

CONFEDERATE DEATHS AND THE DEVELOPMENT OF THE AMERICAN SOUTH

TIM LARSEN

B.A. BRIGHAM YOUNG UNIVERSITY, 2010

M.A. UNIVERSITY OF COLORADO, 2013

A dissertation submitted to the Faculty of the Graduate School of the
University of Colorado in partial fulfillment of the requirement for the
degree of:

Doctor of Philosophy

Department of Economics

2015

This thesis entitled:

CONFEDERATE DEATHS AND THE DEVELOPMENT OF THE AMERICAN SOUTH

BY TIM LARSEN

has been approved for the Department of Economics

Professor **Murat Iyigun**, Chair

Professor **Ann Carlos**

Date: _____

The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

Abstract

LARSEN, TIM (PHD, ECONOMICS)

CONFEDERATE DEATHS AND THE DEVELOPMENT OF THE AMERICAN SOUTH

THESIS DIRECTED BY PROF. MURAT IYIGUN, DEPT. OF ECONOMICS

In this dissertation I present the first county-level estimates of deaths in the Confederate Army for eight of the former Confederate States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Virginia). As described in Chapter 2, I estimate the number of deaths by Confederate company (a unit of roughly 100 men) and map these back to the company's county of origin. Counties' death rates were driven by the battles in which their men fought, determined by generals for strategic reasons. This produces a wide distribution in county-level death rates, and it allows for causal inference in assessing the impacts of these losses on counties' later development.

In Chapter 3, I estimate the long-run effects of population loss on the economic geography of the South. Populations in counties with higher death rates caught up to neighboring areas within 15 years after the war, but then they kept growing. These increases were caused by migration, especially by African Americans: counties with ten percentage-point higher death rates had 14% larger black populations in 1900 and 27% larger in 1960. Migrants also increasingly went to counties that were less advantaged in Southern economy before the Civil War. The economic geography of the American South was thus changed significantly after the institutional shock from the Civil War.

In Chapter 4, I estimate the effects of relative labor scarcity on racial violence and political participation in the American South from 1865 to 1900. I find counties with 10 percentage-point higher death rates in the Civil War had 24-33% fewer lynchings of African Americans from 1866 to 1900. They also had 3.6-5.6% higher voter turnout despite a larger fraction of their population being black. These effects persisted for at least two decades after the counties' relative labor scarcity disappeared. However, in the very long run (100 years), counties with greater Civil War deaths saw a reversal, with much worse discrimination by the Civil Rights Era, likely due to their larger black populations and absence of economic incentives to prevent discrimination. This suggests relative levels of discrimination were not culturally determined and can change fairly quickly.

Acknowledgements

I am deeply grateful to each of my advisers, Murat Iyigun, Lee Alson, and Ann Carlos, who have helped me from my initial data gathering down through several drafts of the chapters, as well as for the excellent education I gained on research and economic history in each of their classes.

I also appreciate the help of Carol Shiue and Tania Barham during the early stages of the project and Myron Gutmann for his valuable insights on historical demography. Many others at the University of Colorado have helped with suggestions on the data, earlier drafts of the chapters, and presentations, including Francisca Antman, Ed Kosack, Greg Madonia, Austin Smith, Zach Ward, Jeff Zax, and Shuang Zhang.

I received helpful comments from participants at meetings of the Economic History Association (2013), the All-U.C. Group in Economic History (2014), especially Peter Lindert, the Western Economic Association (2014), the Southern Economic Association (2014) and two iterations of the chapters in our department's Economic History Brown Bag.

I am grateful to the Economic History Association for an exploratory grant which helped me begin my data collection, as well as for the use of facilities and help from librarians at the LDS Family History Library in Salt Lake City, UT, the University of Texas-Austin and the University of Texas-San Antonio, and the Alabama and Mississippi state archives. I am indebted to the many researchers who put together secondary sources from Civil War military records that I use for the bulk of the data in these chapters, especially Bing Chambers who kindly responded to email inquiries on his data and my methods. I'm also grateful for my time at the Center for Population Economics, where I first worked with military records and for my time as a research assistant to Joe Price, whose enthusiasm for research is infectious.

My greatest thanks go to my wife, Tanaya, who has been my biggest supporter and was there with me through all the ups and downs of the project. I am also grateful to my kids, Ty and Lucy, for sacrificing some time with daddy and to my mom, Diane Larsen, who provided excellent research assistance at a salary I could afford.

Table of Contents:

Chapter 1—Introduction.....	1
Chapter 2—County-Level Death Rates for the Confederate Army	9
Chapter 3—Switching Paths: Confederate Deaths and the Economic Geography of the Postbellum South	39
Chapter 4—The Strange Career of Jim Crow: Labor Scarcity and Discrimination in the American South.....	59
References.....	92
Data Sources.....	99

"History is something unpleasant that happens to other people. We are comfortably outside all that. If I had been a small boy in New York in 1897 I should have felt the same. Of course, if I had been a small boy in 1897 in the Southern part of the United States, I should not have felt the same; I should then have known from my parents that history had happened to my people in my part of the world."

- Arnold J. Toynbee (quoted in Woodward, 1968, p. 189-90)

CHAPTER 1

INTRODUCTION: REBUILDING IN THE POSTBELLUM AMERICAN SOUTH

1. Introduction

The Old South was shattered by military defeat in the American Civil War (1861-1865). In his famous "New South" address of 1886, Henry Grady described the conditions faced by returning Confederates:

"He finds his house in ruins, his farm devastated, his slaves free, his stock killed, his barns empty, his trade destroyed, his money worthless...his people without law or legal status, his comrades slain, and the burdens of others heavy on his shoulders.

What does he do? Does he sit down in sullenness and despair? Not for a day...Bill Arp struck the keynote when he said: "Well, I killed as many of them as they did of me, and now I am going to work," (p. 12-13).

The story of the Postbellum South, then, is largely one of rebuilding. Understanding the *ways* in which the South was rebuilt is immensely important—while the Southern experience may not be one to be repeated, the decisions made under the constraints faced can shed light on similar building in the wake of war, disaster, or poverty.

The chapters that follow focus on how the South's population and racial system were rebuilt after the war, for better or worse. From a variety of sources, I have assembled county-level estimates of deaths in the American Civil War for eight of the eleven former Confederate States (Virginia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas), accounting for 70% of the Confederacy's population. These are the first local-level estimates of losses in the Civil War, North or South. Comparing these counties across the decades after the war shows the differential effects of Civil War losses on the Southern economy.

Losses to the labor force were enormous—the Civil War resulted in over 750,000 deaths (Hacker, 2011), more than all other American wars combined. The South bore a disproportionate number of the fatalities, losing at least one-in-four white men of military age (Vinovskis, 1989). Overall the former Confederate states lost 4% of their population, a loss greater than any nation experienced in WWI (MacPherson, 1996). By way of comparison, the Spanish Flu epidemic of 1918 cost the United States roughly .6% of its population, with many of the deaths among groups not participating in the labor force.¹ WWII and the Vietnam War cost the United States .3% and .03% of its population respectively.² Singer & Small (1972) found that in 93 wars between 1816 and 1965, there were few cases where battle deaths exceeded even 2% of the prewar population.

Outside of ending the slave system, the war's death toll was likely its greatest impact on the Southern economy. Still, Southern deaths in the American Civil War have received little formal treatment. Early publications were simply efforts to count the dead. Later studies were largely commentaries on how the losses affected the Southern psyche, such as the worship of the Lost Cause and the region's inferiority complex. Drew Gilpin Faust's *This Republic of Suffering* (2008) is perhaps

1 Calculated using deaths reported by U.S. Department of Health & Human Services (2014).

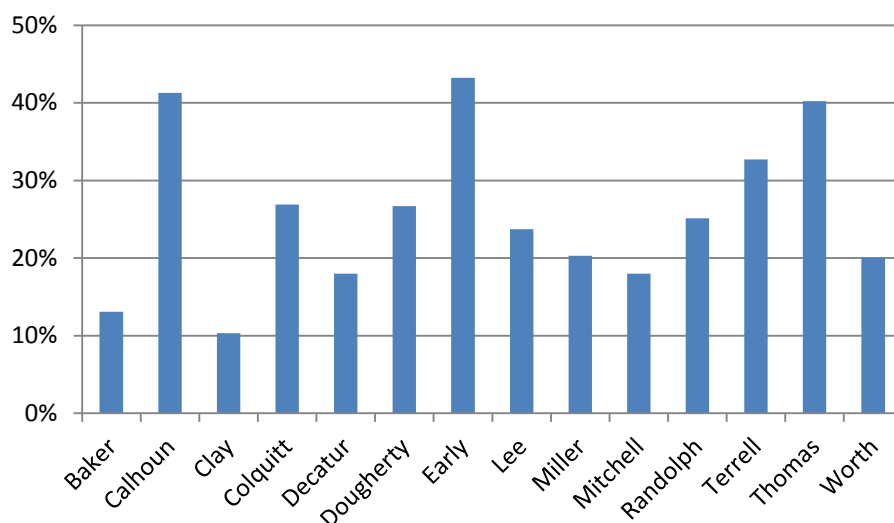
2 Calculated from U.S. deaths for each war reported in Chambers (1999).

the best work to date on deaths in the American Civil War, but it is a social history, explaining the ways in which Americans dealt with the losses and how it affected the way the nation viewed itself going forward. Hacker (2001) gives a wonderful analysis of the demographic effects of the war on the Southern white population, but he deals with the entire Southern population as one. His analysis thus answers different questions than economic questions that require variation across observations. No comparisons are made among areas experiencing differential losses within the region.

In the chapters that follow, I use new data on county-level death rates in the Civil War to compare outcomes across counties within the American South. Since Confederate units were generally composed of men from the same city or county, differing troop assignments in the war led counties to have widely ranging death rates. Shelby Foote noted, “You do have a big problem when you have units that are from states, and counties, and even towns, and one of those regiments can get in a very tight spot in a particular battle, like in the cornfield at Sharpsburg, and the news may be that there are no more young men in that town...they're all dead,” (quoted in Burns, 1990).

Generals made troop assignments for strategic reasons, so their decision-making was unrelated to counties’ pre-war conditions, such as levels of income or education. Confederate armies were also very large, often comprised of units from many states and hundreds of counties—men from a single county would be unlikely to have affected generals’ decision-making for armies this large. In the end, locally-recruited units with assignments differing only for strategic reasons created a large distribution in death rates, and the distribution is uncorrelated with any observable county characteristics in 1860. Death rates for several neighboring counties in southwest Georgia are shown in Figure 1.1.

FIGURE 1.1:
DEATH RATES FOR NEIGHBORING COUNTIES IN SOUTHWEST GEORGIA
IN THE AMERICAN CIVIL WAR



Note: Death rates calculated as the number of soldiers reported dead from each county divided by the white male population age 15-39 in the 1860 U.S. Census

Since the war created a random shock to local populations, comparing the rebuilding of populations across Southern counties uncovers *causal* relationships between population and development. These losses represent a unique historical event—in nearly all cases, a region’s labor force is determined by the region’s prior development or other simultaneous factors. The differential recoveries of otherwise-similar Southern counties can thus help us understand relationships between population and development that could be relevant to other parts of the world as well.

2. Ch. 2—County-Level Death Rates in the Confederate Army

Chapter 2 summarizes the sources and methods for constructing county-level estimates of Confederate deaths for Virginia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas. Data on deaths come from a variety of sources for each state, and information from

historians and genealogists allow me to connect Confederate companies (units of roughly 100 men) to the counties where they were raised. These are the first county-level estimates of losses in the Civil War, and their wide distribution within states makes the analysis in the later chapters possible.

As these are the first estimates of their kind for the American Civil War, I also discuss the various weaknesses in the records, including gaps in the military records and service units that are excluded from the counts. While I believe the death rates to be uncorrelated with any characteristics of the counties the men came from, I also explain how I use data on battles that each company fought to generate predicted death rates for each county, driven solely by generals' decisionmaking and unaffected by unobserved factors such as a county's pre-war health conditions.

3. Ch. 3—Switching Paths: Confederate Deaths and the Economic Geography of the Postbellum South

Goldin & Lewis (1975) estimate lost human capital from the American Civil War at \$2.3 billion in 1860 U.S. dollars. This includes losses from both the dead and wounded. Over \$400 million of the loss was compensated through a risk premium in the soldiers' pay, however. For its part, the South lost \$684 million in human capital due to deaths and an additional \$261 million due to wounds, with \$178 million of this being compensated.³ Putting the numbers in human terms seems more dramatic—the South lost at least 258,000 men in the war (Livermore, 1900), amounting to one in four white men of military age (Vinovskis, 1989), with some areas losing men at twice that rate.

The Civil War, however, did not affect the nation's long-term population growth, nor did it affect Southern marriage or fertility rates in the long run, though there was a deficit of 1.2 million

³ These are based on death counts from Livermore (1900), reported in Randall & Donald (1961), which may be inaccurate. This is treated in detail in Chapter 2.

births from 1861-1865 (Hacker, 2001). Hacker (2001) concludes that “the war’s impact on the white population was remarkably short-term,” (p. 7).

In Chapter 3, I explore the effects of the war on the economic geography of the South—where Southerners chose to live for decades afterwards. Counties with more Civil War deaths caught up to neighboring areas’ populations within 15 years. They then continued to grow, pushing far past convergence with neighboring counties by 1900: counties with ten percentage-point higher death rates (roughly one standard deviation) had 9% larger populations in 1900, and by 1960, nearly 100 years after the war, the margin grew further to 16%. I find even stronger results for counties’ African American populations: counties with ten percentage-point higher death rates had 14% larger black populations by 1900 and 27% larger by 1960. Black populations in these counties remain higher than in otherwise similar counties today.

Population growth appears to have come through migration, especially black migration, to counties with higher death rates in the Civil War. The economic geography of the South was also shifted following the war as migrants increasingly went to labor-scarce counties participating in newer industries, such as resource-intensive manufacturing. They decreasingly went to labor-scarce counties that were advantaged in the pre-war economy, such as plantation counties and counties with rail access. Thus while the Civil War may have had little long-term effect on the nation’s population as a whole, it did have considerable effects on local populations in the South.

4. Ch. 4—The Strange Career of Jim Crow: Labor Scarcity and Discrimination in the American South

Of all the South’s rebuilding efforts after the war, most attention by far has been paid to its attempts to reshape its racial system in the wake of emancipation. There is considerable argument as

to how extensive discrimination was in the Postbellum period and to what extent the later rules of the Jim Crow system were already in place soon after the war. For example, in *The Strange Career of Jim Crow* (1955/1974), C. Vann Woodward, argues that there was considerable variation in discrimination and segregation in the South until 1900. He further rejects the then-prevailing notion that the Southern racial system on the eve of the Civil Rights Movement was “as it always had been.”

In Chapter 4, I test whether acts of “non-market” discrimination (discrimination that occurs outside of the labor market), were affected by the labor scarcity counties experienced following the Civil War. By economic theory, competitive markets should eliminate taste-based discrimination in labor markets, so I test whether they can affect discrimination more broadly in society as well. Labor scarcity led counties to have less racial violence—counties with 10 percentage-point higher death rates in the Civil War had 24 to 33% fewer lynchings from 1866-1900. These counties also had greater political participation from African Americans as counties with 10 percentage-point higher death rates had 3.6-5.6% higher voter turnout from 1868-1900. These effects lasted for at least two decades after relative labor scarcity across counties had vanished, suggesting a possible shift in the counties’ racial norms.

However, in the very long run (100 years after the Civil War), racial outcomes were reversed. Voting from 1920-1960 and black voter registration in 1960 were much lower in previously labor-scarce counties. Racially motivated murders in from 1950-1970, including murders of civil rights workers of both races, were 55% more likely in counties with 10 percentage-point higher death rates in the Civil War. These counties were also more likely to refuse to integrate their schools, precipitating court actions. These results stem from the dramatic growth of the black population in counties with greater labor scarcity following the Civil War. Absent economic incentives for better

racial treatment, whites took full advantage of formal and informal instruments to oppress blacks after 1900, and did so to a greater extent in counties with more African Americans. These reversals strongly reject the idea of racial treatment being constant and culturally determined in the U.S. South—in just 2-3 generations, the same areas that had prevented lynchings were now killing Civil Rights workers. This contrasts strongly with the findings of Voigtlander and Voth (2012) and Jha (2009) who find an extreme persistence of cultural traits, lasting several centuries.

CHAPTER 2

COUNTY-LEVEL DEATH RATES FOR THE CONFEDERATE ARMY

1. Overview

This project presents the first estimates of county-level deaths in the American Civil War. These are calculated for eight of the eleven former-Confederate States: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Virginia. Deaths in the Confederate Army represent the largest mortality event in American history, but they have never been used in empirical work because little was known about where the soldiers were from. Previously even state-level counts were wildly inaccurate. Projects in North Carolina and Virginia have found earlier estimates to be off by more than 50 and 100% respectively (McWhirter, 2011). In Georgia, which was supposed to have lost 10,974 men in the war (Fox, 1889), I have counted nearly 24,000. Without knowing the geographic distribution of the deaths, it is difficult to make meaningful comparisons in the region's post-war development.

Producing estimates of county-level deaths involves counting deaths by Confederate company (a unit of roughly 100 soldiers) from existing military records and then mapping them back to counties of origin. I calculate death rates as the total deaths from all of a county's companies divided by the military-eligible population—the number of white males between the ages of 15-39 in the 1860 U.S. Census.

Unlike modern armies, Civil War units were raised locally, so nearly all Confederate companies can be connected to a county of origin. A majority of companies even carried geographic designations in their nickname, such as the Richmond Greys (from Richmond, Virginia) and the Bartow Yankee Killers (from Bartow County, Georgia), evidence of the common place of origin for soldiers in the unit.

The distribution of death rates across counties has a particularly wide variance due to the recruitment pattern. For example, Company F of the 26th Regiment North Carolina Infantry experienced 100% casualties during Pickett's Charge at Gettysburg (McGee, 2014).⁴ Nearly all of those men are documented as coming from Caldwell County, which was sparsely populated, before the war. Variations in such devastating losses drive the empirical strategy in later chapters—neighboring counties, with similar initial characteristics, experienced very different death rates as their young men were sent to different battles and campaigns.

In Section 2 I summarize previous efforts to count deaths in the American Civil War. Section 3 explains how I count deaths from military records as well as the various sources used for each state. Deaths listed in military records are summed by Confederate company—Section 4 shows how these companies, which were raised locally in the Confederate Army, are connected to counties of origin. Section 5 describes the distribution of the death rates across counties in the American South. While the distribution appears random and is uncorrelated with counties' observable characteristics in 1860, Section 6 discusses possible biases in the death rates through unobserved characteristics. As these could pose threats to identification in later analysis, I describe solutions for each.

⁴ Regiments were units of 10-12 companies, designed to have at least 1,000 men. Companies within regiments almost always moved together, thus the regiment was the smallest unit of troops for which generals made assignments.

2. Previous Work on Deaths in the American Civil War

Counting fatalities became a national priority soon after the war as survivors, both North and South, struggled to come to terms with the magnitude of the losses. Initially, many believed the war would end in the summer of 1861 with little blood: at a convention to discuss North Carolina's secession in May 1861, A. W. Venable declared that he would "wipe up every drop of blood shed in the war with this handkerchief of mine," (Foote, Vol. 1, 1958).⁵ The enormous loss of life that actually ensued in over four years of battles was unfathomable for the nation, both relative to expectations and previous experience—within a year after the first shots were fired on Fort Sumter, casualties surpassed that of all previous American wars combined.⁶ Numbering the dead "offered an escape from the reality of the event in some ways, as the loss of so many individual lives became translated into emotionless, hard statistics," (Howard, 2014). Counting also became a point of pride as losses became symbols of valor (Howard, 2014).

The first report on aggregate losses was published in 1866 by Gen. James B. Fry, United States Provost Marshall General. Fry utilized all available Union Army records as well as muster rolls (monthly reports filled out by company captains) obtained from the Confederate Archives at the close of the war. The Confederate records, however, were very incomplete. This led to a severe undercount of the Southern dead — Fry numbered Southern losses at 133, 821 due to combat and disease, just over half of the current estimate. Union totals were revised upwards through 1885,

⁵ Many later believed the entire war would be decided at the First Battle of Bull Run (July 21, 1861). Politicians and others from Washington even went to watch the battle from nearby hilltops. As the Union Army scattered and fled towards Washington, many spectators were caught up in the retreat, and some were even captured (Foote, Vol. 1, 1958). Among the few that predicted a long, bloody conflict from the southern states' secession was William Tecumseh Sherman, who newspapers labeled as "insane" for requesting 200,000 troops for the western theater in 1861 (Foote, Vol. 1, 1958). Over 2 million men eventually served in the Union Army, almost half of them in the west.

⁶ Calculated from weekly Civil War casualties reported in Greer (2005) and casualties from previous wars reported in Whiteclay (1999).

growing from Fry's initial 278,869 to 360,222. Southern counts, however, were untouched (Howard, 2014).

William F. Fox's *Regimental Losses in the American Civil War*, published in 1889, is the last source to number deaths by state, and is still often cited as the official source on state-level losses. Confederate numbers, however, were again unchanged from Fry's original report. None of these books ever reported deaths by a geographic designation finer than the state.

The commonly reported figure for aggregate Confederate losses, 258,000 was calculated by Thomas R. Livermore in 1900. This was nearly double the previous estimate, but he did not break the deaths down by state or any other geographic subdivision. Livermore's contribution was extrapolating the Union Army's rate of death from disease to the Confederate Army, where deaths from disease had almost certainly been undercounted. He then added these deaths to the known combat fatalities to reach a more accurate total. Hacker (2001) suggests that Southerners actually died from disease at higher rates than Northern soldiers, so this figure still likely represents an undercount.⁷

Over the years, several Southern states have attempted to account for their own dead. The first such effort was South Carolina's *Roll of the Dead*, completed in 1870, which lists over 13,000 war fatalities. The state legislature commissioned University of South Carolina Prof. William James Rivers to start on the list even before the war had ended.⁸ In the early 1900s, North Carolina and Louisiana each published lists of the Confederate soldiers that had served from their states. Some brief summary information was included for the soldiers, including deaths, though no effort was made to count the dead. The Civil War's centennial in the 1960s sparked multi-volume lists of

⁷ For example, Hacker (2001) suggests estimates of Southern deaths from diarrhea are 10 to 20% too low.

⁸ His manuscript was lost for a century then rediscovered in the state archives and republished in 1995.

soldiers in Georgia and North Carolina with more extensive summary information. Florida published a multi-volume set in 1995, with extensive biographical information from multiple sources. South Carolina also compiled a list of known deaths from the state in 1995, adding substantially to the earlier list.

Starting in 2011, the sesquicentennial anniversary of the Civil War has led to state funding of more exhaustive counts of the Civil War dead in Virginia and North Carolina. These projects, along with work in South Carolina by amateur historian Bing Chambers, represent the most accurate counts to date for any states. However, the remaining eight Confederate states have no accurate counts of their Civil War losses, nor has any effort been made to count losses at the county level for any state with the exception of South Carolina (Kirkland, 1995).

3. Deaths by Company from Military Records

3.1 U.S. Archives' *Compiled Service Records*

To construct county-level death rates, I begin by counting deaths by Confederate company using existing military records. The original sources for most of my company-level counts are the U.S. Archives' *Compiled Service Records for Confederate Soldiers* for each former Confederate state. These records were assembled by the U.S. Archives starting in 1903 and combined all existing documents into a single file for each soldier. Each former Confederate state relinquished their existing records to the National Archives, and these were combined with all Confederate documents seized at the end of the war. The records are supplemented with Union Army records, such as records of prisoners of war (including hospitalizations and deaths), lists of soldiers surrendering to various Union armies in 1865, and soldiers released from Union custody upon swearing allegiance

to the United States. The soldiers were then grouped by regiment (units of 10-12 companies), with their companies listed on documents in the file. Soldiers have on average 8-10 documents each in the *Compiled Service Records*, though this varies widely.

For several states, secondary sources are available that summarize the *Compiled Service Records* for each soldier. In either case, I use the information provided to code each soldier as having died or survived the war.⁹ Survivors have records indicating they were discharged, resigned their post, were released from prison upon swearing an oath of allegiance to the United States, surrendered in 1865, were mustered out of the service, etc. Deaths are generally listed on multiple documents in the soldier's file including muster rolls (listings of each soldier in a company and their condition in a given month), battle reports, hospital records, records from Union prisons, letters notifying family members of the soldier's death, the family's claims for back pay, or requisitions for coffins. These deaths are then aggregated by Confederate company, which is listed on the soldier's records.

3.2 Missing Records

Roughly one quarter of soldiers in the *Compiled Service Records* cannot be classified as either dead or living at war's end. In 1865, as the siege lines at Petersburg neared the Confederate capital in Richmond, VA, the Confederate Archives were shipped south to Charlotte. Some records after this date were never centrally collected, and some earlier records were lost in transit as well. Much of what happened to individual soldiers after January of 1865 is thus difficult to ascertain in the

⁹ A third group is also coded as "Deserters." Deserters were common, but many returned, so only those whose last surviving record indicates desertion are listed as such. Deserters who did not return probably survived the war, but they are listed separately since different levels of desertion across counties could bias the death rates. In practice, however, controlling for deserters in the estimations in later chapters does not affect any results.

Compiled Service Records unless they are supplemented by a document from Union records (such as a surrender, which was common in 1865) or a death record other than a muster roll. The degree of losses from January 1865 to Lee's surrender in April was, however, relatively small compared to other years of the war. Greer (2005) estimates that less than 10% of Confederate casualties (soldiers dead, wounded, or captured) came in 1865.

Many of these "missing" soldiers can be found in other records such as pension applications, grave indexes, newspapers, and censuses and added to their company's data. Researchers have done this for the Virginia, North Carolina¹⁰, South Carolina, and Florida records, but not yet for the other five states in the sample. All soldiers with missing records are implicitly assumed to have survived the war—I sum documented deaths by company, so missing soldiers are never included in the counts. Subsamples of the data in Georgia suggest almost of the soldiers without final documentation did in fact live through the war's end.¹¹

3.3 Exact Sources by State

A. Virginia and South Carolina

Deaths for Virginia soldiers are listed in the Library of Virginia's online database *Virginia Military Dead*, which chronicles all of Virginia's war deaths through the years, with the vast majority coming in the Civil War. In South Carolina, Bing Chambers has worked for 20 years to create a study similar to Virginia and North Carolina's. Beginning with over 17,000 deaths listed in Randolph Kirkland's *Broken Fortunes* in 1995, Chambers has added another 3,000 soldiers to the state's death

¹⁰ Unfortunately I have not been able to include the North Carolina data here, however, as it is still unpublished and a request to use the data is still in process after three years.

¹¹ I intend to sample companies in other states as well.

toll. The South Carolina study intends to publish county-level counts by connecting companies to known counties of origin as I have done. I have calculated both company and county totals manually for Virginia.

Deaths for each of these states have been documented from a variety of sources. In each case, researchers found the majority of the deaths in the *Compiled Service Records*, but they added to their lists using information from pension applications, census records, grave indexes, newspapers, and letters (McWhirter, 2011; Howard, 2014). The “missing” soldiers (those without final documentation in the *Compiled Service Records*), then, are much less of a problem in these states since most of the uncounted deaths have been found in other sources. Soldiers’ status at the end of the war will still be unknown if they cannot be found in *any* historical documents. Thus the counts still represent a lower bound (Chambers, 2013), though they include nearly every death that can be found using existing records, and deaths tend to be well-documented, both during and after the war.

B. Florida

Civil War deaths in Florida (forthcoming) come from Hartman & Coles’ (1995) 5-Volume *Biographical Rosters of Florida’s Confederate and Union Soldiers, 1861-1865*. This state-funded work is the most complete of any source on a states’ Civil War soldiers, though this is likely because Florida only furnished a very small number of troops. The authors use all available sources to compile fairly detailed biographical information each of Florida’s soldiers. This again circumvents the problem of soldiers with no final documentation in the *Compiled Service Records*. No counts of the deaths are provided for companies or counties, so I calculate them manually from the information provided.

C. Georgia, Louisiana, and Arkansas

I count deaths for Georgia, Louisiana and Arkansas companies using secondary sources that directly summarize the documents found in the *Compiled Service Records*. No information is added from any other sources. Data for Georgia's infantry troops, which made up over 80% of the state's forces, are summarized in the 6-volume *Roster of the Confederate Soldiers of Georgia* (1964). Summaries for Louisiana soldiers come from Andrew Booth's *Records of Louisiana Confederate Soldiers and Louisiana Confederate Commands* (1920). This 3-volume set was published much earlier than similar work in other states but after the *Compiled Service Records* had been assembled in Washington. For Arkansas, Civil War historians have summarized soldiers' records by company and posted them to a common website.

The Georgia (Infantry), Louisiana, and Arkansas sources list all soldiers who served from their respective states. Like Florida, no counts of deaths are provided or, to my knowledge, have ever been made. I count the deaths manually and sum them by company using the unit information provided.

Men serving in the cavalry and artillery are not listed in the *Roster of the Confederate Soldiers of Georgia*. Where possible, I count deaths for these companies using regimental histories that include biographical information on the soldiers. Most units do not have such histories, so I count deaths for the remaining companies directly from the Archives' *Compiled Service Records* for Georgia.

D. Alabama

I count deaths for Alabama soldiers from the Alabama Department of Archives & History's *Alabama Civil War Service Database*. For several decades, the archives' staff maintained the records as index cards—each time they came across soldiers' records in any source a new card was created.

Sources included the *Compiled Service Records* as well as pension records, muster rolls, governors' correspondence, veterans' censuses, manuscript collections, and newspapers. There was never, however, any comprehensive effort to find all Alabama soldiers, and as such the database can be thought of as a random sample of soldiers. Most soldiers are in the sample, though: there are over 138,000 entries for unique soldiers whereas it was previously believed that about 120,000 men from Alabama were in Confederate service during the war. Furthermore, the 15,570 deaths listed for Alabama soldiers are higher than most estimates and ten times higher than Fox's (1889) total, the only previous count based on actual military records.

E. Mississippi

I also count deaths for about 25% of Mississippi's companies (in progress). Mississippi has no secondary source for the military records of its over 100,000 Confederate soldiers. For this reason, I do not count deaths for all companies at this time. Information for the 25% of units that will be counted comes from three sources. First, like the Georgia cavalry and artillery, some regiments have published rosters with biographical information, including death dates. Additionally, a few regiments have rosters with biographical information posted on websites, like the Arkansas data. Deaths of soldiers in the remaining regiments must be counted from the *Compiled Service Records*. This will be done for 8-10 regiments, each with roughly 1,500 soldiers with 8-10 documents each.

Death rates for the remaining Mississippi companies are imputed. Stewart Sifakis (1995) gives data on each battle a company fought. Using the companies with known death rates, including those from all other states in the sample, I use the battle data to fit a model predicting deaths based on the dates, number, and intensity of battles in which companies participated. This battle data is

available for all of the remaining 75% of Mississippi companies, so deaths can be predicted for each of them.¹²

F. Other States

Death rates for the remaining Confederate states, North Carolina, Tennessee and Texas, are not included at this time. North Carolina data may be included in future research, as the state has researched soldiers' deaths across many sources, similar to the work done in Virginia. Data on these deaths were forthcoming in a book to be published by the Office of Archives & History's North Carolina Civil War Death Study in 2015, but publication has been put on hold indefinitely.

Neither Tennessee nor Texas has any secondary source for their soldiers' records. Sifakis (1995) does provide battle data for these states' companies, so death rates could be imputed as with the Mississippi troops. However, both are likely outliers. A large percentage of Tennessee soldiers fought in the Union Army, which could introduce other biases into the death rates. Most regions of Texas were still lightly populated, so its future economic development may have had little to do with Civil War losses. In the future I may include imputed death rates for eastern Texas and western Tennessee.¹³ The Border States (Maryland, Kentucky, and Missouri—slave states that did not secede from the Union) are not included in the data, nor is West Virginia (which broke from Virginia to become a state in the Union in 1863) or the Indian Territory (now Oklahoma).¹⁴ Each of these states, with the exception of West Virginia, sent large numbers of troops to fight for the

¹² In practice, I only include the Mississippi data in IV estimations where every Confederate company's death rate is a predicted value from the first-stage regression. See the later section in this chapter on "Deaths from Disease and Predicted Death Rates."

¹³ The eastern part of the state attempted to rejoin the Union as a new state, East Tennessee, and heavily supported the Union throughout the war.

¹⁴ Slavery was still legal in the District of Columbia and Delaware, but these areas did not raise Confederate troops, though individuals may have served for the Confederacy as a part of other units.

Confederacy, but they also sent many men to fight for the Union, which could influence the death rates for different county-types.¹⁵ These states were also treated differently by the federal government both during and after the war.

Table 2.1 summarizes the sources and descriptions of the data for the nine former-Confederate states in the sample. Table 2.2 shows Fox's (1889) estimates of deaths by state as well as updated estimates from my work and the other sources listed. *County*-level deaths are used in all the later analysis—my state-level counts are only intended to represent the how lacking the earlier data was on Confederate deaths by any geographic subdivision.

4. County-Level Death Rates

Unlike modern armies, Civil War units were raised locally, so nearly all Confederate companies can be mapped back to a county of origin. I am able to do this using records from Civil War historians as well as some summary documents included with the Archives' records. The roots of county-based military units preceded the war—the South had long used a militia system for local defense, based at the county level (Fleming, 1905). Some of these companies had been mustered into U.S. service in the Mexican war, and they similarly formed Confederate units in 1861-62. Almost every additional Confederate unit was raised at the county or city level as well. Nearly all Confederate soldiers were volunteers, but the conscription that did take place was based on county quotas, so these men also served in local units. As noted earlier, most companies even carried

¹⁵ Kentucky and Missouri also set up Confederate state governments, sent representatives to the Confederate congress, and had stars on the Confederate flag, but these were shadow governments and the states never seceded from the Union.

TABLE 2.1:
DATA SOURCES AND DESCRIPTIONS BY STATE

Source	Type	Soldiers	Original Sources	Notes
ALABAMA ADAH Civil War Service Database	Database	Majority Sample	Multiple, including <i>Compiled Service Records</i>	Majority sample, but not exhaustive listing
ARKANSAS Edward G. Gerdes Civil War Home Page	Website	All	<i>Compiled Service Records</i>	Pages for each Arkansas company
FLORIDA <i>Biographical Rosters of Florida's Confederate and Union Soldiers, 1861-1865, Vol. 1-5</i>	Book	All	<i>Compiled Service Records</i> , supplemented with other records	
GEORGIA Infantry: <i>Roster of the Confederate Soldiers of Georgia, Vol. 1-6</i> Cavalry, Artillery: <i>Compiled Service Record</i> , regimental histories	Infantry: Book Cavalry, Artillery: Microfilm, books	All	Infantry: <i>Compiled Service Records</i> Cavalry, Artillery: <i>Compiled Service Records</i> , supplemented with other records (regimental histories only)	Cavalry, Artillery: <i>Forthcoming</i>
LOUISIANA Andrew Booth, <i>Records of Louisiana Confederate Soldiers</i>	Book	All? (see Notes)	Probably <i>Compiled Service Records</i>	Source published in 1920, probably missing many soldiers
MISSISSIPPI 25%: <i>Compiled Service Records</i> regimental histories, and online company rosters 75%: None	Microfilm, books, websites	25%	25%: <i>Compiled Service Records</i> , supplemented with other records (regimental histories only)	Remaining 75% <i>imputed</i> from battles they fought
SOUTH CAROLINA Bing Chambers, <i>And Were the Glory of Their Times</i>	Book (unpublished)	Deaths only	<i>Compiled Service Records</i> , supplemented with other records	

TABLE 2.2:
DEATHS BY SOUTHERN STATE IN THE AMERICAN CIVIL WAR

State	Fox's Estimate (1889)	Updated Estimate	My Estimate	Previous County- Level Estimates
<i>Alabama</i>	1,466	--	15,570+	No
<i>Arkansas</i>	6,862	--	5,903+	No
<i>Florida</i>	2,346	--	<i>Forthcoming</i>	No
<i>Georgia</i>	10,974	--	23,486+	No
<i>Louisiana</i>	6,545	--	5,903+	No
<i>Mississippi</i>	15,265	--	<i>Forthcoming</i>	No
<i>North Carolina</i>	40,275	31,000+	--	No
<i>South Carolina</i>	17,682	20,000+	--	Yes
<i>Virginia</i>	14,794	31,000+	--	No

Notes: Cavalry and Artillery deaths still uncounted for Arkansas and Georgia. Florida counts are pending the receipt of a grant. Louisiana counts are almost surely too low as the source for my counts was published in 1920. Mississippi will not be counted, but rather imputed based on battle data for their troops. Data for Virginia and the Carolinas comes from projects in each state that verified deaths across multiple sources. See sections on individual states for more details on each.

geographic designations in their nicknames, such as the Chunky Heroes (from Chunky, Mississippi), the Catahoula Guerillas (from Catahoula County, Louisiana) and the Hot Spring Hornets (from Hot Spring County, Arkansas), suggesting a common home-county for the soldiers in the unit. Table 2.3 shows the companies of the 12th Alabama Infantry and the 26th Georgia Infantry with their nicknames.

Not every soldier in a Confederate company came from the company's listed county of origin, but a wide majority did. Genealogists use this connection between companies and counties to find soldiers' military records and places of residence. There was no direct need for men to migrate to join a unit—in my sample, every county in each state raised at least one company, with the

TABLE 2.3:
NICKNAMES AND COUNTIES OF ORIGIN, 12TH ALABAMA & 26TH GEORGIA INFANTRIES

Regiment	Company	Nickname	County of Origin
12 th AL Infantry	A	Lafayette Guards	Mobile
"	B	Coosa Volunteers	Coosa
"	C	Independent Rebels	Mobile
"	D	Coffee County Rangers	Coffee
"	E	DeKalb Invincibles	DeKalb
"	F	Macon Confederates	Macon
"	G	North Alabama Sharpshooters	Jackson
"	H	Magnolia Rifles	Morgan
"	I	Southern Foresters	Mobile
"	K	Tom Watts' Rebels	Macon
26 th GA Infantry	A	Glynn Guards	Glynn
"	B	Camden* Rifles	Glynn
"	C	Seaboard* Guards	Camden, Wayne
"	D	Ware Guards	Ware
"	E	Faulk Invincibles	Twiggs
"	F	Okefenokee [†] Rifles	Charlton
"	G	-	Lowndes
"	H	Forest Rangers	Clinch, Ware
"	I	Piscola* Volunteers	Brooks
"	K	Brunswick* Rifles	Glynn
"	L	Wiregrass [†] Minutemen	Ware
"	M	McIntosh County Guards	McIntosh
"	N	Pierce Mounted Infantry	Pierce

* These units names for cities within the listed counties

† These units named for other geographic features in/characteristic of the county listed

exception of two parishes (counties) in Louisiana.¹⁶ Larger cities raised more units, but there does not appear to be a systematic pattern of traveling to cities to enlist. Furthermore, most men preferred to serve in units from their home towns and counties, and the army saw far less desertion and more camaraderie from organizing units in this fashion (Costa & Kahn, 2003). The largest source of measurement error on this account is from soldiers who lived near county borders and joined a

¹⁶ These are dropped from the sample in the later analysis.

company from the adjacent county. To the extent this occurred equally in both directions it would simply attenuate the estimates reported in later chapters.

Matching companies to counties can be tested for some units whose enlistment papers still exist. These documents record the soldiers' county of residence at the beginning of the war, though the field was not filled out for several soldiers. Data from the 26th North Carolina Infantry, one of the few units with a significant number of surviving enlistment papers, are shown in Table 2.4. Despite soldiers who lack information on their county of residence, the data suggests that mapping deaths back to companies' listed county of origin is likely 80-90% accurate.

Several groups cannot be linked to a specific Southern county. Most states in the sample raised Union companies, but they were generally comprised of men from several counties. Soldiers who served at the regimental level or higher (officers with a rank above captain, surgeons, musicians, and officers' staffs) are similarly excluded from the counts—these men were not associated with a single company, so they cannot be mapped back to a county without further documentation. Also excluded are soldiers who served in specialized units, which drew from areas throughout the state, as well as soldiers serving under the authority of Confederate States of America (rather than their home state)¹⁷. This includes the Navy, though there were very few Confederate sailors in the war. America (rather than their home state)¹⁸. This includes the Navy, though there were very few Confederate sailors in the war.

¹⁷ Nearly all soldiers served in units organized by their states, not the Confederate government, though the Confederate government appointed the generals to command armies, made up of regiments from several states.

¹⁸ Nearly all soldiers served in units organized by their states, not the Confederate government, though the Confederate government appointed the generals to command armies, made up of regiments from several states.

TABLE 2.4:
CONNECTING COMPANIES TO COUNTIES: PERCENT OF SOLDIERS FROM GIVEN COUNTIES
OF ORIGIN, 26TH NORTH CAROLINA INFANTRY

Company	County	(1) Best Estimate	(2) Lower Bound	(3) Upper Bound
A	Ashe	80.1%	68.6%	83.0%
B	Union	83.4%	75.0%	85.1%
C	Wilkes	94.9%	84.3%	95.5%
D	Wake	87.0%	23.5%	96.5%
E	Chatham	94.6%	76.1%	95.7%
F	Caldwell	88.7%	85.6%	89.1%
G	Chatham	77.8%	10.6%	97.0%
H	Moore	97.6%	86.5%	97.8%
I	Caldwell	82.4%	59.9%	87.2%
K	Anson	95.8%	87.8%	96.1%
All		89.2%	65.7%	92.0%

Notes: Column 1: The percent of soldiers who are documented as residing in the company's given county of origin, excluding soldiers whose enlistment papers do not list a place of residence before the war. The lower bound (column 2) assumes all soldiers without a listed residence are *not* from the given county. The upper bound (column 3) assumes all soldiers without a listed residence are in fact from the given county.

In all cases, soldiers can still be assigned to counties of origin if they began the war serving in a local company since their records are grouped with the original unit in the *Compiled Service Records*. For example, a captain of a company in 1861 who was promoted to colonel (commanding a regiment) can still be assigned to a county of origin. This also applies to units with high casualties that were consolidated later in the war—records are grouped with the original unit. The soldiers in these in these excluded groups who cannot be matched to a county made up a small minority of the Confederate Army.

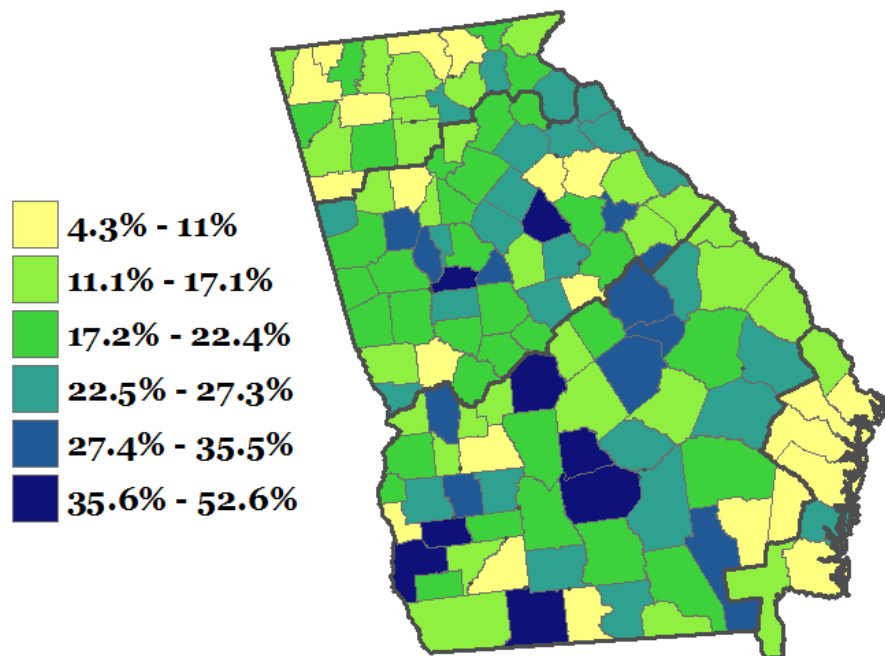
Using information on companies' county of origin, soldiers can thus be connected to their home county without enlistment papers or any other record of their place of residence in 1860. This is the key strategy in constructing county-level death rates. I count total county deaths by summing

the recorded deaths over all companies that were raised in that county. I then calculate death rates, which are used in all the analysis in later chapters, as total Confederate deaths in a county divided by the military-eligible population, the number of white males aged 15-39 in the 1860 U.S. Census.

5. Distribution of Death Rates

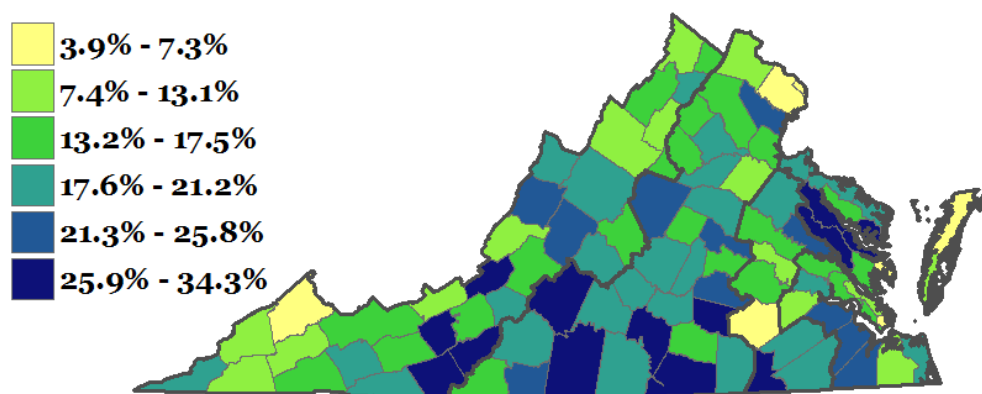
County-level death rates are randomly distributed within state-regions. These are defined as the Appalachian, Piedmont, Coastal Plain, and Coastal geographic areas within each state. Death rates for Georgia, Virginia, and Louisiana are shown in Figures 2.1 through 2.3 with regions outlined in heavy borders.

FIGURE 2.1:
GEORGIA DEATH RATES IN THE AMERICAN CIVIL WAR BY COUNTY



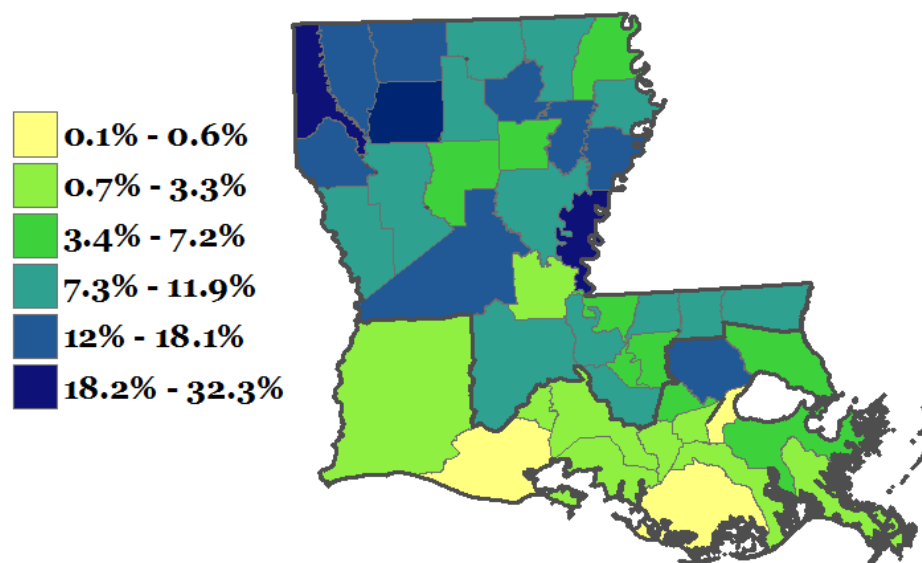
Notes: Death rates calculated as the number of deaths in each county divided by the number of white men age 15-39 in the 1860 U.S. Census.

FIGURE 2.2:
VIRGINIA DEATH RATES IN THE AMERICAN CIVIL WAR BY COUNTY



Notes: Death rates calculated as the number of deaths in each county divided by the number of white men age 15-39 in the 1860 U.S. Census.

FIGURE 2.3:
LOUISIANA DEATH RATES IN THE AMERICAN CIVIL WAR BY PARISH



Notes: Death rates calculated as the number of deaths in each parish divided by the number of white men age 15-39 in the 1860 U.S. Census.

Deaths were largely determined by where soldiers fought, chosen by high-ranking officers without regard to counties' initial characteristics. As an example, the number and type of battles that companies from southwest Georgia were sent to are shown in Table 2.5:

TABLE 2.5:
BATTLE ASSIGNMENTS AND AVERAGE DEATHS PER COMPANY FOR COUNTIES
IN SOUTHWEST GEORGIA

County	Avg. # of Battles	Small Battles	Medium Battles	Large Battles	% at 7 Days Battles	% at Antietam	% at Fredericksburg	% at Chancellorsville	% at Gettysburg	% at Chickamauga	% at Petersburg Siege	Avg. Deaths per Company
<i>Baker</i>	11.3	1.3	3.1	1.9	-	-	.63	.63	.63	-	.63	16.5
<i>Clay</i>	14.7	4.0	3.7	2.3	-	-	.33	.33	.67	.33	.67	18.0
<i>Dougherty</i>	18.0	3.1	4.3	3.8	.46	.46	.62	.46	.62	.15	.62	22.4
<i>Mitchell</i>	24.3	4.0	5.3	5.0	.67	.67	All	.67	.67	.33	All	32.0
<i>Miller</i>	5.3	1.3	1.3	0.8	-	-	.25	.25	.25	-	.25	32.4
<i>Randolph</i>	12.1	2.9	2.6	2.7	.04	.17	.30	.17	.30	.39	.26	33.7
<i>Decatur</i>	18.8	2.8	4.5	4.8	.33	.33	.50	.33	.67	.50	.50	37.7
<i>Terrell</i>	25.2	4.1	6.0	7.4	.52	.52	.71	.71	.71	.19	.29	40.3
<i>Colquitt</i>	18.0	1.3	5.0	3.8	-	-	All	All	All	-	All	42.2
<i>Worth</i>	21.5	2.5	5.0	5.0	.50	.50	.50	.50	All	.50	All	44.0
<i>Lee</i>	22.6	4.9	5.1	4.6	-	.43	.86	.43	.86	.43	All	46.6
<i>Thomas</i>	16.1	1.0	4.6	4.2	.14	.14	.27	.27	.27	.55	.14	50.0
<i>Calhoun</i>	26.4	4.8	6.6	7.0	.40	.40	.60	.60	.60	.40	.20	62.8
<i>Early</i>	28.0	5.0	7.0	7.0	.50	.50	All	All	All	-	.50	95.0

Notes: Numbers in the table are *averages* across all the companies from the given county.

The table suggests two patterns: first, deaths are roughly correlated with the number and size of battles in which the companies fought, and second, there was a great deal of variation in the troops' assignments.

In addition to battle assignments, generals also chose where the troops were positioned in the battles and what actions they took part in—some were held in reserve or placed on a flank that was never attacked while others were sent on frontal assaults or had to defend heavily-attacked positions. Furthermore, the timing and location of battles implicitly determined the distances companies traveled, the intensity of their marches, and the climates in which they lived, all of which contributed to non-combat fatalities. The varying level of deaths incurred from these differing assignments creates the distribution of death rates.

Beyond this, the Union and Confederate armies' encounters were somewhat random, as was the degree of the losses in their encounters. While generals gave companies their orders, they often had no idea what would eventually result from the decisions. To cite a prominent example, in 1863, Confederate president Jefferson Davis wanted Robert E. Lee to send part of his army to relieve Vicksburg, Mississippi, then under siege by U. S. Grant. Lee instead persuaded Davis to let him invade Pennsylvania. Once his army traveled north, however, the cavalry distanced itself to the point that Lee had no idea where the Federal troops were. The two armies met by chance as a column of Southerners fell on Gettysburg in search of a rumored cache of shoes, leading to three days of fighting and the highest casualties of any battle in American history.

Individual county characteristics would have been unlikely to influence officers' decisions due to the sheer size of the armies as well. Nearly three hundred regiment-level units (organizations of up to 10-12 companies) from all eleven Confederate states and Maryland fought on the Confederate side at Gettysburg. This was not nearly a majority of their forces, with various armies

engaged elsewhere. Many other battles with similar troop levels were fought across several Southern states. Any county's prewar levels of wealth, slaveholding, population, or other characteristics would not affect the decision-making for armies of this size and diversity.

Table 2.6 shows a balance test for the death rates, given as partial correlations with Census data from 1860. Observable characteristics for counties include population, the percent of the population that were slaves, wealth per capita, and per capita manufacturing output, intended to proxy for different county-types. State and region variables are also included. Death rates were uncorrelated with a county's population, slaveholding, or wealth. The partial correlation of per capita manufacturing output with death rates is statistically significant, but it is only estimated to decrease the death rate by one-half of one percentage point at the mean. This relationship becomes insignificant when urban counties are excluded from the sample.

As shown in Table 2.6, death rates did vary somewhat across different state-regions. Western states, for example, sent more troops to the western theater, where casualties were somewhat lower than in the east. Coastal areas sent far more men to "Home Guard" units, militia companies that protected the coastal cities, but they rarely participated in pitched battles. Coastal counties were also the recruiting ground for the Confederate Navy, whose casualties were significantly lower than the Army's. I include state-region fixed effects in all estimations in later chapters.

TABLE 2.6:
PARTIAL CORRELATIONS OF 1860 COUNTY CHARACTERISTICS
WITH DEATH RATES IN THE AMERICAN CIVIL WAR

VARIABLES	(1) Death Rate	(2) Death Rate	Mean of Variable
<i>1860 Population (1,000s)</i>	.00013 (.00022)	.00009 (.00026)	12.45
<i>% of County Pop. Slaves (1860)</i>	.0352 (.0304)	.0398 (.0352)	.358
<i>Per Capita Wealth (1860)</i>	-.0192 (.0179)	-.0216 (.0227)	.641
<i>Per Capita Mfg. Output (1860)</i>	-.370** (.154)	-.135 (.297)	.014
<i>Coast</i>	-.024* (.015)	-.029* (.017)	-
<i>Coastal Plain</i>	.026** (.011)	.028** (.012)	-
<i>Piedmont</i>	.042*** (.011)	.038*** (.011)	-
<i>Mean of Variable</i>	.158	.159	
<i>Observations</i>	364	337	
<i>R-squared</i>	.577	.577	

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Notes: Column 2 excludes counties with urban areas. The excluded region is Appalachian. Death rates are the total number of deaths in companies from the county divided by the county's white male population aged 15-39 in the 1860 Census. State x Region effects not included to show the effects of states and regions more clearly.

6. Possible Biases in County-Level Death Rates

6.1 Areas excluded from Analysis

In order to make the most credible comparisons across counties in the Postbellum South, I exclude several areas from the estimations in later chapters. In general, I exclude the Appalachian and Coastal regions in each state. Results are robust to including them, but it is possible that their lower death rates reflect other unobserved characteristics within the regions. To the extent these

unobservable characteristics were common for entire state-regions, they would not bias the estimates, but a correlation within state-regions between death rates and different county-types would bias the results. Counties that currently comprise the Washington, D.C. Metro Statistical Area are excluded from any estimations for similar reasons. Some of these counties were occupied by federal troops very early in the war, preventing the organization of companies and lowering their death rates. Their later economic outcomes are also strongly affected by the growth of the federal government and not traditional economic forces, so they are dropped from the sample. Thus for most results I report, estimates come from comparisons of counties within the Piedmont and Coast Plain regions for Virginia (excluding the Washington, D.C. M.S.A), South Carolina, Georgia, Alabama, and Louisiana.

6.2 Missing Soldiers

As noted earlier, several soldiers have no final documentation in the *Compiled Service Records* indicating whether they died or survived the war. This is not a problem in the data for Virginia, North Carolina, South Carolina, or Florida as researchers have found final documentation for the soldiers in other sources. For the remaining states, I have not found evidence to this point that missing records are in any way correlated with initial county characteristics, so they are treated as white noise in the estimates. I intend to explore this further. For some states, I can count the number of soldiers in each company whose final records are missing. These can be tested for correlations with observable county characteristics from the 1860 Census. I could also use an attrition model to account for the soldiers “leaving” the sample without final documentation.

6.3 Participation Rates

Another concern is whether differential military participation rates affected mortality by county. In general, military participation in the South was very high—estimates suggest that many states' troops amounted to over 100% of the military-age population.¹⁹ There was, however, somewhat lower participation in the counties of the Appalachian Mountains, and some of the men from these counties even served in the Union Army. These areas are excluded from most estimations. There was little difference in participation rates across plantation and non-plantation counties. Even counties in Virginia that voted against secession ended up sending nearly all their young men to Confederate service.

Military participation can be estimated for Florida, Georgia, Louisiana, Arkansas, Alabama, and Mississippi. The sources I use for these states list all soldiers, not just those that died. In practice, controlling for state-regions in the estimations makes a county's military participation rate insignificant in explaining any results. Excluding the Appalachian and Coastal regions strengthen the strategy further.

6.4 Destruction of Capital

Another possible bias in the death rates would be a "targeting effect" where the Union Army chose to attack certain county types, leading to higher deaths in those areas. This is not a concern as county's death rates were unaffected by the number or intensity of battles taking place within their boundaries. Confederate companies did not defend their home counties, but rather made up parts of larger armies that moved on generals' orders. Home Guard units were raised for local defense, but

¹⁹ This is possible due to younger and older men serving in the war as well.

these did not take part in large battles, and they only rarely participated in small skirmishes. If Union soldiers of any significant strength attacked an area, they were met by units from the regular Confederate Army, not the Home Guard. Confederate soldiers who did die in battle often did so far from home, defending areas in counties other than their own.

Another concern is whether targeted counties had more civilian casualties. While some cities were destroyed for strategic reasons, they were largely spared civilian casualties. During Sherman's March to the Sea, for example, the Union Army intentionally destroyed farms, railroads, and any other productive capacity in the region between Atlanta and Savannah, Georgia. Express measures were taken to prevent civilian casualties, such as making sure farms were evacuated before burning them. Civilians died very infrequently throughout the war and are never included in my counts, so they will not bias the estimates.

Lastly, I can control for capital destruction in the estimations. I have data on the locations, casualties, and duration of battles from the National Park Service's *Civil War Sites Advisory Commission Report on the Nation's Civil War Battlefields*. I also create indicator variables for counties that were ever under siege or that had cities which were burned during the war. With this, the effects of destruction of labor and capital can be estimated separately, whereas similar research generally lumps them together as wartime destruction.

6.5 Deaths from Disease

A. Potential Bias

Over half of the deaths in the American Civil War were the result of disease (Hacker, 2011). Hacker (2001) suggests this was even more of a problem for Southern troops, who he estimates died

from disease at rates 10-20% higher than those of the North.²⁰ These “non-combat” deaths were still heavily influenced by where troops served, the intensity of their fighting, marching, and other assignments, and injuries sustained in battle. All of these factors were determined by troop assignments.

Pre-war county characteristics could still influence the prevalence of disease. For example, areas with greater wealth or better nutrition could have had healthier populations before the war. For the Union Army, Chulhee Lee (1997) argues a different point: soldiers from rural areas died at higher rates than those from urban areas. While rural soldiers were generally healthier before the war, they had also been exposed to fewer diseases and had less immunity. Lee’s results should be less applicable in the South, where the population was almost completely rural, and the urban areas that did exist were smaller than Northern cities like New York, Philadelphia, and Boston by several orders of magnitude. Rural Southerners would have had greater pre-war disease exposure than their Northern counterparts as well. Nearly all the fighting took place in the South, so the disease environment was less foreign to Confederate soldiers. For example, malaria was a large killer in the Civil War—rural Southerners, especially those living at lower elevations, would have had significant exposure to the disease throughout the prewar years.

To address Lee’s finding directly, I can also omit urban areas from the sample. Only 29 of the 422 counties in the current data had any urban population in the 1860 Census, so this does not greatly affect any results.

²⁰ This may have been due to their poorer rations and equipment. Many Confederate soldiers had no shoes, for example, and food was often in short supply. Southern troops were also used more intensively than the Union’s because there were fewer of them.

B. Predicted Death Rates

To deal with potential bias through deaths from disease, I can also generate predicted death rates for each company based solely on the battles they fought. These predicted death rates are driven only by the random nature of troop assignments. They will only be biased if generals' decisions were influenced by counties' pre-war characteristics, which is very unlikely, as I discussed above.

In addition to accounting for rural counties' disease exposure, the predicted death rates will also control for the effects of any other unobserved pre-war health conditions on disease prevalence. They will further account for other unobservable differences between counties that could have affected death rates, provided these factors were not correlated with the generals' decision-making.

I predict death rates using Sifakis' (1995) *Compendium of Confederate Armies* for each state which lists battles fought for each Confederate regiment.²¹ Due to the number of battles (Sifakis records hundreds), most are grouped into count-variables for small, medium, and large battles. Several of the largest battles are included with their own indicator variables. Formally, the estimating equation for companies j in branch k from a county i in state-region r is:

$$\begin{aligned} Deaths_{ijk r} = & \beta_0 + \beta_1 Small_{ijk r} + \beta_2 Medium_{ijk r} + \beta_3 Large_{ijk r} \\ & + \sum_{l=1}^N Major\ Battles_l * I_{ijk r} + X_{ir,1860} + \alpha_k + \gamma_r + \varepsilon_{ijk r} \end{aligned}$$

Military branches k include the infantry, cavalry, and artillery. Small, medium, and large battles are the total number of battles in those categories, where the battle sizes are determined by the number of troops present, not the degree of casualties. To construct predicted death rates by

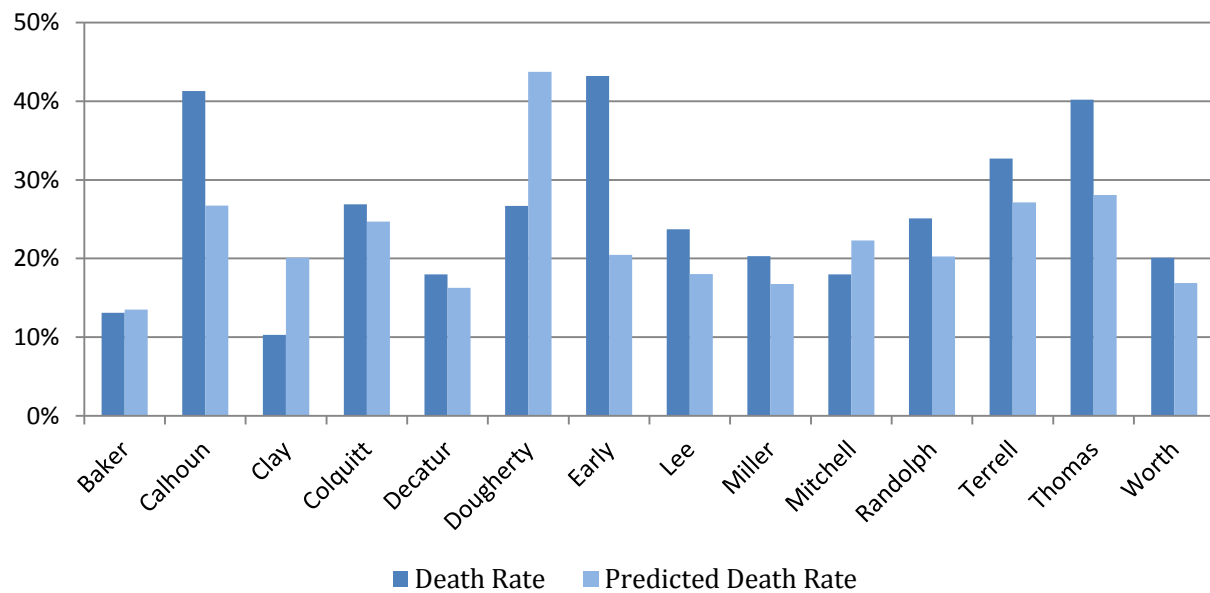
²¹ In some cases, an individual company or group of companies would fight in a small battle without the rest of the regiment. Sifakis notes these cases and they are included in my data.

county, the predicted deaths are summed over all the companies j in the county i and divided by the military-age population of white men:

$$\widehat{DeathRate}_{ir} = \frac{\sum_{j=1}^n \widehat{DeathRate}_{ijkr}}{MilitaryAgePop_{ir,1860}}$$

The actual and predicted death rates for counties in southwest Georgia can be seen in Figure 2.4. The predicted death rates compare favorably with the actual death rates, though there is some variation.

FIGURE 2.4:
ACTUAL AND PREDICTED DEATH RATES FOR COUNTIES IN SOUTHWEST GEORGIA



Notes: Death rates calculated as the number of deaths in each county divided by the number of white men age 15-39 in the 1860 U.S. Census. Predicted death rates are estimated using battle data for each company in the given counties from Sifakis (1995). The model is estimated using a sample of nearly 200 counties in Georgia and Alabama

While the predicted death rates can eliminate biases, they also remove some useful variation in the death rates. Deaths are predicted from the battles companies fought, but they no longer contain information on assignments within the battles, such as being asked to attack a fortified position. The

predicted death rates could also remove measurement error in the estimates, which would strengthen the later results. Regardless, the predicted death rates should be uncorrelated with counties' initial characteristics, such as pre-war health conditions of various kinds.

CHAPTER 3

SWITCHING PATHS: CONFEDERATE DEATHS AND THE ECONOMIC GEOGRAPHY OF THE POSTBELLUM SOUTH

Abstract:

Using new data on county-level death rates in the American Civil War, I estimate the long-run effects of population loss on the economic geography of the South through the Postbellum period (1865-1900) and beyond. Populations in counties with higher death rates caught up to neighboring areas within 15 years after the war, but then they kept growing: counties with ten percentage-point higher death rates had 9% larger populations in 1900 and 16% larger in 1960. These increases were caused by migration, especially by African Americans: counties with ten percentage-point higher death rates had 14% larger black populations in 1900 and 27% larger in 1960. The results are driven by migration, not fertility, and the migrants increasingly went to counties that were less advantaged in Southern economy before the Civil War. The economic geography of the American South was thus changed significantly after the institutional shock from the Civil War.

Introduction

Using new data on county-level Confederate death rates, I estimate the long-run effects of population loss in the American Civil War on the economic geography in eight former-Confederate states: Virginia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas. Counties with more Civil War deaths caught up to neighboring areas' populations within 15 years after the war, similar to the experience of Japan, Germany, and Vietnam following 20th-century wars (Davis & Weinstein, 2002; Brakman, Garretsen, & Schram, 2004; Miguel & Roland, 2011). These counties' populations not only recovered, but then they kept growing to exceed their neighbors in population by 1900. Counties with ten percentage-point higher death rates (roughly one standard deviation) had 9% larger populations in 1900, and by 1960, nearly 100 years after the war, the margin grew further to 16%.

The most striking result, however, is found by analyzing the black and white populations separately. Counties with greater losses in the Civil War saw large increases in their black populations: by 1900, black populations in counties with ten percentage-point higher death rates were 14% larger, a greater increase than that seen in the total population. By 1960 black populations in these counties grew to be 27% larger than in otherwise similar areas, and they remained larger through the 2000 census forty years later. Since many counties had death rates that exceeded their neighbors' by much more than 10 percentage points, these results are very large. While many of the demographic effects of the Civil War were erased fairly quickly (Hacker, 2001), this is perhaps the strongest legacy of the war in terms of changes in the national population.

Fertility did not increase significantly in the high-death counties, so nearly all the population growth came from migration. Migration implies individuals were optimizing on some margin in

moving to counties with greater losses, and they continued to prefer these areas even after the relative land-labor ratios had reached equilibrium in 1880. For this reason, I explore counties' population changes separately by several different pre-war county types. In general, counties more involved in the pre-Civil War economy saw less migration to replace their military losses, including counties with rail access in 1860 and counties with greater cotton production. Counties involved in newer industries, such as resource-intensive manufacturing, saw greater population gains, suggesting migration was even heavier to these areas.

In most cases, regional population growth is positively correlated with earlier population levels. First, by increasing returns to scale (Krugman, 1991), regional populations could show path dependence—areas losing more men should follow a path of decreasing returns while populations in less-affected areas should increase further. Second, the spatial distribution of population may be determined by “locational fundamentals” (Davis & Weinstein, 2002), whereby certain areas are always relatively advantaged for economic activity. The Postbellum South, however, grew disproportionately in areas with lower populations (due to Civil War losses), and the effect was even larger in previously-disadvantaged areas. These results suggest a structural break in the region's economic geography, much of which was driven by the new locational choices of African Americans.

1. Theory

In theory, a temporary shock to population should have one of two effects: First, by increasing returns to scale (Krugman, 1991), regional populations should show path dependence—

areas losing more men should follow a path of decreasing returns while populations in less-affected areas should increase further. As an example, Bleakley & Lin (2012) show locations in the U.S. that required portage (offloading goods at river impasses) from small boats and canoes built up larger initial populations. Staying on their paths, these cities have continued to grow relative to neighboring areas, this in spite of their geographic advantage becoming obsolete more than a century ago.

Second, the spatial distribution of population may be determined by “locational fundamentals” (Davis & Weinstein, 2002), whereby certain areas are always relatively advantaged for economic activity. Temporary shocks in population would thus have no long-run effect. Such recoveries have been found for regions experiencing heavy bombings in Japan (Davis & Weinstein, 2002), West Germany (Brakman, Garretsen, & Schram, 2004), and Vietnam (Miguel & Roland, 2011). Even Hiroshima and Nagasaki had regained their relative standing in the Japanese population within 15-20 years after WWII (Davis & Weinstein, 2002).²²

While locational characteristics are fixed over time in Davis & Weinstein (2002), they may not have been fixed in the Postbellum South. For example, the abolition of slavery radically altered labor arrangements in the cotton economy, disproportionately affecting the plantation counties. In addition, most African Americans were able to choose where they lived for the first time. If the freedmen’s locational preferences differed from those of their former owners, this would again change the region’s economic geography. A change in locational fundamentals would generate very different predictions than Davis & Weinstein’s (2002) model, with greater population growth in the

²² These results may be conditional on a country’s institutions allowing cities to rebuild quickly, however (Blattman & Miguel, 2010). East Germany, for example, did not follow this pattern after WWII (Brakman, Garretsen, & Schram, 2004). Bleakley & Lin (2012) also suggest that Japan’s very rugged geography leaves relatively few areas for urban development, and thus Japan may have stronger “locational fundamentals” than other areas.

newly-advantaged areas, not the historically advantaged ones. Theoretical predictions of the South's economic geography after the American Civil War are therefore ambiguous.

2. Results

2.1 Empirical Specification

The American Civil War created a random shock to populations in Southern counties. Figures 2.1 through 2.3 show this within state-regions²³ (with regions outlined in heavy borders). Since the death rates were uncorrelated with counties' pre-war conditions, I can interpret the estimated effects of death rates on the region's post-war economic geography causally. This is the primary identification strategy.

With death rates distributed randomly within state-regions, the relationship between Civil War deaths and the South's economic geography can be estimated with a simple OLS regression:

$$\ln(\text{Pop}_{irt}) = \beta_0 + \beta_1 \text{Death Rate}_{ir} + \ln(\text{Pop}_{ir,1860}) + X_{ir,1860} + \gamma_r + \varepsilon_{ir}$$

estimated for counties i within state-regions r . The estimations are performed separately for census years t while controlling for the population levels in 1860. County controls X_{ir} come from the 1860 Censuses of Population, Agriculture, and Manufactures. The baseline specification includes controls for the percent of a county's population that were slaves, per capita wealth, per capita manufacturing output, and an indicator variable for whether the county had any urban population in 1860.

²³ The Appalachian, Piedmont, Coastal Plain, and Coastal geographic areas within each state.

2.2 Death Rates and County Populations

Table 3.1 shows the estimated effects of counties' death rates on their populations for several decades after the war. The result for 1860, a falsification test, shows that death rates have no power in predicting counties' pre-war populations. The coefficient in 1880 is similarly insignificant—coming after the huge losses in the Civil War, this implies counties with different death rates converged in population within 15 years after the war. This result follows those of Japan (Davis & Weinstein, 2002) and West Germany (Brakman, Garretsen, & Schram, 2004) after WWII.

TABLE 3.1:
DEATH RATES AND COUNTY POPULATIONS, 1860-1960

VARIABLES	(1) Ln 1860 Pop.	(2) Ln 1880 Pop.	(3) Ln 1900 Pop.	(4) Ln 1920 Pop.	(5) Ln 1940 Pop.	(6) Ln 1960 Pop.
Death Rate	-.292 (.526)	.263 (.218)	.911*** (.348)	1.100** (.536)	1.418** (.558)	1.492** (.739)
% of County Pop. Slaves (1860)	.748** (.355)	-.549*** (.124)	-1.455*** (.205)	-1.957*** (.316)	-2.433*** (.334)	-2.963*** (.457)
Per Capita Wealth (1860)	.330 (.272)	.180 (.129)	.183 (.174)	.134 (.252)	.220 (.260)	.372 (.355)
Per Capita Mfg. Output (1860)	4.214* (2.280)	-.0273 (.690)	-.942 (1.139)	.271 (1.718)	1.442 (2.663)	5.351 (3.533)
Urban (1860)	.243* (.135)	.0686 (.109)	.262* (.143)	.385** (.184)	.614*** (.185)	.870*** (.238)
Observations	210	205	207	197	194	193
R-squared	.609	.940	.812	.711	.713	.668

Robust standard errors in parentheses

*** p<.01, ** p<.05, * p<.1

By 1900, counties with higher death rates had grown to exceed less-affected areas in population: counties with ten percentage-point higher death rates in the Civil War (roughly one standard

deviation) had 9% larger populations in 1900. This margin widened over time, increasing to 16% by 1960.²⁴ In response to a temporary shock to population, path dependence would predict divergence in population, but with the less-affected areas experiencing increasing returns, not the areas with higher death rates. Locational fundamentals would predict the observed convergence by 1880, but none of the changes in the years that followed. The estimated effects of death rates on Southern counties' populations from 1900 suggest the Southern population growth cannot be explained by either theory and reflect specific changes in that region only.

2.3 Robustness Checks and Instrumental Variables Regressions

Table 3.2 shows alternate specifications of the empirical model using data from 1900. Column 1 repeats the result for 1900 from Table 3.1, again with only counties in the Piedmont and Coastal Plain regions included. Column 2 shows some attenuation of the result with the inclusion of the Appalachian and Coastal counties, but with only a modest change in the coefficient. The effect is somewhat larger, however, when focusing only on rural counties (Column 3).

Column 4 shows the results while including proxies for capital destruction—the number and size of battles fought within the county's borders—with estimates very similar to those of the baseline model. This suggests capital and labor destruction were independent in the war, and that the results show only the effects of the labor destruction. Controlling access to railroads and water transportation in 1860 (Column 5) or corn, cotton, and tobacco output (Column 6) leave the estimates similarly unaffected. These represent different county types that may have seen different experiences in their population growth after the war.

²⁴ Calculated from log points.

TABLE 3.2:
ROBUSTNESS CHECKS—DEATH RATES AND COUNTY POPULATIONS, 1900

VARIABLES	(1) Ln 1900 Pop.	(2) Ln 1900 Pop.	(3) Ln 1900 Pop. (Rural)	(4) Ln 1900 Pop.	(5) Ln 1900 Pop.	(6) Ln 1900 Pop.
Death Rate	.911*** (.348)	.771** (.327)	1.094*** (.338)	.885** (.344)	.811** (.353)	.828** (.367)
% of County Pop. Slaves (1860)	-1.46*** (.205)	-1.23*** (.253)	-1.48*** (.207)	-1.46*** (.198)	-1.37*** (.213)	-1.42*** (.196)
Per Capita Wealth (1860)	.183 (.174)	.123 (.181)	.249 (.153)	.201 (.154)	.194 (.183)	.204 (.178)
Per Capita Mfg. Output (1860)	-.942 (1.139)	.750 (2.076)	-1.000 (1.774)	-1.579 (1.388)	-.651 (1.159)	-.778 (1.274)
Urban	.262* (.143)	.238* (.128)		.274** (.127)	.291** (.146)	.289** (.146)
# of Battles in Home County				-.0555 (.0392)		
Size of Battles in Home County (1,000s of Casualties)				.0217* (.0123)		
Railroad Access (1860)					-.0711 (.0529)	
Water Transport Access (1860)					-.0751 (.0571)	
Corn (1,000s of bushels, 1860)						.00022** (.00009)
Cotton (1,000s of bales, 1860)						-.0027* (.0014)
Tobacco (1,000s of lbs., 1860)						.00005* (.00002)
State x Region Fixed Effects	YES	YES	YES	YES	YES	YES
Piedmont, Coastal Plain	YES	YES	YES	YES	YES	YES
Appalachian, Coast	NO	YES	NO	NO	NO	NO
Observations	207	209	191	207	207	207
R-squared	.812	.785	.806	.817	.815	.817

Robust standard errors in parentheses, *** p<.01, ** p<.05, * p<.1

A potential bias in the estimates remains due to deaths from disease. Over half of the deaths in the American Civil War occurred due to disease (Hacker, 2011).²⁵ These non-combat deaths were still heavily influenced by where troops served, the intensity of their fighting, marching, and other assignments, and injuries sustained in battle. All of these factors were still determined by commanding officers.

However, pre-war county characteristics could also influence the prevalence of disease. For example, Chulhee Lee (1997) shows that Union soldiers from rural areas died at higher rates than those from urban areas due to less prior exposure to several diseases. Lee's results should be less applicable in the South, however, as the South was almost completely rural, and the urban areas that did exist were smaller than Northern cities by several orders of magnitude.²⁶ Rural Southerners would have had greater pre-war disease exposure than their Northern counterparts as well, as nearly all the fighting took place in the South, in Southern environments and Southern climates. Regardless, I can omit urban areas from the sample, which does not greatly affect any results (see Table 3.2 Column 3).

Other correlations between death rates and a county's unobserved health conditions before the war could still exist, however. To deal with this, I generate predicted death rates for each company based solely on the battles they fought, as described in Chapter 2. These predicted death rates are driven only by the random nature of troop assignments. They will only be biased if generals' decisions were influenced by counties' pre-war characteristics, which is unlikely for the

²⁵ Hacker (2001) suggests disease was even more of a problem for Southern troops, who he estimates died from disease at rates 10-20% higher than those of the North. This was in large part due to their poorer rations and equipment. Many Confederate soldiers had no shoes, for example, and food was often in short supply.

²⁶ There were fewer urban areas as well—the Confederate States had only one city (New Orleans) among the nation's 20 largest in 1860, and only 11 of the top 100. Massachusetts alone had 18.

several reasons mentioned earlier. In addition to accounting for counties' pre-war health and disease exposure, the predicted death rates will also control for any other unobserved differences between counties that could have affected death rates, provided these factors were not correlated with the generals' decision-making.

Table 3.3 repeats the analysis from Table 3.1 using the predicted death rates described in Chapter 2. Results are very similar to those reported in Table 3.3. This suggests the effects estimated in Table 3.1 are robust to unobserved differences across counties that were also uncorrelated with the generals' decision-making.

TABLE 3.3:
PREDICTED DEATH RATES AND COUNTY POPULATIONS, 1880-1960

VARIABLES	(1) Ln 1880 Pop.	(2) Ln 1900 Pop.	(3) Ln 1920 Pop.	(4) Ln 1940 Pop.	(5) Ln 1960 Pop.
Death Rate	.120 (.186)	.721** (.345)	1.108** (.524)	1.464*** (.502)	2.285*** (.608)
% of County Pop. Slaves (1860)	-.350* (.202)	-1.344*** (.280)	-1.835*** (.411)	-2.650*** (.401)	-3.874*** (.530)
Per Capita Wealth (1860)	.0630 (.252)	.0705 (.331)	-.0006 (.432)	.526 (.327)	1.214*** (.442)
Per Capita Mfg. Output (1860)	-1.272 (1.360)	-3.410** (1.563)	-2.593 (1.998)	1.990 (2.659)	5.520 (5.012)
Urban	.240 (.176)	.489** (.224)	.587** (.291)	.344 (.223)	.159 (.315)
Observations	205	207	197	194	193
R-squared	.883	.714	.628	.601	.588

Robust standard errors in parentheses

*** p<.01, ** p<.05, * p<.1

2.4 Death Rates and Population Change by Race

The estimated effects of death rates on Postbellum populations can also be broken down by race. At war's end there was a huge population of newly-freed slaves in Southern states. In spite of political action to curb their movement, freedmen migrated in large numbers throughout the South, though they often did not move far and almost never left the region entirely. With differential death rates across counties, many former slaves would have found it beneficial to move to areas with greater labor scarcity. Table 3.4 shows that this was the case, with black populations growing to be much larger in high-death counties relative to neighboring areas.

TABLE 3.4:
DEATH RATES AND COUNTIES' BLACK POPULATIONS, 1860-1960

VARIABLES	(1) Ln 1860 Black Pop.	(2) Ln 1880 Black Pop.	(3) Ln 1900 Black Pop.	(4) Ln 1920 Black Pop.	(5) Ln 1940 Black Pop.	(6) Ln 1960 Black Pop.
Death Rate	-.331 (.586)	.298 (.360)	1.293*** (.450)	1.924*** (.720)	2.221*** (.651)	2.422*** (.859)
% of County Pop. Slaves (1860)	3.340*** (.392)	-.839*** (.211)	-1.429*** (.289)	-1.764*** (.434)	-2.217*** (.411)	-2.714*** (.516)
Per Capita Wealth (1860)	.341 (.270)	.244 (.204)	.346 (.223)	.293 (.294)	.325 (.297)	.372 (.382)
Per Capita Mfg. Output (1860)	5.173** (2.255)	-.341 (1.416)	-1.297 (1.876)	-.212 (2.431)	.826 (3.594)	3.326 (4.349)
Urban (1860)	.280** (.139)	.169 (.175)	.376* (.195)	.448* (.229)	.561** (.258)	.831*** (.303)
Observations	210	205	207	197	194	193
R-squared	.761	.931	.781	.601	.632	.563

These effects were not short-lived. Black populations continued to grow in counties with greater Civil War deaths, and they remain larger today. In 1900, counties with ten percentage-point

higher death rates had 14% larger black populations and by 1960 this number had grown to 27%.²⁷

Table 3.5 shows the result also holds for estimations using predicted death rates, meaning there is not an omitted factor driving the results. The growth of African American populations in these counties was likely the largest and most long-lasting effect of Civil War deaths on the region's demographics, as high-death counties had larger black populations at least through the year 2000.

TABLE 3.5:
PREDICTED DEATH RATES AND COUNTIES' BLACK POPULATIONS, 1880-1960

VARIABLES	(1) Ln 1880 Black Pop.	(2) Ln 1900 Black Pop.	(3) Ln 1920 Black Pop.	(4) Ln 1940 Black Pop.	(5) Ln 1960 Black Pop.
Death Rate	.388 (.235)	1.055*** (.392)	1.788** (.692)	2.020*** (.673)	2.696** (1.075)
% of County Pop. Slaves (1860)	-.703* (.382)	-2.038*** (.485)	-2.291*** (.818)	-3.128*** (.744)	-5.050*** (1.156)
Per Capita Wealth (1860)	.111 (.442)	.237 (.471)	.198 (.582)	.747** (.357)	1.237** (.503)
Per Capita Mfg. Output (1860)	-1.665 (3.245)	-4.465 (3.462)	-3.228 (4.443)	3.873 (3.807)	6.358 (5.400)
Urban	.351 (.276)	.546* (.315)	.614 (.385)	.169 (.282)	-.0637 (.440)
Observations	205	207	197	194	193
R-squared	.923	.859	.733	.772	.696

Robust standard errors in parentheses

*** p<.01, ** p<.05, * p<.1

Table 3.6 repeats the analysis for counties' white populations, which also appear to have grown more in counties with higher death rates. However, the coefficients are only half as large as those for the black populations, and the effect is not discernible in later decades. This suggests that

²⁷ These figures are again calculated from log points.

African Americans made up the majority of the Postbellum migration to counties with larger losses in the Civil War.

TABLE 3.6:
DEATH RATES AND COUNTIES' WHITE POPULATIONS, 1860-1960

VARIABLES	(1) Ln 1860 White Pop.	(2) Ln 1880 White Pop.	(3) Ln 1900 White Pop.	(4) Ln 1920 White Pop.	(5) Ln 1940 White Pop.	(6) Ln 1960 White Pop.
Death Rate	-.316 (.557)	.109 (.207)	.843** (.401)	1.005* (.605)	1.186* (.675)	1.433 (.878)
% of County Pop. Slaves (1860)	-1.317*** (.373)	-.591*** (.139)	-1.552*** (.249)	-1.788*** (.380)	-1.932*** (.421)	-2.227*** (.601)
Per Capita Wealth (1860)	.346 (.285)	.0445 (.104)	-.0317 (.183)	.0308 (.262)	.104 (.282)	.367 (.410)
Per Capita Mfg. Output (1860)	5.012** (2.246)	-.259 (.450)	-.928 (1.091)	.616 (1.742)	1.214 (2.747)	5.743 (3.924)
Urban	.238* (.137)	.00595 (.0828)	.243* (.137)	.442** (.194)	.774*** (.187)	1.036*** (.255)
Observations	210	205	207	197	194	193
R-squared	.540	.942	.821	.740	.714	.659

Robust standard errors in parentheses

*** p<.01, ** p<.05, * p<.1

3. Migration vs. Fertility

I have shown that counties which experienced greater losses in the American Civil War not only recovered their populations, but they grew to be larger than counties with fewer losses by 1900.

I now test whether the population growth came through higher levels of fertility or migration.²⁸ In

²⁸ Population growth can also come through decreases in mortality. I do not explore that possibility here. I also control for many factors correlated with mortality in the regressions, including wealth, economic characteristics, and geographic characteristics of each county. I instead implicitly assume mortality is constant across these counties, conditional on these controls.

practice, I test for different levels of fertility across counties with high and low death rates and ascribe any unexplained population changes to migration.

Fertility may well have been different in counties with higher death rates in the Civil War. Counties with greater labor scarcity likely had higher wages. In Malthusian models fertility varies positively with income, so it may be that these higher wages led to increased fertility. Modern fertility models, however, have fertility decreasing with increased incomes as women's time becomes more valuable outside the home and the relative price of children increase. In this case the opposite prediction is generated.

Furthermore, both Southern and African American fertility were exceptional by national standards throughout this period, with both much higher than in any other region or group. Despite this, fertility for both groups seemed to be in transition almost immediately after the war, with both falling off sharply throughout this period. For the South Atlantic and West South Central Census regions, women born through 1860 had over 6 children on average. This number fell to four for women born in the 1880s and below 3 for women born at the turn of the century (Jones & Tertilt, 2007). Fertility was still higher in the South than in other regions until the Baby Boom, however.

Black fertility also decreased significantly from emancipation through the turn of the century (Higgs, 1977). Jones and Tertilt (2007) show that the number of children ever born to black women, as reported in censuses beginning in 1900, fell from 7-8 births for women born in the 1830s and '40s, to less than 4 births for women born in the 1880s. Most of the decline occurred among women born in the ten years after 1865. The movement of Southern blacks from rural to urban areas accounted for a large portion of the decline, but rural fertility fell as well (Higgs, 1977). Not surprisingly, Jones and Tertilt (2007) find a negative correlation between income and fertility for African Americans and

for both of the Southern census regions through these periods, and in fact ascribe higher fertility amongst Southerners and African Americans entirely to income differences. By this, increased incomes in high-death counties would be expected to lower fertility in those counties, though this would not generate the population increases that I have shown.

Table 3.7 tests for a positive (Malthusian) relationship between income and fertility in these counties, which could explain some of the population increase in these areas. The dependent variables are the numbers of women and children in Southern counties in 1880 and 1900 as well as the child-to-woman ratio in each, a fertility measure that can be easily constructed from census data. The child-to-woman ratios in neither 1880 nor 1900 are significantly different across counties with different death rates in the Civil War. There were more children in the previously labor scarce-counties in 1900, but there were also more women. These results suggest a Malthusian regime was not present and that the population increases cannot be explained by differences in fertility.

Since the population increases in high-death counties are not due to fertility, I assume that changes came via migration. Population increase through migration is interesting because it implies that individuals were optimizing on some margin in making their locational decisions. This suggests that counties which experienced higher deaths in the Civil War were more attractive to freedmen after the war, a simple illustration of arbitrage in the labor market. It is somewhat more surprising in this particular circumstance, however, since landowners made great efforts to prevent freedmen from migrating. This was sometimes done “legally”, though the Black Codes which were passed after the Civil War, making it illegal for freedmen to seek work from other employers, migrate for employment, or be found without a job at any point in time. It was also illegal in many areas for landowners to recruit workers from other plantations. While the federal government struck these

TABLE 3.7:
DEATH RATES AND AGE STRUCTURE OF COUNTIES' POPULATIONS, 1880-1900

VARIABLES	1880			1900		
	(1)	(2)	(3)	(4)	(5)	(6)
	Ln Children Age 0-4	Ln Women Age 18-44	Ratio Children/ Women	Ln Children Age 0-4	Ln Women Age 18-44	Ratio Children/ Women
Death Rate	.301 (.221)	.238 (.242)	.0496 (.105)	1.264*** (.420)	1.154** (.485)	.0941 (.191)
% of County Pop. Slaves (1860)	-.467*** (.115)	-.724*** (.108)	.250*** (.0703)	.469* (.260)	.0285 (.280)	.480*** (.132)
Per Capita Wealth (1860)	.122 (.103)	.220** (.109)	-.0969* (.0540)	.421** (.191)	.518** (.201)	-.121 (.0926)
Per Capita Mfg. Output (1860)	-.414 (.523)	.847 (.556)	-1.106*** (.267)	-.504 (1.523)	2.153 (1.606)	-2.905*** (.613)
Observations	205	205	205	207	207	207
R-squared	.938	.923	.375	.795	.695	.512

Robust standard errors in parentheses

*** p<.01, ** p<.05, * p<.1

codes down fairly quickly, similar informal restrictions followed. In spite of all the restrictions, it appears that labor still moved quickly to bring land-labor ratios into equilibrium across counties. This likely involved both workers leaving the plantations where they were slaves and employers recruiting workers from nearby areas, both of which were either illegal or barred by the informal restrictions.

It is further interesting that migration continued long after a convergence in the land-labor ratios, which probably occurred by 1880. Apparently the counties which were attractive destinations for migrants immediately following the war gained characteristics that made them continue to appeal to migrants for at least 2-4 decades thereafter. I explore this further in the next section.

4. Heterogeneous Effects

From the results in the previous sections, it is clear that there was a significant structural break in the South's economic geography following the Civil War. Southern population change with respect to the men lost in the Civil War cannot be described by traditional theories of economic geography and instead show significant changes in the region. This is perhaps unsurprising given the vast institutional changes that came in the wake of emancipation and military defeat. I now test for specific characteristics of the high-death counties that were particularly attractive to migrants.

Table 3.8 shows heterogeneous effects of death rates on population growth for several different county types, and Table 3.9 repeats the analysis for counties' black populations. The positive effect of death rates on population growth by 1900 was decreasing in the percent of a county's 1860 population that were slaves, 1860 cotton output, and access to railroads in 1860. All of these were economically advantageous before the war. However, the shift in the South's economic geography is highlighted further by the fact that, all else equal, migrants avoided these areas in spite of labor shortages in the high-death counties.

The effect of death rates on population was increasing, however, in the raw material content of manufacturing activities. Much of the South's post-war manufacturing growth came in resource-intensive industries, especially the lumber industry, but it also saw growth in mining, steel, and later textiles. Migrants increasingly moved to these counties in response to labor shortages. In general, there was a trend to not only fill gaps in labor, but to do so increasingly in new-growth areas.

TABLE 3.8: DEATH RATES AND COUNTIES' POPULATIONS, HETEROGENEOUS EFFECTS, 1900

VARIABLES	(1) Ln 1900 Pop.	(2) Ln 1900 Pop.	(3) Ln 1900 Pop.	(4) Ln 1900 Pop.	(5) Ln 1900 Pop.	(6) Ln 1900 Pop.
Death Rate	2.344*** (.787)	1.239 (.888)	.827** (.373)	.991*** (.341)	1.179** (.478)	1.105*** (.425)
% of County Pop. Slaves (1860)	-.906** (.394)	-1.445*** (.207)	-1.458*** (.205)	-1.461*** (.205)		-1.423*** (.216)
Per Capita Wealth (1860)	.183 (.152)	.258 (.272)	.184 (.174)	.194 (.170)		.229 (.175)
Per Capita Mfg. Output (1860)	-.897 (1.812)	-.952 (1.140)	-2.085 (2.361)	-1.083 (1.137)		-.741 (1.083)
Raw Materials used in Manufacturing (\$1,000s, 1860)			-.00014** .00007			
Urban		.263* (.144)	.264* (.144)	.461* (.272)		.267** (.132)
Cotton (1,000s of bales, 1860)					.0021 (.0037)	
Corn (1,000s of bushels, 1860)					.00037 (.00024)	
Railroad Access (1860)						.266** (.129)
Water Transport Access (1860)						-.221 (.138)
Death Rate x Slave Pct. (1860)	-2.667* (1.457)					
Death Rate x Wealth/n (1860)		-.483 (1.136)				
Death Rate x Mfg./n (1860)			7.353 (13.66)			
Death Rate x Raw Materials used in Manufacturing (\$1,000s, 1860)			.00224*** (.00080)			
Death Rate x Urban (1860)				-1.158 (.904)		
Death Rate x Cotton (1860)					-.0705*** (.0183)	
Death Rate x Corn (1860)					.0014 (.0009)	
Death Rate x Rail						-1.636*** (.555)
Death Rate x Water						.754 (.626)
Observations	191	207	207	207	191	207
R-squared	.809	.812	.812	.813	.758	.822

TABLE 3.9:
DEATH RATES AND COUNTIES' BLACK POPULATIONS, HETEROGENEOUS EFFECTS, 1900

VARIABLES	(1) Ln 1900 Blk. Pop.	(2) Ln 1900 Blk. Pop.	(3) Ln 1900 Blk. Pop.	(4) Ln 1900 Blk. Pop.	(5) Ln 1900 Blk. Pop.	(6) Ln 1900 Blk. Pop.
Death Rate	3.779*** (1.199)	2.226* (1.330)	1.122** (.482)	1.414*** (.439)	1.496*** (.544)	1.359** (.603)
% of County Pop. Slaves (1860)	-.499 (.553)	-1.412*** (.290)	-1.432*** (.287)	-1.433*** (.289)		-1.373*** (.311)
Per Capita Wealth (1860)	.398** (.174)	.560 (.399)	.348 (.223)	.363* (.215)		.403* (.216)
Per Capita Mfg. Output (1860)	-1.628 (3.235)	-1.325 (1.865)	-3.616 (3.660)	-1.509 (1.861)		-1.056 (1.902)
Raw Materials used in Manufacturing (\$1,000s, 1860)			-.00014** .00007			
Urban		.378* (.197)	.379* (.196)	.671* (.372)		.380** (.183)
Cotton (1,000s of bales, 1860)					-.0075** (.0030)	
Corn (1,000s of bushels, 1860)					.00034 (.00023)	
Railroad Access (1860)						.308* (.164)
Water Transport Access (1860)						-.340* (.176)
Death Rate x Slave Pct.	-4.660** (2.147)					
Death Rate x Wealth/n		-1.373 (1.677)				
Death Rate x Mfg./n			14.96 (18.01)			
Death Rate x Raw Materials			.00349*** (.00107)			
Death Rate x Urban				-1.728 (1.193)		
Death Rate x Cotton					-.0691*** (.0018)	
Death Rate x Corn					.0014 (.0011)	
Death Rate x Rail						-1.824** (.707)
Death Rate x Water						1.155 (.795)
Observations	191	207	207	207	191	207
R-squared	.790	.782	.782	.783	.785	.793

5. Conclusion

The American Civil War was the largest mortality event in American history, but there is little understanding of how it affected the demographics of the communities that were so devastated by it. I present the first estimates of local-level population changes in the wake of the war, specifically testing the effect of military deaths in the Civil War on counties' later population growth. Estimations show that counties with higher death rates caught up to neighboring areas' populations within 15 years, consistent with the experience of some countries following 20th century wars, but they continued growing, exceeding similar areas in population by 1900 and increasing their advantage through the first half of the 20th century. These population increases were due to migration, not increases in fertility, and a majority of the migrants were African American. Perhaps the longest-lasting effect of the war on the South's population is the larger black populations in counties with higher Civil War death rates, still present in the year 2000.

Neither path dependency nor locational fundamentals can adequately describe the South's response to its temporary population loss. Rather, the results here suggest that, in some cases, the geography relevant for economic activity may change over time. This was clearly the case in the Antebellum South. Estimations show, for example, that migrants increasingly left what would have been strong economic areas before the war, including plantation counties and counties with railroad access. They instead preferred some new-growth areas, including counties that had specialized in resource-intensive manufacturing. Instead of broad theories that predict the location of economic activity over time, it seems likely that the spatial allocation of population is dependent not on a fixed set of geographic characteristics, but rather on the geography's relevance to the contemporary economy.

CHAPTER 4

THE STRANGE CAREER OF JIM CROW: LABOR SCARCITY AND DISCRIMINATION IN THE AMERICAN SOUTH

Abstract:

By economic theory, competitive markets should eliminate taste-based discrimination in the labor market. In this paper, I test whether market forces can similarly affect non-market discrimination. Specifically, I estimate the effects of relative labor scarcity on racial violence and political participation in the American South from 1865 to 1900. Random variation in labor scarcity across Southern counties was created by differential troop losses in the American Civil War. I find counties with 10 percentage-point higher death rates in the Civil War had 24-33% fewer lynchings of African Americans from 1866 to 1900. They also had 3.6-5.6% higher voter turnout despite a larger fraction of their population being black. These effects persisted for at least two decades after the counties' relative labor scarcity disappeared. However, in the very long run (100 years), counties with greater Civil War deaths saw a reversal, with much worse discrimination by the Civil Rights Era, due to their larger black populations and absence of economic incentives to prevent discrimination. This gives further evidence that relative levels of discrimination were not culturally determined and can change fairly quickly.

Introduction

According to economic theory, competitive markets should eliminate taste-based discrimination in the labor market.²⁹ However, some of the most damaging acts of discrimination, both past and present, occur outside of markets, including violence, exclusion from political processes, and limited access to public goods. In the American Civil Rights Movement, for example, wage inequality was a secondary issue to voting, access to public spaces and education, and equal protection by the justice system. Similar non-market discrimination persists against minority groups throughout the world, with prejudices especially pronounced in parts of the Middle East, South and Southeast Asia, and Africa (World Values Survey, 2014).³⁰ While competition should reduce taste-based discrimination in wages and employment over time, it is unclear whether market forces have any sway on these more serious acts of non-market discrimination.

In this paper I test whether a specific market condition, a labor supply shock, can affect non-market discrimination. To test this, I use data from the Postbellum American South (1865-1900), a setting with substantial discrimination against African Americans. Previous to this period, the South had an enormous labor supply shock, losing one-in-four white males from its labor force in the American Civil War (1861-1865). I estimate the effect of Southern counties' labor scarcity, which was

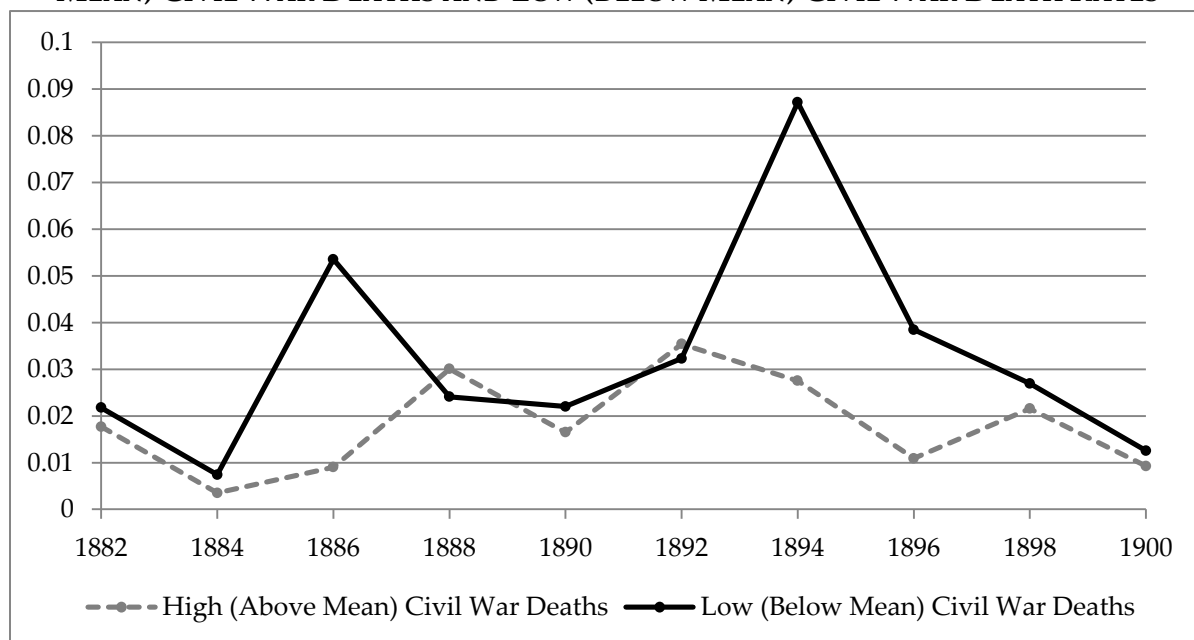
²⁹ Becker (1957/1971) first argued that, given a sufficiently large number of minority workers, employers can only satisfy a taste for discrimination at a positive cost to themselves. Arrow (1972, 1973) and others extended the model to show that discriminating firms will exit in a competitive market. Taste-based discrimination can persist in models with increasing returns to scale, under imperfect competition, imperfect information (Black, 1995; Lang & Lehman, 2012), or posted wage offers (Lang, Manove, & Dickens, 2005). Still, "The notion that employer prejudice is 'driven out of the market' in the long run remains a staple of most textbook treatments of the employer prejudice model," (Charles & Guryan, 2005). Residual discrimination in many current markets is thought to be *statistical* (Arrow, 1998; Aigner & Cain, 1977; Altoniji & Black, 1999; List, 2004).

³⁰ Based on survey respondents that answered "people of another race" or "people of another religion" in response to a question on who they would not want as neighbors.

randomly determined by military deaths in the Civil War, on 1) racial violence and 2) black political participation from 1865-1900.

Labor scarcity did in fact lead to decreased discrimination on both margins. In terms of violence, Figure 4.1 compares lynchings of African Americans in counties with high and low death rates in the Civil War.

FIGURE 4.1:
LYNCHINGS PER 1,000 IN BLACK POPULATION 1866-1900, COUNTIES WITH HIGH (ABOVE MEAN) CIVIL WAR DEATHS AND LOW (BELOW MEAN) CIVIL WAR DEATH RATES

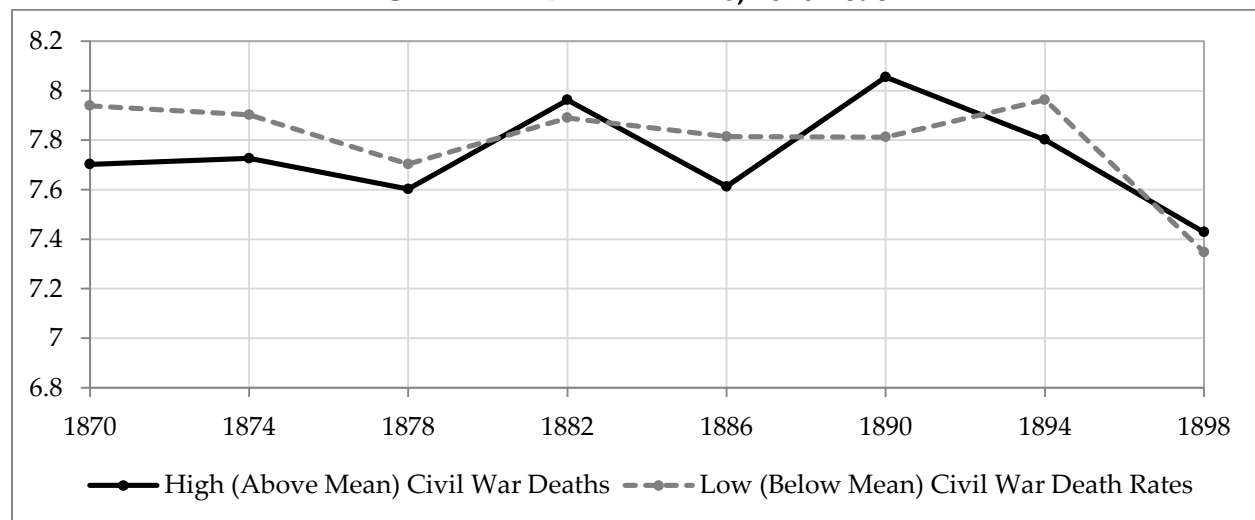


Notes: Dots show two-year averages for counties with high (above-mean) and low (below-mean) death rates in the American Civil War from eight former Confederate states. Lynchings measured as total lynchings per 1,000 in the county's black population in the given years.

Counties with greater labor scarcity (higher Civil War deaths) saw far fewer lynchings. Estimations suggest counties with 10 percentage-point higher death rates in the Civil War had 24 to 33% fewer lynchings from 1866-1900. In terms of political participation, Figure 4.2 shows the number of votes cast in Congressional mid-term elections from 1870-1898. Counties with higher death rates had more

eligible voters that were black—all else equal, this should have resulted in lower voter turnout due to intimidation and informal restrictions against black voters (Jones, Troesken, & Walsh, 2012).

FIGURE 4.2:
COUNTIES' AVERAGE TOTAL VOTES CAST IN CONGRESSIONAL MID-TERM ELECTIONS BY CIVIL WAR DEATH RATES, 1870-1898



Notes: Lines show total votes cast in Congressional elections for counties with high (above mean) death rates and low (below mean) death rates from eight former Confederate states. Only votes in mid-term elections are shown for smoothness.

However, Figure 4.2 shows little difference in voter turnout across counties by Civil War death rates through 1900. Estimations suggest that, all else equal, counties with 10 percentage-point higher death rates actually had 3.6-5.6% higher voter turnout from 1868-1900.

Instead of market forces, most empirical research sees the government as the main mover in changing discrimination. There is strong evidence that government actions can in fact reduce discrimination (Collins, 2001; Donohue & Heckman, 1991; Wright, 2013). Darity & Mason (1998) argue that in the U.S., most of the black-white income convergence of the last century occurred in from 1965-1975, the decade immediately following the Civil Rights Act of 1964. They further argue that competitive forces did little to improve the standing of black workers before or since. This

paper, then, gives strong empirical evidence that market forces can in fact reduce discrimination in addition to government efforts.

In addition to the initial results, I also evaluate how non-market discrimination changed in the longer run (at least 15-35 years after the war). Labor forces across counties were of similar sizes by 1880 (Larsen, 2015), yet decreased violence and increased voting and continued at least through 1900. Thus changes in racial treatment were not immediately removed once the excess labor demand was satisfied. This may suggest a shift in these counties' racial norms—transitory changes in racial treatment may outlast the market forces that led to the improved treatment. Jha (2013) finds a similar result in South Asia, with increased religious tolerance lasting for centuries after the economic necessity of the groups' interactions had eroded.

However, in the very long run (100 years after the Civil War), the improved racial outcomes were reversed. Voting from 1920-1960 and black voter registration in 1960 were much lower in previously labor-scarce counties. Racially motivated murders in from 1950-1970, including murders of civil rights workers of both races, were 55% more likely in counties with 10 percentage-point higher death rates in the Civil War. These counties were also more likely to refuse to integrate their schools, precipitating court actions.

These results are surprising given the earlier findings, but they stem from the dramatic growth of the black population in counties with greater labor scarcity following the Civil War, with larger black populations lasting through the entire 20th century. The results thus follow a fairly established pattern of discrimination in the political science literature, the “Racial Threat” hypothesis (Key, 1949; Blalock, 1967), which posits that racism increases with the size of the underprivileged group. It seems that, absent economic incentives for better racial treatment, whites took full advantage of formal and informal instruments to oppress blacks after 1900, and did so to a

greater extent in counties with more African Americans. Thus counties which had previously seen much better racial treatment developed much worse racial treatment from 1900 to the Civil Rights Era (1950s to 1960s).

While these reversals were unfortunate, they strongly reject the idea of racial treatment being constant and culturally determined in the U.S. South—in just 2-3 generations, the same areas that had prevented lynchings were now killing Civil Rights workers. This contrasts strongly with the findings of Voigtlander and Voth (2012) and Jha (2009) who find an extreme persistence of cultural traits, lasting several centuries.

The results further contribute to an important historical argument, put forth by C. Vann Woodward in *The Strange Career of Jim Crow* (1955/1974). Woodward gives a preponderance of evidence against the then-prevailing notion that the Southern racial system on the eve of the Civil Rights Movement was as it had always been:

“...things have not always been the same in the South. In a time when the Negroes formed a much larger proportion of the population than they did later, when slavery was a live memory in the minds of both races...the race policies accepted and pursued in the South were sometimes milder than they became later. The policies of proscription, segregation, and disfranchisement that are often described as the immutable ‘folkways’ of the South, impervious alike to the legislative reform and armed intervention, are of a more recent origin...the belief that they are immutable and unchangeable is not supported by history (1955/1974, p. 65)

While Woodward is widely read, and his work had significant bearing on the repeal of the Southern system—Martin Luther King called the book “the historical bible of the Civil Rights Movement” (Woodward, 1974)—his theory remains controversial. Many historians argue Woodward’s anecdotes of better racial treatment prior to 1900 run counter to the broader trends (see discussion in Rabinowitz, 1988). Furthermore, they argue that the system codified by 1900 was merely a formal manifestation of the *de facto* discrimination that was already ubiquitous in the South. The evidence presented here, however, points to considerable flexibility in the racial

discrimination of the Postbellum South, suggesting that the Jim Crow system did not flow directly from the slave order and was not a direct embodiment of the already-prevailing social norms.

2. Discrimination in the Postbellum South

The American Civil War (1861-1865) and the 13th Amendment (1865) ended slavery in the United States, but it took much longer for the South to remedy its system of racial castes. By the turn of the century, blacks' voting rights had been curtailed and nearly every facet of public life became segregated, both through informal norms and formal "Jim Crow" laws. That the system was economically damaging for African Americans has been shown in terms of limited educational opportunities (Margo, 1990), voting rights (Naidu, 2012), occupational mobility (Wright, 1986), and restricted migration for employment (Naidu, 2010). The Southern black population further suffered unequal treatment by the justice system, lack of access to public goods, a racial etiquette of deference towards whites (Alston & Ferrie, 1993), and considerable violence.

During Reconstruction (1865-1877), the federal government intervened directly in Southern politics. Among other things, this ensured African American participation, with many men even holding offices, especially in South Carolina and Mississippi. Troops also enforced restrictions on voting and office-holding for former Confederate supporters, severely handicapping the power of landowners (Foner, 1990). The Freedmen's Bureau also provided African Americans with legal assistance, arbitrated wage disputes, subsidized school construction, and provided some measure of protection from violence (Foner, 1990). By the 1870s, however, federal interest in the South waned and "Redeemers" were elected throughout the South, restoring much of the pre-war order. The removal of federal troops from the region was finally secured in 1877 in exchange for Louisiana,

Florida, and South Carolina's electoral votes, pushing Rutherford B. Hayes into the White House (Woodward, 1971).

Racial relations between Reconstruction and 1900 may still have been better in some respects than the period afterwards, however (Woodward, 1955/1974). Public accommodations, railroad travel, and other services that became hallmarks of the Jim Crow system were not uniformly segregated before 1900, with considerable variation across states and localities (Woodward, 1955/1974). In 1900, a Charleston editor disparaged the system as the city considered segregating rail cars, citing many integrated services what would in nearly every case become segregated in the decades that followed:

"If there must be Jim Crow cars on the railroads, then there must be Jim Crow cars on the street railways. Also on all passenger boats...there should be Jim Crow waiting saloons at all stations, and Jim Crow eating houses...There should be Jim Crow sections of the jury box, and a separate Jim Crow dock and witness stand in every court—and a Jim Crow Bible for colored witnesses to kiss. It would be advisable also to have a Jim Crow section in the county auditors' and treasurers' offices for the accommodation of colored taxpayers. The two races are dreadfully mixed in these offices for weeks every year, especially about Christmas," (Woodward, 1974, p.68).

Many African Americans were also able to buy property during this period, and despite very low levels of income in 1865, made significant economic progress by 1900 (Higgs, 1977a). In sum, African Americans faced significant prejudice in the Postbellum South, but there was considerable variation in discrimination prior to 1900, and in some cases there was perhaps less discrimination.

3. Relative Labor Scarcity and Discrimination 1865-1900

I test the effects of labor scarcity in the Postbellum American South on non-market discrimination in two categories: protection from violence (lynchings) and political participation (voter turnout). These measures are intended to proxy for the *de facto* racial treatment in Southern counties. Official voting restrictions, such as poll taxes and literacy tests, were not common until the

1890s, so preventing African Americans from voting usually involved completely extralegal measures, such as intimidation and violence. Lynchings were similarly outside of the law.

3.1 Results—Violence towards African Americans, 1866-1900

3.1.1 Baseline Specification

Lynchings clearly had racial motivations. While whites were often lynched in the South, more than 90% of the documented lynchings were of black men (HAL, 2014). Victims were usually accused of some crime and the lynchings were intended as a means of vigilante justice, but convictions were often dubious and sometimes trials were never held. Regardless, lynchings served to remind the black community of their “place” in the Southern system. Jones, Troesken, & Walsh (2012) show that lynchings were an effective deterrent to black voting, for example. They were also intended to enforce racial norms on interracial relationships, specifically between black men and white women (Dray, 2002).

Data on lynchings were first collected by Monroe Work at Tuskegee Institute (NAACP, 1919) and have been added to by the Historic American Lynchings (HAL) Project by Hines & Steelwater (2014). Records indicate the victim’s name and several details for each lynching, including the year and county where it occurred. This data is widely used, but does not cover Virginia and only begins in 1881. I supplement the HAL data with lynchings in Virginia beginning in 1880 from Brundage (1993). I also include lynchings reported in Northern newspapers from 1866 to 1880 using a Proquest Historical Newspaper search. Since most counties have no lynchings in a given year, I aggregate the data over the period from 1866 to 1900, by which time the Jim Crow system became ubiquitous

(Woodward, 1955/1974). Total lynchings in this period are divided by the county's average black population. They are reported as lynchings per 1,000 in the black population.

The estimations include region fixed effects (for the Appalachian, Piedmont, Coastal Plain, and Coastal regions) by state as well as a variety of other county-level covariates. The estimating equations are of the form:

$$\left(\frac{\text{Lynchings}}{\text{Black Population}/1000} \right)_{ir} = \beta_0 + \beta_1(\text{Death Rate}_{ir}) + X_{ir,1860} + \beta_3\alpha_r + \varepsilon_{irt}$$

for counties i in state-regions r . Data comes from counties in Virginia, South Carolina, Georgia, Alabama, Florida, Louisiana, and Arkansas.

Table 4.1 shows the effects of counties' death rates in the American Civil War on lynchings from 1866-1900. Due to the distribution and number of zero observations in the lynching data, I use Poisson regressions. In the baseline specification (Column 1), the estimated coefficient for the death rate's effect is -3.341, significant at the 10% level. Accounting for the logarithm used in a Poisson regression, a 10 percentage-point increase in the death rate (roughly one standard deviation) translates to a 28.4% reduction in lynchings at the mean. Across all specifications, a 10 percentage-point increase in the death rate is estimated to decrease lynchings from 24 to 33%. Many counties in the data had death rates that differed from neighboring counties by much more than 10 percentage points, so the estimated effects are very large.

In Column 2 I estimate the effect of labor scarcity on lynchings using a negative binomial regression, which relaxes the assumption that the distribution has a mean equal to its variance. The results change very little. In Column 3 I drop all counties with an urban population in the 1860 (pre-treatment) Census since lynchings were mostly a rural phenomenon. This raises the magnitude of the coefficient, which is significant at the 5% level. In all the remaining columns, I use a Poisson

TABLE 4.1:
DEATH RATES IN THE AMERICAN CIVIL WAR AND LYNCHINGS PER 1,000 IN BLACK POPULATION, COUNTIES, 1866-1900

VARIABLES	(1) Lynchings/1,000 in Black Pop.	(2) Lynchings/1,000 in Black Pop.	(3) Lynchings/1,000 in Black Pop.	(4) Lynchings/1,000 in Black Pop.	(5) Lynchings/1,000 in Black Pop.	(6) Lynchings/1,000 in Black Pop.	(7) Lynchings/1,000 in Black Pop.
Death Rate	-3.341* (1.801)	-2.869* (1.628)	-3.665** (1.810)	-3.282* (1.729)	-2.762** (1.355)	-3.702** (1.813)	-4.033** (2.030)
Urban	-.732** (.313)	-.712** (.317)					
Plantation County							-1.459*** (.416)
Death Rate x Plantation							3.285 (2.263)
Urban Counties	YES	YES	NO	NO	NO	NO	NO
Regions	ALL	ALL	ALL	Piedmont, Coastal Plain	ALL	ALL	ALL
State x Region F.E.	YES	YES	YES	YES	YES	YES	YES
Additional Controls	-	-	-	-	Census	Military	-
Effect — 10 Pct. Pt. Increase in Death Rate	-28.4%	-24.9%	-30.7%	-28.0%	-24.1%	-30.9%	-33.2%
Observations	223	223	207	179	207	207	207
Pseudo R-squared	.322	-	.329	.060	.379	.329	.354

Notes: Robust standard errors in parentheses for regression coefficients. Columns 1 and 3-7 show estimations from Poisson regressions. Column 2 uses a negative binomial regression. Lynchings were mostly a rural phenomenon, so counties with urban populations in 1860 are dropped in columns 3-7. *** p<0.01, ** p<0.05, * p<0.1.

regression while omitting the urban counties. Most of the South was rural, however, so this does not greatly reduce the sample.

Column 4 estimates the effect of Civil War death rates on lynchings for only the Piedmont and Coastal Plain regions. While there was significant variation in death rates within the Appalachian and Coastal regions, their average death rates were much lower than the other two regions. In the Appalachians there was somewhat lower military participation, though participation was still very high. In coastal counties there was greater participation in blockade running, then Confederate Navy, and home guard units (which “guarded” their home counties, in this case the Confederate coastline, but rarely participated in battles). Reducing the sample thus removes potential biases from the Appalachian and Coastal regions’ different experiences in the war. The estimated coefficient in Column 4, however, is very similar to earlier estimates.

Column 5 includes several pre-treatment county characteristics measured in the 1860 Censuses of Population, Agriculture and Manufacturing (Haines, 2010). These include the percent of the population that were slaves, per capita wealth, per capita manufacturing output, rail access, and cotton, corn, and tobacco output. These measures proxy for a variety of different pre-war county types. The results are again unchanged.

Military participation rates present a more serious concern. If counties’ participation rates reflected their pre-war characteristics, such as pro-Southern or pro-slavery sentiments, estimates would be biased. Such a bias would likely be positive, however, and simply attenuate the estimated effect of the death rates. In practice, military participation rates were very high throughout the South and varied little within regions.³¹ Still, the regression reported in Column 6 controls for military

³¹ The counties in Appalachia participated somewhat less due to ideological differences, with many men even fighting for the Union. The coastal areas had lower participation since many served in “Home

participation rates as well as desertion rates and two proxies for capital destruction in the war (the number and size of battles that occurred in the county). The results are very similar to the other estimations.

Alston & Ferrie (1993) have shown that lynchings were much less common in plantation counties. Though these counties had worse racial treatment on most margins, paternalist landowners offered protection from violence as a benefit to prevent their low-wage workers from migrating. To ensure that the results are not simply showing the effects of paternalism, in Column 7 I add a variable for plantation counties. For simplicity, I use an indicator variable for whether or not slaves made up 40% or more of the county's 1860 population. Using the actual percentage of a county's population that were slaves (a continuous variable) does not affect the estimates. I also include an interaction term to test for a differential effect of labor scarcity on lynchings in plantation counties. Not surprisingly, plantation counties had a strong negative effect on lynchings, as Alston & Ferrie predict. The interaction term suggests the death rate may have had little effect on lynchings in these counties as well. The main effect of death rates on lynchings, however, changes very little—the effect of a 10 percentage-point increase in the death rate on lynchings, absent paternalism, is estimated at -33.2% . This suggests the effects estimated in the previous columns are not driven by plantation counties.

3.1.2 IV Results

As in the previous chapter, a potential bias in the estimates remains due to deaths from disease. Lee in particular shows higher deaths from disease among rural soldiers in the Union

Guard" units (which guarded the coast but were not incorporated into the traditional army), served in the Navy, or worked as blockade runners.

Army, but Table 4.1 Column 3 shows the previous results hold while omitting counties with any urban populations in the 1860 census. The results in fact become somewhat stronger when omitting the urban counties. Still, other correlations between death rates and a county's unobserved health conditions before the war could exist, as could other unobserved differences between counties that might have affected death rates. To deal with this, I generate predicted death rates for each company based solely on the battles they fought, as explained in Chapter 2. These predicted death rates are driven only by the random nature of troop assignments, and they will only be biased if generals' decisions were influenced by counties' pre-war characteristics.

The predicted death rates are included in a 2SLS regression, with the first stage being the prediction equation with all other covariates included. As the battle information is a very strong predictor of counties' death rates, the partial F stat is extremely high and not reported in the table. Table 4.2 Column 1 shows the results of the 2SLS regression. In this case, the estimated effect of a 10 percentage-point increase in a county's Civil War death rate is a 32% decrease in lynchings, in line with the previous specifications.

3.1.3 Robustness

For robustness, Columns 2-5 of Table 4.2 explore some potential channels of causation that would not be consistent with market forces affecting discrimination. First, it could be that the size of the black population had increasing returns in preventing violence. This would suggest that larger groups of African Americans could protect themselves without any change in white behavior. In Column 2 I control for the size of the black population, and the results are unchanged. Alternately, it could be that the high Civil War death rates left these counties with fewer white men to carry out acts of racial violence. Column 3 controls for the size of the white population, and this does not

TABLE 4.2:
ROBUSTNESS CHECKS AND CHANNELS OF CAUSATION: DEATH RATES AND LYNCHINGS PER
1,000 IN BLACK POPULATION, 1866-1900

VARIABLES	(1) Lynchings/ 1,000 in Black Pop.	(2) Lynchings/ 1,000 in Black Pop.	(3) Lynchings/ 1,000 in Black Pop.	(4) Lynchings/ 1,000 in Black Pop.	(5) Lynchings/ 1,000 in Black Pop.
Death Rate	-3.854* (2.227)	-2.448* (1.433)	-2.686* (1.512)	-5.141** (2.223)	-3.977** (1.913)
Log 1860 Black Pop.		-.445** (.201)			
Log 1860 White Pop.			.820** (.361)		
% Change Manufacturing				-.00027 (.00041)	
% Change Cotton Production					.0032** (.0013)
% Change Corn Production					.0963 (.0796)
Urban Counties	NO	NO	NO	NO	NO
Regions	ALL	ALL	ALL	ALL	ALL
State x Region F.E.	YES	YES	YES	YES	YES
Effect—10 Pct. Pt. Increase in Death Rate	-32.0%	-21.7%	-23.6%	-40.2%	-32.8%
Observations	207	207	207	207	207
Pseudo R-squared	.157	.361	.358	.367	.354

Notes: Robust standard errors in parentheses for regression coefficients. Estimates in Column 1 come from a 2SLS regression. All other estimations come from Poisson regressions. Lynchings were mostly a rural phenomenon, so counties with urban populations are dropped in all estimations.

*** p<0.01, ** p<0.05, * p<0.1.

appear to be the case. Labor scarcity might potentially have caused structural changes in counties' economies, and it could be that it was these structural changes and not forces in the labor markets

that lead to decreased racial violence. In Column 4 I control for the growth of counties' manufacturing output from 1860-1900. In Column 5 I control for the change in counties' cotton output (the main export crop) and corn output (the main subsistence crop). The results in Columns 4 and 5 are very similar to earlier results, suggesting structural changes of these kinds are not driving the results.

3.2 Results—Political Participation, 1865-1900

3.2.1 Baseline Specification

A second proxy for racial treatment in the South from 1865-1900 is the county's participation levels in major elections. Total votes cast in presidential, congressional, and gubernatorial elections are available through the ICPSR's *United States Historical Election Returns, 1824-1968*. The log of total votes is regressed while controlling for the log of the voting-age population (males over 21), so the dependent variable can equivalently be thought of as voter turnout (as a percent of eligible voters). The estimations are equivalent to Frisch-Waugh regressions where the left-hand side variable is the residual from regressing the log of the voting age population on the log of total votes. The remaining right-hand side variables thus explain variations in voting behavior that cannot be explained by the size of the potential voting pool. Similar measures have been used previously by Naidu (2012) and Jones, Troesken, and Walsh (2012) as proxies for variations in black voter participation. Total black votes have been estimated for a handful of elections by using ecological inference (Redding & James, 2010). However, this method assumes a constant relationship between total votes and a county's black population. I, on the other hand, am testing for differences in voting behavior for a given black population.

In the estimations, I use a pooled sample of each major election from 1868 to 1900 in Virginia, South Carolina, Georgia, Alabama, Florida, Louisiana, and Arkansas. Region fixed effects are again included by state. Election specific fixed effects (year fixed effects for each type of election) are also included by state. The baseline model is of the form:

$$\log(\text{Total Votes})_{irt} = \beta_0 + \beta_1(\text{Death Rate}_{irt}) + \beta_2 \log(\text{Voting Age Pop}_{irt}) \\ + X_{ir,1860} + \beta_3 \alpha_r + \beta_4 \gamma_t + \varepsilon_{irt}$$

for state-regions r and elections (state x office x year) t . The estimated effects of death rates on voting thus come from comparisons within state-regions and within individual elections. To allow for correlation in the error terms within regions and across time, I use multi-dimensionally clustered standard errors in the inference, clustered by state x region and election (office x year) (Cameron, Gelbach, & Miller, 2011). These standard errors perform well even with less than 40 clusters (Cameron, Gelbach, & Miller, 2011).

Table 4.3 shows the effects of counties' death rates in the American Civil War on electoral participation from 1868-1900. The baseline specification estimates a 5.2% increase in voting in counties with 10 percentage-point higher death rates in the Civil War, significant at the 1% level. Overall, the results suggest a 3.6 to 5.6% increase in voting in counties with 10 percentage-point higher death rates.

Measuring these estimates against a null hypothesis of zero effect may not be the correct test, however. Counties with higher death rates experienced significant immigration of newly freed slaves, resulting in a larger share of their population that was black (Larsen, 2014). With this, the null hypothesis of the effect of the death rate being zero is almost certainly too high. Using data on electoral participation by race inferred for 1876 and estimated for 1880, 1892, and 1900 (Redding & James, 2010), black voter participation averaged 45% over this period while white voter turnout was

TABLE 4.3:
DEATH RATES IN THE AMERICAN CIVIL WAR AND LOG TOTAL VOTES IN CONGRESSIONAL, PRESIDENTIAL, AND GUBERNATORIAL ELECTIONS IN SOUTHERN COUNTIES, 1868-1900

VARIABLES	(1) Log Total Votes 1868-1900	(2) Log Total Votes 1868-1900	(3) Log Total Votes 1868-1900	(4) Log Total Votes 1868-1900	(5) Log Total Votes 1868-1900	(6) Log Total Votes 1868-1880
Death Rate	.517*** (.185)	.356* (.213)	.449** (.178)	.436*** (.149)	.556*** (.180)	.629*** (.196)
Log Black Eligible Voters	-	-	-	-	-	-
Regions	ALL	Piedmont, Coastal Plain	ALL	ALL	ALL	ALL
State x Region F.E.	YES	YES	YES	YES	YES	YES
Election F.E.	YES	YES	YES	YES	YES	YES
Addl. Controls	-	-	Military	Census	-	-
Urban Counties	YES	YES	YES	YES	NO	YES
95% Conf. Interval (Death Rate)	[.154, .879]	[-.060, .773]	[.101, .797]	[.143, .729]	[.203, .909]	[.245, 1.014]
Null Hypothesis p-value	$\hat{\beta} > -.13$.0005***	$\hat{\beta} > -.13$.0223**	$\hat{\beta} > -.13$.0011***	$\hat{\beta} > -.13$.0001***	$\hat{\beta} > -.13$.0001***	$\hat{\beta} > -.13$.0001***
Observations	8,330	5,921	8,330	8,330	7,727	3,940
R-squared	.715	.711	.717	.715	0.695	.743

Notes: Columns 1-4 report multi-dimensionally clustered standard errors in parentheses, clustered by state x region and election (office x year). Column 5 reports standard errors clustered by county. Regressions control for the log of the number of eligible voters (men aged 21 and over) in the election year, state x region and election (state x office x year) fixed effects, and urban/rural status in 1860. Eligible voters in years between censuses are estimated by linear interpolation. The null hypothesis reported is the expected reduced form effect of Civil War death rates on the log of total votes, assuming 1) the death rates only affect the size of the black population and 2) that black and white voters' propensity to vote remains constant with an increase in the black population. Rejection indicates that their propensities to vote did in fact change with the death rates. *** p<.01, ** p<.05, * p<.1.

very high at 72%. Combining this information with the estimated effects of death rates on the change in the black population (Larsen, 2015), I estimate a reduced form impact of a 1.3% decrease in a county's total votes with a 10 percentage-point increase in the death rate, assuming that the death rate affected only the size of the black population and nothing else. This is shown in Table 4.3 as the null hypothesis $\hat{\beta} > -.13$ and represents the expected outcome for voting if racial treatment were unaffected by the labor scarcity. 95% confidence intervals are also shown to illustrate the range of null hypotheses that could be similarly rejected.

Table 4.3 Column 2 estimates the effects in only the Piedmont and Coastal Plain regions, removing potential biases from counties in the Appalachian and Coastal regions. The results are slightly reduced, but still significantly above zero and well above the estimated null hypothesis of $-.13$. Columns 3 and 4 include the census and military controls explained previously, and the results change very little. Column 5 again drops the counties with urban populations in the pre-treatment period, with the magnitude of the coefficient increasing to $.556$, significantly different from zero at the 1% level.

Column 6 focuses the estimation on a time period that preceded the labor market's return to equilibrium. Elections included are from 1868 (the first year Southern states voted again in federal elections) to 1880, by which time the population difference across high and low-death counties is indistinguishable. Over this time period, the estimated effect of labor scarcity is even larger, suggesting the strongest effect when excess labor demand was greatest.

3.2.2 Robustness

Table 4.4 Column 1 estimates the effect of labor scarcity on voter turnout using the predicted death rates (2SLS). These again remove any potential biases in the death rates that were not

TABLE 4.4:

ROBUSTNESS CHECKS AND CHANNELS OF CAUSATION: DEATH RATES AND LOG TOTAL VOTES, COUNTIES, 1868-1900

VARIABLES	(1) Log Total Votes 1868-1900	(2) Log Total Votes 1848-1860	(3) Log Total Votes 1868-1900	(4) Log Total Votes 1868-1900	(5) Log Total Votes 1868-1900	(6) Log Total Votes 1868-1900	(7) Log Total Votes 1868-1900
Death Rate	.358* (.202)	-.119 (.265)	.495*** (.153)	.542*** (.165)	.366* (.221)	.327* (.177)	-
Log Black Population	-	-	.0134 (.084)	-	-	-	.357 (.280)
Log White Population	-	-	-	-.0996 (.101)	-	-	-
% Change Manufacturing	-	-	-	-	-.00001 (.00006)	-	-
% Change Cotton Production	-	-	-	-	-	.0005 (.0005)	-
% Change Corn Production	-	-	-	-	-	-.124** (.055)	-
95% Conf. Interval (Death Rate)	[-.038, .755]	-	[.194, .796]	[.218, .866]	[-.068, .800]	[-.0190, .673]	[-.192, .905]
Null Hypothesis	$\beta > -.13$	-	$\beta > -.13$	$\beta > -.13$	$\beta > -.13$	$\beta > -.13$	$\beta > -.12$
p-value	.0160**	-	.0000***	.0000***	.0249**	.0096***	.0252**
Partial F-stat	-	-	-	-	-	-	11.33
Observations	8,330	2,896	8,330	8,330	8,330	7,727	8,330
R-squared	.729	0.734	0.715	0.716	0.737	0.703	.616

Notes: Multi-dimensionally clustered standard errors in parentheses, clustered by state x region and election (office x year). Regressions control for the log of the number of eligible voters (men aged 21 and over) in the election year, state x region and election (state x office x year) fixed effects, and urban/rural status in 1860. Counties from all regions are included. Eligible voters in years between censuses are estimated by linear interpolation. The null hypothesis reported is the expected reduced form effect of Civil War death rates on the log of total votes, assuming 1) the death rates only affect the size of the black population and 2) that black and white voters' propensity to vote remains constant with an increase in the black population. Rejection indicates that their propensities to vote did in fact change with the death rates. *** p<0.01, ** p<0.05, * p<0.1

correlated with generals' decision-making, such as a county's pre-war health conditions. The estimated effect of the predicted death rates is very similar to those of the actual death rates used in Table 4.3. Column 2 presents a falsification test, with the dependent variable being the log of total votes in the twelve years before the American Civil War (1848-1860). The death rates have no significant effect on these pre-treatment outcomes, indicating there was no different voting pattern in the high death-rate counties before the war.

The remaining columns in Table 4.4 repeat the further robustness checks and tests for alternate channels of causation that were performed for the lynching results in Table 4.2. Having a larger black population (Column 3), which could potentially lead to greater political power for African Americans or greater protection for black voters going to the polls, does not affect the results. Having a smaller white population (Column 4) due to higher death rates, which might leave fewer men to intimidate black voters, obstruct polls, or create other barriers to black voting, similarly leaves the results unaffected. Accounting for structural changes in counties economies (Columns 5-6) again leaves the results little changed.

Since death rates were distributed randomly, the results can be interpreted causally, but it is impossible to show that any of the additional voters in high-death counties were actually black. However, in Table 4.4 Column 7 I pursue an alternate strategy by instrumenting the size of a county's black population with the county's death rate. The effect of death rates on the change in black population is estimated in the first stage, and the effect of the change in black population on voting is estimated in the second stage. Because an IV regression produces a local-average treatment effect, the black population in the second stage is interpreted as the change in black population that was sensitive to variations in labor scarcity. This would include migrants, for example, but not the larger black populations in plantation counties. The coefficient, then, does not indicate that having a

larger black population led to more voting in the South on average. Clearly this was not the case. Instead, it says that the larger the black population that was influenced by the labor scarcity, the higher the voter turnout. I also estimate a new null hypothesis since one step in the previous calculation is accounted for in the first stage. From the data on actual voter participation by race, a 10 percentage-point increase in the fraction of potential voters that was black should reduce voting by 2.7%. While not significantly different from zero, the IV estimate is well above the estimated null hypothesis.

3.3 Channels of Causation

I interpret the preceding results as causal impacts of labor scarcity on non-market discrimination in the Postbellum South due to the random nature of counties' Civil War death rates. However, the channel through which these effects come is still unclear. Military deaths and labor scarcity could have created several changes in these counties, some of which could have in turn led to decreases in lynchings and increases in voter turnout. I explore several potential channels below.

3.3.1 Non-Market Channels

As I have shown, several channels that are not consistent with market conditions affecting discrimination can be rejected. These include a larger black population, which might have offered some measure of protection or power to that community, and a smaller white population, which conceivably could have been less able to carry out acts of discrimination.

Some channels that might be considered economic, but not necessarily market forces, include structural changes and paternalism. Structural changes in the counties' economies, including growth of manufacturing and changes in cotton and corn output, are similarly unable to explain the

results. Paternalism can explain decreased racial violence in plantation counties, but it seems to have been independent of the effect of Civil War death rates on discrimination.

Government action is another potential channel for the effects. In this case the Freedmen's Bureau may have been especially capable of preventing violence and aiding in voter turnout. If the Freedmen's Bureau was more active in counties with higher death rates, then this would explain the preceding results without market forces playing any role. However, in Section 4, I show that the previous results hold for the period 1880-1900 and perhaps beyond, long after the Freedmen's Bureau (1872) and Federal Troops (1877) had left the South.

3.3.2 Market Channels

While I cannot take a strong stand on the exact channel through which the effects come, I interpret the results as improved treatment of African Americans by white Southerners due to labor market conditions. I consider three possible channels arising from labor markets.

First, employers could actively reduce discrimination in their communities.³² Minority workers prefer to live in areas with better racial treatment, negatively affecting firms located in more prejudiced areas (Dray, 2002). If employers are sufficiently powerful, they can offer decreased discrimination as a fringe benefit to entice scarce minority workers. Alston & Ferrie (1993), for example, have shown Southern landowners were able to protect black workers and their families from racial violence. It seems plausible they could have allowed greater access to voting as well, if it benefited them economically. Given the extreme inequality in political and economic power in the

³² There is evidence of employers removing taste-based discrimination from labor markets during this time period. Higgs (1977b) shows that for many professions in Virginia from 1900-1909, black and white workers earned similar wages, especially at integrated firms. Brown & Phillips (1986) show 19th century manufacturers in California were willing to substitute their preferred labor force of white women, who were scarce, for Chinese workers, who faced open prejudice in the community.

Postbellum South, it is likely that employers (landowners) were involved in the observed decreases in discrimination at some level, whether they played an active or passive role.

Second, labor scarcity leads to decreased competition in labor markets. In the Postbellum South, such competition may have led whites to use violence to intimidate competing black workers and induce them to migrate (Christian, 2015). The demand for such racial violence would decrease with labor scarcity. It seems unlikely that this would occur without at least tacit agreement by the landowners, though.

Lastly, labor scarcity may have simply led to higher wages. If acts of non-market discrimination are inferior goods, then this discrimination would necessarily decrease in areas with greater labor scarcity. High incomes within and across countries tend to be correlated with lower discrimination today, though there is no evidence of a causal link. This might be thought of as an extension of modernization theory, whereby economic progress creates social progress, thus creating a correlation between income gains and more enlightened views on race. Some women and minority workers tend to have poorer outcomes during recessions as well (Hogarth et al., 2009), though these results do not hold for all minority groups. This might indicate, among other things, that employers or co-workers have latent racial preferences that only become pronounced when incomes fall.

4. Persistence of Racial Treatment, 1881-1920

The previous section analyzes 1865-1900, the full period in which Woodward (1955/1974) suggests racial treatment still had considerable variance across the South. I now analyze the period from 1880-1900 separately to test for the persistence of racial treatment as a cultural norm. The size of the labor force across counties with different death rates converged by 1880, which suggests that

economic considerations in such counties were likely no different beyond that point. I attribute effects that remained in 1880-1900 and beyond to an actual change in the cultural norms, distinct from a short-term improvement in racial relations exploited for economic gain.

Table 4.5 repeats the main specification for the effect labor scarcity on racial violence for three time periods: 1881-1900, 1901-1920, and 1881-1920. Civil War death rates greatly reduced lynchings in the period after labor-market convergence (Column 1). The results are robust to the tests presented in the previous sections (not shown). While the negative effect from 1901-1920 (Column 2) is not statistically significant, the effect over the period as a whole (1881-1920, Column 3) was very strong. From these estimates, the negative effect of Civil War death rates on racial violence clearly lasted beyond the initial period of labor scarcity (ending around 1880) and indicates some degree of persistence in racial treatment.

Columns 4-6 repeat the results for electoral participation. The estimate for 1881-1900 again indicates some persistence in racial treatment from the earlier period. The results are also robust to the tests presented in the previous sections (not shown). The effect does not remain after 1900, however. By this time, nearly every Southern state had installed significant restrictions against black voters, and it appears the constraints were binding—there was no significant effect of previous labor scarcity on voting behavior in these decades.

5. Racial Treatment in the Very Long Run

The previous sections show that: first, counties with greater labor scarcity saw decreases in non-market discrimination from the end of the Civil War to 1880. Second, the effects lasted beyond 1880, with electoral participation higher in counties with higher death rates until 1900 and racial

TABLE 4.5:
PERSISTENCE OF EFFECTS OF DEATH RATES ON LOG TOTAL VOTES AND LYNCHINGS PER
1,000 IN BLACK POPULATION, 1880-1920

VARIABLES	(1) Lynch.'s/1,000 Blk. Pop. 1880-1900	(2) Lynch.'s/1,000 in Blk. Pop. 1901-1920	(3) Lynch.'s/1,000 in Blk. Pop. 1880-1920	(4) Log Total Votes 1881-1900	(5) Log Total Votes 1901-1920	(6) Log Total Votes 1881-1920
Death Rate	-3.656** (1.807)	-2.086 (1.539)	-3.423** (1.521)	.416** (.201)	-.0347 (.445)	.175 (.247)
Urban Counties	NO	NO	NO	YES	YES	YES
Regions	ALL	ALL	ALL	ALL	ALL	ALL
State x Region F.E.	YES	YES	YES	YES	YES	YES
Additional Controls	NO	NO	NO	NO	NO	NO
Observations	209	210	210	4,473	4,276	8,749
R-squared	-	-	-	.729	.777	.756
Pseudo R-squared	.329	.130	.345	-	-	-

Notes Columns 1-3: Robust standard errors in parentheses. All estimations from Poisson regressions. Lynchings were mostly a rural phenomenon, so counties with urban populations are dropped in all estimations.

Notes Columns 4-6: Multi-dimensionally clustered standard errors in parentheses, clustered by state x region and election (office x year). Regressions control for the log of the number of eligible voters (men aged 21 and over) in the election year, state x region and election (state x office x year) fixed effects, and urban/rural status in 1860. Eligible voters in years between censuses are estimated by linear interpolation. The null hypothesis reported is the expected reduced form effect of Civil War death rates on the log of total votes, assuming 1) the death rates only affect the size of the black population and 2) that black and white voters' propensity to vote remains constant with an increase in the black population.

violence reduced in these counties through 1920. I now test the evolution of non-market discrimination through the Civil Rights Era (1950-1970).

Unfortunately, the beneficial effects of labor scarcity on discrimination not only disappeared in the very long run, they were actually reversed. Following the enactment of a host of state-level institutions to enforce White supremacy from 1890-1910, all the gains of the previous periods fell away.

Figure 4.3 shows the effects of death rates on electoral participation over 20-year intervals starting in the antebellum period. The line plots the regression coefficients from the baseline

FIGURE 4.3:
EFFECT OF CIVIL WAR DEATH RATES ON LOG TOTAL VOTES BY 20-YEAR PERIOD, 1848-1960



Notes: Log total votes are for congressional, presidential, and gubernatorial elections. Points represent coefficient in regression of log total votes on the Civil War death rate, an indicator for urban status in 1860, and state x region and election (office x year) fixed effects. Dotted lines represent 95% confidence intervals, constructed using multi-dimensionally clustered standard errors, clustered by state x region and election (office x year). Points are plotted in the middle of each 20-year period. “1850” result represents voting from 1848-1860, “1870” result represents voting from 1868-1880. The South did not vote in federal elections from 1861-1867.

specification with 95% confidence intervals shown in dotted lines. As reported previously, there was no effect of death rates on voting in the pre-treatment period (1848-1860, plotted at 1850 on the graph). The strongest effect is found from 1868-1880 (plotted at 1870 on the graph), but there was still a significant positive effect from 1881-1900. After that time the effect decreased and became strongly negative and statistically significant from 1921-1940. The negative effect from 1941 to 1960 is also significant at the 10% level.

Other measures suggest the condition in the formerly labor-scarce counties was even worse than Figure 4.3 indicates. Table 4.6 shows the effect of Civil War death rates on other indicators of discrimination from 1950-1970. These proxies are not measured in earlier periods, so they are not directly comparable to the earlier results in the same way that the voting data are. Still, they paint a picture of significantly poorer racial treatment in the counties more affected by the Civil War. Panel A shows the effect of Civil War death rates on the percent of non-white adults registered to vote in 1960. This data was collected by the U.S. Civil Rights Commission. Most Southern counties are included, though only a fraction of the counties in Georgia were surveyed. Across all estimations, a 10 percentage-point increase in the death rate translates to a 22 to 31% reduction in black voter registration, a very large effect.

Panel B shows the results for racially-motivated murders and murders of civil rights workers (including whites) from 1950-1970 as reported by the Southern Poverty Law Center. Again, these are not directly comparable to the lynchings data, but both are representative of the efforts made, through violent intimidation, to suppress African Americans in these counties. Very few counties had more than one murder, and those that did tended to have multiple murders in the same event, such as the murder of three Civil Rights workers outside Philadelphia, Mississippi in the summer of 1964. For this reason, the dependent variable in the regressions is simply a 1 for those counties with

TABLE 4.6:
CIVIL WAR DEATH RATES AND INDICATORS FOR RACIAL TREATMENT
IN THE CIVIL RIGHTS ERA, 1950-1970

PANEL A: PERCENT OF NON-WHITE ADULTS REGISTERED TO VOTE				
VARIABLES	(1) All Regions	(2) Piedmont & Coastal Plain	(3) Census Controls	(4) Military Controls
Death Rate	-.638*** (.183)	-.752*** (.190)	-.532*** (.196)	-.581** (.244)
State x Region Fixed Effects	YES	YES	YES	YES
Mean of Dependent Variable	.242	.240	.242	.242
Effect—10 Pct. Pt. Increase in Death Rate at Mean	-26.3%	-31.4%	-22.0%	-24.0%
Observations	217	173	217	217
R-squared	.224	.278	.294	.231

PANEL B: RACIALLY-MOTIVATED MURDERS AND MURDERS OF CIVIL RIGHTS WORKERS				
VARIABLES	(1) All Regions	(2) Piedmont & Coastal Plain	(3) Census Controls	(4) Military Controls
Death Rate	.667** (.323)	.827** (.323)	.583** (.293)	.529* (.298)
State x Region Fixed Effects	YES	YES	YES	YES
Mean of Dependent Variable	.122	.129	.123	.123
Effect—10 Pct. Pt. Increase in Death Rate at Mean	54.7%	64.1%	47.4%	43.0%
Observations	238	202	220	220
R-squared	.201	.215	.273	.217

one or more murders in this period and a 0 for those with none. Panel B reports the results from a linear probability model, though the results are robust to other specifications that bound the fitted values between 0 and 1. A 10 percentage-point increase in the Civil War death rate resulted in a 5.3 to 8.3 percentage-point increase in the probability of having a racially-motivated murder in the Civil Rights Era, a 43 to 64% increase at the mean.

These results run counter to the earlier estimates, but they follow a common pattern in the political science literature known as the “racial threat” hypothesis,” (Key, 1949; Blalock, 1967), which posits that racism is increasing in the size of the underprivileged group. The most defining feature of counties with heavy Civil War losses in the long run was their larger black populations, which continued to be larger for the entire 20th century. In the very long run, then, it seems the large growth of the black population caused by post-Civil War labor scarcity led whites to feel more threatened by the Civil Rights Era.

Significant evidence supports the racial threat hypothesis: “whites' negative racial attitudes increase with higher percentages of blacks in the county, metropolitan area, and state, and not just in the South,” (Oliver & Mendelberg, 2000, p.574). These relationships may be more nuanced and may not be causal (Oliver & Mendelberg, 2000), but they are a statistical regularity in the 20th century. By Becker’s theory, discrimination should be increasing in the size of the minority group as well, and this has been confirmed empirically for recent decades (Charles & Guryan, 2008). Since labor scarcity resulted in increases in the black population, the threat hypothesis predicts poorer racial outcomes for counties that were labor-scarce following the Civil War.

In the very long run then, the effects of a larger racial “threat” seem to dominate the beneficial effects of labor market competition in the earlier period. This result is unfortunate but very significant. First, they show that racial discrimination can change, and change quickly, even

without direct government intervention. The results presented here contradict those of Voigtlander & Voth (2012) who show an extreme persistence of cultural traits, specifically anti-Semitic beliefs, over several centuries in Germany. Their own work shows, however, that areas with greater market interaction did in fact lose their racist beliefs over the period. In general, however, the contrast between Voigtlander & Voth's (2012) results and those presented here may come in the nature of the minority group. In the German case, Jews were a very small minority that was used as a scapegoat. Moreover, Jews did not even live in the prejudiced areas for long periods of time. In the Southern case, African Americans lived in all parts of the South in large numbers and were an economic necessity in the labor force. Rather than a scapegoat, they were both a needed source of labor and a threat to white power, and in these circumstances it appears racial treatment, rather than being static, can in fact change and may do so very quickly.

Second, these results further strengthen Woodward's argument that things were not as they always were, but rather they changed significantly. First, they reject the notion that discrimination in the South was culturally determined and inflexible. Most contemporary commentators argued along these lines—the *de jure* racial system merely reflected the region's unchanging cultural norms. For them, the racial order established by 1900 “was regarded as ‘the final settlement,’ the ‘return to sanity,’ the ‘permanent system,’” (Woodward, 1955/1974, p. 7). A critic of the racial system agreed that these beliefs were long-held and inflexible: “The mind of the South is almost impervious to change...That mind is, in every essential respect, merely the ancient mind of the South,” (Cash, 1929). Instead it seems the “mind of the South” was amenable to considerable change, even over a few short decades.

While Woodward argues the period before 1900 was in some ways less racist than the Jim Crow era that followed, these results paint an even darker picture—areas that were the least racist

after the Civil War had become the most racist by the Civil Rights Era as their larger black populations interacted with the harmful racial institutions in place by 1900. The grandchildren of people who prevented lynchings, for example, were considerably more likely to commit racially-motivated murders by the 1950s.

Martin Luther King famously stated “the arc of the moral universe is long, but it bends towards justice,” (1965). This contrasts considerably with Figure 4.3, in which the arc bends in exactly the opposite direction. King borrowed his words from an assertion on the inevitability of the abolitionist cause in the 19th Century:

“Look at the facts of the world. You see a continual and progressive triumph of the right. I do not pretend to understand the moral universe; the arc is a long one, my eye reaches but little ways; I cannot calculate the curve and complete the figure by the experience of sight; I can divine it by conscience. And from what I see I am sure it bends towards justice,” (Parker, 1858).

The results in this section, however, strongly contradict the inevitability of social progress, specifically with regard to racial treatment. Counties with greater labor scarcity following the Civil War in fact retrogressed from having relatively low levels of discrimination to becoming among the worst offenders by the Civil Rights Era.

6. Conclusion

This paper presents strong evidence that market forces can affect non-market discrimination, similar to the predicted effect of market forces on discrimination in economic theory. Labor market scarcity led to improved racial treatment in the most affected counties following the Civil War. That discrimination changed after the war (1865-1880) in areas with higher death rates, and that it

remained changed after the labor-market convergence (1880 to 1900 or 1920) suggests a possible shift in the cultural norms in these areas, not simply a short-term economic calculation.

In the long-run, however, other forces overwhelmed the low levels of discrimination in the previously labor-scarce counties. All else equal, counties with higher Civil War death rates had larger black populations through the Jim Crow Era, and the advantages to white supremacy made available through the Jim Crow system were exploited to a larger degree in these areas. Such actions were likely taken due to the greater threat posed by the larger black populations in these counties. Thus, in the very long run, the beneficial effects of the initial post-war period were not only erased but also reversed. In three short generations, counties with better-than-average racial norms had become the worst offenders.

The results presented here also contradict those of Voigtlander & Voth (2012) who show an extreme persistence of cultural traits, specifically anti-Semitic beliefs, over several centuries in Germany. They also serve to strengthen Woodward's (1955/1974) argument that racial discrimination in the South was not as it "always had been," nor was the Jim Crow system inevitable. Further, the system was not a necessity in the progress of racial relations from slavery to the Civil Rights Era, but rather a break from earlier norms. In his words, "before [the Jim Crow system] appeared in this form there occurred an era of experiment and variety in race relations of the South in which segregation was not the invariable rule." What contemporary Southerners thought of as linear progress in racial relations and what Martin Luther King hoped would be a "long arc" bending towards justice had in fact been an arc bending away, this in a period of modernization and economic growth in of the most developed countries in the world.

REFERENCES

- Abramitzky, Ran, Adeline Delavande & Luis Vasconcelos (2011). "Marrying Up: The Role of Sex Ratio in Assortative Matching." *American Economic Journal: Applied Economics*, Vol. 3, No. 5, pp. 124-57.
- Acemoglu, Daron & James Robinson (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York: Crown Business.
- Alesina, A., & Fuchs-Schündeln, N. (2007). Good-Bye Lenin (or Not?): The Effect of Communism on People's Preferences. *The American Economic Review*, 97(4), 1507-1528.
- Aigner, D. J., & Cain, G. G. (1977). "Statistical Theories of Discrimination in Labor Markets." *Industrial and Labor Relations Review*, 175-187.
- Alston, Lee J. & Joseph P. Ferrie (1993). "Paternalism in Agricultural Labor Contracts in the U.S. South: Implications for the Growth of the Welfare State. *American Economic Review*, Vol. 83, No. 4, pp. 852-876.
- Alston, Lee J., & Higgs, Robert (1982). "Contractual Mix in Southern Agriculture since the Civil War: Facts, Hypotheses, and Tests. *Journal of Economic History*, Vol. 42, No. 2, pp. 327-353.
- Altonji, J. G., & Blank, R. M. (1999). "Race and Gender in the Labor Market." *Handbook of Labor Economics*, 3, 3143-3259.
- Arrow, K. J. (1972). "Models of Job Discrimination." *Racial Discrimination in Economic Life*, 83.
- Arrow, K. (1973). "The Theory of Discrimination." *Discrimination in labor markets*, 3(10), 3-33.
- Arrow, K. J. (1998). "What Has Economics to Say about Racial Discrimination?" *The Journal of Economic Perspectives*, Vol. 12, No. 2, pp. 91-100.
- Atack, Jeremy & Passell, Peter. (1994). *A New Economic View of American History*. New York: W.W. Norton & Co.
- Becker, G. S. (1971). *The Economics of Discrimination*. Chicago, University of Chicago Press.
- Black, D. A. (1995). "Discrimination in an Equilibrium Search Model." *Journal of Labor Economics*, Vol. 13, No. 2, pp. 309-334.
- Blalock, Hubert M. (1967). *Toward a Theory of Minority-Group Relations*. New York: Wiley.
- Bleakley, Hoyt & Jeffrey Lin. "Portage and Path Dependence." *Quarterly Journal of Economics*, Vol. 127, pp. 587-644.

Brakman, Steven, Harry Garretsen & Marc Schram (2004). "The Strategic Bombing of German Cities during World War II and Its Impact on City Growth." *Journal of Economic Geography*, Vol. 4, No. 2, pp. 201-218.

Brown, M., & Philips, P. (1986). Competition, Racism, and Hiring practices among California manufacturers, 1860-1882. *Industrial and Labor Relations Review*, 61-74.

Burns, Ken (1990). "The Civil War." PBS.

Cameron, A. C., Gelbach, J. B., & Miller, D. L. (2011). "Robust inference with multiway clustering." *Journal of Business & Economic Statistics*, 29(2).

Cash, W. J. (October 1929). "The Mind of the South." *American Mercury*, October 1929, p. 185-192.

Cerra, Valerie, & Sweta Chaman Saxena (2008). "Growth Dynamics: The Myth of Economic Recovery." *American Economic Review*, Vol. 98, No. 1, pp. 439-57.

Chambers, Bing. (2013). Personal Communication.

Charles, K. K., & Guryan, J. (2008). "Prejudice and Wages: An Empirical Assessment of Becker's The Economics of Discrimination." *Journal of Political Economy*, 116(5), 773-809.

Chambers, John Whiteclay ed. (1999). *The Oxford Companion to American Military History*. Oxford: Oxford University Press.

Christian, Cornelius (2015). "Lynchings, Labour, and Cotton in the U.S. South." Working Paper.

Clark, G. (1987). "Why Isn't the Whole World Developed? Lessons from the Cotton Mills." *Journal of Economic History*, Vol. 47, No. 1, pp. 141-173.

Costa, Dora & Matthew Kahn (2003). "Cowards and Heroes: Group Loyalty in the Civil War." *Quarterly Journal of Economics*, 118 (2), 519-548.

Collins, William J. (2001). "Race, Roosevelt, and Wartime Production: Fair Employment in World War II Labor Markets." *American Economic Review*, Vol. 91, No. 1, pp. 272-286.

Darity, W. A., & Mason, P. L. (1998). "Evidence on Discrimination in Employment: Codes of Color, Codes of Gender." *Journal of Economic Perspectives*, Vol. 12, No. 2, pp. 63-90.

Dattel, Eugene R. (2008). "Cotton and the Civil War." *Mississippi History Now (Mississippi Historical Society)*, July 2008.

Davis, Donald & David Weinstein (2002). "Bone, Bombs, and Breakpoints: The Geography of Economic Activity." *American Economic Review*, Vol. 92, No. 5, pp. 1269-1289.

Domar, Evsey (1970). "The Causes of Slavery or Serfdom: A Hypothesis." *Journal of Economic History*, Vol. 30, No. 1, pp. 18-32.

Donohue III, J. J., & Heckman, J. (1991). "Continuous versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks." *Journal of Economic Literature*, 29(4), 1603-43.

Dray, Philip (2002). *At the Hands of Persons Unknown: The Lynching of Black America*. New York: Random House.

Engerman, S. L., & Sokoloff, K. L. (2002). "Factor Endowments, Inequality, and Paths of Development among New World Economies. Working Paper No. w9259. *National Bureau of Economic Research*.

Faust, Drew Gilpin (2008). *This Republic of Suffering: Death and the American Civil War*. Vintage Civil War Library. New York: Vintage.

Findlay, Ronald., & Kevin H. O'Rourke (2007). *Power and Plenty: Trade, war, and the World Economy in the Second Millennium*. Princeton: Princeton University Press.

Fleming, Walter Linwood (1905). *Civil War and Reconstruction in Alabama*. New York: Columbia Univ. Press.

Foner, Eric (1990). *A Short History of Reconstruction*. New York: Harper Perennial.

Foote, Shelby (1958). *The Civil War: A Narrative: Vol. 1: Fort Sumter to Perryville*. New York: Random House.

Fox, William F. (1889). *Regimental Losses in the American Civil War, 1861-1865*. Albany: Albany Publishing.

Fry, Col. James B. (1866). *Final Report Made to the Secretary of War, by the Provost Marshal General of the Operations of the Bureau of the Provost Marshal General of the United States, from the Commencement of the Business of the Bureau, March 17, 1863, to March 17, 1866; the Bureau Terminating by Law August 28, 1866*. United States, War Department, Office of the Provost Marshal General.

Grady, Henry Woodfin. (1886). "The New South." Reprinted in Shurter, Edwin Dubois, ed., *The Complete Orations and Speeches of Henry W. Grady*. New York: Hinds, Noble, & Eldredge, 1910.

Greer, Darroch . (2005). "Counting Civil War Casualties, Week-by-week: For the Abraham Lincoln Presidential Library and Museum." BRC Imagination Arts.

Hacker, J. David (2001). "The Human Cost of War: White Population in the United States, 1850-1880." *Journal of Economic History*, Vol. 61, No. 2, pp. 486-489.

Hacker, J. David (2011). "A Census-Based Count of the Civil War Dead." *Civil War History*, Vol. LVII, No. 4

Higgs, Robert (1971). *The Transformation of the American Economy, 1865-1914*. New York: John Wiley & Sons.

Higgs, R. (1977a). *Competition and Coercion: Blacks in the American Economy, 1865-1914*. Chicago, University of Chicago Press.

Higgs, R. (1977b). Firm-specific evidence on racial wage differentials and workforce segregation. *The American Economic Review*, 67(2), 236-245.

Howard, Josh (2014). "North Carolina Civil War Death Study: Assessing Troop Losses 1861-1865." North Carolina Department of Cultural Resources.

Howell, H. Grady, Jr. (1991). *To Live and Die in Dixie: A History of the Third Regiment Mississippi Volunteer Infantry, C.S.A.* Chickasaw Bayou Press.

Kelly, Donna, North Carolina Department of Cultural Resources (2014). Personal Communication.

Key, V. O. 1984 [1949]. *Southern Politics in State and Nation*. New York: Knopf.

King, Martin Luther, Jr. (1965). "Our God is Marching On! Montgomery, AL Speech." *A Testament of Hope: The Essential Writings and Speeches of Martin Luther King, Jr.* (2003). Ed. James M. Washington. New York: Harper One.

Kirkland, Randolph W., Jr. (1995) *Broken Fortunes: South Carolina Soldiers, Sailors and Citizens Who Died in the Service of Their Country and State in the War for Southern Independence, 1861-1865*. Columbia: University of South Carolina Press.

Krugman, Paul (1979). "Increasing Returns, Monopolistic Competition, and International Trade." *Journal of International Economics*, Vol. 9, No. 4, pp. 469-479.

Krugman, Paul (1991). "Increasing Returns and Economic Geography." *Journal of Political Economy*, Vol. 99, No. 3, pp. 483-99.

Jha, Saumitra. (2013). "Trade, Institutions, and Ethnic Tolerance: Evidence from South Asia." *American Political Science Review*, 107(04), 806-832.

Jones, D. B., Troesken, W., & Walsh, R. (2012). "A Poll Tax by any Other Name: The Political Economy of Disenfranchisement" (No. w18612). National Bureau of Economic Research.

Jones, L. E., & Tertilt, M. (2007). "An Economic History of Fertility in the US: 1826-1960" (No. w12796). National Bureau of Economic Research.

- Lang, K., & Lehmann, J. Y. K. (2012). "Racial Discrimination in the Labor Market: Theory and Empirics." *Journal of Economic Literature*, 50(4), 1-48.
- Lang, K., Manove, M., & Dickens, W. T. (2005). "Racial Discrimination in Labor Markets with Posted Wage Offers." *American Economic Review*, 1327-1340.
- Lee, Chulhee (1997). "Socioeconomic Background, Disease, and Mortality among Union Army Recruits: Implications for Economic and Demographic History." *Explorations in Economic History*. Vol 34, pp. 27-55.
- List, John A. (2004). "The Nature and Extent of Discrimination in the Marketplace: Evidence from the Field." *Quarterly Journal of Economics*, Vol. 119, No. 1, pp. 49-89.
- Livermore, Thomas Leonard (1900). *Numbers and Losses in the Civil War in America, 1861-1865*. Boston: Houghton Mifflin.
- Margo, R. A. (1990). *Race and schooling in the South, 1880-1950: an economic history*. University of Chicago Press.
- Malthus, Thomas R. (1888). *An Essay on the Principle of Population, or, A View of Its Past and Present Effects on Human Happiness*. London: Reeves & Turner.
- McGee, David H. (2014). *In Spite of the World: 26th North Carolina Regimental History*. Society for the Preservation of the 26th Regiment North Carolina Troops, Inc. www.nc26.org/History/26th-Regimental-History
- McPherson, James (1988). *Battle Cry of Freedom: The Civil War Era*. Oxford: Oxford University Press.
- McPherson, James (1996). *Drawn with the Sword: Reflections on the Civil War*. Oxford: Oxford University Press.
- McWhirter, Cameron (2011). "The Numbers War Between the States: New Research Questions Who in the Confederacy Had the Most War Dead." *Wall Street Journal*, March 26, 2011.
- Miguel, Edward & Gerard Roland (2011). "The Long-Run Impact of Bombing Vietnam." *Journal of Development Economics*, Vol. 96, pp. 1-15.
- Naidu, Suresh. "Recruitment restrictions and labor markets: Evidence from the postbellum US South." *Journal of Labor Economics* 28.2 (2010): 413-445.
- Naidu, Suresh (2012). "Suffrage, Sorting, and Schooling in the Post-Bellum U.S. South." National Bureau of Economic Research, Working Paper #18129.
- Nelson, Megan Kate (2012). *Ruin Nation: Destruction and the American Civil War*. Athens, Georgia: University of Georgia Press.

Newman, R. J. (1983). "Industry Migration and Growth in the South." *Review of Economics and Statistics*, Vol. 65, No. 1, pp. 76-86.

Oliver, J. E., & Mendelberg, T. (2000). Reconsidering the environmental determinants of white racial attitudes. *American Journal of Political Science*, 574-589.

Parker, Theodore (January 29, 1858). "The present aspect of slavery in America and the immediate duty of the North: A speech delivered in the hall of the State house, before the Massachusetts Anti-Slavery Convention.

Punamäki, Raija-Leena, Samir Qouta, & Eyad El Sarraj (1997). "Relationships between Traumatic Events, Children's Gender, and Political Activity, and Perceptions of Parenting Styles." *International Journal of Behavioral Development*, Vol. 21, No. 1, pp. 91-109.

Przeworski, Adam, Michael E. Alvarez, Jose Antonio Cheibub, & Fernando Limongi (2000). *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge and New York: Cambridge University Press.

Rabinowitz, H. N. (1988). More than the Woodward thesis: assessing the strange career of Jim Crow. *The Journal of American History*, 75(3), 842-856.

Randall, James Garfield & David Herbert Donald (1961). *The Civil War and Reconstruction*. Lexington, Massachusetts: Heath.

Ransom, R. L., & Sutch, R. (2001). *One Kind of Freedom: The Economic Consequences of Emancipation*. Cambridge University Press.

Redding, Kent & James, David R. "Estimating Levels and Determinants of Black and White Voter Turnout in the South, 1880 to 1912. *Historical Methods*, 34(4), pp. 141-158.

Reich, M. (1981). *Racial inequality*. Princeton, NJ: Princeton University Press.

Rivers, William James (1870). *Roll of the Dead, South Carolina Troops, Confederate States Service*. Columbia, South Carolina.

Sellers, James (1927). "The Economic Incidence of the Civil War on the South." *Mississippi Valley Historical Review*, Vol. 14, pp. 179-191. Reprinted in Ralph Andreano, ed. (1962) *The Economic Impact of the Civil War*, Cambridge, Massachusetts: Shenkman.

Singer, J. David & Melvin Small (1972). *The Wages of War, 1816-1965*. Beverly Hills, California: SAGE Publications.

United States Department of Health & Human Services (2014). "The Great Pandemic: The United States in 1918-1919." http://www.flu.gov/pandemic/history/1918/the_pandemic.

Vinovskis, Maris A (1989). "Have Social Historians Lost the Civil War? Some Preliminary Demographic Speculations." *Journal of American History*, Vol. 76, No. 1. pp.34-58.

Voigtländer, N., & Voth, H. J. (2012). Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany*. *The Quarterly Journal of Economics*, 127(3), 1339-1392.

Washington, Booker T. (1895). "Atlanta Exposition Address, September 18, 1895," *The Booker T. Washington Papers*, ed. Louis R. Harlan et al., Vol. 3, Urbana: University of Illinois Press, 1974, pp. 584-87.

Woodward, C. Vann (1968). "The Irony of Southern History." *The Burden of Southern History*, Revised Edition. Baton Rouge: Louisiana State University Press.

Woodward, C. Vann (1971). *Origins of the New South: 1877-1913*. Baton Rouge: Louisiana State University Press.

Woodward, C. Vann (1974). *The Strange Career of Jim Crow*. Oxford: Oxford University Press.

World Values Survey, Wave 6 (2010-2014).

Wright, Gavin. (1978). *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century*. New York: Norton.

Wright, Gavin (1986). *Old South, New South: Revolutions in the Southern Economy since the Civil War*. New York: Basic Books.

Wright, Gavin (1987). "The Economic Revolution in the New South." *Journal of Economic Perspectives*, Vol. 1, Iss. 1, pp. 161-178.

Wright, G. (2013). *Sharing the Prize*. Harvard University Press.

DATA SOURCES

Original Records

United States, National Archives and Records Service (1959). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Florida*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1959). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Georgia*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1960). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Arkansas*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1960). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Mississippi*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1960). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of North Carolina*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1961). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Alabama*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1961). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Virginia*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1962). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of Louisiana*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

_____ (1962). *Compiled Service Records of Confederate Soldiers Who Served in Organizations from the State of South Carolina*. Washington , D.C.: National Archives, National Archives and Records Service, General Services Administration.

Secondary Sources

Alabama Department of Archives and History (2014). *Alabama Civil War Service Database*. Previously Alabama Department of Archives and History (1982), *Alabama Civil War Service Cards File*.

Booth, Andrew B., Louisiana Commissioner of Military Records (1920). *Records of Louisiana Confederate Soldiers and Louisiana Confederate Commands*.

Chambers, Herbert (2014). *And Were the Glory of Their Times - Those Who Gave Their Lives in Defense of South Carolina and the Confederate States Nation in the War for Southern Independence*. Forthcoming.

Georgia State Division of Confederate Pensions and Records and Lillian Henderson (1964). *Roster of the Confederate Soldiers of Georgia*. Georgia State Division of Confederate Pensions and Records. Vol.'s 1-6. Hapeville, Georgia: Longina & Porter.

Gerdes, Edward G., Brian Howerton, Jeremy Helms Fultz and others (2014). "Arkansas: Edward G. Gerdes Civil War Homepage." <http://www.couchgenweb.com/civilwar>.

Hartman, David W. & David Coles (1995). *Biographical Rosters of Florida's Confederate and Union Soldiers, 1861-1865*. State of Florida. Wilmington, North Carolina: Broadfoot.

Library of Virginia (2014). *Virginia Military Dead*. Edwin Ray, ed.

North Carolina Department of Cultural Resources (2014). North Carolina Civil War Death Study. Forthcoming. Howard, Josh and Donna Kelly, eds.

Regimental Histories

Boone, David B., Jr. (2001). *Honor Without Stain: The 34th Mississippi Infantry Regiment, 1862-1865*. Philadelphia: Xlibris.

Brasher, Michael R. (2010). "2nd Mississippi Regiment." <http://www.2ndmississippi.org/>.

Calhoun, S.W. (2003). *A Band of Brothers: The Men of Company B and the 46th Mississippi Infantry Regiment in the War for Southern Independence, a Story of Honor, Valor, and Sacrifice Unequaled*. Meridian, Mississippi: Lauderdale County Department of Archives and History.

Coffman, Richard M. (2011). *Going Back the Way They Came: A History of the Phillips Georgia Legion Cavalry Battalion*. Macon, Georgia: Mercer University Press.

Forbes, William (1993). *Haulin' Brass: A Confederate Chronicle of Capt. Croft's Flying Artillery Battery, Columbus, Georgia*. Dayton, Ohio: Morningside.

Furr, William Frazer (2003). "The 19th Mississippi Infantry Regiment." <http://www.rootsweb.ancestry.com/~ms19inf/>.

Giambrone, Jeff T. (1998). *Beneath Torn and Tattered Flags: A History of the 38th Mississippi Infantry, C.S.A.* Bolton, Mississippi: Smokey Row Pres.

Hopkins, Donald A. (1999). *Horsemen of the Jeff Davis Legion: The Expanded Roster of the Men and Officers of the Jeff Davis Legion, Cavalry*. Shippensburg, Pennsylvania: White Mane.

Iler, Ernie (2007). "7th Regiment, Georgia Cavalry." <http://ernieiler.tripod.com/index.html>.

Lockhart, Tommy (1977). *Muster Roll of the 32nd Infantry, Confederate States of America*. Ripley, Mississippi : Tippah County Historical and Genealogical Society.

McLean, Jess N. (2004). *The Official Records of the 13th Mississippi Infantry Regiment of Volunteers, as Told by Those Who Were There*. Irving, Texas: 13th Mississippi Books.

Messic, Harriet Bey (2009). *Cobb's Legion Cavalry: A History and Roster of the 9th Georgia Volunteers in the Civil War*. Jefferson, North Carolina: McFarland & Co.

Poole, John Randolph (2000). *Cracker Cavaliers: The 2nd Georgia Cavalry under Wheeler and Forrest*. Macon, GA: Mercer University Press.

Speicher, James L. (2009). *The Sumter Flying Artillery: A Civil War History of the 11th Battalion, Georgia Light Artillery*. Gretna, Louisiana: Pelican.

Stubbs, Steven H. (2000). *Duty, Honor, Valor: The Story of the Eleventh Mississippi Infantry Regiment*. Philadelphia, Mississippi: Dancing Rabbit Press.

Williamson, David (2004). *The Third Battalion Mississippi Infantry and the 45th Regiment: A Civil War History*. Jefferson, North Carolina: McFarland & Co.

Counties of Origin for Confederate Companies

Crute, Joseph H. (1987). *Units of the Confederate States' Army*. Midlothian, Virginia: Derwent Books.

Georgia State Division of Confederate Pensions and Records and Lillian Henderson (1964). *Roster of the Confederate Soldiers of Georgia*. Georgia State Division of Confederate Pensions and Records. Vol.'s 1-6. Hapeville, Georgia: Longina & Porter.

(Need to add several more)

Company Battles

Sifakis, Stewart (1995). *Compendium of the Confederate Armies: Alabama*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: Arkansas and Florida*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: Louisiana*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: Mississippi*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: North Carolina*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: South Carolina and Georgia*. New York: Facts on File.

_____ (1995). *Compendium of the Confederate Armies: Virginia*. New York: Facts on File.

Participation Rates

United States National Park Service. *Civil War Soldiers and Sailors System*.

County Battles & Capital Destruction

Engineer Bureau, United States War Department (1865). "Map, Showing the Route of the Marches of Genl. W.T. Sherman, from Atlanta, GA to Goldsboro, NC." <http://www.history-map.com/picture/000/Shermans-March-Map-the.htm>.

American Battlefield Protection Program, United States National Park Service (1997). *Civil War Sites Advisory Commission Report on the Nation's Civil War Battlefields*. Technical Volume II: Battle Summaries. <http://www.nps.gov/hps/abpp/battles/bystate.htm>.

Other Variables

Haines, Michael R. & Inter-University Consortium for Political and Social Research (2010). "Historical, Demographic, Economic, and Social Data: The United States, 1790-2002." ICPSR02896-v3. Ann Arbor, MI.

Inter-University Consortium for Political and Social Research [ICPSR] (1968). United States Historical Election Returns, 1824-1968. ICPSR 001. Ann Arbor, MI: ICPSR.

Lynchings

Brundage, W. Fitzhugh. (1993). *Lynchings in the New South: Georgia and Virginia, 1880-1930*. Blacks in the New World Series. Champaign, IL: University of Illinois Press.

Hines, Elizabeth & Steelwater, Eliza (2014). Project HAL: Historical American Lynching Data Collection Project. <http://people.uncw.edu/hinese/HAL/HAL%20Web%20Page.htm>

NAACP (1919). *Thirty Years of Lynching in the United States, 1889-1918* (New York: Arno Press, 1969; reprinted from 1919 original).