Firearms and Violence Under Jim Crow*

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Abstract

We assess firearm access in the U.S. South by measuring the fraction of suicides committed with firearms. Black residents of the Jim Crow South were disarmed, before re-arming themselves during the Civil-Rights Era. We find that lynchings decrease with greater Black firearm access. During the Civil-Rights Movement, both the relative Black homicide and Black "accidental death by firearm" rates decrease with Black firearm access, indicating frequent misclassification of homicides as accidents. In the contemporary era, greater firearm access correlates with higher Black death rates. We find that firearms offered an effective means of Black self-defense in the Jim Crow South.

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> "I had already determined to sell my life as dearly as possible if attacked. I felt if I could take one lyncher with me, this would even up the score a little bit." - Ida B. Wells-Barnett, Black anti-lynching activist, 1918 [1]

1 Introduction

The impact of firearm access on violence has proven challenging to adjudicate. There are difficulties in both measuring access and inferring the direction of causal relationships with violence (Duggan, 2001; Kleck, 2004, 2015; Manski and Pepper, 2018). Most studies focus on contemporary data, framing debates over firearm rights and policies under strong institutions. The impact of firearms on individual and public safety, however, depends on the institutional and historical context, particularly when considering arguments that individual rights to firearm ownership can serve as a bulwark against a tyrannical government. At the same time, the historic and continuing consequences of unchecked racial violence are difficult to overstate (Beck and Tolnay, 1992; Cook, 2014; Cook et al., 2018a; Jones et al., 2017; King et al., 2009; Messner et al., 2005; Williams, 2019), and the relationship between violence and firearm ownership might be very different in a regime where the formal institutions of law are not available to a substantial share of the population. Such a context is, perhaps, one in which the argument for firearms as a bulwark is most attractive but has been least subject to empirical investigation. Towards this end, we consider the historical context of Black Americans who lived under the tyranny of the Jim Crow South.

In this paper, we investigate the relationship between firearm access and violence in the Jim Crow South, where Black citizens were subjects of state and local governments that were rarely more than indifferent to their safety and, at their worst, actively supportive of terrorist violence targeting Black communities (Adler, 2019; Johnson, 2014; Wright, 1996). The balance of benefit and cost to owning a firearm stands to be far different for groups who lack political power, face the prospect of violent mobs, and for whom calling the police may very well only bring greater threat. Whether firearms served to aid Black residents in defending themselves in the Jim Crow South is a important question, both in its narrow application to African-American history and its broader relevance to contemporary firearms policies.

The costs and benefits of private firearm ownership have been assessed within myriad research contexts, including their relationship to criminal deterrence (Duggan, 2001; Kleck, 2015; Lang, 2016; Manski and Pepper, 2018), self-defense (Cheng and Hoekstra, 2012; Kovandzic et al., 2013; McClellan and Tekin, 2017), homicide rates and suicide rates (Edwards

[1] "Crusade for Justice: The Autobiography of Ida B. Wells", 1970

et al., 2018; Riddell et al., 2018; Siegel et al., 2013), and broadly defined social costs (Cook and Ludwig, 2006). Self-defense effects may be difficult to ascertain because of broad omitted variable bias concerns, but it is also possible that the relatively safe conditions of the modern developed world render self-defense effects too small to precisely identify. Physical safety was in far greater question in the recent past, however, in particular for Black southerners and other minority groups (Adler, 2008). It stands to reason that self-defense effects may be larger for Black residents of the Jim Crow South than in the present day.

Historical measures of firearm ownership or access have proven difficult to obtain (Brennan et al. 1993), especially in periods when groups might have their ownership restricted by either law, practice, or broader social norms. Surveys, for instance, are unreliable if firearm ownership is restricted, particularly for members of groups where firearms restrictions are being strongly or unevenly applied. We need a proxy measure of ownership where disclosure of ownership is not endogenous to political power or social standing. The fraction of suicides that were committed with a firearm might serve as such a proxy. The percentage of suicides committed with a firearm, compared to a variety of other broadly available proxies, has been repeatedly found to be the best cross-sectional measure of firearm ownership rates (Cerqueira et al., 2019; Cook, 1991; Cook and Ludwig, 2006, 2019). Recent research has continuing to apply and validate this measure as applied to a variety of data and contexts since the 1970s (Azrael et al., 2004; Cook, 1983; Briggs and Tabarrok, 2014; Hemenway and Miller, 2000; Miller et al., 2002; Nagin, 2020), including in panel settings (Cerqueira et al., 2019).[2]

The fraction of suicides employing a firearm is a particularly attractive proxy for firearm access in our setting. It is available, by race and geography, from the early twentieth century.[3] Our data allow to us to examine the correlation between White and Black firearm access and violent deaths between 1913 and 1999. No other proxy of firearm access is available for nearly that long of a panel. It is a grim fact that those who kill themselves have, in large part, placed themselves beyond the threat of further consequences meted out by the government, removing a potential source of bias. The preferences of the families, friends, or communities of those who commit suicide, and the sensitivity of authorities to their preferences, may

[2]Kleck (2004) claims that percentage of suicides committed with a firearm (PSF) is "virtually perfect" as a cross-sectional proxy, but fails as an cross-temporal proxy. This claim, however, is based on the Pearson correlation coefficient between PSFs across years within the GSS, without controlling for the cross-sectional variation across states. Once cross-sectional variation is included in the estimation (in our case, as a within-state estimation), PSF performs far better as a cross-temporal proxy (Cerqueira et al., 2019; Cook and Ludwig, 2006, 2002).

[3]The early to mid 20th century vital statistics records we use in our analysis, up through the Civil Rights Movement, identifies individuals as White or "colored", the latter referring to all non-White individuals. Given our emphasis on the former Confederate states up through the end of the Civil Rights Movement, the overwhelming majority of non-White individuals are African-American former slaves or their descendants, which will uniformly refer to as "Black" throughout this paper.

vary by race. This could bias the fraction of events recorded *as* suicides, but it seems to us unlikely that this would bias the recorded method by which the suicide was accomplished i.e. whether a firearm was employed. Thus, compared to other proxies for firearm access, it seems that differential "reporting" as a function of firearms restrictions presents a relatively modest concern.

Using hand-coded data from 1913 to 1958, combined with data from the National Center for Health Statistics afterwards, we separately calculate the percent of suicides committed with a firearm for White and Black individuals in each state that reports. We first analyze the relationship between firearm access and number of historiographically identified Black lynching deaths (Beck and Tolnay, 2019). We then extend the analysis to separately measured White and Black per capita rates of violent deaths, estimating the effects of firearm ownership before, during, and after the civil rights era, which we bookend with the historic Brown v Board judicial decision in 1954 and the Civil Rights Act of 1968. We also look at the rates of firearm deaths identified as "accidental" in the vital statistics records. The classification of cause of death by southern coroners are known to be dubious during the Civil Rights Movement, particularly when the deceased individual was Black (Balko and Carrington, 2018), so tracking violence in that period must include an investigation of these deaths, as well.

Prior data has not been sufficient to assess whether the Black community better armed itself during the Civil Rights Movement and, if so, whether these tools served to better their defense against criminal violence, mobs, and the institutions of White supremacy that enabled them. We find evidence to support hypotheses, previously anecdotal, of Black rearmament. Using records of lynchings from 1913 to 1949, we find evidence that the number of Black lynchings decreased with greater Black firearm access. Extending the analysis to violent deaths recorded in the vital statistics records from 1913 until 1999 tells a similar story. During the earliest period in our data (1913-1953), and during the height of the Civil Rights Movement (1954 to 1968), we observe that the gap between Black and White homicide death rates decreased with Black firearm access. Furthermore, during the Civil Rights Movement relative "accidental death by firearm" rates also *decreased* with relative Black firearm access, a result which corroborates historical anecdotes of frequent misclassification of Black homicides, including lynchings, as accidents or of causes unknown (Balko and Carrington, 2018). In the post-Civil Rights Movement window (1969-1999), these relationships are no longer observed, replaced instead by homicide rate differences that increase with greater relative firearm access. Given that omitted variable bias concerns are born of the hypothesis that individuals would be likely to seek out firearms in violent climates, biasing coefficients *upwards*, our results support the hypothesis that firearms served as effective deterrent of

lynchings and other violence during the Civil Rights movement.[4]

1.1 Black Disarmament, Lynching, and Self-Defense

In the decades preceding the Civil War, southern states passed a variety of limitations on the rights of both free Black individuals and slaves to own or use firearms (Cottrol and Diamond, 1991; Tahmassebi, 1991). This approach continued after the Civil War, albeit with greater dependence on uneven *de facto* enforcement to produce the intended outcome (Cottrol and Diamond, 1994). Black disarmament was of primary importance to White southerners during Reconstruction and was heavily featured in the "Black codes" (Cottrol and Diamond, 1991; Burkett, 2008; Cramer, 1994).

If the first question is whether Black households were disarmed by Jim Crow, then the natural, and perhaps more important, next question is whether access to firearms mattered. In *United States v. Cruikshank*, 1875, the Court held the federal government had no authority to punish members of the Ku Klux Klan for confiscating the firearms of two Black men, setting a precedent that effectively delegated the defense of constitutional rights to state government, including the rights to peaceably assemble and bear arms. For Black residents of the Jim Crow south, the message was clear: they were on their own.

In their discussion of the role of firearms in African-American history, Cottrol and Diamond (1991) recount numerous descriptions of Black citizen forming *ad hoc* militias and using firearms to (attempt to) deter lynchings, by increasing the costs that would-be lynch mobs could expect to incur. Dr. Ossian Sweet's 1925 armed stand in his Detroit home against a violent White mob and subsequent legal plea of self-defense sparked an outpouring of pride and proved to be a seminal moment in the call to armed self-defense within Black newspapers across the country(Boyle, 2007; Johnson, 2014). In his recounting of his experience as an attorney serving the Civil Rights Movement, Donald B. Kates made note of the broad endorsement of firearm possession within the movement and "attributed the relative quiescence of the Klan to the fact that the Black community was so heavily armed" (Kates, 1979). Cobb (2014), from his point of view as a former field secretary for SNCC in Mississippi, makes a compelling historical case that the acceptance of armed self-defense was an existential necessity for activists throughout the broader movement.

Beyond their role as terrorism, lynchings also betray the fundamental lack of access to protection from the state. Describing the situation facing the Black residents of a post-reconstruction New Orleans, (Adler, 2019, p. 25) asserts that "violence was so endemic during the early 1920s, and legal institutions were so indifferent toward such crime, espe-

[4]In Appendix A.8, we employ an instrumental variables strategy. These additional results support our primary findings, while also supporting our expectation that the underlying omitted variables bias is positive.

cially African American intraracial homicide, that self-help, even violent self-help, became a survival mechanism." Intra-racial violence, however, was not the only threat. Within early 20th century New Orleans, Adler (2008) finds that about a quarter of White killers targeted Black residents, while about 10 percent of Black killers targeted White residents.

Even categorizations of deaths as homicides may not be entirely reliable given the institutions of justice in the Jim Crow south. In their long-form investigation of forensic pathology in Mississippi, Balko and Carrington (2018, p. 56) explicitly note that "...the coroner system wasn't the cause of the hundreds of lynchings that stained America in the late 19th and early 20th centuries... but the system certainly facilitated them."[5] In their examination of Missisippi newspaper crime reports, Balko and Carrington observe consistent indifference to Black deaths; for coroners, it was simply "less hassle and required fewer resources to simply decide that the death was an accident, a suicide, or from natural causes."

2 Data and Sample Statistics

Our data on causes of death come from tables compiled in the *Mortality Statistics Annual Report* (Bureau of the Census, ious). These statistics were gathered from reports submitted by physicians and coroners from an increasing number of "registration states". By 1910, over half the population of the U.S resided in a registration state and the first former Confederate state (NC) began reporting. By 1920, over 80% of the population was in a registration state, including 7 former Confederate states that reported statistics broken down by race. In 1928, all but one confederate state (TX) reported, which joined in 1933. States without substantial Black populations did not report by race in early years, but beginning in 1937 all states (and DC) began fully reporting by race. We code data by hand from the reports on cause of death by race and state from 1910 to 1958. We complete these series from 1959 onward from the Multiple Cause of Death micro-data, released by the National Center for Health Statistics, and compiled by the NBER (2018).

The categorization schema for cause of death changes numerous times, but the six key variables track consistently: deaths by homicide, accident, and suicide, both overall and from firearms.[6] Other than a gap from 1946-1948 for all states and one year (1945) for Arkansas during which firearm-related suicides were not separately reported, these cause-of-death outcomes are consistently reported for all former Confederate states, once the enter

[5] A coroner's jury was unable to determine if Harold Jackson's death, having been dragged from jail and hanged from a bridge, had been accidental or coerced (Butler, 1931). Similarly, the murder of Reverend George Lee with two shotgun blasts that filled his head with buckshot was deemed an "odd accident" (Clarion-Ledger, 1955).

[6] In some early years, firearms deaths are pooled with deaths from explosives.

the panel.

2.1 Estimates of Firearm Ownership and Violent Deaths: 1913-1999

From these vital statistics, we create several key independent and dependent variables. First, we calculate our metric of firearm possession, by race, which is simply the fraction of suicides that are the result of self-inflicted firearm injuries. This statistic has been shown to be a good proxy for household firearm possession across cities (Cook, 1983), states (Miller et al., 2002), countries (Hemenway and Miller, 2000; Killias, 1993), and within states over time (Azrael et al., 2004; Cerqueira et al., 2019).

While the percent of suicide by firearm has proven the most reliable proxy for firearm access in contemporary contexts, it remains untested further into the past. As a validation, Figure 1 presents binned scatter plots and linear estimates of the relationship between our proxy, PSF_{st}, and the per-capita rate of all deaths involving a firearm. These statistics are calculated for the entire population (rather than by race) and they are very highly correlated, regardless of region or time period. In the three periods (Pre-WW2, Civil Rights, and Contemporary) and two regions (Former Confederacy and Non-Confederacy) of our analysis, the relationship of firearm deaths to PSF_{st} is positive and significant ($p < 0.01$) for all combinations. Substantively, the relationship is weaker in former Confederate states, especially in the earlier periods, partially due to small numbers and partially due to the relatively low variance in PSF in this region, where it is consistently quite high.

Panel (a) of Figure 2 displays a time series of PSF_{st} for White and Black suicides. The solid line represents the locally linear population-weighted mean percentage for all former Confederate states, while the dashed lines are the boundaries of 95% confidence intervals around those estimated means. States are included in the mean as they enter the sample of states that report cause of death by race. [7]

The time series presented in Figure 2a and the history presented in Section 1.1 suggest that former Confederate states had some success in disarming Black citizens in the Jim Crow era.[8] Prior to 1920, Black firearm access outpaced White ownership. That ordering was reestablished after WW2, up to the mid 1970s. But from 1920 to 1940, White firearm access increased substantially, with slight a decline in Black firearm access. The increase

[7] Figure A.3 presents the same statistic for all other states. The inclusions of states as they enter the sample of states that report cause of death by race leads to a substantial increase in the White average in 1937 that is mostly compositional, as a number of high PSF states that are overwhelmingly White join the panel. Given their relatively small Black populations, their addition has little impact on the Black means.

[8] For maps of PSF by state and era, see Appendix Section A.7.

in White firearm possession is, perhaps, a product of soldiers returning home from World War I with contraband weapons or increased experience with and interest in firearms. The coinciding decrease in Black firearm possession suggests that Jim Crow era efforts to disarm Black people were effective, but this gap is closed by 1940. It isn't until after the Gun Control Act of 1968, which eliminated most lower cost handguns from market, and the migration of many Black families to urban areas of the 1980s, that we again observe higher rates of White access to firearms, which persist.[9]

We also use the vital statistics records to calculate firearm-related accidental mortality rates and homicide rates by race. To normalize these mortality counts, we estimate White and Black state populations by linearly interpolating White and Black shares from the decennial census and combining those with annual population estimates from the Census Bureau. Figures 2b and 2c present these mortality rates. Each panel includes both smoothed (locally linear) overall averages by race and 95-percent confidence intervals.[10]

These measures tell a story of violence that waxes and wanes, in a pattern that varies by race and era. Accident and homicide rates at the turn of the century are quite low for both racial groups. While these estimates are based on relatively few registration states, the pattern remains true if we pool the races for the additional states that report overall counts but do not sub-divide by race. In the inter-war period, both Black and White homicide rates grew, but the change for Black homicides is much more dramatic, tracking, in reverse, the Black-White firearm access gap. The homicide patterns in the civil rights and contemporary eras also trend together, in general, with pronounced peaks in the early 70s and late 80s for Black Americans. Fatal firearm accident rates mostly trend downward after 1920, with the exception of a spike in the early 1920s and 1970s that coincide with the spikes in homicides, which suggests that there may be some fungibility in the classification of accidents and homicides, at least for Black Americans.

3 Estimating the Impact of Firearms on Violent Deaths

Our raw dependent variables are all counts of different types of deaths by race. Homicide and accidental deaths are sufficiently numerous, with no records of zero deaths observed, that they are best analyzed in logged per capita rate using ordinary least squares (OLS) regression. The records of Black lynching deaths, however, are characterized by significant over-dispersion, with more than half of the state-year observations in the sample credited

[9]The disarmament of southern Black citizens in the 1920s and their subsequent rearming during the 60s do not appear in the non-Confederacy (see Appendix A.2). For comparison, a replication of the primary analysis for non-Confederate states is included in Appendix Table A.7.

[10]Figure A.3 presents these statistics for the non-Confederate states.

with zero recorded Black lynching victims (51.6%). As such, we estimate negative binomial models for lynching counts from 1913 to 1950, using the Beck-Tolnay lynching database (Beck and Tolnay, 2019).[11]

To identify the relationship between firearm ownership and violent outcomes, we estimate models of the form

$$Y_{st} = \alpha + \beta_1 \mathbf{PSF_{st}} + \beta_3 \mathbf{X_{st}} + \gamma_s + \delta_t + \epsilon_{st}, \tag{1}$$

where Y_{st} is the outcome variable of interest in state s during year t, such a lynching counts or homicide rates, or gaps in these rates, $\mathbf{PSF_{st}}$ is some variant of using the percent of suicides using a firearm as a proxy for firearm access, and $\mathbf{X}$ is a vector of control variables. Versions of the proxy tested include separate and parallel inclusion of PSF_{st}^{Black} and PSF_{st}^{White}. With the strong correlation between White and Black firearm possession, we concentrate on model specifications with the Black minus White differential of estimated firearm access ($PSF_{st}^{Black} - PSF_{st}^{White}$) as the primary regressor.

To accommodate the unavailability of data in the three years following World War II, PSF_{st} is carried back from 1949 to account for 1946 to 1948.[12] All OLS regression models report standard errors clustered at the state level. All negative binomial regression models of lynching are scaled by the size of the Black population within the state and year. $\mathbf{X}$ includes measures and proxies for within-state and within-year variation in economic conditions and demographics. To account for both time invariant state characteristics, particularly differing state cultures of racial acrimony, and broad national variation across time, all specifications include state and year fixed effects. Some specifications include lagged terms and state-specific time trends.

Our control variables include the log of the estimated population size and percent of the population that is Black recorded in the Census, linearly interpolated within decades. They also include separate measures of Black and White population density per square mile within states, both overall and within urban areas.[13] Measures and proxies for economic conditions vary across the different eras analyzed. For the years after and including 1963, we include state GDP per capita and separate measures of per capita labor compensation in the agriculture and manufacturing sectors. We include the state unemployment rate beginning

[11] As of July 15, 2020, the lynching database does not include black lynchings from Texas, so we exclude it from our analysis of lynchings.

[12] Using linearly interpolated values between 1945 and 1949 produces similar results, with typically greater levels of estimated precision, but the estimates of PSF_{st} in 1949 are likely to be a more accurate proxy for firearm ownership between 1946-1948 than estimates during or at the close of World War II.

[13] See Tamura et al. (2016) for details.

in 1976. Precise measures of economic conditions are unavailable in the South in the earliest years. We use imputed measures from Tamura et al. (2016), which include separate estimates of both the physical capital stocks and output per worker, by sector, state, and year. We include separate measures both overall and within the farming, manufacturing, and service industries in all analysis prior to 1969. All control variables are reported in Appendix Table A.2.

4 Results

4.1 Lynching

Records of lynching are the product of an arduous research endeavor involving numerous scholars over decades (Bailey and Tolnay, 2015; Beck and Tolnay, 2019, 1990). Using quantitative and qualitative rubrics for designating a murder as a lynching, the count of lynchings within a state in a given year is as much a barometer for the ambient level of violence leveled a Black citizens every day as it is a historical measure of terrorist events (Tolnay and Beck, 1995).[14]

Our analysis of the lynching records from the Beck-Tolnay lynching data (Beck and Tolnay, 2019) uses a sample of 335 state-years from former states of the Confederacy, 1913-1949. Our sample includes a mean of 2.16 lynching deaths per year, with 41% of state-years characterized by at least 1 Black lynching death. The most lynchings observed in our sample is 13 deaths in Georgia in 1922.[15] Lynching deaths per state capita are steadily decreasing through our window, with upticks in 1919 and 1933. For more on lynching rates in the south over time, see Beck and Tolnay (1990).

Table 2 includes six variations of the baseline specification, with each column including an additional layer of control variables. The baseline regression includes only PSF_{st}^{Black} and a constant term (column 1). The estimated coefficient is negative, significant ($p < 0.01$), and the largest of the six specifications. In column 2, we add state fixed effects, employing the conditional fixed effects model. The estimated coefficient remains negative but is no longer significant ($t = 1.59$) and is half as large. The coefficient magnitude is further reduced in column 3 with the addition of year fixed effects. In column 4 we introduce our vector of control variables, resulting in an estimated coefficient that is negative and

[14]Previous research has demonstrated that lynchings correlated with segregation (Cook et al., 2018a,b), Black migration (Tolnay and Beck, 1992b), the size of the Black population (Tolnay and Beck, 1992a; Christian, 2017), cotton prices (Beck and Tolnay, 1990), and local politics (Beck et al., 2016).

[15]There are 21 recorded lynchings in Georgia in 1919, but we do not have sufficient vital statistics data for Georgia until 1922.

significant ($p < 0.05$). The coefficient is largely unchanged by the inclusion of PSF_{st}^{White} (column 5). Translating any of our observed coefficients into a defined effect of firearms on lynching is difficult, given that the best estimates of the precise relationship between PSF_{st}^{Black} and firearm access is measured using modern data. If we assume a perfectly symmetric relationship, a one standard deviation percentage point increase in the fraction of Black households that had access to a firearm (26%) correlated with 0.3 fewer Black lynchings per year, on a state-year mean of 2.45.

In column 6 we add lagged access proxies to the estimation. The estimated coefficient on PSF_{st}^{Black} remains significant and increases in magnitude. The lagged value of PSF_{st}^{White} correlates positively with Black lynchings. Firearms are a durable good, and while there were many efforts, legal and otherwise to disarm Black residents, there were far fewer attempts to disarm White individuals in the south (Cottrol and Diamond, 1994, 1991). These conditions may offer one explanation for why the contemporary value of PSF_{st}^{Black} has more explanatory power that the lagged, while the lagged value of PSF_{st}^{White} has more than the contemporary. Nevertheless, the inclusion of lagged values principally serves to demonstrate the robustness of the core result. Results are qualitatively unchanged when we use the firearm access differential, $PSF_{st}^{Black} - PSF_{st}^{White}$, as the principal covariate (column 7), although the result falls short of statistical significance ($p = 0.11$). When the lagged firearm access differential is added, the estimated coefficient on the current value is significant ($p < 0.05$) and both current and lagged coefficients are positive.

With respect to victimization via lynching, Black access to firearms mattered. The salience of White firearms is murkier. Historical anecdotes of Black resistance offer at least one explanation: when it comes to the mob, there's little question whether members were armed or who would eventually win if the conflict turned violent. The only question was whether or not the cost of the lynching would include White lives, and the answer to that question depended on *Black* firearms.

4.2 Homicides and "Accidents"

Table 3 presents estimates from two-way fixed effects models of our state-year panel of log violent deaths per (White or Black) capita between 1913 and 1999. We divide the panel into three separate eras anchored around the core years of the Civil Rights Movement, which we mark from the Brown v. Board supreme court decision (1954) and the Civil Rights Act of 1968.

Given the strong correlation over time between White and Black firearm access, it may be difficult to precisely estimate the relationship between the race-specific access rates and

violence. If we think about firearms as increasing the force that a citizen can bring to bear in a potential conflict, the *relative* rates might be the more important object of interest in determining the rates of interpersonal violence. Moreover, expanding the context from lynching to broader categories of violence, the conflicts in question are more often one v. one (as opposed to victimization by mobs). The aggressor must now question whether they are likely to succeed at all. For these reasons, our discussion will focus on the *difference* in the firearm access rates, PSF_{st}^{Black} minus PSF_{st}^{White} (Table 3). Modeling the relationship of violence to both PSF_{st}^{Black} and PSF_{st}^{White} as separate covariates produced nearly identical results (see Appendix Table A.5).

All specifications in Table 3 include demographic and violent crime control variables, with variation in availability across eras. Estimates in our first (1913-1953) and second (1954-1968) windows of analysis include estimates of physical capital and output per worker from Tamura et al. (2016). The contemporary window includes state GDP per capita and unemployment rates. In the first two columns, we estimate the relationship between relative firearm access and Black homicide and fatal firearm accidents. The middle two columns present the same estimates for White homicides and fatal firearm accidents. All of these are specified in log rates per capita. The dependent variable in the final two columns is the difference in the log rate for Black deaths and the log rate for White deaths. Finally, the second panel includes, in addition to all the regressors in the first panel, a set of state-specific linear year trends.

The relationship between relative firearm access rates and violent deaths varies across eras. In the Pre-*Brown* era, we find no statistically significant relationships between observed firearm access differentials and either type of violent death (Table 3). There is no discernable pattern in fatal firearm accidents during this period, either.

During the Civil Rights Movement, the relationship between high relative rates of Black firearm access and lower violent Black death rates strengthens. A one standard-deviation narrowing of the $PSF^{Black} - White^{PSF}$ differential correlates to a 1.5% reduction in gap between the Black and White homicide rates, ($p = 0.05$). There is no observed correlation with the rate of recorded Black homicides, rather this outcome is driven by an increase in the recorded rate of White homicides ($p < 0.05$). We also observe a negative relationship between Black firearms and Black firearm deaths recorded as "accidents". As an independent measure, a one standard-deviation increase in PSF^{Black} correlates with a 3.1% decrease in accidental deaths and a 5.5% decrease in gap between Black and White accidental firearm death, though the latter relationship is less precise ($p = 0.07$).

These observed relationships support the narrative of politically compromised southern coroners during the Civil Rights Movement. When violence turned deadly, the classification

of the event depended on who was dead. In the event of a White death from a Black firearm it was more likely to be ruled homicide, in the event of a Black death from a White firearm, it was more likely ruled an accident.

The relationships change considerably in the contemporary era (1969-1999). Black relative access rates actually begin to be positively predictive of Black relative homicide rates. This pattern is consistent with the rise in drug-related violent crime in this era Evans et al. (2018). There is also a weakly positive and relationship between firearm access and fatal firearm accident rates.

4.3 Alternative Specifications and Limitations

Caution is warranted in interpreting conditional correlations as unbiased causal relationships.[16] Reverse causality is of particular concern—violent victimization may lead individuals to seek out firearms, biasing the observed effect of firearms on victimization upward. Our primary interest, however, is the deterrence effect of firearms on violence towards Black residents in the early and middle 20th century United States. As such, any observed deterrence effects are likely *understated* due to firearms acquired in response, and subsequent, to violence, combined with the attenuation effects associated with the measurement error of our proxy.

A range of alternative specifications and robustness checks are available within the appendix. Results are robust to the separate inclusion of both White and Black firearm possession as independent covariates (Table A.5). We also address concerns regarding the changing rates of suicide over time, including potential trends in misclassification of suicides as accidents, in part due to changing social norms and stigma surrounding suicide. If, over time, institutional and bureaucratic oversight serve to mitigate misclassification, there may be a concurrent increase in observed suicides and decrease in accidents. If firearm accidents were misclassified at rates different than suicide by other means, this could bias the results. Such concerns are, at least partially, allayed by the shared trends in firearm suicides across White and Black decedents over time (Figure A.3). Table A.3 replicates Table 3, but with the addition of total firearm possession, as estimated by percent suicide via firearm, within the state each year, added as an additional covariate. Estimated coefficients on $PSF^{Black} - White^{PSF}$ differential remain consistent across all specifications. Table A.4 separates homicides involving a firearm from those that did not. Results remain consistent with our main finds, though it is would seem to confirm basic intuitions about self-defense that the negative cofficient of the $PSF^{Black} - White^{PSF}$ firearm differential is larger for non-firearm homicides than those

[16] In their survey of 41 research papers examining the effect of firearm ownership on crime, Kleck (2015) found only 3 papers employed a causal inference strategy to cope with endogeneity.

with a firearm.

Table A.6 replicates the models used in columns 3-8 of Table 2 with the addition of linear time trends, including the same fixed effects and seven of the prior control covariates. The results are similar to those previously estimated. Inclusion of a cubic state-specific (not reported here) time trend generates similar results (with slightly smaller standard errors), but the model only converges with the inclusion of minimal control variables.

Finally, Appendix A.8 implements an IV Poisson regression for our lynching results, using a control-function approach (Lin and Wooldridge, 2019). For this identification strategy we use two excluded instruments, white law enforcement agents per Black capita and Black high-skilled wages, in a first-stage regression to predict Black relative firearm. The residuals from this regression are then included as a control function in the second-stage Poisson regression relating Black firearm access to lynchings. The estimated effect is even stronger, with high levels of Black relative firearm access even more strongly related to lower rates of lynchings, and the coefficient on the control residual is strongly positive, consistent with our argument that the bias in our standard regression is positive, probably driven by firearm acquisition in response to risky circumstances.

5 Conclusion

Drawing on historical vital statistics, we find evidence that efforts to disarm Black residents under Jim Crow were successful, as the intra-war period was characterized by a significant relative decline in Black residents' access to firearms. This decline may have had substantial consequences in a world in which formal institutions of law would not protect its Black citizens' lives and property. Using records of suicide as a proxy for firearm access, we find a negative relationship between Black firearm access and the number of recorded lynchings. A similar correlation persisted into the Civil Rights Era, during which relative Black firearm access was negatively correlated with relative Black homicide and accidental firearm deaths, but that correlation reverses in the contemporary era.

Our analysis is limited by both its reliance on a proxy for firearm access and the coarseness of the data. Interpretation of the results is also limited by the reasonable expectation of reverse causality — that individuals acquired firearms in response to violence in their communities. While that positive bias in observed correlations serves to underline the self-defense value of firearms in the Black community during early- and mid-20th century, it does make it difficult to compare the relative values across eras.

The history of the Jim Crow South abounds with anecdotal accounts of the Black community making effective use of firearms to defend themselves. These accounts are easily

reconciled with the view that effective policing and public safety were not made available to the Black community, and that firearms made both self-defense and community-defense possible. Our observation of the peculiar negative correlation with Black firearms and their falling victim to "firearm accidents" offer further corroboration to the value of firearms to communities targeted by violence, but also the depths of disenfranchisement within all manner of public institutions, even historical records.

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Table 1: Summary Statistics: Characteristics of Sample of Former Confederate States

Pre-*Brown* (1913-1953)

	Black				White			
	mean	sd	min	max	mean	sd	min	max
Black Lynchings (n=317)	1.31	2.28	0.00	13.00				
Suicides	18.13	8.61	3.00	58.00	196.94	140.20	24.00	1016.00
PSF^{Black}	0.56	0.16	0.00	0.92	0.59	0.09	0.18	0.80
Homicides	251.41	99.63	45.00	527.00	120.51	73.62	18.00	500.00
- Per Capita	33.60	14.08	5.90	110.77	6.78	2.82	1.11	21.65
Accidental FA Deaths	42.66	21.27	3.00	127.00	55.22	34.38	13.00	221.00
- Per Capita	5.63	2.55	0.72	16.83	3.07	1.05	0.80	9.27
Observations	334				334			

Civil Rights Movement (1954 - 1968)

	Black				White			
	mean	sd	min	max	mean	sd	min	max
Suicides	29.63	12.61	6.00	64.00	354.82	226.10	94.00	1050.00
PSF^{Black}	0.68	0.11	0.29	0.90	0.70	0.08	0.45	0.85
Homicides	241.72	105.19	65.00	629.00	134.50	105.68	32.00	671.00
- Per Capita	26.26	6.76	15.33	49.51	4.16	0.84	2.26	7.09
Accidental FA Deaths	27.21	12.03	6.00	73.00	62.30	36.28	22.00	222.00
- Per Capita	3.07	1.24	1.02	9.08	2.19	0.73	0.89	4.58
Observations	165				165			

Contemporary Era (1969 - 1999)

	Black				White			
	mean	sd	min	max	mean	sd	min	max
Suicides	70.50	37.66	8.00	204.00	682.31	524.60	133.00	2161.00
PSF^{Black}	0.70	0.09	0.48	1.00	0.74	0.07	0.53	0.87
Homicides	381.52	192.96	86.00	1141.00	340.87	344.66	59.00	1777.00
- Per Capita	32.07	8.24	16.91	57.91	6.77	1.63	3.32	13.37
Accidental FA Deaths	24.11	14.55	2.00	81.00	69.54	44.21	15.00	252.00
- Per Capita	2.33	1.63	0.18	7.95	1.84	0.99	0.19	4.77
Observations	319				319			

Table 2: Black Lynching Deaths in Former Confederate States: 1913-1949

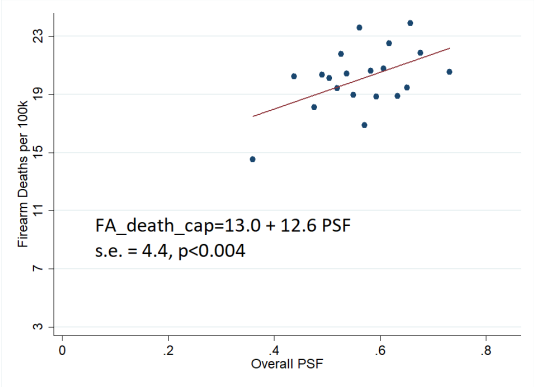
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PSF^{Black}	-1.693***	-0.818	-0.109	-1.115**	-1.096**	-1.203**		
	(0.616)	(0.515)	(0.487)	(0.539)	(0.539)	(0.591)		
PSF^{White}					-1.114	-0.719		
					(1.132)	(1.259)		
PSF^{Black}_{t-1}						-0.246		
						(0.605)		
PSF^{White}_{t-1}						2.267*		
						(1.181)		
$PSF^{Black} - PSF^{White}$							-0.702	-0.938*
							(0.496)	(0.535)
$PSF^{Black}_{t-1} - PSF^{White}_{t-1}$								-0.618
								(0.545)
State FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	Yes	Yes	Yes	Yes	Yes
N	317	317	317	317	317	306	317	306

All specifications estimate a negative binomial regression model of the count of Black lynching deaths within a state and year. Estimates that labeled as including a state-fixed effect estimate a conditional fixed-effects negative binomial regression model of the state-year panel. All regressions that include "controls" are estimated with the following covariates: log total population, population percent Black, White population density, White urban population density, Black population density, Black urban population density, and real output andl capital per worker, both as totals and separately estimated within farming, manufacturing, and service sectors. Includes all member states from the Confederacy except Texas (insufficient data).

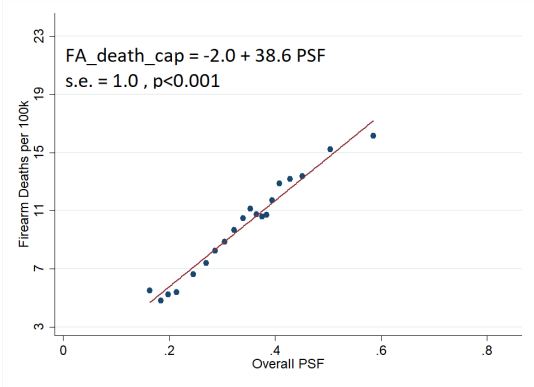
Table 3: Relative Gun Access and Relative Death Rates: Log Homicides and Accidents per Capita in Former Confederate States

	Black Deaths		**White Deaths**		**Black−White**	
	Homicides	Firearm Accidents	Homicides	Firearm Accidents	Homicides	Firearm Accidents
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.026	0.030	0.056	0.027	−0.030	0.003
	(0.092)	(0.093)	(0.080)	(0.046)	(0.047)	(0.082)
wild bootstrap p	0.83	0.80	0.58	0.56	0.43	0.97
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	0.000	−0.325**	0.151**	−0.036	−0.151*	−0.289*
	(0.071)	(0.126)	(0.056)	(0.119)	(0.069)	(0.143)
wild bootstrap p	1.00	0.05	0.00	0.75	0.07	0.08
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.145**	0.100	−0.016	0.071	0.161*	0.029
	(0.062)	(0.193)	(0.057)	(0.096)	(0.080)	(0.150)
wild bootstrap p	0.10	0.68	0.79	0.54	0.08	0.82
			+ State-Specific Trends			
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.035	−0.022	0.076	0.020	−0.040	−0.042
	(0.081)	(0.085)	(0.071)	(0.038)	(0.048)	(0.085)
wild bootstrap p	0.67	0.84	0.39	0.56	0.49	0.55
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	−0.011	−0.291*	0.161**	−0.069	−0.172**	−0.221
	(0.074)	(0.132)	(0.063)	(0.120)	(0.069)	(0.129)
wild bootstrap p	0.80	0.03	0.00	0.56	0.01	0.11
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.144**	0.136	−0.018	0.083	0.162*	0.053
	(0.061)	(0.189)	(0.055)	(0.086)	(0.080)	(0.148)
wild bootstrap p	0.11	0.52	0.67	0.37	0.10	0.74

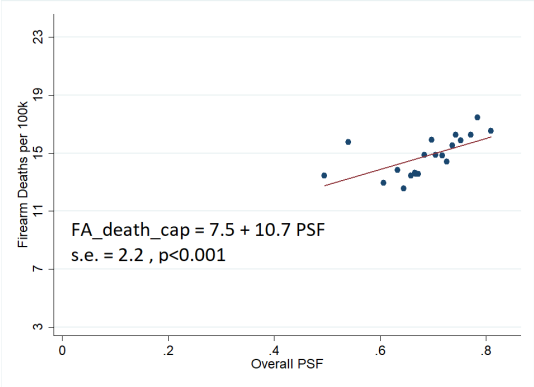
Note: PSF: Percent of Suicides involving a firearm. All columns are a report results from a OLS regression of the log of deaths per capita in a panel with state and year fixed effects. For additional control variables and summary statistics, see table A.4. The pre-*Brown* Era (1913-1953) excludes the years of World War II (1940-1945).



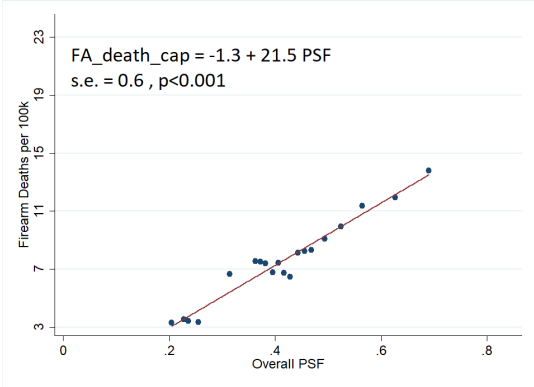
(a) Pre-*WW2*, Former Confed.



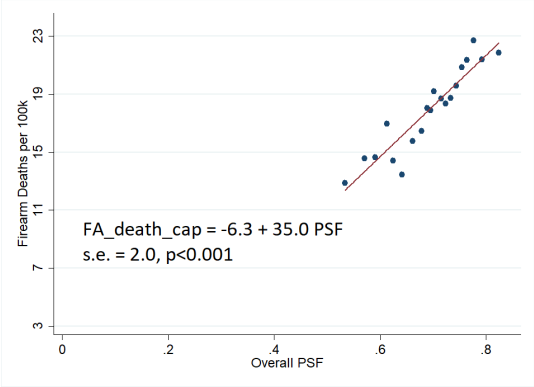
(b) Pre-*WW2*, Non-Confed.



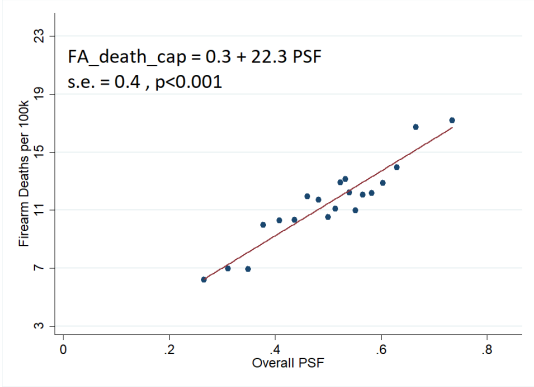
(c) Civil Rights, Former Confed.



(d) Civil Rights, Non-Confed.

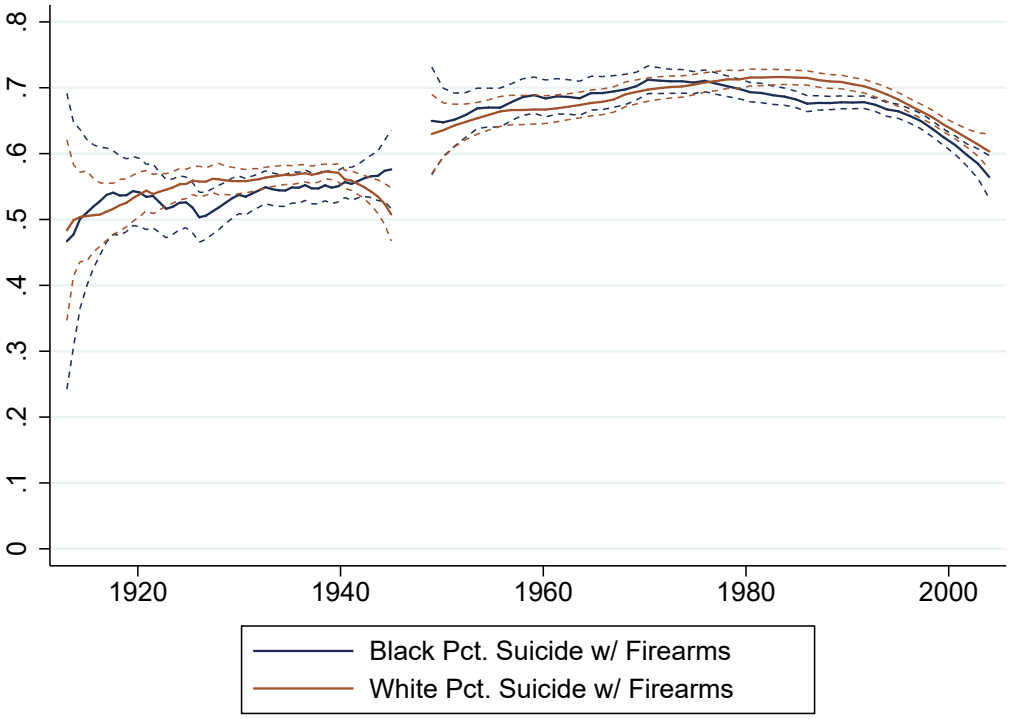


(e) Contemp., Former Confed.

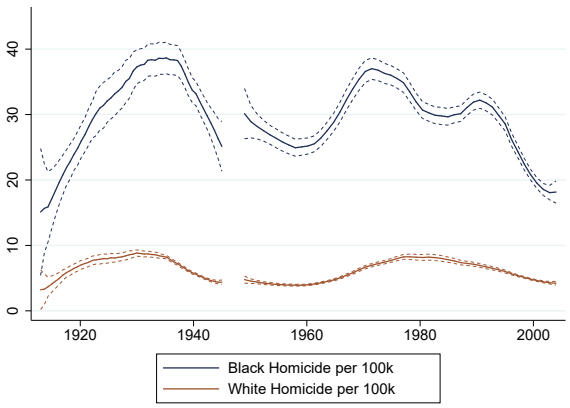


(f) Contemp., Non-Confed.

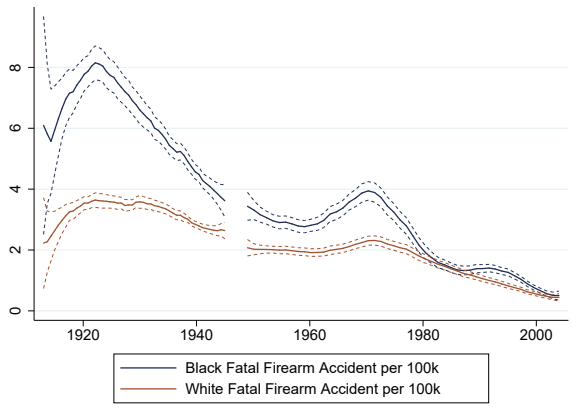
Figure 1: Population-Weighted Binned Scatterplots of Relationship between Percent Suicide by Firearms and Firearm Deaths per Capita by Region and Era with Estimates for Underlying Bivariate Regression.



(a) Percent Suicide by Firearm by Race



(b) Homicide by Race



(c) FA Accident by Race

Figure 2: Percent Suicide from Firearm and Homicide and Firearm Accidental Death Rates per 100k Residents by Race, Former Confederacy

A Appendix

A.1 Mortal Statistics Data

Figure A.1: Example of Mortality Data from 1938 Vital Statitsics of the U.S.

TABLE 18.—DEATHS FROM EACH CAUSE, BY RACE AND SEX: [Exclusive of

List No.	CAUSE OF DEATH	MAINE					MARYLAND				
		Total deaths	White		All other		Total deaths	White		All other	
			M	F	M	F		M	F	M	F
	XVII.—Violent and accidental deaths	783	551	228	4	-------	1,584	869	375	261	79
163-171	Suicide	152	125	27	-------	-------	275	204	60	10	2
163	Suicide by solid or liquid poisons, etc.*	8	3	5	-------	-------	22	8	14	-------	-------
164	Suicide by poisonous gas	14	11	3	-------	-------	68	56	12	-------	-------
165	Suicide by hanging or strangulation	31	25	6	-------	-------	48	35	13	-------	-------
166	Suicide by drowning	16	9	7	-------	-------	18	11	3	3	1
167	Suicide by firearms	74	70	4	-------	-------	92	76	10	6	-------
168	Suicide by cutting or piercing instruments	9	7	2	-------	-------	10	8	2	-------	-------
169	Suicide by jumping from high places	-------	-------	-------	-------	-------	14	10	2	1	1
170	Suicide by crushing	-------	-------	-------	-------	-------	1	-------	1	-------	-------
171	Suicide by other means	-------	-------	-------	-------	-------	3	-------	3	-------	-------
172-175	Homicide	13	9	4	-------	-------	114	30	9	61	14
173	Homicide by firearms	7	4	3	-------	-------	59	13	3	37	6
174	Homicide by cutting or piercing instruments	-------	-------	-------	-------	-------	27	4	1	19	3
175	Homicide by other means	6	5	1	-------	-------	28	13	5	5	5
176-198	Accidental, other, or undefined	618	417	197	4	-------	1,194	635	306	190	63
176	Attack by venomous animals	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
177	Poisoning by food	1	1	-------	-------	-------	11	3	4	3	1
178	Accidental absorption of poisonous gas	5	4	1	-------	-------	18	14	4	-------	-------
	Not associated with symbols 201-214	5	4	1	-------	-------	18	14	4	-------	-------
	Associated with symbols 201-214	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
179	Other acute accidental poisonings (except gas)	6	4	2	-------	-------	17	8	4	4	1
180	Conflagration	22	8	14	-------	-------	25	13	3	5	4
181	Accidental burns (except conflagration)	33	19	14	-------	-------	78	15	36	12	15
	Not associated with symbols 201-214	32	19	13	-------	-------	71	15	34	11	11
	Associated with symbols 201-214	1	-------	1	-------	-------	7	-------	2	1	4
182	Accidental mechanical suffocation	7	4	3	-------	-------	28	13	5	4	6
	Not associated with symbols 201-214	7	4	3	-------	-------	26	11	5	4	6
	Associated with symbols 201-214	-------	-------	-------	-------	-------	2	2	-------	-------	-------
183	Accidental drowning	100	78	20	2	-------	144	99	8	34	3
	Not associated with symbols 201-214	65	48	15	2	-------	101	70	3	27	1
	Associated with symbols 201-214	35	30	5	-------	-------	43	29	5	7	2
184	Traumatism by firearms	19	18	1	-------	-------	16	9	2	3	2
185	Traumatism by cutting or piercing instruments	7	5	2	-------	-------	9	5	3	1	-------
	Not associated with symbols 201-214	6	4	2	-------	-------	4	2	1	1	-------
	Associated with symbols 201-214	1	1	-------	-------	-------	5	3	2	-------	-------
186a	Traumatism by fall	175	86	89	-------	-------	349	148	163	28	10

A.2 Black−White Firearms Differential

The time-line presented in Figure A.2 and the history presented in section 1.1 suggest that former Confederate states may have had some success in disarming Black people in the Jim Crow era. To explore this relationship more fully, we run the following regression

$$PSF_{st}^{Black} - PSF_{st}^{White} = \sum_{d} \beta_d^c decade_t^d \times confed_s + \beta_d decade_t^d + \beta \mathbf{X_{st}} + \gamma_s + \epsilon_{st}, \quad (2)$$

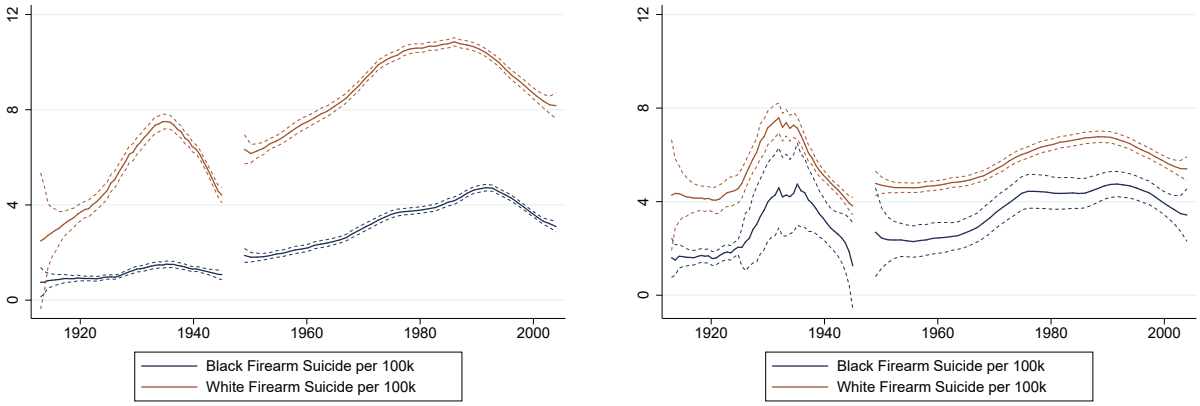
where our interest in the coefficients β_d^c, which represent how the gap between Black and White gun ownership differentially varies in former-confederate states, over time. The first column of Table A.1 presents a simpler version of that specification, containing the decade dummies and interactions, only. The second column adds state fixed effects. The third includes a medley of controls enumerated in Table A1. The patterns of coefficients are similar in all three specifications, with significant gaps in the Jim Crow south which shrink or disappear in the Civil Rights era, but seems to reemerge in the briefly in the 1970s.

Table A.1: Black - White Firearm Possession Differential

1910s x Confederate	−0.045	−0.045	−0.071
	(0.057)	(0.071)	(0.060)
1920s x Confederate	−0.079	−0.078**	−0.101*
	(0.048)	(0.037)	(0.056)
1930s x Confederate	−0.039	−0.030	−0.067
	(0.028)	(0.027)	(0.046)
1940s x Confederate	−0.045*	−0.032	−0.061
	(0.026)	(0.027)	(0.039)
1950s x Confederate	−0.021	−0.011	−0.021
	(0.017)	(0.018)	(0.027)
1960s x Confederate	−0.004	0.004	0.004
	(0.024)	(0.024)	(0.027)
1970s x Confederate	−0.047***	−0.041***	−0.036**
	(0.012)	(0.012)	(0.014)
1980s x Confederate	−0.008	−0.006	−0.003
	(0.008)	(0.008)	(0.008)
1990s x Confederate	0.000	0.000	0.000
	(.)	(.)	(.)
State FE	No	Yes	Yes
Controls	No	No	Yes
N	2972	2972	2972

Dependent variable: Black Pct. Suicide Firearm - White Pct. Suicide Firearm. All regressions include indicators for decades. Control variables in column (3) include : White and Black population densities and urban population densities, logged estimated state population, and fraction non-White.

A.3 Firearm Suicide by Race and Region



(a) Former Confederate (b) Non-Confederate

Figure A.2: Firearm Suicide Death Rates per 100k Residents by Race

A.4 Control Variables By Era

Table A.2: Summary Statistics: Control Variables

Pre-*Brown*: 1913-1953

	mean	sd	min	max
Real Farm Capital Stock	9214.37	4943.51	4027.82	34815.03
Real Manufacturing Capital Stock	17549.09	6609.48	6297.89	41843.52
Real Services Capital Stock	79469.38	20299.32	48104.86	146902.92
Real Total Capital per Worker	42640.46	20396.33	15804.65	107447.10
Real Farm Output per Worker	4470.63	4509.37	1154.35	22869.29
Real Manufacturing Output Per Worker	14236.88	5662.70	5692.36	37114.98
Real Services Output Per Worker	20604.77	4190.87	13124.19	37795.73
Real Total Output per Worker	13301.61	5570.22	5969.98	33559.95
Observations	334			

Civil Rights Movement: 1954-1968

	mean	sd	min	max
State GDP p.c.	2.96	0.53	1.97	4.18
Real Farm Capital Stock	45638.80	20107.04	16156.35	94681.82
Real Manufacturing Capital Stock	29727.31	13918.61	15103.87	85948.02
Real Services Capital Stock	136103.22	20092.44	101524.54	190910.80
Real Total Capital per Worker	101082.74	24511.71	60872.66	169537.20
Real Farm Output per Worker	15941.03	6917.53	4422.22	34055.98
Real Manufacturing Output Per Worker	31862.48	6860.90	20871.70	49196.95
Real Services Output Per Worker	36230.74	6625.41	25425.26	57514.67
Real Total Output per Worker	32950.72	7434.59	18373.27	54852.27
Observations	165			

Post-Civil Rights Movement: 1969-1999

	mean	sd	min	max
Unemployment Rate	6.82	1.93	3.60	14.30
State GDP p.c.	13.86	7.54	3.06	31.42
Agri Labor Comp p.c	68.54	35.24	16.83	180.36
Mining Labor Comp p.c	117.82	176.21	4.45	725.28
Manufacturing Labor Comp p.c	1772.80	920.73	375.09	4195.88
Observations	319			

A.5 Alternative Specifications

Table A.3: Firearm Access: Log Homicides and Accidents per Capita in Former Confederate States

	Black Deaths		**White Deaths**		**Black−White**	
	Homicides	Firearm Accidents	Homicides	Firearm Accidents	Homicides	Firearm Accidents
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.023	0.044	0.066	0.025	−0.044	0.019
	(0.096)	(0.090)	(0.074)	(0.046)	(0.052)	(0.077)
Overall PSF	−0.082	0.352	0.268	−0.038	−0.350**	0.391
	(0.140)	(0.213)	(0.174)	(0.141)	(0.139)	(0.273)
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	0.000	−0.324**	0.152**	−0.035	−0.152*	−0.290*
	(0.071)	(0.128)	(0.054)	(0.127)	(0.068)	(0.147)
Overall PSF	0.073	−0.272	−0.242	−0.807*	0.315	0.535
	(0.240)	(0.560)	(0.297)	(0.397)	(0.367)	(0.506)
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.126**	0.067	−0.031	0.055	0.157*	0.012
	(0.054)	(0.204)	(0.062)	(0.099)	(0.076)	(0.156)
Overall PSF	0.629	1.136	0.486**	0.540	0.142	0.596
	(0.415)	(0.665)	(0.187)	(0.355)	(0.411)	(0.455)
			+ State-Specific Trends			
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.035	−0.003	0.087	0.017	−0.052	−0.020
	(0.081)	(0.082)	(0.066)	(0.039)	(0.051)	(0.080)
Overall PSF	−0.014	0.464**	0.275*	−0.083	−0.288**	0.548**
	(0.159)	(0.165)	(0.135)	(0.155)	(0.092)	(0.223)
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	−0.010	−0.292*	0.161**	−0.075	−0.170**	−0.217
	(0.075)	(0.135)	(0.063)	(0.129)	(0.069)	(0.128)
Overall PSF	0.128	−0.198	−0.114	−0.768	0.242	0.570
	(0.227)	(0.733)	(0.359)	(0.427)	(0.404)	(0.655)
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.125**	0.107	−0.033	0.077	0.159*	0.031
	(0.052)	(0.206)	(0.064)	(0.091)	(0.079)	(0.156)
Overall PSF	0.500	0.764	0.405	0.165	0.095	0.599
	(0.387)	(0.691)	(0.257)	(0.383)	(0.421)	(0.365)

Note: PSF: Percent of Suicides involving a firearm. All columns are a report results from a OLS regression of the log of deaths per capita in a panel with state and year fixed effects. For additional control variables and summary statistics, see table A.4. The pre-*Brown* Era (1913-1953) excludes the years of World War II (1940-1945).

Table A.4: Log Firearm and Non-Firearm Homicides per Capita in Former Confederate States

	Black Deaths		**White Deaths**		**Black−White**	
	Firearm Homicides	Non-FA Homicides	Firearm Homicides	Non-FA Homicides	Firearm Homicides	Non-FA Homicides
	Pre-*Brown*, 1913 - 1953 (N = 334)					
$PSF^{Black} - PSF^{White}$	0.038	−0.005	0.063	−0.022	−0.025	0.019
	(0.114)	(0.064)	(0.083)	(0.056)	(0.062)	(0.080)
	Civil Rights Movement, 1954-1968 (N = 165)					
$PSF^{Black} - PSF^{White}$	0.047	−0.090	0.182*	0.066	−0.134	−0.156
	(0.088)	(0.097)	(0.095)	(0.059)	(0.128)	(0.087)
	Contemporary, 1969-1999 (N = 319)					
$PSF^{Black} - PSF^{White}$	0.176**	0.056	−0.074	0.114*	0.250**	−0.058
	(0.073)	(0.073)	(0.074)	(0.058)	(0.097)	(0.091)
	+ State-Specific Trends					
	Pre-*Brown*, 1913 - 1953 (N = 334)					
$PSF^{Black} - PSF^{White}$	0.045	0.003	0.087	−0.012	−0.041	0.015
	(0.106)	(0.059)	(0.078)	(0.054)	(0.067)	(0.069)
	Civil Rights Movement, 1954-1968 (N = 165)					
$PSF^{Black} - PSF^{White}$	0.026	−0.075	0.210*	0.036	−0.184	−0.111
	(0.094)	(0.105)	(0.099)	(0.060)	(0.130)	(0.096)
	Contemporary, 1969-1999 (N = 319)					
$PSF^{Black} - PSF^{White}$	0.189**	0.016	−0.079	0.113*	0.268**	−0.097
	(0.070)	(0.063)	(0.070)	(0.057)	(0.099)	(0.078)

Note: PSF: Percent of Suicides involving a firearm. All columns are a report results from a OLS regression of the log of deaths per capita in a panel with state and year fixed effects. For additional control variables and summary statistics, see table A.4. The pre-*Brown* Era (1913-1953) excludes the years of World War II (1940-1945).

Table A.5: Alternative Specification, Separate Firearm Ownership Measures: Log Homicides and Accidents Per Capita in Former Confederate States

	Black Deaths		**White Deaths**		**Black−White**	
	Homicides	Firearm Accidents	Homicides	Firearm Accidents	Homicides	Firearm Accidents
	Pre-*Brown*, 1913 - 1953 (N = 334)					
PSF^{Black}	0.008	0.074	0.089	0.019	−0.081	0.056
	(0.104)	(0.086)	(0.075)	(0.048)	(0.063)	(0.073)
PSF^{White}	−0.143	0.255	0.155	−0.078	−0.298**	0.333
	(0.114)	(0.229)	(0.177)	(0.137)	(0.129)	(0.277)
	Civil Rights Movement, 1954-1968 (N = 165)					
PSF^{Black}	0.005	−0.344**	0.129*	−0.092	−0.124	−0.252*
	(0.072)	(0.130)	(0.066)	(0.132)	(0.085)	(0.131)
PSF^{White}	0.058	0.110	−0.398	−0.586	0.457	0.697
	(0.240)	(0.511)	(0.257)	(0.358)	(0.328)	(0.556)
	Contemporary, 1969-1999 (N = 319)					
PSF^{Black}	0.183**	0.174	0.015	0.108	0.168*	0.066
	(0.078)	(0.172)	(0.057)	(0.098)	(0.093)	(0.136)
PSF^{White}	0.426	0.989	0.481**	0.475	−0.055	0.515
	(0.364)	(0.734)	(0.209)	(0.352)	(0.364)	(0.493)
	+ State-Specific Trends					
	Pre-*Brown*, 1913 - 1953 (N = 334)					
PSF^{Black}	0.023	0.039	0.109	0.008	−0.085	0.031
	(0.085)	(0.080)	(0.066)	(0.045)	(0.056)	(0.077)
PSF^{White}	−0.115	0.417**	0.138	−0.099	−0.253***	0.516*
	(0.134)	(0.185)	(0.153)	(0.140)	(0.072)	(0.241)
	Civil Rights Movement, 1954-1968 (N = 165)					
PSF^{Black}	−0.001	−0.304*	0.147*	−0.125	−0.148	−0.179
	(0.079)	(0.146)	(0.075)	(0.140)	(0.089)	(0.113)
PSF^{White}	0.106	0.153	−0.302	−0.491	0.408	0.644
	(0.216)	(0.631)	(0.314)	(0.372)	(0.352)	(0.657)
	Contemporary, 1969-1999 (N = 319)					
PSF^{Black}	0.170**	0.180	0.004	0.095	0.166*	0.086
	(0.065)	(0.163)	(0.050)	(0.083)	(0.085)	(0.130)
PSF^{White}	0.289	0.619	0.397	0.122	−0.107	0.497
	(0.350)	(0.773)	(0.286)	(0.403)	(0.402)	(0.444)

Note: PSF: Percent of Suicides involving a firearm. All columns are a report results from a OLS regression of the log of deaths per capita in a panel with state and year fixed effects. For additional control variables and summary statistics, see table A.4. The pre-*Brown* Era (1913-1953) excludes the years of World War II (1940-1945).

Table A.6: With Linear State Time Trends: Black Lynching Deaths in Former Confederate States: 1913-1949

	(1)	(2)	(3)	(4)	(5)
PSF^{Black}	-1.087**	-1.086**	-1.068*		
	(0.541)	(0.538)	(0.573)		
PSF^{White}		-1.139	-0.591		
		(1.145)	(1.210)		
PSF^{Black}_{t-1}			-0.123		
			(0.591)		
PSF^{White}_{t-1}			2.319**		
			(1.140)		
$PSF^{Black} - PSF^{White}$				-0.679	-0.872*
				(0.491)	(0.521)
$PSF^{Black}_{t-1} - PSF^{White}_{t-1}$					-0.556
					(0.524)
State Trend	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
N	317	317	306	317	306

Note: All specifications estimate a conditional fixed-effects negative binomial regression model of the state-year panel and include linear state-specific time trends. All regressions that include "controls" are estimated with the following covariates: population percent Black, White urban population density, Black urban population density, and real mean employee incomes, separately measured, from farming, manufacturing, and service industries. Compared to specifications in Table 2, we omit several controls to allow model convergence: log total population, White population density, Black population density density, real output per worker, real capital per worker, and the estimated real capital stocks separately measured, from farming, manufacturing, and service industries.

A.6 Non-Confederate States

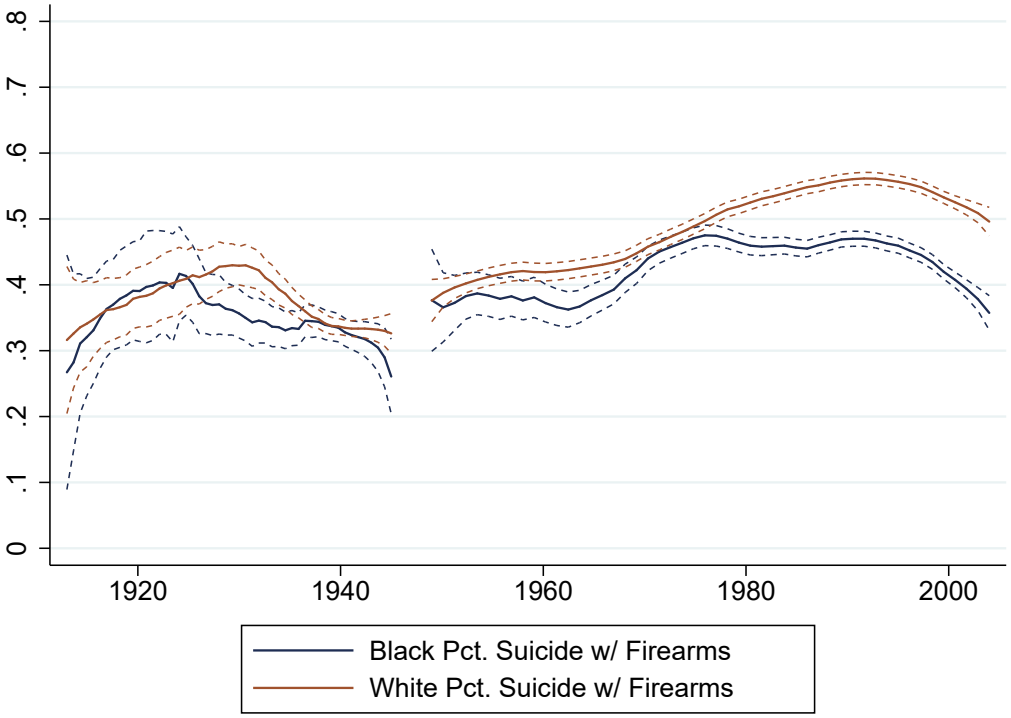


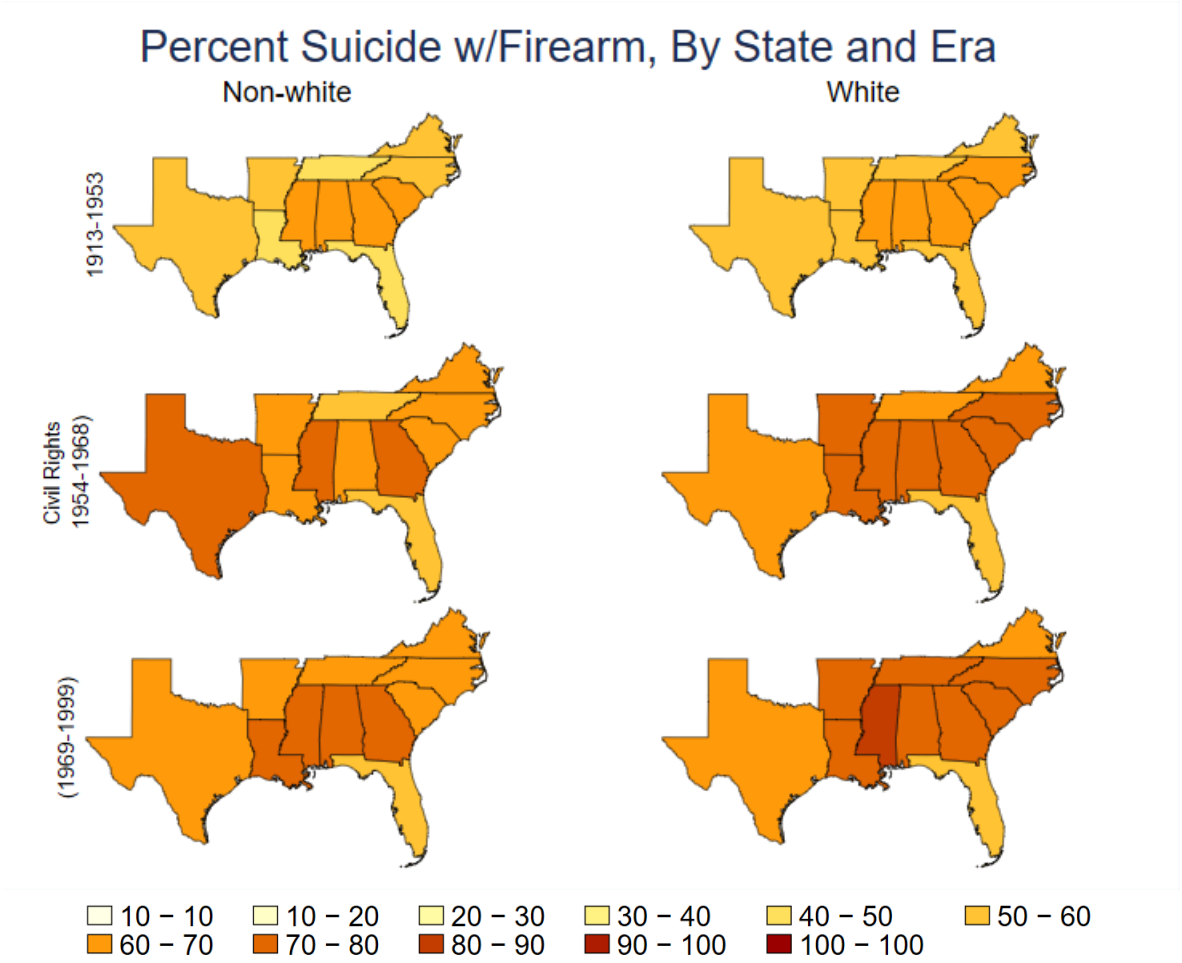
Figure A.3: Percent Suicide by Firearm by Race, Non-Confederacy

Table A.7: In Non-Confederate States: Log Homicides and Accidents Per Capita, With and Without Firearms

	Black Deaths		**White Deaths**		**Black−White**	
	Homicides	Firearm Accidents	Homicides	Firearm Accidents	Homicides	Firearm Accidents
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.289	−0.379	0.017	−0.045	0.272	−0.334
	(0.246)	(0.321)	(0.033)	(0.031)	(0.251)	(0.305)
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	−0.093	−0.069	0.031	0.006	−0.123	−0.075
	(0.117)	(0.274)	(0.037)	(0.032)	(0.093)	(0.270)
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.171	0.267	−0.012	0.011	0.183	0.256
	(0.186)	(0.216)	(0.030)	(0.023)	(0.190)	(0.211)
			+ State-Specific Trends			
			Pre-*Brown*, 1913 - 1953 (N = 334)			
$PSF^{Black} - PSF^{White}$	0.387	−0.393	0.004	−0.048	0.383	−0.344
	(0.266)	(0.327)	(0.035)	(0.036)	(0.274)	(0.308)
			Civil Rights Movement, 1954-1968 (N = 165)			
$PSF^{Black} - PSF^{White}$	−0.168	−0.157	0.034	−0.004	−0.202*	−0.153
	(0.127)	(0.284)	(0.036)	(0.036)	(0.106)	(0.284)
			Contemporary, 1969-1999 (N = 319)			
$PSF^{Black} - PSF^{White}$	0.110	0.230	−0.005	0.019	0.115	0.211
	(0.168)	(0.217)	(0.030)	(0.025)	(0.172)	(0.215)

Note: PSF: Percent of Suicides involving a firearm. All columns are a report results from a OLS regression of the log of deaths per capita in a panel with state and year fixed effects. For additional control variables and summary statistics, see table A.4. The pre-*Brown* Era (1913-1953) excludes the years of World War II (1940-1945).

A.7 Former Confederate states by Decade



A.8 Alternative Identification Strategy

There exists the reasonable concern that Black firearm access may be simultaneously determined with lynchings by omitted variables, biasing the results. The most common omitted bias concern expressed in the firearms and violence literature is a reverse causal relationship– that individuals respond to violence with the acquisition of firearms, biasing the relationship upwards. We believe this reverse causal is likely to exist in our data, but given our observation of reductions in lynchings from greater firearms access, it serves only to the strengthen the implications of our results.

An additional concern relevant to our analysis, however, may be better understood as omitted variable bias–the same violent racial attitudes that correlate positively with lynching simultaneously prevents Black citizens from acquiring firearms, biasing the results towards a

negative relationship between firearms and lynchings. With regards to our main results, we take the position that 1) our estimations are always a within-state, within-year estimation, and that differences in violent racial attitudes are predominantly absorbed within the model fixed effects, 2) within-state changes in systemic racism are best addressed by our inclusion of state-specific linear time trends in the alternative specifications presented in Appendix A.6.

That said, it remains of sufficient concern that we propose an additional test of the robustness of our estimates using the combination of a control function approach combined with a Poisson fixed-effects estimator proposed by Lin and Wooldridge (2019). In the first stage, we estimate a two-way fixed effects OLS model of the difference in firearms access and retrieve the residuals (ϵ_{st1}). Second, we estimate a Poisson fixed effects model of the count of lynchings over the reduced form, minus the restricted instrumental variable, with the inclusion of ϵ_{st1} as a control function.

$$\text{(1st Stage) } PSF_{st}^{Black} = \lambda + \lambda_1 law_{st}^{white} + \boldsymbol{\lambda_3 \mathbf{X}_{st}} + \gamma_{s1} + \delta_{t1} + \epsilon_{st1} \tag{3}$$

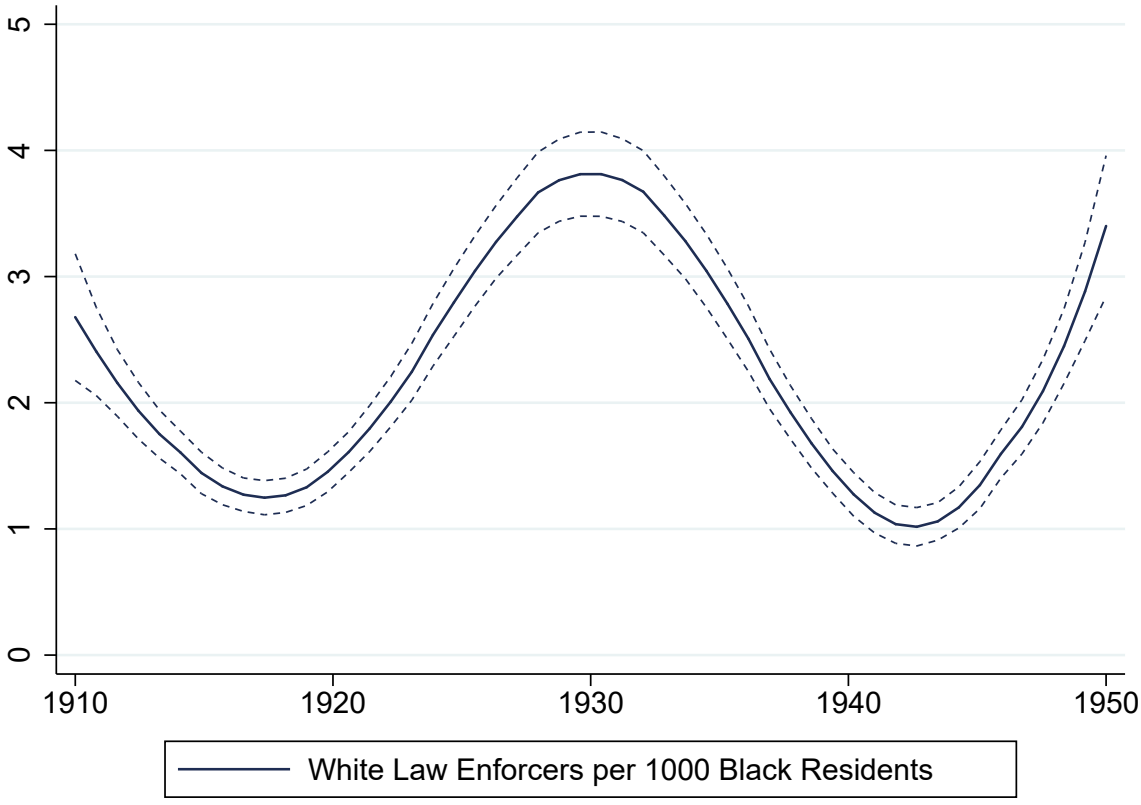
$$\text{(2nd Stage) } Y_{st} = \beta_0 + \beta_1 PSF_{st}^{Black} + \beta_2 \epsilon_{st1} + \boldsymbol{\beta_3 \mathbf{X}_{st}} + \gamma_{s2} + \delta_{t2} + \epsilon_{st2}, \tag{4}$$

where law_{st}^{white} represents the number of white law enforcement officers per 1000 black residents, measured as police, sheriffs, and constables per Black capita reported in the decennial census between 1910 and 1950 (intervening years are interpolated via a cubic spline). Figure A.4 displays the average value of this metric over time for former Confederate states. While numerous laws were passed to grant local law enforcement the discretion to confiscate firearms, disproportionately from Black residents, the act of confiscation nonetheless requires sufficient manpower to accomplish the task—ambitions of disarming of Black individuals were conditional on local state capacity. Further, while there some evidence that White law enforcement officers did participate in lynchings, their most common complicity was to not intervene in any way. The ability of law enforcement to ignore violence against Black men and women shouldn't correlate with their labor force as doing nothing is rarely labor intensive.

In Table A.8, we present the first and second-stage results, including the coefficients on the control function (ϵ_{st1}). Tested specifications include both absolute and relative measures of firearm access i) PSF_{st}^{Black} and ii) $PSF_{st}^{Black} - PSF_{st}^{White}$.

In both specifications, we observe that the predicted impact of black firearm access remains negative and statistically significant ($p < 0.05$). Perhaps more importantly to our primary results, the coefficient on ϵ_{st1} in the 2nd stage are positive in all specifications, supporting our expectation that the omitted variable bias in our primary results is positive.

Figure A.4: White Law Enforcers per 1000 Black Residents in Former-Confederate States, 1910-1950



While it seems unlikely that any instrumental variables strategy in our context, including ours, will allow for an unbiased estimate of the true effect of Black firearms access on lynchings, these results provide greater confidence that the underlying effect is negative.

Table A.8: Panel IV Poisson with two-way fixed effects

	1st Stage	2nd Stage	1st Stage	2nd Stage
law_{st}^{White}	-0.055^{**}		-0.053^{**}	
	(0.023)		(0.023)	
PSF^{Black}		-9.090^{**}		
		(4.194)		
$\text{PSF}^{Black} - \text{PSF}^{White}$				-9.604^{**}
				(4.311)
$\epsilon_{st1}(controlfunction)$		7.996^{*}		8.838^{**}
		(4.273)		(4.269)

Note: First- and second-stage results from instrumental variables estimation of the effect of Black Firearms on lynching. First stage estimates a state-year panel regression and the inclusion of law_{st}^{White} as a restricted variable. The second stage is an Poisson maximum-likelihood regression which include ϵ_{st1} as a control function l regression model of the state-year panel and include linear state-specific time trends. All regressions are estimated with the following covariates: log total population, population percent Black, White population density, White urban population density, Black population density, Black urban population density, and real output and capital per worker, both as totals and separately estimated within farming, manufacturing, and service sectors. Includes all member states from the Confederacy except Texas (insufficient data).