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

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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 Postbellum South. 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. These results contradict theories of path dependence or locational fundamentals in response to a temporary shock to a region's population. Rather, they suggest that in some cases the prior accumulation of economic activity can actually be detrimental to future growth.

1. Introduction

The American Civil War (1861-1865) 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 (McPherson, 1996), and the largest mortality event in American history.[1] Despite this, Civil War deaths have generally been studied as part of the region's social, not economic, history.

Using new data on county-level Confederate death rates, I estimate the long-run effects of population loss on the South's economic geography. 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

[1] The Spanish Flu epidemic of 1918 cost the United States roughly .6% of its population (U.S. Department of Health & Human Services, 2014). WWII and the Vietnam War cost the United States .3% and .03% of its population respectively (Chambers, 1999). Singer & Small (1972) also find that in 93 wars between 1816 and 1965, there were few cases where battle deaths exceeded even 2% of the pre-war population.

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).[2]

The Postbellum South seems to have followed a different path, however. Like the portage sites, Southern counties saw divergent growth, but in exactly the opposite direction: counties with more deaths caught up to neighboring areas within 15 years after the war, 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 the margin grew further to 16%.

Fertility did not increase significantly in the high-death counties, so nearly all the population growth came from migration. There is further evidence for migration in the counties' changing demographics: 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. Migration implies individuals were optimizing on some margin in moving to

[2] 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.

counties with greater losses, and they continued to prefer these areas even after the relative land-labor ratios had reached equilibrium.

These results suggest that, in some cases, the accumulation of economic activity over time can actually be detrimental to future growth. This directly contradicts both path dependency and locational fundamentals in economic geography. Additional estimations lend some support to the assertion for the Postbellum South: the pattern of migration to high-death counties was much less pronounced for plantation counties, which had the best land in the region, as well as areas with rail access before the war.

This project presents the first estimates to date on county-level deaths in the American Civil War, calculated for Alabama, Georgia, Louisiana, South Carolina, and Virginia. Producing county-level death rates 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. 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), evidencing the common place of origin for the soldiers in the unit.

The distribution of death rates across counties has a wide variance due to the recruitment pattern, as seen in Figure 1. As 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," (Burns, 1990). For example, Company F of the 26th Regiment[3] North Carolina Infantry experienced 100% casualties[4] during Pickett's Charge at Gettysburg (McGee, 2014). Nearly all of those men are documented as living in Caldwell County, which was sparsely populated, before the war.

Variations in such devastating losses drive the empirical strategy—neighboring counties with similar initial characteristics experienced very different death rates as their young men were sent to different battles and campaigns. Generals made these troop assignments for reasons unrelated to the counties' pre-war conditions. Confederate armies were also very large, generally comprised of hundreds of companies—one county's characteristics would not have any effect on generals' decisions for armies this large. The death rates, then, are randomly distributed and allow for causal inference in the analysis. For robustness, death rates are also predicted using data on the actual battles each company was sent to fight. This purges the death rates of any unobserved factors not related to the generals' decision-making, such as a county's pre-war health conditions.

A further advantage of the Civil War data is that, while both capital and labor were destroyed in huge amounts, the destruction of individual counties' capital and labor were independent of each other. Soldiers who died on battlefields often came from far away while cities destroyed for strategic reasons were largely spared civilian casualties. This allows their

[3] 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.

[4] Killed, wounded, or captured (many wounded or captured later died as well).

effects to be estimated separately, whereas similar research generally lumps them together as wartime destruction.

Hacker (2001) has previously studied deaths in the American Civil War in terms of their aggregate effects on the nation's population, marriage rates, and fertility. Beyond this, little work has been done on the economic impact of Civil War deaths. Outside of early efforts to count the dead, nearly all that has been published in relation to these deaths are social histories[5] or commentaries on the effects of losses on the Southern psyche, such as the region's inferiority complex and the worship of the "Lost Cause." As far as I am aware, this is the first study to evaluate the effects of deaths in the American Civil War on the Postbellum Southern economy.

2. Data

Little empirical work has been done on Southern deaths in the American Civil War because their geographic distribution remains largely unknown 150 years later.[6] From a variety of sources, I have counted deaths for five former Confederate States (Alabama, Georgia, Louisiana, South Carolina, and Virginia), with data for Arkansas, Florida, Mississippi, and North Carolina forthcoming.[7] The deaths are counted by Confederate company (units of roughly 100 men) and then mapped back to the company's county of origin to produce county-level death rates.

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[5] A prominent recent example is Drew Gilpin Faust's *This Republic of Suffering* (2008).

[6] The only comprehensive effort to count Confederate deaths by a geographic subdivision was William F. Fox's *Regimental Losses in the American Civil War* (1889), which provided counts for each Southern state. Projects in North Carolina and Virginia have found Fox's estimates to be off by more than 50 and 100% respectively (McWhirter, 2011). Fox counted 10,974 deaths for Georgia, while the number is at least 25,000 in my sample.

[7] These states account for 81% of the Confederate states' pre-war population.

2.1 Deaths by Confederate Company

The original source for companies' deaths is the U.S. Archives' *Compiled Service Records for Confederate Soldiers* for each state. The Archives assembled these records starting in 1903, combining all existing documents into a single file for each soldier.[8] Deaths are generally listed on multiple documents in the soldier's file such as muster rolls (lists of each soldier in a company and their condition in a given month), battle reports, hospital records, Union prison records, letters notifying family members of the soldier's death, the family's claims for back pay, burial information, etc.

Several states have produced secondary sources that summarize the Archives' records—these are the source for most of the counts reported here. Counts for Georgia's infantry and all of Louisiana's soldiers come from direct summaries of the *Compiled Service Records* (GA Div.of Confed. Pensions and Records & Henderson, 1964; Booth, 1920). In Virginia and South Carolina, state-funded projects have supplemented the records with information from other sources such as pension applications, census records, cemetery indexes, and newspapers (Library of Virginia, 2014; Chambers, 2014). Alabama maintains a database with summarized records for most of the state's Confederate soldiers—the state archives has made these records for every soldier its

[8] Each former Confederate state's archives relinquished their Confederate military records, which were added to those seized by the Union Army at the end of the war. They are further supplemented with documents from the Union Army, 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.

employees have found in various sources over the last several decades (AL Dept. of Archives & History, 2014).[9] Table A.3 in the Appendix gives more details on the sources for each state.

Roughly one quarter of soldiers in the *Compiled Service Records* cannot be classified as either dead or living at war's end. Several companies' muster rolls end in December 1864 or January 1865, for example.[10] The degree of losses from January 1865 to Lee's surrender in April was, however, relatively small compared to the other years of the war.[11] In Virginia and South Carolina these soldiers are not a problem since the state projects have used all available sources to supplement the records. All soldiers with missing records are implicitly assumed to have survived the war—subsamples of Georgia companies suggest most of the soldiers without final documentation did in fact live through the war's end. I have not found evidence to this point that missing records are in any way correlated with initial county characteristics.

Several groups are excluded from the counts because they cannot be connected to a county of origin. These include soldiers who served at the regimental level or higher (officers with a rank above captain, surgeons, musicians, and officers' staffs), soldiers in specialized units (which drew from many areas throughout the state), or soldiers that served under the authority

[9] The database does not contain every soldier, but it is a random sample and does include a large majority of the state's soldiers that served in the Confederate Army.

[10] As the siege lines at Petersburg neared the Confederate capital of Richmond, the Confederate Archives were shipped south. Some records after this date were never centrally collected, and some earlier records were lost in transit to Charlotte, where they were eventually captured. Much of what happened to individual soldiers after January of 1865 is thus difficult to ascertain in the *Compiled Service Records* unless 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.

[11] Greer (2005) estimates that less than 10% of Confederate casualties (soldiers dead, wounded, or captured) came in 1865.

of Confederate States of America (rather than their home state)[12]. This includes the Navy, though there were very few Confederate sailors in the war. 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. Together, these excluded groups made up a small minority of the Confederate military.

2.2 Deaths by County

Unlike modern armies, military units in the American Civil war were raised locally, so nearly all Confederate companies can be mapped back to a county of origin. This is accomplished 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. Nearly all additional Confederate units were raised at the county or city level as well. As mentioned, most companies even carried 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). In my preliminary sample of Virginia soldiers, I can assign counties for over 95% of the documented deaths.

[12] 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.

Not every soldier came from the company's listed county of origin, but a wide majority did. I can document 80 to 90% of soldiers as living in the company's county of origin for the subsamples I have tested. 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). Genealogical sources follow this pattern of finding soldiers' military records using their known county of origin. The largest source of measurement error on this account is from soldiers living near county borders that joined a company from the adjacent county. To the extent this occurred equally in both directions it would simply attenuate the estimates.

Deaths by Confederate company, then, are connected to the company's county of origin to calculate the total deaths a county experienced in the war. These figures are divided by the county's military-eligible population (white men age 15-39 in the 1860 U.S. Census) to construct death rates for each county in 1860.[13] Figures 2 through 4 show the distribution of county death rates for Georgia, Louisiana, and Virginia.

[13] As new counties were created over time, the deaths are aggregated between all the counties from which the new county was formed. Thus there are fewer county-level observations over time in the sample as more aggregation takes place in the data.

3. Results

3.1 Empirical Specification

The American Civil War created a random shock to populations in Southern counties. Figures 2 through 4 show this within state-regions[14] (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.

Confederate death rates were distributed randomly for several reasons. Death rates were largely determined by the battles and campaigns in which soldiers participated, chosen by generals for strategic reasons. Generals also selected troops' positions in the battles—some were placed on a flank that was never attacked while others were sent on frontal assaults, for example. The timing and location of battles also 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.

Many meetings of the Union and Confederate armies were highly random in the first place, as was the degree of the losses in their encounters. 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

[14] The Appalachian, Piedmont, Coastal Plain, and Coastal geographic areas within each state.

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 generals' 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, for example. Many other battles with similar troop levels were fought across several Southern states. Any county's pre-war characteristics could hardly affect the decision-making for armies of this size and diversity.

Despite the random nature of battle deaths, the possibility of counties having different military participation rates is a concern. In general, military participation was very high in the Confederate states—estimates suggest that many states' troops amounted to over 100% of the military-age population.[15] There was, however, somewhat lower participation in the counties of the Appalachian Mountains, and many of the men from these counties even served in the Union Army. I can control for military participation rates in the regressions, but in practice they have no effect with the inclusion of state-region fixed effects, suggesting the differences were largely regional.

Table 1 shows the partial correlations of death rates with counties' observable 1860 characteristics. Death rates were uncorrelated with a county's 1860 levels of population, slaveholding, or wealth. The partial correlation of per capita manufacturing output with death

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

rates is statistically significant, but it is only estimated to decrease the death rate by one-half of one percentage point at the mean. The relationship becomes insignificant when urban counties are excluded from the sample.

As shown in Table 1, death rates were not random across the whole South, but rather within 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 guarded the coastal cities, which 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. In order to compare the areas which were most similar, the baseline estimations only include the Piedmont and Coastal Plain regions for each state, though these regions make up a vast majority of Southern counties. This should purge any potential biases in the death rates for the Appalachian or Coastal regions from the estimates.

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

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

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.

3.2 Death Rates and County Populations

Table 2 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.

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. [16] 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 and beyond clearly contradict both theories.

[16] Calculated from log points.

3.3 Robustness Checks and Instrumental Variables Regressions

Table 3 shows alternate specifications of the empirical model using data from 1900. Column 1 repeats the result for 1900 from Table 2, 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. Controlling for access to railroads and water transportation in 1860 (Column 5) or corn, cotton, and tobacco output (Column 6) leave the estimates similarly unaffected.

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).[17] 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.

[17] 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.

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.[18] 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 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. 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 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.

Death rates are predicted using Sikfakis' (1995) *Compendium of Confederate Armies* for each state, which lists battles fought for each Confederate regiment. Due to the number of

[18] 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.

battles—Sifakis records hundreds—most are grouped into count-variables for small, medium, and large battles. Dummy variables for a handful of major battles are included as well. Formally, the estimating equation for companies j in branch k from a county i in state-region r is:

$$Deaths_{ijkr} = \beta_0 + \beta_1 Small_{ijkr} + \beta_2 Medium_{ijkr} + \beta_3 Large_{ijkr} + \sum_{k=1}^{N} Major\ Battles_{ijkr} + \ln(Pop._{ir,1860}) + X_{ir,1860} + \alpha_k + \gamma_r + \varepsilon_{ijkr}$$

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

$$\widehat{Death\ Rate}_{ir} = \frac{\sum_{j=1}^{n} \widehat{Death\ Rate}_{ijkr}}{Military\ Age\ Pop._{ir,1860}}$$

Figure 5 shows the actual and predicted death rates for counties in southwest Georgia.

Table 4 repeats the analysis from Table 2 using the predicted death rates, currently only calculated for Georgia. Results are very similar, though the samples are different since only the Georgia counties are inlcuded. This suggests the effects estimated in Table 2 are robust to unobserved differences across counties that were also uncorrelated with the generals' decision-making.

3.4 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 the South had a huge population of newly-freed slaves. 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 5 shows that this was the case, with black populations growing to be much larger in high-death counties relative to neighboring areas. In 1900, counties with ten percentage-point higher death rates had 14% larger black populations and by 1960 this number had grown to 27%.[19] Table 6 shows the result holds for estimations using predicted death rates.

Table 7 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. This suggests that African Americans made up the majority of the Postbellum migration to counties with larger losses in the Civil War. The results for the black population are interesting in their own right as well—this 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.

[19] These figures are again calculated from log points.

3.5 Migration vs. Fertility

Mortality events often affect a region's fertility, so it is possible that all of the effects described to this point came through increased births and not migration. Table 8 gives a crude test for this—if fertility were increased in high-death counties, the size of the young population should be significantly larger than that of other counties. This is not the case in either 1880 or 1900. Instead, while the young population is much larger in high-death counties by 1900, it is in equal proportion to the adult population.

Since the population increases in high-death counties are not due to fertility, I assume that the changes came via migration. Further evidence for this comes from the results for the black population—the changing racial composition of the population in high-death counties suggests migration was in fact driving the results, and the majority of this came from African-Americans.

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, and this continued long after a convergence in the land-labor ratios, which probably occurred by 1880.

3.6 Heterogeneous Effects

While not necessary for testing the two theories of economic geography, it is interesting to see the types of counties that were particularly attractive to migrants among the high-death

counties. Table 9 shows heterogeneous effects of death rates on population growth for several different county types, and Table 10 repeats the analysis for counties' black populations.

These results are very preliminary, but some evidence does emerge. 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, though evidently less so afterwards. 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, such as lumber mills, so this may represent an area of new growth after the war.

4. Conclusion

The American Civil War was the largest mortality event in American history. The war left large and varying changes to Southern counties' populations. Estimations show that counties with higher death rates caught up to neighboring areas' populations within 15 years, but they continued growing, exceeding similar areas in population by 1900 and increasing their advantage through 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 accumulation of economic activity over time may actually be detrimental to future growth. 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. Further, the accumulation of economic activity over time might lead to more entrenched institutions, which would not necessarily aid future growth. In this case, a relative economic "blank slate" in a neighboring area may provide better opportunities, even without any previous agglomeration of business activity there. A somewhat related example might be found in the South's industrial growth in the second half of the 20th century, where firms found benefits to the region's *tabula rasa* in terms of easier labor laws, absence of unionization, and low corporate taxes (Newman, 1983). The negative relationship between regions' past economic activity and future growth might have relevance to developing nations—current agglomerations may be more rooted in poor institutions or inefficient business practices whereas less-dense areas may provide more opportunity for growth.

References

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.*

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.

Blattman, Christopher & Edward Miguel (2010). "Civil War." *Journal of Economic Literature*, Vol. 48, No. 1, pp. 3-57.

Bleakley, Hoyt & Jeffrey Lin. "Portage and Path Dependence." *Quarterly Journal of Economics*, Vol. 127, pp. 587–644.

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

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.

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

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.

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

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

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

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

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

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

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

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.

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

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

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.

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.

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

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

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.

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 (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.

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

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

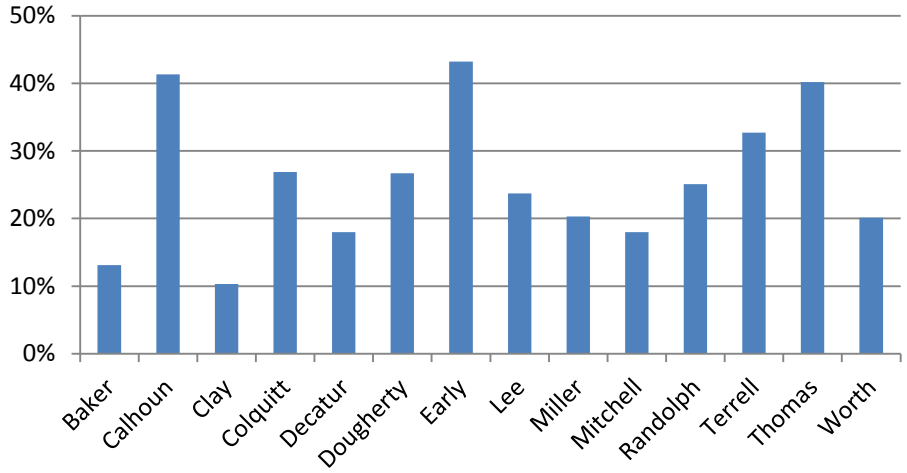
Singer, J. David & Melvin Small (1972). *The Wages of War, 1816-1965.* Beverly Hills, California: SAGE Publications.

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.

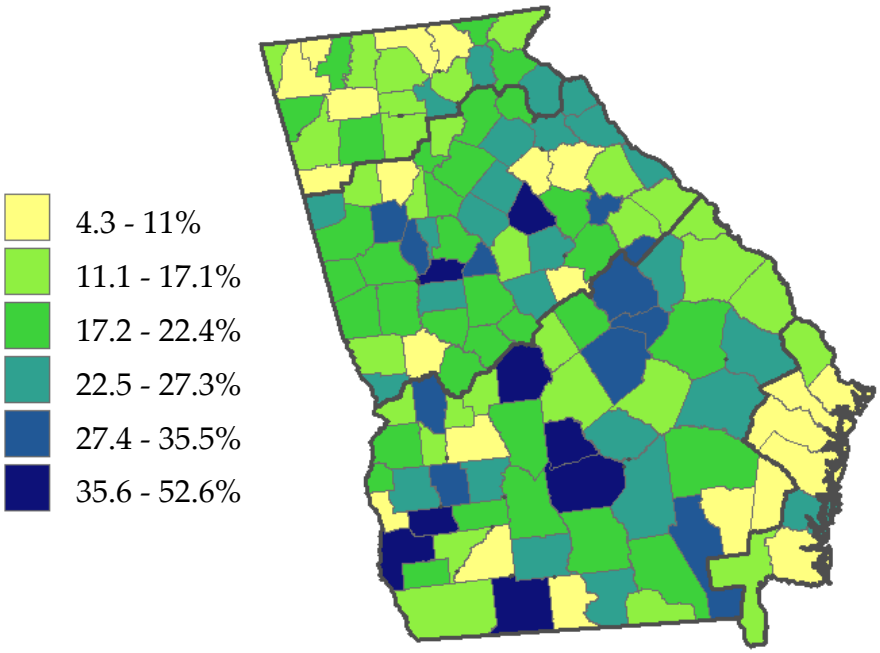
Tables and Figures

FIGURE 1:
DEATH RATES FOR NEIGHBORING COUNTIES IN SOUTHWEST GEORGIA IN THE AMERICAN CIVIL WAR



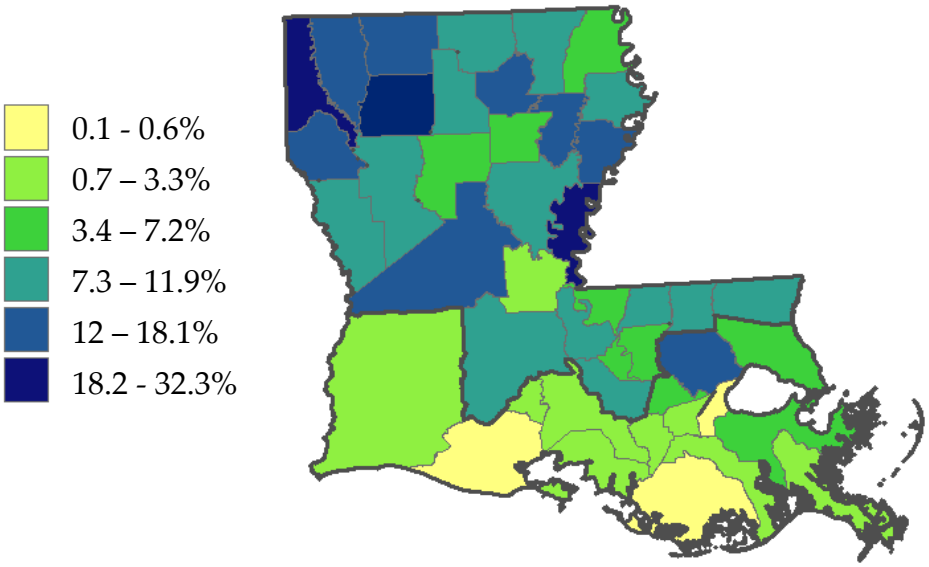
Note: Death rates calculated as the number of soldiers reported dead from each county divided by the white male population age 15-39 in the 1860 U.S. Census

FIGURE 2:
GEORGIA DEATH RATES IN THE AMERICAN CIVIL WAR BY COUNTY



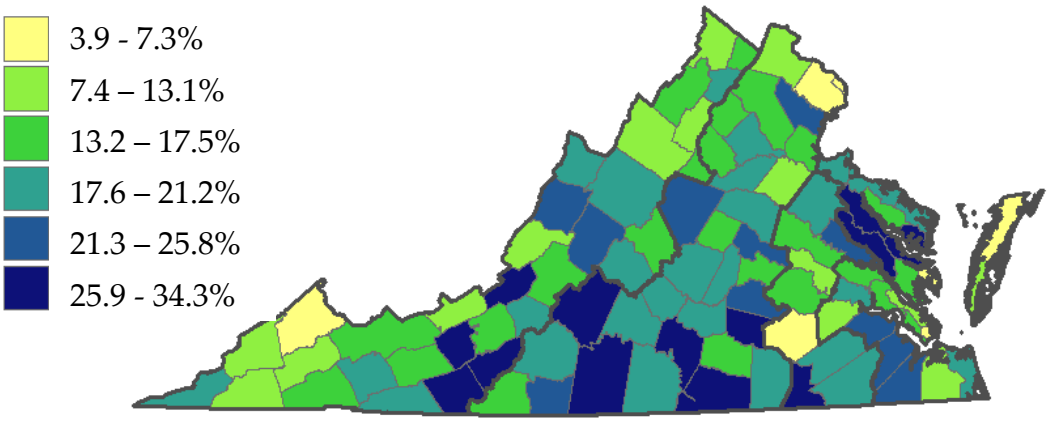
Notes: Death rates calculated as the number of deaths in each county divided by the number of white men age 15-39 in the 1860 U.S. Census.

FIGURE 3:
LOUISIANA DEATH RATES IN THE AMERICAN CIVIL WAR BY PARISH



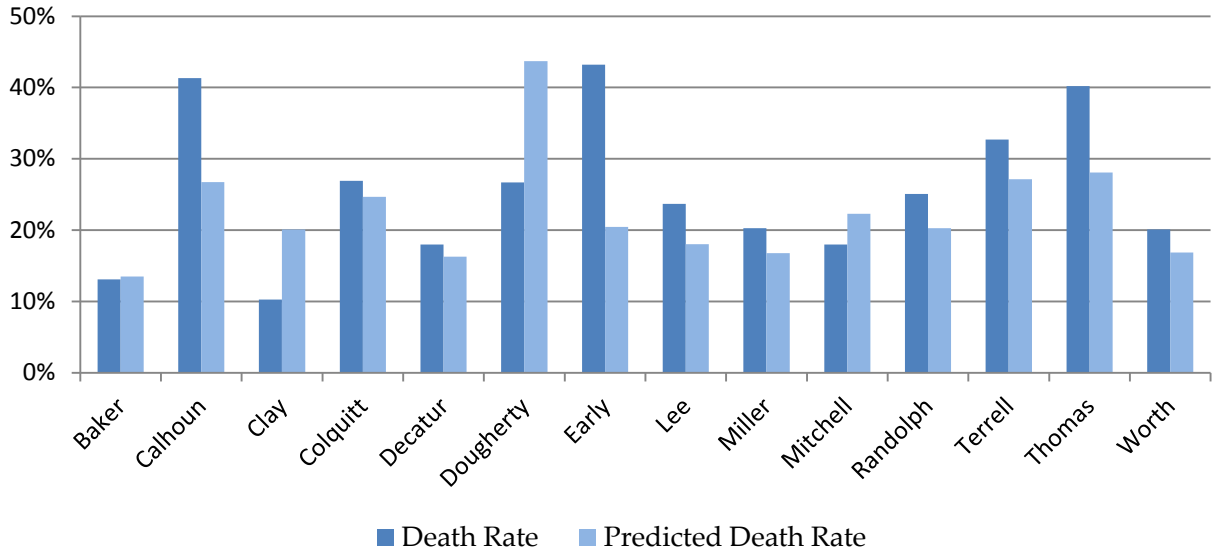
Notes: Death rates calculated as the number of deaths in each parish divided by the number of white men age 15-39 in the 1860 U.S. Census.

FIGURE 4:
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 5:
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).

TABLE 1:
PARTIAL CORRELATIONS OF 1860 COUNTY CHARACTERISTICS WITH DEATH RATES IN THE AMERICAN CIVIL WAR

VARIABLES	(1) Death Rate	(2) Death Rate	Mean of Variable
1860 Population (1,000s)	.00013	.00009	12.45
	(.00022)	(.00026)	
% of County Pop. Slaves (1860)	.0352	.0398	.358
	(.0304)	(.0352)	
Per Capita Wealth (1860)	-.0192	-.0216	.641
	(.0179)	(.0227)	
Per Capita Mfg. Output (1860)	-.370**	-.135	.014
	(.154)	(.297)	
Georgia	.185***	.186***	-
	(.012)	(.012)	
Louisiana	-.017*	-.019*	-
	(.001)	(.012)	
South Carolina	.241***	.248***	-
	(.016)	(.016)	
Virginia	.086***	.089***	-
	(.011)	(.011)	
Coast	-.024*	-.029*	-
	(.015)	(.017)	
Coastal Plain	.026**	.028**	-
	(.011)	(.012)	
Piedmont	.042***	.038***	-
	(.011)	(.011)	
Mean of Variable	.158	.159	
Observations	364	337	
R-squared	.577	.577	

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

Notes: Column 2 excludes counties with urban areas. Arkansas, Florida, North Carolina, and Mississippi data are not yet included in the sample. The excluded state in the regressions is Alabama. 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 individual states and regions more clearly.

TABLE 2:

DEATH RATES AND COUNTY POPULATIONS, 1860-1960

(VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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	.263	.911***	1.100**	1.418**	1.492**
	(.526)	(.218)	(.348)	(.536)	(.558)	(.739)
% of County Pop. Slaves	.748**	-.549***	-1.455***	-1.957***	-2.433***	-2.963***
(1860)	(.355)	(.124)	(.205)	(.316)	(.334)	(.457)
Per Capita Wealth (1860)	.330	.180	.183	.134	.220	.372
	(.272)	(.129)	(.174)	(.252)	(.260)	(.355)
Per Capita Mfg. Output (1860)	4.214*	-.0273	-.942	.271	1.442	5.351
	(2.280)	(.690)	(1.139)	(1.718)	(2.663)	(3.533)
Urban (1860)	.243*	.0686	.262*	.385**	.614***	.870***
	(.135)	(.109)	(.143)	(.184)	(.185)	(.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

TABLE 3:

ROBUSTNESS CHECKS—DEATH RATES AND COUNTY POPULATIONS, 1900
(VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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***	.771**	1.094***	.885**	.811**	.828**
	(.348)	(.327)	(.338)	(.344)	(.353)	(.367)
% of County Pop. Slaves	-1.46***	-1.23***	-1.48***	-1.46***	-1.37***	-1.42***
(1860)	(.205)	(.253)	(.207)	(.198)	(.213)	(.196)
Per Capita Wealth (1860)	.183	.123	.249	.201	.194	.204
	(.174)	(.181)	(.153)	(.154)	(.183)	(.178)
Per Capita Mfg. Output	-.942	.750	-1.000	-1.579	-.651	-.778
(1860)	(1.139)	(2.076)	(1.774)	(1.388)	(1.159)	(1.274)
Urban	.262*	.238*		.274**	.291**	.289**
	(.143)	(.128)		(.127)	(.146)	(.146)
# of Battles in Home County				-.0555		
				(.0392)		
Size of Battles in Home				.0217*		
County (1,000s of Casualties)				(.0123)		
Railroad Access (1860)					-.0711	
					(.0529)	
Water Transport Access					-.0751	
(1860)					(.0571)	
Corn (1,000s of bushels,						.00022**
1860)						(.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	290	191	207	207	207
R-squared	.812	.785	.806	.817	.815	.817

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

TABLE 4:
PREDICTED DEATH RATES AND COUNTY POPULATIONS, 1880-1960 (GEORGIA ONLY)

VARIABLES	(1) Ln 1880 Pop.	(2) Ln 1900 Pop.	(3) Ln 1920 Pop.	(4) Ln 1940 Pop.	(5) Ln 1960 Pop.
Death Rate	.120	.721**	1.108**	1.464***	2.285***
	(.186)	(.345)	(.524)	(.502)	(.608)
% of County Pop. Slaves	-.350*	-1.344***	-1.835***	-2.650***	-3.874***
(1860)	(.202)	(.280)	(.411)	(.401)	(.530)
Per Capita Wealth (1860)	.0630	.0705	-.0006	.526	1.214***
	(.252)	(.331)	(.432)	(.327)	(.442)
Per Capita Mfg. Output	-1.272	-3.410**	-2.593	1.990	5.520
(1860)	(1.360)	(1.563)	(1.998)	(2.659)	(5.012)
Urban	.240	.489**	.587**	.344	.159
	(.176)	(.224)	(.291)	(.223)	(.315)
Observations	127	127	119	115	115
R-squared	.883	.714	.628	.601	.588

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

TABLE 5:

DEATH RATES AND COUNTIES' BLACK POPULATIONS, 1860-1960
(VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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.	(7) Ln 2000 Black Pop.
Death Rate	-.331	.298	1.293***	1.924***	2.221***	2.422***	1.751*
	(.586)	(.360)	(.450)	(.720)	(.651)	(.859)	.910
% of County Pop.	3.340***	-.839***	-1.429***	-1.764***	-2.217***	-2.714***	
Slaves (1860)	(.392)	(.211)	(.289)	(.434)	(.411)	(.516)	
Per Capita Wealth	.341	.244	.346	.293	.325	.372	
(1860)	(.270)	(.204)	(.223)	(.294)	(.297)	(.382)	
Per Capita Mfg.	5.173**	-.341	-1.297	-.212	.826	3.326	
Output (1860)	(2.255)	(1.416)	(1.876)	(2.431)	(3.594)	(4.349)	
Urban (1860)	.280**	.169	.376*	.448*	.561**	.831***	
	(.139)	(.175)	(.195)	(.229)	(.258)	(.303)	
Observations	210	205	207	197	194	193	
R-squared	.761	.931	.781	.601	.632	.563	

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

TABLE 6:
PREDICTED DEATH RATES AND COUNTIES' BLACK POPULATIONS, 1880-1960
(GEORGIA ONLY)

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	1.055***	1.788**	2.020***	2.696**
	(.235)	(.392)	(.692)	(.673)	(1.075)
% of County Pop. Slaves	-.703*	-2.038***	-2.291***	-3.128***	-5.050***
(1860)	(.382)	(.485)	(.818)	(.744)	(1.156)
Per Capita Wealth (1860)	.111	.237	.198	.747**	1.237**
	(.442)	(.471)	(.582)	(.357)	(.503)
Per Capita Mfg. Output	-1.665	-4.465	-3.228	3.873	6.358
(1860)	(3.245)	(3.462)	(4.443)	(3.807)	(5.400)
Urban	.351	.546*	.614	.169	-.0637
	(.276)	(.315)	(.385)	(.282)	(.440)
Observations	127	127	117	114	115
R-squared	.923	.859	.733	.772	.696

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

TABLE 7:

DEATH RATES AND COUNTIES' WHITE POPULATIONS, 1860-1960
(VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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	.109	.843**	1.005*	1.186*	1.433
	(.557)	(.207)	(.401)	(.605)	(.675)	(.878)
% of County Pop.	-1.317***	-.591***	-1.552***	-1.788***	-1.932***	-2.227***
Slaves (1860)	(.373)	(.139)	(.249)	(.380)	(.421)	(.601)
Per Capita Wealth	.346	.0445	-.0317	.0308	.104	.367
(1860)	(.285)	(.104)	(.183)	(.262)	(.282)	(.410)
Per Capita Mfg. Output	5.012**	-.259	-.928	.616	1.214	5.743
(1860)	(2.246)	(.450)	(1.091)	(1.742)	(2.747)	(3.924)
Urban	.238*	.00595	.243*	.442**	.774***	1.036***
	(.137)	(.0828)	(.137)	(.194)	(.187)	(.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

TABLE 8:

DEATH RATES AND AGE STRUCTURE OF COUNTIES' POPULATIONS, 1880-1900
(VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

	1880			1900		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Ln Boys Age 5-17	Ln Men Age 18-44	Ratio Boys/ Men	Ln Boys Age 5-20	Ln Men Age 18-44	Ratio Boys/ Men
Death Rate	.301	.238	.0496	1.264***	1.154**	.0941
	(.221)	(.242)	(.105)	(.420)	(.485)	(.191)
% of County Pop. Slaves	-.467***	-.724***	.250***	.469*	.0285	.480***
(1860)	(.115)	(.108)	(.0703)	(.260)	(.280)	(.132)
Per Capita Wealth (1860)	.122	.220**	-.0969*	.421**	.518**	-.121
	(.103)	(.109)	(.0540)	(.191)	(.201)	(.0926)
Per Capita Mfg. Output	-.414	.847	-1.106***	-.504	2.153	-2.905***
(1860)	(.523)	(.556)	(.267)	(1.523)	(1.606)	(.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

TABLE 9: DEATH RATES AND COUNTIES' POPULATIONS, HETEROGENEOUS EFFECTS, 1900 (VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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***	1.239	.827**	.991***	1.179**	1.105***
	(.787)	(.888)	(.373)	(.341)	(.478)	(.425)
% of County Pop. Slaves (1860)	-.906**	-1.445***	-1.458***	-1.461***		-1.423***
	(.394)	(.207)	(.205)	(.205)		(.216)
Per Capita Wealth (1860)	.183	.258	.184	.194		.229
	(.152)	(.272)	(.174)	(.170)		(.175)
Per Capita Mfg. Output (1860)	-.897	-.952	-2.085	-1.083		-.741
	(1.812)	(1.140)	(2.361)	(1.137)		(1.083)
Raw Materials used in Manufacturing ($1,000s, 1860)			-.00014**			
			.00007			
Urban		.263*	.264*	.461*		.267**
		(.144)	(.144)	(.272)		(.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 10: DEATH RATES AND COUNTIES' BLACK POPULATIONS, HETEROGENEOUS EFFECTS, 1900 (VIRGINIA, SOUTH CAROLINA, GEORGIA, ALABAMA, AND LOUISIANA)

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***	2.226*	1.122**	1.414***	1.496***	1.359**
	(1.199)	(1.330)	(.482)	(.439)	(.544)	(.603)
% of County Pop. Slaves (1860)	-.499	-1.412***	-1.432***	-1.433***		-1.373***
	(.553)	(.290)	(.287)	(.289)		(.311)
Per Capita Wealth (1860)	.398**	.560	.348	.363*		.403*
	(.174)	(.399)	(.223)	(.215)		(.216)
Per Capita Mfg. Output (1860)	-1.628	-1.325	-3.616	-1.509		-1.056
	(3.235)	(1.865)	(3.660)	(1.861)		(1.902)
Raw Materials used in Manufacturing ($1,000s, 1860)			-.00014**			
			.00007			
Urban		.378*	.379*	.671*		.380**
		(.197)	(.196)	(.372)		(.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

Data Appendix

TABLE A.1:
NICKNAMES AND COUNTIES OF ORIGIN, 12TH ALABAMA INFANTRY & 26TH GEORGIA INFANTRY

Regiment	Company	Nickname	County of Origin
12th 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
26th 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

TABLE A.2:
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.

TABLE A.3: DATA SOURCES AND DESCRIPTIONS BY STATE

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