

The Long-Term Effect of Slavery on Violent Crime: Evidence from US Counties*

Moamen Gouda[†]

Hankuk University of Foreign Studies

Anouk S. Rigterink[‡]

London School of Economics
and Political Science

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Abstract:

This study investigates the long-term relationship between slavery and violence in USA. Although considerable qualitative evidence suggests that slavery has been a key factor behind the prevalence of violence, especially in Southern USA, there has been no large-N study supporting this claim so far. Using county-level data for the USA, we find that the proportion of slaves in the population in 1860 is associated with an increase in the rate of violent crimes in all census years for the period 1970-2000. This relationship is robust to including state fixed effects, controlling for various historical and contemporary factors, as well as to instrumenting for slavery using environmental conditions. We explore two potential channels of transmission: (1) slavery leading to higher levels of inequality, which could increase violent crime, and (2) slavery contributing to an ingrained culture of Southern violence. Our results show that only the proportion of slaves living on large slave holdings, as opposed to small slave holdings, is related to contemporary violent crime, supporting inequality as a channel of transmission. We find some tentative evidence supporting culture of violence between the white and black population as a second channel of transmission.

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[†] Graduate School of International and Area Studies, Hankuk University of Foreign Studies.

Email: moamengouda@yahoo.com. Phone: +82(0)1099752712

[‡] Department of International Development, London School of Economics and Political Science.

Email: A.S.Rigterink@lse.ac.uk.

1. Introduction

Since the 18th century, it is noticeable that violence is more prevalent in Southern USA than in other parts of the United States (Ayers, 1991; Nisbett, 1993). Clarke (1998, p. 275) states that “Violence was as much a part of the Southern landscape and culture as azalea festivals and bourbon whiskey”. A considerable body of literature investigates the reason behind the prevalence of violence in South USA, a phenomenon coined as “Southern violence” (Hackney, 1969; Gastil, 1971; Wasserman, 1977). Southern violence continues up till today. In 2011, the South was the region with the highest violent crime rate (Federal Bureau of Investigation, 2011). According to the 2011 U.S. Peace Index that measures the level of peacefulness, or “absence of violence” at the state level, the South was the least peaceful region in the United States, having nine of the ten nationally most violent states (Institute for Economics and Peace, 2011). Many studies hypothesize that the institution of slavery was an important factor behind this culture of Southern violence (Nash, Jeffrey, Frederick, Davis, & Winkler, 2003, p. 362; Cardyn, 2002; West, 2012).

Considerable empirical research investigates the long-term effect of slavery on various economic outcomes. Recent findings indicate that slavery has a persistent and long-lasting effect on income inequality (Bertocchi & Dimico, 2014), economic development (Acemoglu, Johnson, & Robinson, 2002; Nunn, 2008; Maloney & Caicedo, 2016), racial educational inequality (Bertocchi & Dimico, 2012), and political attitudes (Acharya, Blackwell, & Sen, Forthcoming). Investigating the long-run development of different municipalities in Colombia, Acemoglu, García-Jimeno, and Robinson (2012) find that the historical presence of slavery is associated with an increase in poverty rate and a reduction in school enrollment, vaccination coverage, and public good provision. This study contributes to the economic and sociological literature by empirically investigating the long-term relationship between slavery and violent crime in the US, especially in Southern USA. We propose two potential channels of transmission between 19th century slavery and contemporary violent crime; firstly, slavery led to higher levels of inequality, which could increase violent crime. Secondly, slaveholders’ reliance on coercion to control slaves may have contributed to an ingrained culture of violence, which contributed to the prevalence of southern violence.

Regarding the first channel of transmission, Engerman and Sokoloff (1997; 2002) argue that the existence of slavery in Southern USA led to significant inequality between different segments of the population. Although slavery was formally abolished in 1865, this inequality persisted over time. Engerman and Sokoloff argue that persistent inequality has negative consequences in terms of economic development in the long run (Engerman & Sokoloff, 1997; 2002). Persistent inequality affected other important institutions such as patents (Khan & Sokoloff, 1998), suffrage (Engerman & Sokoloff, 2005), provisions of primary education (Mariscal & Sokoloff, 2000) and taxation (Sokoloff & Zolt, 2007). As there is considerably

evidence for a link between inequality and violent crime, (Fajnzylber, Lederman, & Loayza, 2002; Wilkinson, Kawachi, & Kennedy, 1998; Kelly, 2000; Blau & Blau, 1982), we extend Engerman and Sokoloff's (1997; 2002) argument by hypothesizing that slavery contributes to prevalence of violence in Southern USA through persistent inequality.

As for the second transmission channel, Hackney (1969) and Gastil (1971) argue that Southern violence can be attributed primarily to a unique cultural pattern prevalent in the South which persists, despite considerable economic and structural change in this region, to produce a consistently high rate of interpersonal violence. Gastil (1971) declare that the degree of 'Southernness' in the culture is a more powerful predictor of violence than socioeconomic factors, such as educations, age, or economic status. A considerable body of research, mainly sociological, hypothesizes that Southern violence stems from specific cultural factors (Bruce, 1979; McCall, Kenneth, & Cohen, 1992; Clarke, 1998; Dixon & Lixotte, 1987; Ellison, 1991; Hayes & Lee, 2005). The practice of slavery, a number of qualitative studies argue, is a key factor behind this culture of violence (Cash, 1941; Franklin, 1956; Gastil, 1971; Wyatt-Brown, 1986). This leads us to hypothesize that culture is a channel of transmission between historical slavery and present-day violence.

Using county-level data for the USA, we find that the proportion of slaves in the population in 1860 is positively related to violent crime in all census years from 1970 to 2000. This relationship is robust to including state fixed effects, controlling for a number of historical and contemporary factors, including historical income and inequality, and contemporary unemployment, income inequality, distance to the Mexican border and proportion of youth in the population, as well as to using instrumenting for slavery using environmental conditions. Exploring the two potential channels of transmission, we find that the proportion of slaves in the population residing on large slave holdings is related to contemporary violent crime, but the proportion of slaves on small slave holdings is not, suggesting inequality as a channel of transmission. However, our results show some tentative evidence supporting culture of violence between the white and black population as a second channel of transmission.

This study is divided into six sections. The next section provides a theoretical background on the relation between the legacy of slavery and violence and presents our hypotheses. Section 3 presents the estimation strategy and data. Section 4 presents results on the empirical relationship between slavery and contemporary violent crime. Section 5 presents results on the two hypothesized channels of transmission between slavery and violent crime, namely inequality and culture of violence. Section 6 concludes.

2. Theoretical Background and Hypotheses

There has been a recent interest in investigating the long-term effect of historical institutions on violent behavior. Jha (2008) argues that inter-ethnic medieval trade has left a lasting legacy on the patterns of religious violence between Hindus and Muslims in India. Voigtländer and Voth (2012) demonstrate that the same places in Germany that saw violent attacks on Jews during the plague also showed more anti-Semitic attitudes over half a millennium later. As for the United States, a considerable body of sociological literature investigates the reason behind the prevalence of violence in the South, a phenomenon coined as “Southern violence” (Hackney, 1969; Gastil, 1971; Wasserman, 1977). Since the 18th century, it was noticeable that the violence was far more prevalent in the South than in other parts of the United States (Ayers, 1991; Nisbett, 1993). Messner, Baller and Zevengergen (2005, p. 633) state that “distinctive historical experiences in the South gave rise to cultural orientations conducive to violence.” According to Ousey (2000, p. 264), there is remarkable continuity in the position of the South as the most homicidal region of the United States, having the highest homicide rate every year between 1960 and 1997. Interestingly, this finding is identical to that of Redfield (1880), which observed that violent crime rates were highest in the Southern United States in mid-19th century.

In an attempt to explain the Southern culture of violence, Nisbett and Cohen (1996) propose some explanations for Southern violence, including higher temperatures, greater poverty, and the tradition of slavery. Anderson (1989) finds some considerable relationship between temperature and violence. Blau and Blau (1982) identify poverty and inequality as major determinants of Southern rates of violence. In line with Nisbett and Cohen (1996), many qualitative studies propose that the institution of slavery has been a key factor behind the Southern violence (Cash, 1941; Franklin, 1956; Gastil, 1971; Wyatt-Brown, 1986). However, no large-N study has supported this claim so far.

The present study empirically investigates the long-term effect of slavery on violent crime. Our main hypothesis is that 19th century slavery had a significant and persistent effect on violence. We propose two possible channels of transmission between historical slavery and contemporary violence:

1) Inequality

Engerman and Sokoloff (1997; 2002; 2005) and Sokoloff and Engerman (2000) argue that the existence of certain factor endowments in 18th and 19th centuries was detrimental to long-term economic development in New World countries. Factor endowments are mainly soil, climate, and the size of labor supply, consisting primarily of slaves (Engerman & Sokoloff, 2002, p. 17). The differences in availability of these three factors led to the use of different production processes in different colonies, leading to different degrees of

initial wealth concentration, human capital, and political power. They state that “the greater efficiency of the very large plantations, and the overwhelming fraction of the populations that came to be black and slave, made the distributions of wealth and human capital extremely unequal.” (Sokoloff & Engerman, 2000, p. 221). Initial inequality significantly influenced the type of institutions set up in a given country. Such institutions persisted over time and led to different levels of economic development in the longer run (Engerman & Sokoloff, 1997; 2002).

Relying mainly on qualitative evidence, Engerman and Sokoloff used this line of reasoning to argue that historical inequality negatively affected important institutions such as patents (Khan & Sokoloff, 1998), suffrage (Engerman & Sokoloff, 2005), provisions of primary education (Mariscal & Sokoloff, 2000) and taxation (Sokoloff & Zolt, 2007). Considerable literature finds a significant positive relation between inequality and violent crime (Wilkinson, Kawachi, & Kennedy, 1998; Kelly, 2000; Blau & Blau, 1982). As early as 1993, Hsieh and Pugh (1993) conduct a meta-analysis on 34 studies of violent crime, and conclude that there is a robust tendency for rates of violence to be higher in more unequal societies. Messner and Rosenfeld (1997, p. 1394) state, “A finding that has emerged with remarkable consistency is that high rates of homicide tend to accompany high levels of inequality in the distribution of income”. Using data for 39 countries covering the period 1965–1994, Fajnzylber, Lederman and Loayza (2002) find that a small permanent decrease in inequality -such as reducing inequality from the level found in Spain to that in Canada -would reduce homicides by 20%. Extending Engerman and Sokoloff’s thesis (1997; 2002), we hypothesize that slavery contributes to prevalence of violence in Southern USA through persistent historical inequality.

2) Culture of violence

Hackney (1969) and Gastil (1971) argue that Southern violence can be attributed primarily to a unique cultural pattern which developed in the South and which persists, despite considerable economic and structural change in this region, to produce a consistently high rate of interpersonal violence. Gastil (1971) declare that the degree of ‘Southernness’ in the culture is a more powerful predictor of violence than socioeconomic factors, such as educations, age, or economic status. Although Loftin and Hill (1974) refute Gastil’s latter claim, a considerable body of research, mainly sociological, hypothesize that Southern violence stems from specific cultural factors (Bruce, 1979; McCall, Kenneth, & Cohen, 1992; Clarke, 1998; Dixon & Lixotte, 1987; Ellison, 1991; Hayes & Lee, 2005).

Nisbett and Cohen (1996) identify a culture of honor, derived from a herding economy, as a key factor behind the Southern culture of violence (Nisbett & Cohen, 1996, p. 3). The authors argue that the South

“had to a substantial degree, and still has, a type of culture of honor” (p. xiv). Honor-based cultures develop in response to economic instability and minimal state protection against theft of property (Nisbett & Cohen, 1996, p. 4). Herding societies often demonstrate these characteristics since a loss of a herd represented a loss of the entire wealth (Nisbett & Cohen, 1996, p. 5). According to Nisbett and Cohen, in a “culture of honor,” a reputation for toughness and strength is of great economic value (p. xv). The Scotch-Irish, descendants of Celtic herdsman, developed rural herding communities along the Appalachians and in the South. Consequently, Nisbett and Cohen (1996) argue that the Southern culture of honor derives from the herding economy brought to the South by the earliest settlers and practiced by them for many decades thereafter.

Confirming the relation between herding and Southern violence, Grosjean (2014) empirically finds that historical Scot or Scots-Irish presence is associated with higher contemporary homicide, particularly by white offenders. The author also finds that the culture of honor was transmitted to subsequent generations; but only in the South and, more generally, where historical institutional quality was low. Other studies reach a similar conclusion (Wyatt-Brown, 2001; Baller, Zevenbergen, & Messner, 2009; Ousey & Lee, 2010). Nevertheless, other studies find little support for the proposition that herding affects Southern culture of violence (Chu, Rivera, & Loftin, 2000; Altheimer, 2013).

The practice of slavery is an alternative key factor behind the Southern culture of violence. Violence was extensively used by slaveholders to control slaves for hundreds of years. Being a slaveholder himself, Thomas Jefferson, founding father and the 3rd president of the United States, points out that the unrestrained authority wielded by slaveholders tended to breed reckless behavior and shortness of temper, characteristics passed from one generation of masters to the next (cited in (Ayers, 1991). Social historians have documented the brutality and violence of African enslavement in the South (Tolnay & Beck, 1995; Rice, 1975; Mullin, 1995; Fogel & Engerman, 1989; Campbell, 1989; Blassingame, 1972). Many qualitative studies propose that the institution of slavery has been a key factor behind the Southern violence (Cash, 1941; Franklin, 1956; Gastil, 1971; Wyatt-Brown, 1986). John Dickinson, an eighteenth-century revolutionary, believed that the institution of slavery led to southern pride, revenge, cruelty, and violence (cited in (Wyatt-Brown, 2007, p. 153) . Tocqueville (1835/1969) noted that the institution of slavery made it both demeaning and unnecessary for the Whites to work and that the resulting idleness allowed the white man to turn to “a passionate love of field sports and military exercises; he delights in violent bodily exertion, he is familiar with the use of arms, and is accustomed from a very early age to expose his life in single combat” (p. 379). Cash (1941) argue that the need for plantation owners to resort to violent means to control slaves had a significant and long-lasting effect on racial opposition and Southern violence. Roth

(2009) points out that Southern violence was "most strongly linked to the presence or absence of slavery." (p. 180). We hypothesize that historical slavery played a major role in forming a unique culture of southern violence, which has persisted through time and is materializing in contemporary violence in South USA.

3. Estimation strategy and data

Following existing empirical literature, we conduct the analysis at the county level (Gould, Weinberg, & Mustard, 2002; Lott & Mustard, 1997; Hull & Frederick, 1995; Hull, 2000). Using Ordinary Least Square (OLS) regression, we first report baseline estimates of regressing violent crime in 1970, 1980, 1990 and 2000, respectively, on the proportion of slaves in the population in 1860. We use 1860 slavery for two reasons; first, the 1860 US decennial census, which is the source of our data on slavery, was the last census conducted before slavery was formally abolished in USA in 1865. Second, the 1860 census provided data on slavery for the largest number of counties. For this purpose, we use the following model:

$$\ln y_i = \alpha + \beta Slave_i + \gamma StateFE'_i + \varepsilon_i \quad (I)$$

Counties are indicated by subscript i , y is violent crime per 100,000 population in the respective year, $Slave$ is the proportion of slaves in total population in 1860, $StateFE'$ is a set of state-fixed effects, a vector of dummy variables, one for each US State. Our coefficient of interest γ is thus based on variation *within* US States, between counties, intuitively comparing counties within the same State with different historical levels of slavery. Standard errors are clustered at the State level. β is our parameter of interest.

We then explore the robustness of these results, limiting ourselves to the violent crime in the year 2000. Our baseline (OLS) specification is the following:

$$\ln y_i = \alpha + \beta Slave_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda X'_i + \gamma StateFE'_i + \varepsilon_i \quad (II)$$

$Popdens1860$ is the population density in 1860, a commonly used proxy for income (e.g. (Nunn, 2008)). $GDP2000$ is income per capita in the year 2000. X' is a vector of county-level control variables commonly associated with crime. X' includes: the proportion of the population in poverty in 2000; the population per square mile in 2000; unemployment rate in 2000, the proportion of the population with at least a high school degree in 2000, the proportion of youth (aged 18-34) in the population in 2000. As minorities are more likely than whites to be poor, unemployed, and to live in segregated, crime-ridden neighborhoods, considerable empirical literature find a strong relation between minority population and

homicide rates in USA (Blau & Blau, 1982; Phillips, 2002). Consequently, our vector of county-level controls includes proportion of Hispanics in the population in 2000. As proximity to US-Mexican border is likely to be correlated with higher rates of drug trafficking, as well as drug-related violence, \mathbf{X}' includes the shortest straight-line distance from the county border to the US-Mexican border. Finally, \mathbf{X}' includes the longitude and latitude of the centroid of each county, to account for any differences in temperature, which have been associated with violence (Anderson, 1989)

Further exploring the robustness of results, we estimate an Instrumental Variable (IV) model.

$$\ln y_i = \alpha + \beta \widehat{Slave}_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda \mathbf{X}'_i + \gamma StateFE'_i + \varepsilon_i \quad (\text{III})$$

Mann (2012) and Esposito (2015) postulate that, as enslaved Africans had resistance to tropical disease, specifically to malaria, a strong cross-sectional correlation could be observed between regions suitable to malaria and the diffusion of slavery across US counties. Following Bertocchi and Dimico (2014), we instrument for the proportion of slaves in the population in 1860 using an index for suitability of the county to the malaria mosquito. Slavery is also associated with soil suitability to cotton and tobacco cultivation, which are normally associated with scale economies. Consequently, we instrument for 1860 slave population by two indices, developed by Bertocchi and Dimico (2014), for suitability of the county for cotton and tobacco cultivation respectively.

We aim to distinguish between different channels of transmission between slavery and violent crime. The previous section has set out two potential channels of transmission: slavery leading to higher levels of *inequality*, which could increase violent crime, and slavery contributing to an ingrained *culture* of violence. To explore inequality as a channel of transmission, we estimate:

$$\ln y_i = \alpha + \beta Slave_i + \psi Landineq1860_i + \theta Gini2000_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda \mathbf{X}'_i + \gamma StateFE'_i + \varepsilon_i \quad (\text{IV})$$

$$\ln y_i = \alpha + \mu Slavelargehold_i + \varphi Slavesmallhold_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda \mathbf{X}'_i + \gamma StateFE'_i + \varepsilon_i \quad (\text{V})$$

$Landineq1860_i$ is the Gini coefficient of land inequality in 1860. $Gini2000_i$ is the Gini coefficient of income inequality in 2000. If inequality is indeed a relevant channel of transmission between slavery and violent crime, we expect the coefficient β in equation (IV) to decrease substantially in size relative to the

analogous coefficient in baseline model (II) upon the inclusion of the two measures of inequality. However, we recognize that $Landineq1860_i$ is exclusively a measure of inequality between whites, as they were entitled to formally hold land. Hence, (V) is our preferred specification exploring inequality as a mechanism of transmission. This specification follows Nunn (2008) in distinguishing between historical patterns of slave holding that imply greater and lesser inequality. $Slavelargehold_i$ is the number of slaves living on holdings of more than 9 slaves as a fraction of the total population, $Slavesmallhold_i$ is the number of slaves living on holdings of 9 slaves or less as a fraction of the total population. In model (V), we expect coefficient μ to be more strongly related to violent crime than coefficient φ if inequality is a relevant channel of transmission, as larger slaveholdings reflect greater inequality.

Exploring culture as a channel of transmission is more challenging. Following Grosjean (2014), we experiment with using the proportion of settlers from Scottish and Irish decent in 1790 as a proxy for a culture of violence predating 1860. This data stems from the US Decennial census 1790 and was digitized by Grosjean (2014). As this measure is only available for 144 counties, this dramatically reduces our number of observations. However, in model (II), this variable is *negatively* and statistically significantly related to violent crime, regardless of whether we include $Slave_i$ in the model. Including an interaction term between Scottish and Irish population and $Slave_i$ does not change this, nor does this carry a statistically significant coefficient. As such, we must conclude that the proportion of Scottish and Irish settlers in 1790 is *not* an adequate proxy for a culture of violence in this model.

As an alternative, we aim to capture a specific aspect of a culture of violence between the white and black population, using instances of white-on-black violent hate crime in 2000 ($wobhatecrime_i$) and black-on-white violent hate crime in the same year ($bowhatecrime_i$). This gives us the following models:

$$wobhatecrime_i = \alpha + \beta Slave_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda X'_i + \gamma StateFE'_i + \varepsilon_i \quad (VI)$$

$$bowhatecrime_i = \alpha + \beta Slave_i + \gamma Popdens1860_i + \delta \ln GDP2000_i + \lambda X'_i + \gamma StateFE'_i + \varepsilon_i \quad (VII)$$

We also explore the possibility that slavery is not related to increased levels of *actual* violent crime, but to levels of *measured* violent crime. This could occur if states with a history of slavery today have a larger black population and if crimes by black perpetrators are more likely to be recorded in official statistics than crimes by white perpetrators¹. To explore this possibility, we rerun our baseline model (II) using two

¹ Considerable literature puts forward evidence supporting the notion that black perpetrators are more likely to be apprehended, tried and convicted for a violent crime. According to the U.S. Department of Justice (2014), almost 3

alternative dependent variables: (a) the percentage of incarcerated black individuals as a percentage of all individuals incarcerated in 2000; and (b) ‘bias against blacks’ in 2000, defined as (a) divided by the share of black individuals in the total population. Intuitively, the resulting indicator for ‘bias against blacks’ x can be interpreted as: there are x times more black individuals incarcerated than we would expect given their share in the total population. Data on incarceration stems from the ICPSR Annual Survey of Jails 2000. As this is a survey, not a census, data is only available for a sample of US counties, leading to a radical loss of observations.

Following considerable economic literature², our county-level data on crime comes from The Uniform Crime Reports (UCR), published by the U.S. Federal Bureau of Investigation. The Uniform Crime Reporting Program is a data collection effort designed to provide an overall view of crime in the United States. The data have been gathered by the Federal Bureau of Investigation (FBI) since 1930 and are compiled from law enforcement agencies on a monthly basis. By 2000, there were 19,655 law enforcement agencies contributing reports either directly or through their state reporting programs to UCR. The county level UCR files were aggregated to the county level and archived at the National Archive of Criminal Justice Data (NACJD), part of the Inter-University Consortium on Political and Social Research of the University of Michigan. We use the data collection containing county level counts of arrests and offenses for violent crime. Violent crime includes homicide (and non-negligent manslaughter), forcible rape, rape, robbery and aggravated assault.

We also consider an alternative dataset on violent crime, provided by Maltz (Ohio State University, 2013). Michael Maltz (1999; 2003; 2006), and Maltz and Targonski (2002; 2004) criticize the UCR crime statistics, finding the quality of reporting “uneven”, as reporting to the FBI remains voluntary in many jurisdictions and even crime reporting agencies mandated to supply data do not always comply. Maltz and Targonski (2004, p. 1) conducted a project to clean, annotate and make available UCR crime data. They end up producing data files of monthly crime counts from 1960 to 2004 for the over 17,000 police departments in the US, for the seven Index crimes (murder, rape, robbery, aggravated assault, burglary, larceny, and auto theft) (Ohio State University, 2013). We only use data on the first four categories. Although Maltz’s dataset

percent of black males in the U.S. in 2013 were in state or federal prison, a rate six times higher than for white U.S. males. Black males had higher incarceration rates across all age groups than any other race. Black women were twice as likely to be imprisoned that year as white women, the department found. Prison sentences for black men are nearly 20 percent longer than for white men for committing similar crimes (United States Sentencing Commission, 2013). Moreover, black defendants face harsher penalties for harming white victims than white defendants who harm whites (The Sentencing Project, 2005).

² See, for example, Kovandzic and Vieraitis (2006), Grosjean (2014), Gould, Weinberg and Mustard (2002), Lott and Mustard (1997), Hull and Fredrick (1995), Hull (2000), Grinols, Mustard and Staha (2011), Lott (1998; 2000).

potentially offers more reliable crime statistics, it also has limitations, as it has a large number of missing observations compared to the UCR data. Moreover, as we aggregate monthly data on yearly basis, we use a strict standard of dropping a county's³ observations if a month (or more) observation is missing. Consequently, as the number of available observations for Maltz's data is significantly limited, we use Maltz's data for robustness check. Both UCR and Maltz's data are merged with the 1990 and 2000 U.S. Census data to obtain crime rates per 100,000 people.

The Hate Crime Statistics Act of 1990 required the attorney general to gather information on hate crime as part of the UCR Program. These statistics are available from 1996 onwards. Hate crime is defined as “a criminal offense committed against a person or property which is motivated, in whole or in part, by the offender's bias against a race, religion, disability, sexual orientation”.⁴ We restrict our analysis to violent hate crime. Instances that are classified as having bias motivation “anti-black” (“anti-white”) and as having a white (black) offender are considered white-on-black (black-on-white) violent hate crime.

Data for the year 1860, including data on slavery, was taken from the US decennial census and digitalized by Nunn (2008). Income data for the year 2000 also stems from the US decennial census. Data on the Gini coefficient is supplied by GeoDa Center for Geospatial Analysis and Computation. Indices for malaria suitability and suitability for cotton and tobacco cultivation were constructed by Bertocchi and Dimico (2014) using data from the Malaria Atlas Project and FAO GAez.

Table 1 provides an overview of data sources and descriptive statistics for all variables used.

4. Results: Slavery and violent crime

Figure 1 explores the relationship between slavery in 1860 and violent crime in 2000. This scatterplot shows a positive, and statistically significant bivariate relationship between slavery and violent crime in the full sample of counties. Data for counties in Southern (“slave”) states and Northern states are depicted separately. Although the majority of Northern states in 1860 had no slave population, the relationship between slavery and violent crime does not obviously appear to be caused by all Northern states clustering in the south-west corner and all Southern states in the north-east corner of the graph. In addition, eyeballing

³ Maltz's data was initially identified by FBI's Original Agency Identifier (ORI). We use Law Enforcement Agency Identifiers Crosswalk for the year 2005 (National Archive of Criminal Justice Data, 2006) to link ORI with Federal Information Processing Standards (FIPS) county code.

⁴ Inter-University Consortium for Political and Social Research. 2000. Uniform Crime Reporting Program Data [United States]: Hate Crime Data. Codebook.

this scatterplot, there appears to be a positive relationship between slavery and crime also *within* Southern states.

Table 2 investigates this relationship more formally. It presents the coefficient estimates and clustered (at state level) standard errors of model (I), which includes state-fixed effects. The results show that the fraction of the population in slavery is positively related to violent crime for all census years under investigation. All estimated coefficients are significant at the 1% level. Moreover, the size of the effect is relatively substantial. Estimates suggest that an increase in the slave population from 0% to 15.6% (the mean level in the sample) is associated with an additional 0.12 instances of violent crime per 100,000 population, or an increase in violent crime of between 1.5% and 2.2%, depending on the base line level of crime in the state at hand. Increasing the slave population by two standard deviations from its mean level results in an estimated increase in violent crime of 0.32 instances per 100,000 population, representing an increase in the range of 4.2% to 6%. This is in line with our overall hypothesis regarding the relation between slavery and violent crime. Note that while we find that this relation persists across the decades, we cannot really strictly compare the estimated coefficients due to the differences in the numbers of observations between the years.

Table 3 investigates the robustness of these results. We present results for the year 2000 only, but similar results are obtained for the years 1970, 1980 and 1990.⁵ One may be concerned that ‘Northern’ and ‘Southern’ US states differ on some dimension that is not captured by the state-fixed effects, yet is related to both history of slavery and contemporary violent crime. Therefore, we restrict the sample to only Southern ‘slave’ states in column (1). Results are unaffected. Column (2) controls for levels of violence in 1860, as measured by the proportion of violent deaths to total deaths. As this data is only available at the state level, the model represented in column (2) does not include state-fixed effects. Controlling for historical levels of violence is relevant if we think that states with higher historical levels of violence (which is plausibly related to higher modern-day levels of violent crime) were likely to have a larger slave population. Levels of violent deaths in 1860 are indeed related to levels of violent crime in 2000, but including this variable does not affect the relationship between slavery and violent crime. The relationship between history of

⁵ Results can be obtained from the authors upon request. There are a number of minor differences in specification. For 1970, 1980 and 1990, we use data on log GDP per capita from a different source, namely U.S. Bureau of Economic Analysis. For 1970, we do not have data on the percentage of Hispanics in the population or for educational attainment. These control variables are not included in the regressions for this year. The only qualitative difference between the results presented in Table 3 and results from equivalent specifications for other census years is that for the year 1990 and 1980, results are not robust to controlling for violence in 1860. For 1980 the coefficient on the percentage of slaves in the population in 19860 remains statistically significant at the 10% level only. For 1990 the coefficient associated with slavery is insignificant when controlling for violence in 1860. The coefficient on violence in 1860 itself is not statistically significant in either model.

slavery and violent crime is also robust to controlling for income in 1860 and 2000 - using population density as a proxy for income in 1860 (column 3), distance to the US-Mexican border (column 4), and latitude and longitude as proxies for temperature (column 5), as well as to controlling for a range of factors associated with crime (column 6). It is however, not robust to controlling for black population as a share of the total population, as illustrated by column (7). The coefficient on the historical fraction of slaves in the population decreases substantially and is no longer significant. However, the historical share of slaves in the population and the share of black population in 2000 are very strongly related; the correlation coefficient between both variables is 0.7830. It is thus plausible that multicollinearity renders the results presented in column (7) unreliable.

Table 4 further investigates the robustness of the relationship between history of slavery and contemporary violent crime using Model (III). Again, only results for the year 2000 are presented, but similar results are obtained for other census years in the period 1970-1990. Coefficients on the control variables are omitted to promote readability. In column (1) we instrument for the fraction of slaves in the population using an index of suitability for the malaria mosquito (Bertocchi & Dimico, 2014). Results of this IV model are similar to the ones obtained in OLS models and indicate a positive and statistically significant relationship between history of slavery and contemporary violent crime.

Bertocchi and Dimico (2014) propose two additional instruments for slavery: an index of suitability of the soil for cotton and tobacco cultivation respectively. In line with these authors, we conclude that these instruments are not strong predictors of slavery: neither index is significantly related to the proportion of slaves in the population in the first stage (column 2). In the remaining columns, we attempt to use the three instruments to distinguish between the effect of small and large slave holdings on modern-day violent crime. More specifically, we might expect cotton and tobacco suitability to be related predominantly to large slaveholdings, as this is associated with plantation-style agriculture. Columns (3) and (4) illustrate that although we do find a positive and significant relationship between the fraction of slaves on large slaveholdings in 1860 and violent crime in 2000 in an IV model using the malaria suitability index as an instrument, cotton and tobacco suitability are not strong instruments for the presence of large slave holdings. Column (5) includes both the indicators of small and large slaveholdings, and uses the malaria, cotton and tobacco suitability index as instruments. Neither indicator of slavery is significantly related to violent crime in this regression. However, it is possible that this combination of instruments fails to adequately distinguish between both indicators of slavery.

As a final robustness check, we consider an alternative construction of the dependent variable, provided by Maltz (Ohio State University, 2013), for reasons illustrated in section 3. It reruns the specification in Table 3 column 6 on the Maltz data for all census years between 1970 and 2000. Note that for 1970, we do not have data on fraction of Hispanic persons in the population or on educational attainment. Also note that for census years between 1970 and 1990, we use a different source for data on GDP per capita, namely personal income per capita, provided by U.S. Bureau of Economic Analysis. Results are presented in Table 5. Similar to results obtained earlier, all of the estimated coefficients for the fraction of population in slavery are positive and significant at the 1% level. As in Table 3 column 6, income per capita, the unemployment rate and the proportion of youth in the population are other strong predictors of violent crime. Our results are robust to using this alternative data on violent crime.

5. Results: inequality and culture as channels of transmission

In Table 6, we explore two potential channels of transmission between slavery and violent crime: inequality and culture. Coefficients on control variables are again omitted. Column (1) presents the results of model (IV), including historical and contemporary measures of inequality. Coefficients on both variables are not significant at conventional levels. Furthermore, the coefficient on the fraction of slaves in 1860 does not decrease in size compared to the baseline estimation in Table 3 column (5), providing no evidence that inequality is a channel of transmission between slavery and violent crime. However, it should be noted that especially the Gini coefficient on land inequality is a measure of inequality between whites, whereas the relevant dimension of inequality might be between the white and black population.⁶ The fraction of slaves resident in 1860 on large and small landholdings respectively might capture this dimension of inequality better. Column (2) presents the results of Model (V), including both these indicators. Results suggest that only large slave holdings are related to contemporary violent crime, whereas the coefficient on small slave holdings is not statistically significant. Qualitatively similar results are obtained for other census years in the period 1970-1990 (not shown). This, combined with the results from the IV model presented in Table 4 which suggest that the relationship between large slaveholdings and violent crime is robust to instrumenting for large slave holdings using malaria suitability, provides evidence in favour of inequality as a channel for transmission.

Columns (3) and (4), presenting results from Models (VI) and (VII), tentatively investigate culture as a channel of transmission between slavery and violent crime, by exploring the relationship between historical

⁶ We are grateful to an anonymous reviewer for pointing this out.

slavery and violent hate crime. We can only do this for the year 2000, as data on hate crime as a distinct category was not yet collected in other census years. The share of slaves in the population in 1860 is not significantly related to white-on-black violent hate crime, as shown in column (3). The relationship between history of slavery and black-on-white violent hate crime however, is positively and weakly statistically significant, at the 10% level (column 4). To the extent that incidences of racially motivated hate crime indeed capture a culture of violence or aggression, this provides some tentative support for culture as a channel of transmission between slavery and hate crime. However, it is also possible that hate crime along racial lines is driven by socio-economic inequality, which is plausibly related to a history of slavery. However, the result is robust to controlling for historical and contemporary inequality (not shown), although the former is a significant predictor of contemporary black-on-white violent hate crime. Exploring culture and inequality as mechanisms connecting racially motivated hate crime and a history of slavery further, column 5 again distinguishes between slave population on large and small holdings. Only the fraction of slaves in the population living on *small* holdings is significantly (at the 5% level) related to contemporary black-on-white violent hate crime. Although it is difficult to explain why *only* small slave holdings would be an indicator of a culture of violence⁷, these results do suggest a channel of transmission distinct from the inequality channel identified earlier. However, we do not regard these results as conclusive.

Finally, one may be concerned that the results presented thus far are not driven by a relationship between a history of slavery and *actual* violent crime, but by a relationship between history of slavery and *measured* violent crime. We have already seen that there is a strong relationship between historical slavery and the contemporary share of blacks in the total population. It is theoretically possible that counties with and without history of slavery experience similar levels of violent crime, but that black offenders are more likely to be convicted (and thus included in crime statistics) than white offenders, leading to higher measured levels of violent crime in areas with a history of slavery. To explore this possibility, we investigate whether there are relatively more black individuals incarcerated in counties with a history of slavery. Note that data on individuals incarcerated stems from a *survey*, as opposed to a census, of jails, leading to a radical loss of observations. In Column 6 of Table 6, we observe no relationship between history of slavery and contemporary incarceration of black individuals as a percentage of all persons incarcerated (column 5 of Table 6). Column (7) of the same table suggests that there is a *negative* relationship between history of slavery and ‘bias against blacks’, the share of black individuals incarcerated

⁷ In fact, there is empirical evidence (Fede, 1985), as well as theoretical reasons to believe that violent abuse of slaves was more prevalent on *larger* slave holdings, as these commonly employed an overseer who arguably had a smaller economic interest in the wellbeing of the slaves overseen than the slave owner.

relative to their share in the overall population, which is (weakly) statistically significant. Taking this result at face value, this may arise if bias against blacks is lower in areas where they are numerically less of a minority. Whatever the reason, we find no evidence that the results presented earlier are driven by measured rather than actual rates of violent crime.

6. Conclusion

What are the reasons behind the prevalence of violence in Southern USA? This question is central for many sociological and economic theories aiming to explain this phenomenon. Numerous studies speculate that the legacy of slavery may have a significant effect on violence. From all factors identified by Nisbett and Cohen (1996), a legacy of slavery, despite being one of the main reasons behind the prevalence of violence in the South according to these authors, remains the only factor that has not been empirically tested so far. This study fills this gap in the literature and provides evidence that slavery, historically more prevalent in Southern USA, is related to present-day violence.

The main conclusion of this paper is that slavery has a significant and positive long-term effect on the incidence of violent crime in the US. In other words, comparing US counties within the same State, those counties that in the past had a higher share of slaves in the population experience significantly more violence in the present day, all else equal. We explore two potential channels of transmission: (1) slavery leading to higher levels of inequality, which could increase violent crime, and (2) slavery contributing to an ingrained culture of Southern violence. As suggested by Engerman and Sokoloff, historic inequality has a significant impact on economic and social outcomes in the long run. In our case, historic inequality, represented by large slave holdings, is associated with contemporary violence, whereas no such association is found for small slave holdings. We also find some suggestive evidence supporting culture of violence as a second channel of transmission, as slavery in 1860, specifically share of slaves living on small holdings, appears related to black-on-white violent hate crime.

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Figure 1: Relationship between fraction of slaves in 1860 and violent crime in 2000 (per 100,000 population)

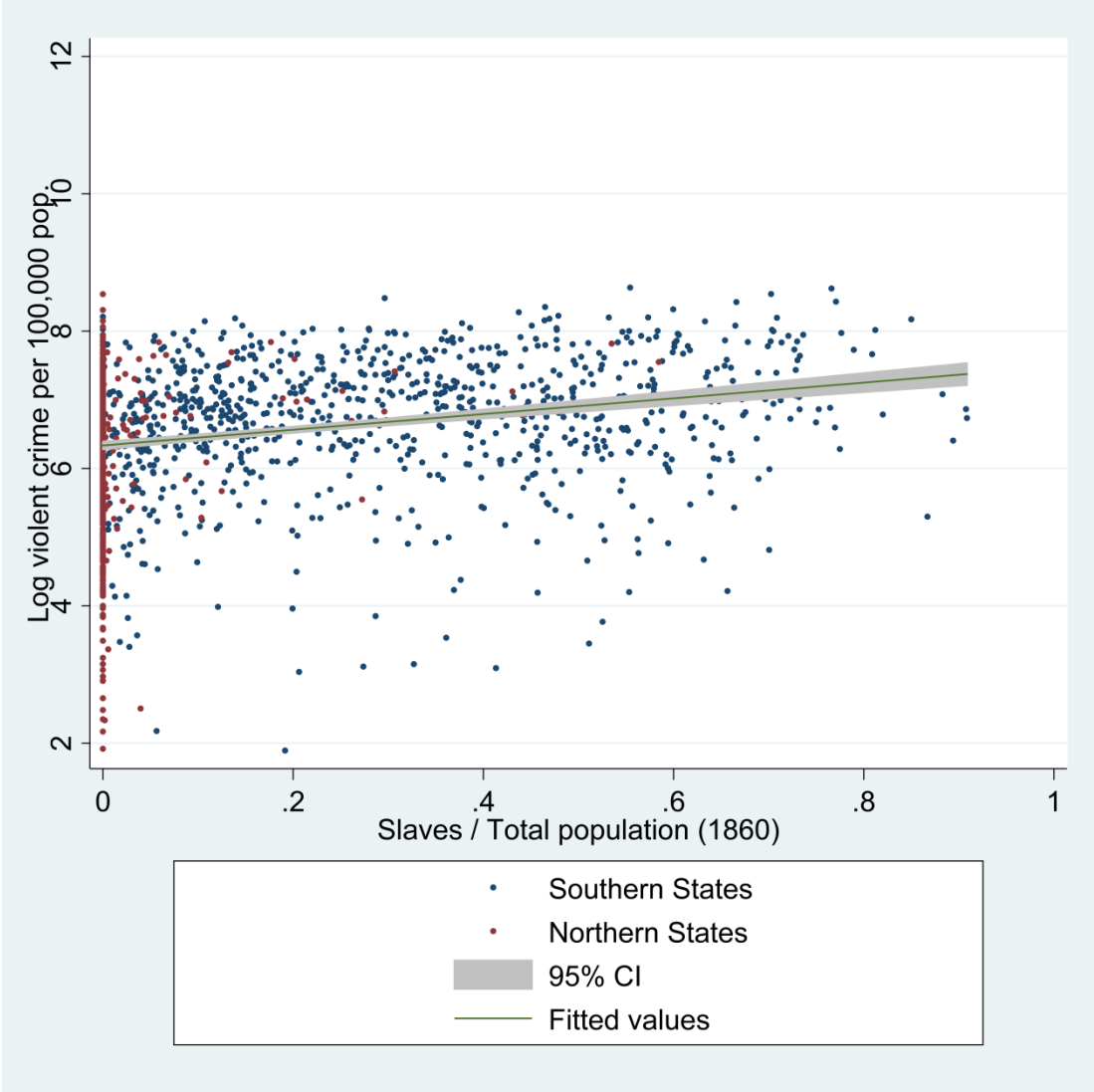


Table 1: Descriptive statistics and sources of the variables

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
Violent crime (per 100,000 population) UCR (2000)	2633	6.524	0.990	1.894	11.600	
Violent crime (per 100,000 population) UCR (1990)	2777	6.117	1.084	0.697	11.540	In Logs County-level data
Violent crime (per 100,000 population) UCR (1980)	2839	5.540	1.096	1.338	11.378	Uniform Crime Reports- U.S. Department of Justice-Federal Bureau of investigation. Population statistics from U.S. Decennial Census.
Violent crime (per 100,000 population) UCR (1970)	2179	4.252	1.096	0.091	7.154	
Violent crime (per 100,000 population) Maltz (2000)	834	5.264	0.886	2.145	8.759	
Violent crime (per 100,000 population) Maltz (1990)	1032	5.227	0.955	2.136	8.148	In Logs County-level data
Violent crime (per 100,000 population) Maltz (1980)	1327	5.008	1.005	1.743	7.814	Michael Maltz's Revisions on UCR data. Data can be downloaded from:
Violent crime (per 100,000 population) Maltz (1970)	860	4.496	1.019	1.171	7.597	http://cjrc.osu.edu/researchprojects/hvd/usa/ucrfbi/ Population statistics from U.S. Decennial Census.
Violent deaths (proportion of all deaths) (1860)	2543	7.221	3.172	3	22.3	U.S. Decennial Census 1860
Fraction slaves in total population (1860)	2014	0.156	0.216	0	0.925	Nunn (2008), U.S. Decennial Census.
Fraction of slaves on small holdings (9 slaves or less) in total population (1860)	2013	0.0413	0.049	0	0.2045	Nunn (2008), U.S. Decennial Census.
Fraction of slaves on large holdings (10 slaves or more) in total population (1860)	2013	0.1126	0.181	0	0.9143	Nunn (2008), U.S. Decennial Census.
Slave state dummy (1860)	3135	0.4402	0.496	0	1	Equals one if state is Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas or Virginia.
Gini coefficient of land inequality (1860)	1933	0.432	0.074	0.044	0.643	Nunn (2008), Land area for U.S. states and counties are from U.S. Bureau of the Census (2006).
Population density (1860)	2033	0.551	8.016	0	353.769	Nunn (2008), U.S. Decennial Census.
Gini (2000)	3109	0.434	0.038	0.314	0.605	GeoDa Center for Geospatial Analysis and Computation
Log Income (per capita) (2000)	3110	10.021	0.225	8.917	11.360	Nunn (2008), U.S. Decennial Census.
Log Income (per capita) (1990)	3103	9.613	0.217	8.609	10.824	U.S. Bureau of Economic Analysis
Log Income (per capita) (1980)	3099	8.981	0.231	7.780	9.970	U.S. Bureau of Economic Analysis

Log Income (per capita) (1970)	3089	8.057	0.236	7.191	9.053	U.S. Bureau of Economic Analysis
Poverty (proportion of population poverty status is determined) (2000)	3106	0.964	0.046	0.313	1.047	U.S. Decennial Census
Population per square mile (2000)	3138	243.73	1,666.86	0	66,834.60	U.S. Decennial Census
Blacks (proportion of population) (2000)	3106	0.864	0.144	0	0.868	U.S. Decennial Census
Hispanics (proportion of population) (2000)	3106	0.062	0.121	0.001	0.972	U.S. Decennial Census
Shortest straight-line distance county border to US border with Mexico (degrees)	3130	13.352	6.273	0	53.235	Author calculations using GADM Database of Global Administrative Areas (www.gadm.org).
Latitude (degrees)	3130	-92.200	12.710	-164.031	-67.636	Geo-coordinates of centroid of county using GADM Database of Global Administrative Areas (www.gadm.org)
Longitude (degrees)	3130	38.433	5.252	19.598	69.308	Geo-coordinates of centroid of county using GADM Database of Global Administrative Areas (www.gadm.org)
Unemployment rate (2000)	3138	5.812	2.860	0	41.700	U.S. Decennial Census
Youth (proportion of population aged 18-34) (2000)	3106	0.209	0.046	0.047	0.513	U.S. Decennial Census
Educational Attainment (proportion of population with at least a high school degree) (2000)	3105	0.507	0.070	0.160	0.737	U.S. Decennial Census
Malaria suitability	1898	13625.04	7881.487	80	40445	Bertocchi and Dimico (2014), Malaria Atlas Project
Cotton suitability	3133	3463.153	2483.115	-9	888	Bertocchi and Dimico (2014), FAO GAez
Tobacco suitability	3133	4018.586	1491.149	-9	7777.4	Bertocchi and Dimico (2014), FAO GAez
Fraction of people of Scottish or Irish decent in the population (1790)	144	0.0665	0.629	0	0.327	Grosjean (2014) U.S. Decennial Census
Blacks incarcerated (proportion of incarcerated individuals) (2000)	844	0.020	0.0615	0	0.834	ICPSR: Annual Survey of Jails, 2000.
Bias against blacks (percentage of black population incarcerated / percentage of blacks in the population) (2000)	332	6.285	14.802	0	184.057	ICPSR: Annual Survey of Jails, 2000. U.S. Decennial Census
White on black violent hate crime (instances) (2000)	2974	0.123	1.0502	0	76	ICPSR 23783. Uniform Crime Reporting Program Data [United States]: Hate Crime Data, 2000.
Black on white violent hate crime (instances) (2000)	2974	0.043	0.386	0	11	ICPSR 23783. Uniform Crime Reporting Program Data [United States]: Hate Crime Data, 2000.

Table 2: Slavery and violent crime across time

VARIABLES	<u>Log violent crime (per 100,000 population)</u>			
	2000	1990	1980	1970
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
Fraction slaves (1860)	0.750***	1.273***	1.192***	1.188***
	(0.172)	(0.301)	(0.247)	(0.318)
Constant	6.502***	5.343***	5.140***	4.286***
	(0.0685)	(0.118)	(0.0970)	(0.119)
State-fixed effects	YES	YES	YES	YES
Observations	1,674	1,856	1,879	1,472
R-squared	0.259	0.237	0.292	0.208

Clustered standard errors (state level) in parentheses

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

Table 3: Slavery and violent crime - Robustness

VARIABLES	Log violent crime (per 100,000 population), 2000						
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS
Fraction slaves (1860)	0.750***	0.943***	0.720***	0.777***	0.725***	0.529***	0.0418
	(0.180)	(0.293)	(0.175)	(0.160)	(0.158)	(0.157)	(0.146)
Violent deaths (1860)		0.0632** (0.0284)					
Population density (1860)			0.0765** (0.0364)			0.117 (0.0917)	0.135 (0.0912)
Ln Income (2000)			0.445** (0.170)			1.029*** (0.231)	1.019*** (0.248)
Distance to US-Mexican border				-0.0548* (0.0274)		-0.0538 (0.0525)	-0.0459 (0.0468)
Longitude					-0.0121 (0.0195)	0.00653 (0.0333)	0.00108 (0.0308)
Latitude					-0.0623** (0.0263)	0.00264 (0.0470)	0.00670 (0.0437)
Population per square mile (2000)						-0.000130 (9.69e-05)	-0.000185* (0.000103)
Unemployment rate (2000)						0.0678*** (0.0181)	0.0489** (0.0196)
Educational Attainment prop. (2000)						-0.810 (0.684)	-0.530 (0.787)
Hispanics prop. (2000)						-0.0518 (0.247)	0.211 (0.288)
Poverty prop. (2000)						1.234** (0.602)	1.263 (0.754)
Youth prop. (2000)						3.677*** (0.582)	3.676*** (0.653)
Black prop. (2000)							1.036*** (0.361)
Constant	6.502*** (0.0715)	5.921*** (0.189)	2.079 (1.723)	7.070*** (0.301)	7.514*** (1.511)	-4.758 (2.969)	-5.490* (3.017)
Sample	Slave states	All	All	All	All	All	All
State-fixed effects	YES	NO	YES	YES	YES	YES	YES
Observations	869	1,540	1,674	1,674	1,674	1,674	1,674
R-squared	0.222	0.085	0.268	0.263	0.263	0.314	0.320

Clustered standard errors (state level) in parentheses

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

Table 4: Slavery and violent crime – Instrumental variable models

VARIABLES	(1) 2SLS	(2) 2SLS	(3) 2SLS	(4) 2SLS	(5) 2SLS	
	A: First stage					
	Fraction slaves	Fraction slaves	Fraction slaves on large holdings	Fraction slaves on large holdings	Fraction slaves on large holdings	Fraction slaves on small holdings
Malaria suitability	2.294*** (0.460)		1.865*** (0.402)		1.895*** (0.422)	0.402*** (0.0786)
Cotton suitability		0.499 (0.426)		0.271 (0.346)	-0.236 (0.421)	0.179 (0.119)
Tobacco suitability		-0.139 (0.573)		-0.113 (0.472)	0.220 (0.579)	-0.0738 (0.245)
R-squared first stage	0.276	0.149	0.241	0.139	0.242	0.224
	B: Second stage					
	Log violent crime (per 100,000 population), 2000					
Fraction slaves (1860)	1.919*** (0.738)	2.440 (3.033)				
Fraction slaves on large holdings (1860)			2.361** (0.936)	4.782 (6.967)		2.263 (1.797)
Fraction slaves on small holdings (1860)						0.423 (7.209)
State-fixed effects	YES	YES	YES	YES		YES
Includes control variables, included in Table 3 (5)	YES	YES	YES	YES		YES
Observations	1,537	1,673	1,537	1,673		1,537
R-squared second stage	0.0430	0.0141	0.0218	-0.222 ¹		0.0274

Clustered standard errors (state level) in parentheses

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

¹ This R-squared is negative. In two-stage least squares regression, it can occur that the residual sum of squares is larger than the total sum of squares, resulting in a negative R-squared. See: <http://www.stata.com/support/faqs/statistics/two-stage-least-squares/>

Table 5: Slavery and violent crime: Maltz data

VARIABLES	<u>Log violent crime (per 100,000 population), Maltz</u>			
	1970	1980	1990	2000
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
Fraction slaves (1860)	1.328***	1.137***	1.014***	0.529***
	(0.290)	(0.259)	(0.301)	(0.157)
Population density (1860)	-0.0919	-0.0440	0.0558	0.117
	(0.107)	(0.0982)	(0.0796)	(0.0917)
Ln Income (year)	1.280***	1.547***	1.706***	1.029***
	(0.258)	(0.295)	(0.346)	(0.231)
Distance to US-Mexican border	-0.122***	-0.108	-0.0115	-0.0538
	(0.0394)	(0.0766)	(0.0676)	(0.0525)
Longitude	0.0407*	0.0616*	0.0118	0.00653
	(0.0224)	(0.0358)	(0.0352)	(0.0333)
Latitude	0.0593	0.0539	-0.00899	0.00264
	(0.0352)	(0.0614)	(0.0628)	(0.0470)
Population per square mile (year)	0.000218*	0.000106	-5.49e-05	-0.000130
	(0.000118)	(0.000121)	(8.79e-05)	(9.69e-05)
Unemployment rate (year)	0.0939***	0.0453***	0.0989***	0.0678***
	(0.0210)	(0.0147)	(0.0223)	(0.0181)
Educational Attainment prop. (year)		0.635	0.982	-0.810
		(0.985)	(0.887)	(0.684)
Hispanics prop. (year)		1.111***	0.548	-0.0518
		(0.334)	(0.382)	(0.247)
Poverty prop. (year)	1.223***	0.737	-0.218	1.234**
	(0.443)	(0.927)	(0.459)	(0.602)
Youth prop. (year)	3.748***	4.228***	4.631***	3.677***
	(0.728)	(0.929)	(0.570)	(0.582)
Constant	-5.474*	-6.170*	-11.48***	-4.758
	(2.872)	(3.542)	(3.687)	(2.969)
State-fixed effects	YES	YES	YES	YES
Observations	1,471	1,878	1,851	1,674
R-squared	0.278	0.396	0.342	0.314

Clustered standard errors (state level) in parentheses

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

Table 6: Channels of transmission between slavery and violent crime

VARIABLES	(1) Log violent crime (per 100,000 population), 2000 OLS	(2) OLS	(3) White-on-black violent hate crime, 2000 OLS	(4) Black-on-white violent hate crime, 2000 OLS	(5) Black-on-white violent hate crime, 2000 OLS	(6) Blacks incarcerated, 2000 OLS	(7) Bias against blacks, 2000 OLS
Fraction slaves (1860)	0.608*** (0.184)		0.130 (0.261)	0.149* (0.0825)		0.00232 (0.0167)	-8.443 (5.236)
Fraction slaves on large holdings		0.460*** (0.142)			0.0477 (0.0634)		
Fraction slaves on small holdings		1.199 (0.825)			1.000** (0.447)		
Gini land inequality (1860)	0.138 (0.344)				0.222** (0.106)		
Gini (2000)	-1.001 (0.809)				0.644 (0.429)		
Constant	-4.051 (3.357)	-4.700 (2.996)	29.27* (16.71)	2.176 (3.160)	2.027 (3.059)	0.461 (0.331)	19.51 (59.96)
State-fixed effects	YES	YES	YES	YES	YES	YES	YES
Includes control variables, included in Table 3 (5)	YES	YES	YES	YES	YES	YES	YES
Observations	1,597	1,674	1,973	1,973	1,926	626	232
R-squared	0.310	0.314	0.152	0.165	0.170	0.101	0.142

Clustered standard errors (state level) in parentheses

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