus, across all the models, there was never any direct evidence of a change in homicides that corresponded with the statewide constitutional carry legislation in Tulsa.

Table 24: Interrupted Time Series Analyses for Tulsa Homicide Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	1.55*	.190	1.55*	.189	1.55*	.190	1.45*	.219
Post-CC	**.086**	**.075**	**.014**	**.134**	**.115**	**.121**	**-.094**	**.166**
Post-COVID	--	--	.109	.140	--	--	.059	.145
Post-Floyd	--	--	--	--	-.045	.128	--	--
Linear-Trend	--	--	--	--	--	--	.001	.001
Month	a		a		a		a	
LogPseudo Likelihood	-359.8		-359.5		-359.7		-358.6	

Pseudo R^2	.031	.032	.031	.034
Best-Fitting Model	--	--	--	***

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Table 25 shows the results for the interrupted time series models for aggravated assaults in Tulsa. Model 1 shows that without controlling for important time-varying factors (except for the monthly dummy variables that are used to adjust for seasonality), there was a statistically significant increase in aggravated assaults by 12.3% (Exp(.116) – 1). Models 2 and 3 shows the significant increase holds net of the impact of the COVID-19 pandemic (Model 2) and the post-Floyd protests (Model 3) with the following statistically significant point estimates ($b = .123$, $p < .05$; and $b = .161$, $p < .05$). However, when controlling for seasonality, the post-COVID impact, and a statistically significant linear trend in the time series, the association between post-CC and aggravated assaults becomes statistically insignificant. Thus, while there was some preliminary evidence of an increase in aggravated assaults, this increase was driven primarily by a linear increase in aggravated assaults across the time series. There was no evidence of a constitutional carry impact on aggravated assaults in Tulsa, net of other factors (seen in Model 4).

Table 25: Interrupted Time Series Analyses for Tulsa Aggravated Assault Counts (1/2010-12/2022)

	Model 1 Post-CC Only		**Model 2 Post CC + COVID**		**Model 3 Post CC + Floyd**		**Model 4 Inclusion of Trend**	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	5.28*	.031	5.28*	.031	5.28*	.032	5.23*	.031
Post-CC	**.116***	**.026**	**.123***	**.025**	**.161***	**.031**	**.061**	**.034**
Post-COVID	--	--	-.010	.036	--	--	-.033	.040
Post-Floyd	--	--	--	--	-.071	.040	--	--
Linear-Trend	--	--	--	--	--	--	.001*	.000
Month	a		a		a		a	
LogPseudo Likelihood	-967.7		-967.7		-960.8		-954.8	
Pseudo R^2	.281		.281		.286		.291	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)

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We next moved onto an analysis of aggravated assaults that were firearm specific. Table 26 shows the results for the interrupted time series models for firearm-related aggravated assaults in Tulsa. Model 1 shows there was a statistically significant increase in firearm-related aggravated assaults by 37.2% (Exp(.316) – 1). Models 2 showed that the significant association between the estimate of post-CC and firearm-related aggravated assaults was retained ($b = .133$, $p < .05$), net of the impact of COVID-19. Likewise, Model 3 shows the significant increase holds net of the post-Floyd period, with a significant point estimate ($b = .225$, $p < .05$). However, similar to the case for total aggravated assaults, once we controlled for seasonality, the post-COVID impact, and a statistically significant linear trend in the time series, the association between post-CC and firearm-related aggravated assaults became statistically nonsignificant. There was no sustained and convincing evidence of a constitutional carry impact on firearm-related aggravated assaults in Tulsa, net of other factors (seen in Model 4).

Table 26: Interrupted Time Series Analyses for Tulsa Aggravated Assault with Firearm Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	4.13*	.058	4.13*	.051	4.13*	.054	4.09*	.065
Post-CC	**.316***	**.039**	**.133***	**.054**	**.225***	**.065**	**.092**	**.068**
Post-COVID	--	--	.248*	.055	--	--	.232*	.058
Post-Floyd	--	--	--	--	.139*	.066	--	--
Linear-Trend	--	--	--	--	--	--	.000	.000
Month	a		a		a		a	
LogPseudo Likelihood	-814.5		-788.8		-805.0		-787.0	
Pseudo R^2	.276		.299		.285		.301	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*p < .05 (with Holm correction)

Table 27 below provides the results for the series of interrupted time series models of robbery counts between 2010 and 2022. The results for Model 1 suggested that robbery counts did experience a statistically significant decrease in the post-CC period (b = -.494, p < .05) when no other relevant time-varying factors were included in the models, except the monthly dummy variables that account for seasonality. The reductions in robberies was persistent when controlling for the change associated with the post-COVID (Model 2) period (b = -.347, p < .05), as well as the post-Floyd (Model 3) period (b = -.363, p < .05). However, once we controlled for the potential of an overall linear decrease in robberies (seen in Model 4), and post-COVID, the results show that the post-CC estimate was no longer statistically significant. These total set of analyses indicate that with more fully specified time series models, there was no direct evidence of a change in robberies that corresponded with the statewide constitutional carry legislation in Tulsa beginning in February 2019.

Table 27: Interrupted Time Series Analyses for Tulsa Robbery Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	4.50*	.037	4.50*	.063	4.50*	.064	4.71*	.052
Post-CC	**-.494***	**.037**	**-.347***	**.041**	**-.363***	**.038**	**-.093**	**.053**
Post-COVID	--	--	-.212*	.052	--	--	-.121*	.051
Post-Floyd	--	--	--	--	-.210	.052	--	--
Linear-Trend	--	--	--	--	--	--	-.004	.000
Month	a		a		a		a	
LogPseudo Likelihood	-747.4		-734.9		-734.2		-657.5	
Pseudo R^2	.302		.314		.314		.386	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*p < .05 (with Holm correction)

Table 28 below shows the results for the series analyses of rape crime event counts. The results for Model 1 suggested that rape counts did not experience any statistically significant

change in the post-CC period. This same non-association was observed when controlling for

shifts in the for post-COVID (Model 2) period, and post-Floyd (Model 3) period. Finally, the

results also showed that when controlling for a linear trend in the outcomes, the post-CC estimate

still was statistically insignificant. Thus, across all the models, there was never any direct

evidence of a change in rapes that corresponded with the statewide constitutional carry

legislation in Tulsa.

Table 28: Interrupted Time Series Analyses for Tulsa Rape Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	3.60*	.042	3.60*	.041	3.60*	.042	3.20*	.054
Post-CC	**-.058**	**.038**	**.000**	**.032**	**-.027**	**.034**	**-.021**	**.056**
Post-COVID	--	--	-.084	.051	--	--	.056	.068
Post-Floyd	--	--	--	--	-.049	.056	--	--
Linear-Trend	--	--	--	--	--	--	.010*	.001
Quadratic-Trend	--	--	--	--	--	--	-.000*	.000
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-520.6		-519.6		-520.2		-495.9	
Pseudo R^2	.059		.061		.059		.104	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Finally, we examined whether there was a general trend in property crimes that

potentially corresponded with the constitutional carry legislation change. Model 1 in Table 29

shows that without controlling for other time-varying factors other than seasonality, there was a

statistically significant decrease in property crimes in Tulsa in the post-CC period (b =-.059, p

<.05). However, this relationship was almost universally a result of the property crime reduction

seen in the post-COVID period, as indicated by Models 2-4. Model 2 shows the once significant

association between post-CC and property crimes became insignificant once the significant

association between COVID and property crimes was accounted for (b = -.084, p <.05). A

similar (though smaller effect) was seen in the post-Floyd period displayed in Model 3.

Importantly, the post-CC estimate was also no longer significant in this model. Finally, when

controlling for a linear trend and the post-COVID period, there was no significant association in

the post-CC estimate with property crimes. In sum, there was no change in property crimes post-

March 2019 beyond the reduction seen due to the COVID-19 pandemic.

Table 29: Interrupted Time Series Analyses for Tulsa Part I Property Offense Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	*b*	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	7.51*	.020	7.51*	.020	7.51*	.020	7.50*	.021
Post-CC	**-.059***	**.015**	**-.000**	**.014**	**-.025**	**.018**	**-.012**	**.020**
Post-COVID	--	--	-.084*	.020	--	--	-.088*	.021
Post-Floyd	--	--	--	--	-.054*	.024	--	--
Linear-Trend	--	--	--	--	--	--	.000*	.000
Month	a		a		a		a	
LogPseudo Likelihood	-1624.8		-1563.4		-1597.9		-1560.1	
Pseudo R^2	.360		.384		.370		.385	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

In Tulsa, across every Part I outcome, there was no change in any violent (homicide,

rape, robbery, aggravated assault, or firearm-related aggravated assault) or property crime

(larcenies, burglaries, and motor vehicle thefts) that corresponded with the change in

constitutional carry legislation. Robberies and property crimes declined post-COVID, and the

effect was significant and consistent. Likewise, aggravated assaults increased post-COVID and

post-Floyd. There was no direct association, however, that constitutional carry legislation had a

direct impact on violence or property crime in Tulsa.

Secondary Outcomes: Firearm-Specific Arrest Charges

While criminal offenses and criminal violence were the primary focus of the study, there are other police-data that can demonstrate changes in social behavior via arrest charges. Specifically, the types of events that officers are encountering where an illegal activity occurred where a charge was levied against a suspect for that behavior. For this phase in the analyses, we focused primarily on arrest charges for specific firearm related components to the charges in order to assess whether police came into contact with individuals engaging in different behavior in the post-CC period relative to the pre-CC period.

The secondary outcomes we included in our analyses in Tulsa were:

- Total Arrests (to assess whether arrest incident counts changed over time)

- Any Firearm Possession Arrest Charge Counts

- Any Firearm Possession by a Convicted Felon Arrest Charge Counts

- Illegal Discharge of a Firearm Arrest Charge Counts

- Pointing of a Firearm Arrest Charge Counts

Table 30 below shows that total arrests incidents (i.e., the count of arrestees regardless of charges against the individual arrested) in Model 1 had a statistically significant decline ($b = -.091$, $p < .05$). However, once we controlled for the impact of COVID-19, the post-CC estimate was no longer statistically significant (and the reduction in total arrests was most likely associated with a reduced count of arrests in the post-April 2020 period ($b = -.063$, $p < .05$). The post-Floyd estimate did not have any impact on the reduction in arrest; importantly, only controlling for post-Floyd it appears the post-CC estimate once again becomes statistically significant ($b = -.105$, $p < .05$). Finally, the findings seen in Model 4 show the reduction in arrest incidents was clearly a naturally occurring linear change, particularly when simultaneously

accounting for the post-COVID impact on arrests. In short, net of other time-varying factors there was no relationship with the timing of constitutional carry on arrest counts.

Table 30: Interrupted Time Series Analyses for Tulsa Total Arrest Incident Counts (1/2010-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	7.51*	.036	7.50*	.035	7.51*	.036	7.58*	.044
Post-CC	**-.091***	**.023**	**-.047**	**.025**	**-.105***	**.039**	**.042**	**.030**
Post-COVID	--	--	-.063*	.034	--	--	-.031	.037
Post-Floyd	--	--	--	--	.022	.044	--	--
Linear-Trend	--	--	--	--	--	--	.001*	.000
Month	a		a		a		a	
LogPseudo Likelihood	-2916.0		-2883.7		-2911.6		-2683.7	
Pseudo R^2	.152		.162		.153		.220	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Table 31 below provides the results for the series of interrupted time series models of illegal possession of a firearm. The results for Model 1 suggested that illegal firearm possession arrest charges experienced a statistically significant increase in the post-CC period ($b = .739, p < .05$), which is roughly a 109% increase in counts over this period [Exp(.739) – 1] when no other relevant time-varying factors, except for the monthly dummy variables that account for seasonality, were included in the models. Controlling for the change in illegal firearm possession in the post-COVID period (Model 2) showed that the significant increase in this time frame was retained controlling for the significant post-COVID (April 2020 period) increase. However, net of the impact of COVID-19, there was still a 42.7% increase in illegal firearm possession attributable to the post-CC estimate [Exp(.356) – 1]. Model 3 shows there a statistically significant post-Floyd increase in firearm possession arrests ($b = .597, p < .05$), while the post-CC also retained its level of statistical significance ($b = .317, p < .05$). However, Model 4 shows

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that the once significant estimated impact of constitutional carry on firearm possession charge diminished to the level of non-statistical significance once we account for the impact of a linear trend and post-Floyd increase in the data. Thus, there is not enough evidence to attribute the increase of firearm possession charge counts to the constitutional carry legislation in the state. There was evidence of a post-COVID and post-Floyd increase in firearm possession arrests.

Table 31: Interrupted Time Series Analyses for Tulsa Any Possession of a Firearm Arrest Charge Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	2.62*	.127	2.63*	.113	2.62*	.114	2.26*	.123
Post-CC	**.739***	**.078**	**.356***	**.070**	**.317***	**.094**	**-.056**	**.126**
Post-COVID	--	--	.506*	.090	--	--	--	--
Post-Floyd	--	--	--	--	.597*	.106	.455*	.111
Linear-Trend	--	--	--	--	--	--		
Month	a		a		a		a	
LogPseudo Likelihood	-635.2		-605.8		-589.7		-560.7	
Pseudo R^2	.237		.273		.292		.327	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

We next extended this analysis to include illegal possession of a firearm arrests for individuals who had previously been convicted of a felony (i.e., felons in possession arrest charges). A pattern similar to overall possession arrest charge counts emerged in the post-CC periods for felon in possession of a firearm. Specifically, Model 1 in Table 32 showed a 140% statistically significant increase in felon in possession of a firearm counts in the post-CC period. However, the scale of this magnitude of change was clearly associated with the statistically significant post-COVID estimate ($b = .424$, $p < .05$) and post-Floyd estimate ($b = .552$, $p < .05$) in Models 2-3. In these models, the post-CC retained its level of statistical significance. Once the estimate of a general linear change in felons in possession of a firearm was accounted for, and

net of the post-Floyd statistically significant increase ($b = .461$, $p < 05$), the impact of the post-CC estimate was no longer statistically significant. Thus, there is no evidence that felon in possession of a firearm charge counts significantly increased with the timing of constitutional carry in Oklahoma in Tulsa.

Table 32: Interrupted Time Series Analyses for Tulsa Felon in Possession of a Firearm Arrest Charge Counts (1/2010-12/2022)

Parameter	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
	b	SE	b	SE	b	SE	b	SE
Intercept	1.19*	.159	1.20*	.148	1.19*	.144	0.96*	.210
Post-CC	**.879***	**.106**	**.562***	**.135**	**.494***	**.143**	**.251**	**.215**
Post-COVID	--	--	.424*	.142	--	--	--	--
Post-Floyd	--	--	--	--	.552*	.147	.461*	.155
Linear-Trend	--	--	--	--	--	--	.003	.002
Month	a		a		a		a	
LogPseudo Likelihood	-372.2		-366.8		-362.1		-359.4	
Pseudo R^2	.165		.177		.187		.194	
Best-Fitting Model	--		--		--		***	

a Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

We were also interested in assessing whether illegal discharges of firearm charge counts changed in the post-CC period; the results are displayed in Table 33. Model 1 shows that when no time-varying covariates were controlled for, there was a statistically significant increase of roughly 70% in illegal discharges of firearm arrest counts after constitutional carry legislation was enacted ($b = .533$, $p < .05$). However, the results from Models 2-4 show that the significant increase in illegal discharges of a firearm were clearly correlated with the post-COVID period. Specifically, Model 2 shows that once the significant post-COVID estimate ($b = .477$, $p <. 05$) is controlled for, there was no significant association between the post-CC estimate and illegal discharge of firearm counts. Interestingly, the post-Floyd estimated change was not significant in Model 3, nor was the post-CC estimate. This suggests the trend/shift in the series did not

correspond with either of these specific dates of interest. Model 4 shows there was also no linear increase in illegal discharges of a firearm (nor was the post-CC estimate significant). Indeed, the only estimated change in illegal discharges of a firearm seemingly corresponded with the post-COVID period alone. Thus, there was no evidence of a constitutional carry legislation change on illegal discharge of firearm counts.

Table 33: Interrupted Time Series Analyses for Tulsa Illegal Discharge of a Firearm Arrest Charge Counts (1/2010-12/2022)

	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	0.840*	.198	0.845*	.197	0.83*	.197	0.92*	.230
Post-CC	**.533***	**.107**	**.171**	**.194**	**.349**	**.189**	**.259**	**.232**
Post-COVID	--	--	.477*	.205	--	--	.510*	.211
Post-Floyd	--	--	--	--	.272	.201	--	--
Linear-Trend	--	--	--	--	--	--	-.000	.002
Month	a		a		a		a	
LogPseudo Likelihood	-308.9		-305.0		-307.4		-304.7	
Pseudo R^2	.081		.092		.085		.093	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Finally, we examined the change in the number of pointing of firearm charges that emerged in the post-February 2019 period, which is in Table 34. Model 1 shows that net of time-varying seasonal variables only, there was a statistically significant increase in pointing of firearm charges by roughly 107% (Exp(.728) – 1). Model 2 indicates that over half of this estimated effect occurred in the post-COVID period ($b = .439$, $p < .05$), though net of the post-COVID effect the estimated post-CC effect was still a significant increase by roughly 49.1% (Exp(.400) – 1). Model 3 shows that accounting for seasonality and the significant post-Floyd estimate, there remained a significant association between post-CC and pointing of firearms ($b = .478$, $p < .05$). Finally, net of seasonality and the post-COVID period, the post-CC estimate

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retained its level of statistical significance, indicating that pointing of a firearm increased by

roughly 35.5% (Exp(.304) – 1). Thus, net of all other factors, there was a statistically significant

increase in pointing of firearms in Tulsa after constitutional carry was enacted, and this

relationship was robust to multiple influences of time-series trends. We conclude that the

statistically significant increase in pointing of firearms was associated with the timing of the

change in the statewide conceal carry legislation.

Table 34: Interrupted Time Series Analyses for Tulsa Pointing of Firearm Arrest Charge Counts (1/2010-12/2022)

|	Model 1 Post-CC Only		Model 2 Post CC + COVID		Model 3 Post CC + Floyd		Model 4 Inclusion of Trend	
Parameter	b	SE	b	SE	b	SE	b	SE
Intercept	1.63*	.186	1.63*	.177	1.63*	.177	1.55*	.202
Post-CC	**.728***	**.084**	**.400***	**.099**	**.478***	**.103**	**.304***	**.127**
Post-COVID	--	--	.439*	.114	--	--	.403*	.120
Post-Floyd	--	--	--	--	.367*	.120	--	--
Linear-Trend	--	--	--	--	--	--	.001	.001
Month	[a]		[a]		[a]		[a]	
LogPseudo Likelihood	-367.7		-360.4		-361.8		-359.8	
Pseudo R^2	.158		.174		.171		.176	
Best-Fitting Model	--		--		--		***	

[a] Included in Models; January is Reference Month (Results Available Upon Request; for parsimony estimates not included in table)
*$p < .05$ (with Holm correction)

Figure 11 below shows graphical display of the shift in pointing of firearm arrest charge

counts that corresponded after the implementation of the constitutional carry legislation in

Oklahoma. Specifically, the monthly number of pointing of firearm arrests increased from 4.3

per month in January 2010 through January 2019 to 9.0 per month between February 2019 and

December 2022. The largest rise in the increase in pointing of firearm arrests seemingly took

place during the post-COVID period (beginning in May 2020) and stayed roughly stable

thereafter. In short, there was a modest shift (i.e., the 35.5% from the time-series analyses) and

then the largest post-May 2020 shift combined which increased the average in the series. Again,

these series of increases indicate a likely combination of constitutional carry and the post-COVID shifts in the series seen below.

Figure 11: Pointing of Firearm Arrests Charge Counts in Tulsa, OK (January 2010 – December 2022)
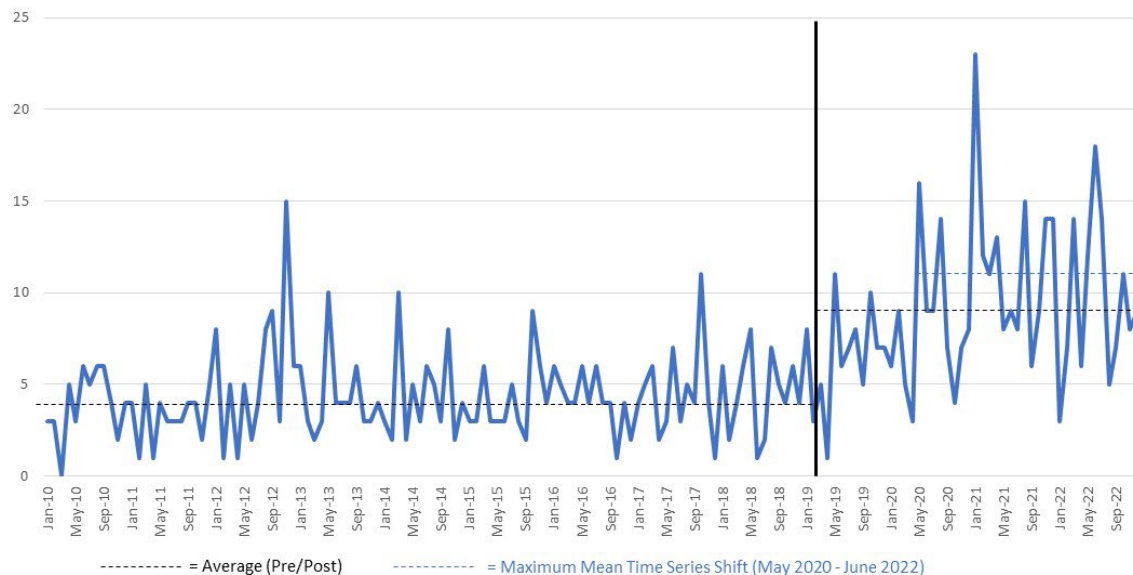
Summary of Tulsa Time Series Analyses on Primary and Secondary Outcomes

The interrupted time series analyses of criminal offenses with particular respect to serious violent crime showed there was no evidence of a change in violent crime (robberies, aggravated assaults, aggravated assaults with a firearm, or homicides) or with property crime (pooled Part I property offenses) that corresponded with the statewide constitutional carry legislation in Tulsa, OK. The lack of any significant association on these serious crime outcomes suggests that constitutional carry legislation had no real impact on violent crime, aggressive firearms violence, or property crime in the City of Tulsa.

Moving onto secondary outcomes, we did not see any significant shift in total arrest incidents (suggesting stability across all arrests over time), nor in many firearm specific charge arrests. Specifically, we found that firearm charge arrests for illegal possession (in total and for

felons in possession) as well as illegal discharges of a firearm did not change in any meaningful fashion in Tulsa as a result in the change in constitutional carry legislation.

We did, however, observe a statistically significant increase in pointing of firearm arrest charge counts that corresponded directly with the change in constitutional carry legislation (with a specific and unique percentage estimate of roughly 35.5% higher, net of other time-varying factors). This change was rapidly increased further in the post-COVID period as well. Thus, there is evidence that pointing of firearm arrest charge counts corresponded with the legislative change in the state of Oklahoma.

SUMMARY OF TIME SERIES ANALYSES ACROSS STUDY SETTINGS

There are two recurring themes in the time series analyses. First, there is no evidence that constitutional carry legislation corresponded with any meaningful change for any serious offense outcome (particularly Part I violent and property offenses) across any of the urban study settings in this study. In Table 35 below, we show that homicides, aggravated assaults, robberies, rapes, and pooled property offenses all remained stable (unchanged) across pre- and post-legislative changes in Kentucky and Oklahoma urban settings.

Table 35: Summary of Serious Violent Crime Outcomes via Full Interrupted Time Series Models

	Lexington	Oklahoma City	Tulsa
Homicide	No Change	No Change	No Change
Aggravated Assault	No Change	--	No Change
Aggravated Assault with a Firearm	--	--	No Change
Robbery	No Change	No Change	No Change
Rape/Sexual Assault	Mixed Finding	No Change	No Change
Part I Property Offenses	No Change	--	No Change

No Change = No Significant Change
-- = Not Examined (Data/Measures were not available or there were changes to measurement)
Mixed Finding = Inconsistent Pattern

Table 36 displays the results of the series of secondary outcomes that we examined across each of the study settings. As noted previously, the specific secondary outcome counts varied across each setting due to the fact that each agency collected similar information in slightly divergent ways (i.e., charge-specific arrests via their agency arrest report formats). Thus, unlike UCR comparisons across sites, we examined the arrests with charges that were specific to firearm incidents based upon the data/reports available at the agency level. For example, the only setting that allowed for a rigorous examination of minors in possession of a firearm occurred in Lexington (where the results showed a statistically significant increase in minors in possession arrest counts after constitutional carry legislation was passed and that could not be explained with other variables in the models).

Similarly, only Lexington PD collected information on stolen and recovered firearms for a period prior to constitutional carry legislation (which allowed for a pre/post analysis). Oklahoma City PD is in the process of collecting the same information at the time of this report, but we cannot conduct a pre/post analysis due to the fact that its collection process occurred after 2019. The fact that the agency began collecting information on this outcome is likely due to its growth (and subsequent growing concern) in the city.

At a minimum, the fact that some of the sites had increases in who was charged with firearm carrying during arrests (e.g., minors in possession Lexington), as well as the emergent rise in stolen and recovered firearms (also in Lexington) indicates that firearm risk of illegal transport or recovery corresponded with the change in legislation.

Likewise, one (Oklahoma City) of the two sites (also Tulsa) that culled information on illegal discharges of a firearm showed that the counts of illegal discharges increased after the change in legislation. However, that pattern was not observed in Tulsa (though an increase did

occur, but not to the point that we could rule out extraneous time-varying factors in Tulsa). Also, pointing of a firearm charges were significantly higher in both Oklahoma City and Tulsa, though disputes with a firearm did not experience the same increase in Lexington.

In sum, there were consistent patterns across firearm arrest counts in that total firearm arrests, predatory or violent firearm arrests, and felons in possessions did not shift in any of the settings. However, there were some heightened risk/aggression charges with firearms that did shift in some of the settings, such as pointing of firearm arrest counts, and illegal discharge of firearm arrest counts. And, in the one setting we could assess stolen and recovered firearms, we saw a significant increase in Lexington.

Table 36: Summary of Secondary Outcomes via Full Interrupted Time Series Models

Possession Charges	Lexington	Oklahoma City	Tulsa
All Possession/Firearm Charges	No Change	No Change	No Change
Felons in Possession	No Change	No Change	No Change
Minors in Possession	++++	--	--
Violent Firearm Charges			
Shooting with Intent to Kill	--	No Change	--
Threatening Firearm Charges			
Pointing of a Firearm	--	++++	++++
Illegal Discharge of a Firearm	--	++++	No Change
Stolen and Recovered Firearms	++++	--	--

-- = Not Examined (Data/Measures were not available or there were changes to measurement)
Mixed Finding = Inconsistent Pattern
++++ = Statistically significant positive increase attributed directly to constitutional carry change in legislation
No Change = No Significant Change

IV: CONCLUSIONS AND STUDY IMPLICATIONS

Activities and Accomplishments

This study accomplished its primary goal of empirically examining whether (and to what extent) behavioral changes in firearm related criminal activity corresponded with the change in constitutional carry legislation in urban settings.

Limitations

Before summarizing the main findings of the current investigation, this study's limitations are noted. First, the response rate was less than 20% of all officers who were eligible to be sampled. Thus, it is possible that only officers who felt strongly about constitutional carry legislation (one way or the other) were more likely to respond. We are missing a true representative sample of officers. The purpose of the addition of focus groups to the study methodology was to provide greater context around study findings, but contextual factors are likely to hinge on the locations, encounters, and situational dynamics that patrol officers face in relation to their perception of the legislative impact on citizen behavior. Second, only three agencies represent urban policing in KY and OK, which may limit the generalizability of study findings in regards to rural, suburban, and small cities in these states. Future research expanding into these often-unchartered geographies would amplify the current study findings. Finally, while stolen and recovered firearms seemingly increased after this legislative change, the absence of data collection on this measure pre-constitutional carry legislation hinders our inferences to its potential change.

Main Study Findings

Despite the current research design's limitations, there are three primary takeaways from this study. First, police officers from these densely populated and largely Southern/Midwestern urban settings were largely supportive of citizens carrying firearms and with somewhat relaxed gun legislation. Indeed, many of the urban law enforcement officers surveyed did not feel at a sense of heightened risk after constitutional carry was passed in Kentucky and Oklahoma. However, law enforcement officers who ranged from indifferent-to-supportive for an increase in armed citizens also were more likely to believe that training/certification requirements are necessary for armed civilians. Additionally, a majority of officers did not anticipate or report

experiential changes in their day to day risks and activities with the change in constitutional carry legislation, despite the fact that a majority of officers believe they have encountered an increased number of armed citizens in their professional encounters. Thus, at a minimum, any changes that were likely to occur in officer contacts with citizens (i.e., arrests and offense charges) were highly unlikely due to officers' having a primed or acutely sensitive viewpoint to alter their actions in such encounters.

Second, similar to an emergent number of studies (see Hammill et al., 2019; Knopov et al., 2019; Siegel et al., 2019; Smith & Petrocelli, 2019) we did not find any evidence that constitutional carry legislation in any way corresponded with any change in *serious violent crime*. None of the Part I serious offense outcomes changed in any meaningful way that corresponded directly to the enactment of the legislation in Lexington, Oklahoma City, or Tulsa.

Third, while serious violence did not change, this is one of the first studies to examine whether reckless firearm activity changed as a result of the change in handgun carrying legislation. We did in fact find evidence of a direct significant increase in pointing of firearm arrests as well as illegal discharge of firearm events. This study is one of the first empirical examinations to demonstrate that relaxing certification and background checks for handgun carrying has the potential to correspond with an increase in reckless endangerment related to firearm activities. It would be worthwhile for future studies to examine a potential association between a change in constitutional carry legislation with accidental shootings, brandishing of firearms, and threats or intimidation with a gun across divergent urban contexts.

We also observed in one setting (Lexington) a change (increase) in minors in possession which increased at the time of constitutional carry, net of any other time-varying factors we accounted for in the analyses. Along the continuum of gun legislation, there is in fact evidence

from Rowhani-Rahbar et al. (2017, 2022) that among states that move from "may issue" to "shall issue" (moving from discretionary permitting to a presumptive right to carry) there is evidence of increases in gun carrying among adults. It would be worthwhile to assess whether juveniles in these settings likewise believe such relaxations in law apply to them as well (when in fact they clearly do not).

Finally, Lexington also provided evidence of an increase in stolen and recovered firearms, which is consistent with prior research by Donohue et al. (2023) who likewise found an increase in firearm thefts and a reduction in police effectiveness with an increase in right to carry legislation. This was the only setting where we could assess this distributional change; the other study settings have begun data collection on stolen firearms, but all in the post-constitutional carry time period.

Implications

In the event the findings in these settings are replicated in divergent settings, it could be critical to examine the impact of local urban ordinances and their attempted impact to reduce the risk of stolen and recovered firearms. For example, the City of Cincinnati passed an ordinance in 2023 known as "safe storage" (i.e., that a firearm must be secured in a safe, case, or lockbox). It would be telling whether such urban ordinances have an impact on stolen and recovered firearms in motor vehicles.

Qualitative focus group interviews with patrol officers in the study settings where pointing of firearm charges increased highlighted this point. As one patrol officer in Oklahoma City said in Spring 2023:

> "I have had recent encounters during traffic stops where people have their handgun in their cupholder. And one driver said to me, "do you want me to hand you this (gun)" to which I replied, don't touch it. I was not worried about the person intentionally drawing it on me, I was worried they would

recklessly shoot me. I have had several encounters like that in the past couple of years (since the change in legislation). People who lack common sense and have a gun on them are just a disaster waiting to happen."

In sum, there is little reason to believe law enforcement officials in urban areas are significantly impacted by constitutional carry legislation in their day-to-day activities. Additionally, the body of evidence in this study and others indicates that a relaxation in handgun carrying requirements does not seem to correspond with a change in serious violent crime. However, this study is one of the first to provide evidence that reckless firearm endangerment may in fact increase with such legislation. We encourage future research studies to explore this potential in greater detail to assess its validity across various contexts.

Artifacts

The current final report is the primary deliverable. A series of PowerPoints were presented to the participating police agencies to provide feedback to participating partners (highlighting the findings included in this study). From this final report, a publication is in progress to be submitted to the Police Chief Magazine. Additionally, the authors of this report are in the process of submitting a peer-reviewed article outlining study findings. Additionally, two primary research artifacts were the result of the study. First, a database of officer responses to the survey items was created. Second, an arrest/offense database that has the monthly counts (used in the time series analyses) was generated. These data sets are submitted to the National Archives of Criminal Justice Data (NACJD).

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APPENDIX B: TABLES OF FULL SURVEY RESULTS

Views on Constitutional Carry in Your City		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1. Firearm violence is a major problem in our city.	Freq.	16	31	53	246	180	526
	Percent	3.0	5.9	10.1	46.8	34.2	100
2. Police officers in my agency have been adequately trained for dealing with armed citizens.	Freq.	8	40	87	262	129	526
	Percent	1.5	7.6	16.5	49.8	24.5	100
3. I find myself at greater risk in police-citizen encounters due to Constitutional Carry legislation.	Freq.	109	204	97	85	31	526
	Percent	20.7	38.8	18.4	16.2	5.9	100
4. Gun violence in my city has gotten worse as a result of the Constitutional Carry legislation.	Freq.	143	192	133	41	17	526
	Percent	27.2	36.5	25.3	7.8	3.2	100

Views on Citizens & Firearm Legislation		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1. Citizens should be required to complete a safety training class before being allowed to buy a handgun.	Freq.	108	110	75	115	124	532
	Percent	20.3	20.7	14.1	21.6	23.3	100
2. Citizens should be required to complete a safety training class before being allowed to carry a gun on their person publicly.	Freq.	49	41	57	154	231	532
	Percent	9.2	7.7	10.7	29.0	43.4	100
3. In prior mass shooting events more armed citizens would have reduced the overall death toll.	Freq.	11	47	102	220	152	532
	Percent	2.1	8.8	19.2	41.4	28.6	100
4. I feel comfortable knowing that citizens I interact with may have a concealed firearm.	Freq.	39	93	162	172	67	533
	Percent	7.3	17.5	30.4	32.3	12.6	100
5. It is best to assume that every citizen I encounter is carrying a concealed firearm.	Freq.	6	38	51	195	242	532
	Percent	1.1	7.1	9.6	36.7	45.5	100
6. Citizens should be allowed to carry a handgun on their person without any additional requirements (training, background check, license, etc.).	Freq.	213	145	66	44	64	532
	Percent	40.0	27.3	12.4	8.3	12.0	100
7. Citizens brandishing weapons (to either police or other citizens) has gotten worse as a result of the Constitutional Carry Legislation.	Freq.	104	175	140	83	31	533
	Percent	19.5	32.8	26.3	15.6	5.8	100
8. Armed law-abiding citizens make police officers safer while on duty.	Freq.	15	73	202	143	100	533
	Percent	2.8	13.7	37.9	26.8	18.8	100
9. Armed law-abiding citizens make the public safer.	Freq.	6	36	101	204	185	532
	Percent	1.1	6.8	19.0	38.4	34.8	100

General Views on Constitutional Carry		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1. The fact that citizens may have a concealed firearm is distracting and impedes a police officer's ability to perform their duties.	Freq.	106	258	89	55	13	521
	Percent	20.4	49.5	17.1	10.6	2.5	100
2. There should be a federal law allowing only sworn officers to carry firearms on their person.	Freq.	311	150	34	12	14	521
	Percent	59.7	28.8	6.5	2.3	2.7	100
3. Only sworn enforcement (e.g., school resource officers) should be armed in schools.	Freq.	81	221	105	73	41	521
	Percent	15.6	42.4	20.2	14.0	7.9	100
4. Arming teachers/administrators in public schools will have negative consequences.	Freq.	106	233	98	59	25	521
	Percent	20.4	44.7	18.8	11.3	4.8	100
5. Increasing punishments for gun trafficking would reduce gun crime.	Freq.	34	87	78	165	157	521
	Percent	6.5	16.7	15.0	31.7	30.1	100
6. Constitutional Carry Legislation is likely to cause a decrease in violent crime.	Freq.	42	149	173	110	46	520
	Percent	8.1	28.7	33.3	21.2	8.9	100
7. Constitutional Carry Legislation makes the daily duties of a police officer more difficult.	Freq.	109	211	84	93	24	521
	Percent	20.9	40.5	16.1	17.9	4.6	100
8. Law-abiding armed citizens help law enforcement reduce violent crime.	Freq.	23	100	140	170	87	520
	Percent	4.4	19.2	26.9	32.7	16.7	100
9. Constitutional Carry Legislation is not likely to influence violent crime.	Freq.	36	134	141	153	56	520
	Percent	6.9	25.8	27.1	29.4	10.8	100
10. Overall, Constitutional Carry Legislation makes it harder for police officers to do their jobs.	Freq.	131	204	94	74	18	521
	Percent	25.1	39.2	18.0	14.2	3.5	100

Frequency of Activities Related to Constitutional Carry Since the passage of Constitutional Carry, how frequently do you...		Very Infrequently	Infrequently	Neither Infrequently nor frequently	Frequently	Very Frequently	Total
1. Talk to peer officers/supervisors about the impacts of constitutional carry among peers	Freq.	143	123	180	59	5	510
	Percent	28.0	24.1	35.3	11.6	1.0	100
2. Hear law enforcement colleagues speak about the impact of constitutional carry on your agency.	Freq.	142	146	169	46	6	509
	Percent	27.9	28.7	33.2	9.0	1.2	100
3. Notice changes in how you interact with citizens.	Freq.	108	115	210	65	12	510
	Percent	21.2	22.6	41.2	12.8	2.4	100
4. Notice changes in how other officers interact with citizens.	Freq.	96	130	209	66	7	508
	Percent	18.9	25.6	41.1	13.0	1.4	100
5. Feel confident in your ability to tell armed law-abiding citizens apart from armed criminals.	Freq.	40	51	222	154	43	510
	Percent	7.8	10.0	43.5	30.2	8.4	100
6. Encounter citizens who are carrying firearms legally.	Freq.	18	84	188	189	31	510
	Percent	3.5	16.5	36.9	37.1	6.1	100
7. Encounter citizens who are carrying firearms illegally.	Freq.	26	75	209	161	38	509
	Percent	5.1	14.7	41.1	31.6	7.5	100