What Determines Social Capital?
Evidence from Slavery's Legacy in the United States and Brazil

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Abstract

What determines social capital? Prior scholarship has examined what causes social capital to change contemporaneously but has yet to assess how history influenced social capital's development. Building on previous research which posits that former slaveholding regions exhibit lower levels of social capital, I test two competing explanations of how social capital developed. The inequality hypothesis argues that a reliance on plantation slavery created economic inequality, which in turn diminished modern social capital; the attitudinal hypothesis argues that the abolition of slavery influenced mass political attitudes which have transmitted over generations and diminished modern social capital. To test which is correct, I examine slavery's impact on social capital, measured as interpersonal trust, in two countries – the US and Brazil. I find evidence that slavery is negatively associated with social capital; an individual's support for interpersonal trust can decrease by as much as 18 percent in regions with high levels of former slavery. Moreover, it is the attitudinal hypothesis—not economic inequality—which associates with social capital's decline.

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Introduction

There is considerable evidence of the positive outcomes of high levels of social capital including increased confidence in government (Brehm and Rahn 1997), increased quality of government (Knack 2002; Andrews 2011), voter participation (Knack 1992), country-level economic growth (Knack and Keefer 1997), firm profits (Fernandez, Castilla and Moore 2000), entrepreneurship (Kwon, Heflin and Ruef 2013), tolerance (Cigler and Joslyn 2002), potential reductions in crime (Rosenfeld, Baumer and Messer 2001; Beyerlein and Hipp 2005) and increase educational attainment (Teachman, Paasch and Carver 1997) . Given these beneficial outputs, scholars should be interested in understanding how variation in social capital first formed. However, prior research has instead focused on how variation in social capital occurs contemporaneously (Mishler and Rose 2001). Scholars have spent comparatively little time examining the origins of existing levels of social capital (Knack and Zak 2003).

Previous social capital literature posits an association between slavery in the nineteenth century and diminished social capital (Putnam 2001a). But there has been little empirical research examining the role of history in determining modern levels of social capital. This is concerning since what scholars assume about the origins of social capital could be wrong.

I use the historical institutions framework – developed in the economics literature – to determine slavery's effect on social capital. Previous examinations of the historical legacy of slavery have looked at the economic consequences of slavery (Engerman and Sokoloff 1997; Sokoloff and Engerman 2000; Nunn 2008a), individuals' political attitudes due to slavery (Acharya et al. 2016), and racial disparities exacerbated by slavery (O'Connell 2012; Reese and O'Connell 2016).

I use a combination of individual level data and sub-national historical data to test the relationship between historical slavery and modern social capital. Data were collected from the 2000 American National Election Survey (ANES) and Cooperative Congressional Election Study data for the US; 2015 Latinobarometer survey for Brazil, and historical census data on slavery populations from both countries. I find support for Putnam's original association; in sub-national regions that had a higher ratio of their population in slavery, individuals' interpersonal trust is depressed. Moreover, the results suggest that the decrease in social capital is associated with an attitudinal mechanism, as first suggested by Acharya et al. (2016).

This research adds to the growing literature on the historical impact of the institution of slavery. Scholars have begun to disentangle how the historical movement of slaves impacted the development of nations' mass attitudes (O'Connell 2012; Acharya et al. 2016, 2018b), economy (Nunn 2008b; Klein 2010), and policies (Curtis and O'Connell 2017). This paper adds to this discussion, by exploring the impact slavery in the nineteenth century on social capital in the New World and how that process occurred.

The research also adds to the growing literature examining the impact of institutions in the American South. Southern institutions have long been a source of fascination among scholars (Key 1949) and have recently enjoyed a resurgence of interest (Hood III et al. 2014; Mickey 2015; Reese and O'Connell 2016; Acharya et al. 2018a). This paper builds on the previous studies, explaining how institutions in the South formed a unique political character.

In the following sections I first review the literature on social capital, demonstrating that previous scholarship has focused on two questions: how contemporary institutions affect social capital or how political institutions vary because of social capital. I then identify that Putnam first discussed a potential association between slavery and decreased social capital, yet no study

has empirically assessed the connection. I identify two potential explanations for how slavery can impact social capital through past economic inequality or through the changes in mass political attitudes. I then discuss how the diffusion of slavery in the US and Brazil contours my theory to a specific moment over the history of the transatlantic slave trade. I use a combination of survey data and historical census records to test first if slavery is negatively associated with social capital and find that it is. I compare the inequality and attitudinal hypotheses, and find evidence supporting the latter. Finally, I discuss the importance of the results and identify future questions that scholars can address about the intersection between slavery and social capital.

The Effects of Social Capital

The failure to identify how variation in social capital first originated is surprising. Social capital – the network of relationships among people who live and work together to form a functioning society – is a long-identified component to democratic governance (Tocqueville 2003 [1835]). Individuals show higher support for democratic ideals when social capital increases (Mishler and Rose 2001). Nations with high social capital also have citizens who report higher trust in government (Knack 2002) and levels of voter participation (Knack 1992). Beyond political implications, high social capital is also linked with beneficial policy outcomes. Regions with high social capital have lower corruption (Putnam 1994), greater economic growth (Knack and Keefer 1997), greater policy activism (Travits 2006), and increases in components of public welfare (Kawachi et al. 1999; Teachman, Paasch and Carver 1997; Rosenfeld, Baumer and Messer 2001).

There have also been many previous studies exploring the downstream effects of social capital (Brehm and Rahn 1997; Knack and Keefer 1997; Putnam 2001b; Knack 2002) as well as

the relationship between social capital, often measured as social trust, and economic development (Putnam 1994; Fukuyama 1995; Knack and Keefer 1997; Bowles 1998; Kwon, Heflin and Ruef 2013). This previous scholarship has focused on how social capital explains future economic development. Yet, identifying how social capital historically forms and changes has been researched less intensely.

Instead, previous analysis has explored what causes social capital to increase contemporaneously. Knack and Zak (2003) develop a formal model to explain how interpersonal trust varies. The authors find that social trust increases directly when actors increase freedom of speech and levels of education. Social trust can be increased indirectly when actors pass policies that strengthen contract enforcement and reduce income inequality. The authors also determine that building social trust is a cyclical process; policies that raise social trust improve living standards and reduce government inefficiency further raising social trust.

Contemporaneous changes in social trust have also been studied empirically. Mishler and Rose (2001) examine how social trust varies in ten eastern European nations and find that social trust is a micro-level process with variation in trust existing within countries. Additionally, the authors find that contemporaneous changes in trust are driven by institutional factors rather than cultural factors.

While previous examinations of variation in social capital are undoubtedly useful, these studies so far have only explored contemporary variation. Scholars have yet to explain how history may affect variation in social capital between regions. Previous scholarship posits that historical context matters in determining future institutional development (e.g. Putnam 1994; Putnam 2001b). Yet, research has not tested how historical context is capable of varying social capital. In the next section, I identify that slavery is one such institution which scholars believe

influenced social capital. I examine the historical legacy of slavery literature to determine how this process may occur.

Social Capital and Slavery

When analyzing the variation of social capital in US states Putnam noted that "It is not an accident that low social capital is very clearly associated with the depth of slavery in the nineteenth century, and that is because slavery as a system and the post-slavery reconstruction period were institutionally designed to destroy social capital." (Putnam 2001a, p. 10). However, beyond identifying the existence of an apparent association between social capital and slavery, scholars have yet to explain how slavery influenced social capital.

Engerman and Sokoloff provide a foundation for one possible explanation on how variations in social capital developed due to the institution of slavery through economic inequality (Engerman and Sokoloff 1997; Sokoloff and Engerman 2000). They argue that plantation slavery – large-scale agricultural operations on which slaves worked to produce cash crops – was critical for the development of future economic growth. In areas where plantation slavery predominated, economic inequality developed. Past economic inequality served as the catalyst that led to depressed modern economic development. This is a parallel argument to the colonial extractionist argument proposed by Acemoglu, Johnson, and Robinson (2002). In their seminal work, the authors explore the long-term economic development of colonial nations. They find that in nations where colonization was more difficult, there was a proclivity to establish extractionist institutions that hindered democratization and depressed economic growth.

While previous research on the historical legacy of slavery has focused on subsequent economic development or behavioral patterns, the inequality hypothesis can also serve as an

adequate foundation with which to explain modern levels of social capital. Putnam notes that economic development and social capital are deeply linked concepts "In fact . . . 'Whether cultural inheritance or economic development is constructed to be an independent element will depend very much on the time-scale within which the historical processes are conceived.'" (Putnam 1994 p. 161 [citing Langton and Morris 1986]). This deep connection between social capital and economic development gives credence to using the inequality hypothesis as a predictive theory of social capital.

Scholars have long found a negative relationship between inequality and measures of social capital (Knack and Zak 2002; Uslaner, ch. 4 2002; Rothstein and Uslaner 2005; Bjørnskov 2007; Soss and Jacobs 2009). However, empirical testing of the inequality hypothesis thus far has produced mixed results. Nunn (2008a) provides a test of the theory and each of its theoretical linkages. He finds that US states and counties with greater enslavement are negatively associated with modern economic development. This result is also robust when examined cross-nationally across former colonies throughout the Caribbean. Nunn also finds empirical support for the first linkage of the inequality hypothesis that slavery led to contemporaneous economic inequality. He, however, does not find support for the second linkage, that past economic inequality is associated with modern economic development. In Nunn (2008b) he does find evidence that this relationship exists when examining African nations and the extraction of slaves from the continent. Additionally, Acemoglu, Garcia-Jimeno, and Robinson (2012) found in an analysis of Colombian slavery that modern day land inequality was driven by historical geographic patterns of slavery.

An alternative argument is proposed by the recent scholarship of Acharya et al. (2016; 2018a). In their work, the authors provide a competing attitudinal model which could plausibly

explain the decline of social capital. The authors examine the role that slavery played in developing modern mass political attitudes in the American South. They argue that southern US counties which were economically dependent on slavery were drastically destabilized when slavery was abolished. To preserve their economic livelihood, whites turned to violence and intimidation to maintain order. This in turn led to conservative racial attitudes being passed down from parent to child over generations. They test the hypothesis and confirm it.

Findings from Acharya et al. (2016) describe how attitudes can decrease social capital. The end of slavery presented an economic and political change which can inform political attitudes and opinions that are then transmitted to future generations. In this case, the violence surrounding slavery helped sow the seeds of mistrust and division. There is evidence of a negative association between violence on various measures of contemporary social capital (Brehm and Rahn 1997; Rohner et al. 2013; De Juan and Pierskalla 2014; Grosjean 2014; Grodefroidt and Langer 2018), If the attitudinal hypothesis explains the decline of social capital, localities which experienced greater levels of upheaval at the end of slavery should have lower levels of modern social capital.

Prior research finds support for the lingering effect of the attitudinal approach. Nunn and Wantchekon (2011) find evidence of a similar relationship in African ethnic groups where individuals were abducted into slavery. Their historical analysis of the slave trade found that the extraction of slaves from tribes within Africa was negatively associated with a region's modern level of social trust. They suggest that decreased trust was due to anthropological heuristics that had passed down over generations. Additionally, Acharya et al. (2018b) finds that many racially-tinged mass political attitudes are better informed by the legacy of slavery than modern day demographic compositions.

From the literature, I find two plausible explanations of how slavery interacts with modern social capital. One argument suggests that inequality is the pathway through which slavery destroyed social capital. Another argument suggests that it was through attitudes that social capital deteriorated. In the next section I present formal hypotheses which can help determine which theory better predicts slavery effect on social capital.

Hypotheses and Research Design

From the previous developments in the literature, I develop three hypotheses which evaluate the effect of slavery's legacy on social capital. The first hypothesis examines if slavery is associated with the decline of social capital. While other branches of the transatlantic slave trading system have been previously examined (Nunn 2008b; Nunn and Wantchekon 2011) the association between slavery in the nineteenth century and social capital remains speculative (Putnam 2001a). From this framework, I develop a formal hypothesis which directly evaluates the association between nineteenth century slavery and social capital. I expect that regions where slavery predominated will be negatively associated with modern social capital. In line with previous social capital scholarship (Knack 2002), I operationalize social capital as a measure of interpersonal trust.

H1. Slavery and Social Capital Hypothesis: As a region's historical amount of slavery increases modern social capital will decrease.

The latter two hypotheses explore how slavery affects social capital's decline. If slavery diminished social capital, there are two plausible explanations on how this relationship occurs.

The inequality hypothesis suggests that slavery's effect on social capital transmits through contemporaneous economic inequality. Slavery in the Americas produced economic conditions which varied drastically in regions where slavery predominated, leading to a plantation economy in regions that were more dependent on slave labor. The development of the plantation economy led to large, societal economic inequality; with significant land and economic disparities between classes. Previous research has found evidence for the plantation-scale economic inequality linkage (Nunn 2008a).

The second linkage argues that past economic inequality leads to decreased social capital. Previous scholarship has identified that inequality and social capital are intrinsically linked concepts (Putnam 1994), and that past economic inequality cannot explain current economic development (Nunn 2008a) yet may explain modern inequality (Acemoglu et al. 2012). Therefore, it is reasonable to argue that past economic inequality can explain current levels of social capital. I expect that regions where historically plantation slavery predominated will be negatively associated with modern social capital. As plantation slavery flourished, economic inequality developed, which in turn reduced modern social capital.

Alternatively, it could be that slavery decreased social capital through mass political attitudes. In the first linkage, the end of slavery was a dramatic, destabilizing shock to localities. The rise of an enfranchised black population served as a threat to the white elite both politically and economically. Areas which were more dependent on slavery turned to violence and intimidation to maintain the existing social order. This change in behavior imprinted on localities and created a new set of acceptable norms and attitudes (Acharya et al. 2016; 2018a).

The second linkage argues these political attitudes were passed down across generations and are still capable of being observed in modern social capital. Prior scholarship has found that

numerous modern mass attitudes can be explained through the legacy of slavery (Acharya et al. 2016; 2018b). Moreover, a similar diffusion of social capital has been attributed from the extraction of slaves on the African continent (Nunn and Wantchekon 2011). If the attitudinal hypothesis is correct, I expect areas which had more upheaval surrounding the abolition of slavery to be negatively associated with social capital.

H2. Inequality Hypothesis: The institutional depth of slavery determined the level of contemporaneous inequality which then determines current levels of social capital.

H3. Attitudinal Hypothesis: The institutional depth of slavery determined the level of contemporaneous cultural upheaval which then determines current levels of social capital.

I use the historical institutions framework to test my hypotheses. Historical institutions are one of the most cited approaches to understand how modern institutions formed. The historical institutions approach has been leveraged to explain economic development (North 1990; Acemoglu et al. 2000; Kuran 2004; Dimico et al. 2017), legal systems (Glaeser and Shleifer 2002), democratic foundations (Moore 1993), regime collapse (Skocpol 1979; Darden and Grzymala-Busse 2006; Pop-Elches 2007; Hariri 2012), and post-colonial legacies (Acemuglo et al. 2002; Acemoglu et al. 2012; Banerjee and Iyer 2005). The method argues that institutions form endogenously. The past attitudes of individuals and implementation of early institutions helps determine modern variation in institutions today. These previous studies have utilized detailed historiographies, instrumental variable analysis, or direct tests of the theoretical linkages to test their theories.

In the analysis section, I first test Hypothesis 1 – that slavery is negatively associated

with social capital – in the US and Brazil. In both nations, I expect to find a negative association

between a region's historical level of slavery and interpersonal trust. I also present a series of

robustness tests using alternative measures of social capital to further evaluate the relationship. I

then examine historical US census data to determine if past inequality are associated with

slavery's influence on social capital (Hypothesis 2 and 3). Using a discrimination test, I find

evidence for the attitudinal hypothesis and not the economic inequality hypothesis.

Slavery in the United States and Brazil

Both the US and Brazil have detailed historical census records that make an accurate analysis of

slavery's impact possible. The US collected detailed subnational counts of slave populations in

the 1860 census and Brazil did the same in the 1872 census. Few other nations in the Americas

had the resources to collect accurate counts of slave populations in the nineteenth century.

Both nations also have identical measures of modern social capital at the sub-national

level. The ANES fielded a social capital question in 2000 and each survey respondent identified

which state they resided in. An identical social capital question was asked in the

Latinobarometer. Starting in 2015, Brazilian respondents indicated which state within Brazil they

resided. The quality of historic census records and parallel survey information make comparison

between the two countries possible. No other slave holding nations in the New World provide

similar quality of historic records and modern survey data as the US and Brazil.

The use of slave labor and its subsequent abolition in the New World "cannot be seen as

a linear and evolutional process" instead the slave trade had substantively unique periods and

trends (Tomich, pg. 69). The historical data in this analysis refer to a specific period of slavery in

world history. Termed second slavery – slavery in the nineteenth century was characterized by a new set of labor needs in the world marketplace in the face of the industrial revolution, urbanization, and population growth. During this period British hegemony undercut the market for slavery in the British colonies while simultaneously increasing the market for slavery in Brazil, Cuba and the US (Tomich 2004).

While both Brazil and the US faced similar economic pressures during second slavery, the diffusion of slavery through each nation was qualitatively and quantitatively unique. The US and Brazil both used slaves to develop large-scale agricultural operations – as both nations were large, sparsely populated states with significant amounts of arable land (Bergard 2007). In the US slaves were used predominantly on plantations to help cultivate cotton or tobacco. In Brazil slaves cultivated sugar and coffee. Both nations relied on slave labor for a significant portion of their agricultural economy.

While the economic foundations of slavery were similar, the development and demography of slavery was divergent between the US and Brazil. In the US the import of slaves from Africa was abolished in 1808. This resulted in few slaves in the US being of direct African decent; instead the US slave population was characterized by unusual high natural, positive rates of growth (Eltis 2001; Klien 2010). This led to unique kinship and cultural structures between slaves within the US which were not observed in other nations.

Conversely, Brazil remained one of the largest destinations for Africans well into the nineteenth century, and a significant portion of the slave population was directly descendant from Africa. Over the first half of the nineteenth century, the US received under 100,000 slaves directly from Africa while Brazil received over 2.3 million (Transatlantic Slave Trade Database).

Brazil also had significantly more intermixing between African, native, and European population over the course of the nineteenth century compared to the US (Bergard 2007).

The geographic boundaries of slavery between the two nations also varied. The US experienced more variation of the sub-national proportion of the population that was enslaved compared to Brazil. The US was comprised of free states in the North and slave-holding states, mostly in the South. Slave states were clustered in the deep south and ranged from under 1 percent of the population that was enslaved – Delaware – to almost 60 percent of the population enslaved – South Carolina. In Brazil, there were no geographic restrictions on where slavery proliferated. Slaves were held in all states in the 1872 census. However, predominant slave holding states were located in the Northeastern and Southeastern areas of the country, with the fewest slaves located in the North. The range was from 1 percent of the population in Amazonas to 37 percent of the population in Rio de Janeiro.

Perhaps most importantly, the abolition of slavery between the two nations was markedly different. The US faced an abrupt political and societal restructuring over the abolition of slavery, resulting in a civil war and the era of Reconstruction. Few nations in the New World experienced a change as vitriolic as the US, including Brazil. Brazil experienced a gradual decline in the institution of slavery. The slave population declined after the 1850s – in part due to Brazilian elite's view that slavery was unsustainable following the US Civil War. Brazil moved to emancipate its population gradually, with the law of free wombs – which granted freedom to all children born to slaves – passed in 1872, the emancipation of slaves older than 65 in 1885, and complete abolition occurring in 1901 (Klein and Vidal Luna 2010). Thus, the adaptation of the labor market in response to slavery's decline was markedly different between the two nations.

Finally, the political institutions between the two nations varied. The US functioned as a representative democracy with strong federal institutions existing between the states and national government. Brazil, functioned as a unitary monarchy until after slavery was abolished in the nation. Figure 1 provides a visualization of the variation in both historic slave holding patterns and social capital between the two nations. By comparing both nations, I can help identify if second slavery in and of itself is associated with social capital or if there is some unique aspect due to the diffusion of slavery that explains potential associations.

[Figures 1a and 1b about here]

Data

I begin by testing H1—whether slavery has any association with modern social capital. I present two models testing the slavery and social capital hypothesis, one model using US data and another using Brazilian data. In both models, the dependent variable in my analysis is interpersonal trust. The variable can take on two values equaling 1 if a respondent feels that "most people can be trusted" or 0 if "you can't be too careful".

The independent variable of interest in the US model is the ratio of a state's population that was in slavery at the time of the 1860 census (*Slaves / Total population (1860)*). In the Brazil, the independent variable of interest is the ratio of a state's population that was in slavery in 1875 (*Slaves / Total population (1875)*). The variable for both countries is measured as the number of slaves in each state divided by the total population of the state at the time of the census. The variable is bounded between 0, none of the population being enslaved, and 1, the entire population being enslaved. In the data, the variable ranges from 0 to 0.58, meaning at the

time of the census anywhere between 0 to 58 percent of entire state's population was enslaved. In both countries, I expect a negative relationship between ratio of the population in slavery and modern interpersonal trust.

At the state level I also control for historical population density (*Population density (1860)*) in the US and (*Population density (1872)*) in Brazil. The variable is measured as the average number of individuals living per square kilometer at the time of each nation's historic census. In the US model, because the 2000 ANES does not include a variable measuring a respondent's urbanity, I control the percent of each state's population that resides in urban areas (*Percent state population urban*). The variable was collected from the 2000 US census.

I also control for a series of respondent characteristics in each model. I control for a respondent's race, gender, age, age squared, educational attainment, religiosity, income, occupation, and – in Brazil only - urbanity. All respondent level measures were taken from questions asked in the 2000 and 2004 ANES or 2015 Latinbarometer. Excluding age, age squared, and educational attainment all respondent covariates are measured categorically. A full description of variables and summary statistics is provided in supplemental Appendix A.

Figure 2 provides a bivariate visualization of the dependent variable and independent variable of interest. US states are reported in the left-hand graph and Brazilian states are reported in the right-hand graph. The y-axis of each graph is a state's mean level of respondent interpersonal trust. The x-axis displays the historical ratio of the population that was in slavery. A fitted values line is included in each graph.

The figure shows variation in the dependent and independent variable between the nations. Interpersonal trust is on average much higher in the US than in Brazil. Additionally, the US shows a wider range of historical slavery populations: ranging from zero in the free states to

58 percent of the population in slavery in South Carolina. In Brazil, all states had some percentage of the population in slavery: ranging from 1 percent in Amazonas to 37 percent in Rio de Janeiro. However, in both nations the fitted values provide face validity for the slavery and social capital hypothesis. A state's mean level of interpersonal trust decreases as historical levels of slavery increase. Figure 3 finds qualifying evidence in support of this hypothesis; in states with greater amounts of the population enslaved, modern social capital is decreased.

[Figure 2 about here]

Results

Having explored the bivariate relationship between second slavery and social capital, I now empirically test the relationship. I develop two models to test whether increased historical populations of slavery are associated with decreased levels of modern social capital.

Table 1 reports two logistic regressions, examining American and Brazilian states respectively. The dependent variable for both models is interpersonal trust (*Trust in People*). The independent variable of interest is the ratio of a state's population that was in slavery in 1860 for the US (*Slaves / Total population (1860)*) and 1875 for Brazil (*Slaves / Total population (1875)*). I control for historical population density (*Population density (1860)*) in the US and (*Population density (1872)*) in Brazil, as well as the geographic size of each state measured in thousands of square kilometers (*State area (sq. km.)*). In the US model, I control for the urbanity of a state (*Percent state population urban*). I also control for the previously discussed collection of respondent covariates in the models. In both models, standard errors are clustered by state as there are a sufficient number of groups to accurately model variation. Additionally, in brackets beneath the standard errors I report wild cluster bootstrap z statistics (Cameron, Gelbach, and

Miller 2008)[1]. Due to the size of the empirical model, only state level coefficients are reported in the table, a full model can be found in supplemental Appendix B.

The results reported in Table 1 find evidence in support of the slavery and social capital hypothesis. In both models, the ratio of the population in slavery has a negative and significant association with modern interpersonal trust. In both the US and Brazil, as the ratio of the population in historical slavery increases, modern interpersonal trust decreases.

Additionally, historical population density is negatively associated with modern interpersonal trust in the US model. Historical population density in the Brazil model and state urbanity in the US model, both fail to reach traditional levels of statistical significance.

[Table 1 about here]

The analysis presented in Table 1 strongly supports hypothesis 1. States that had a higher ratio of their population in slavery exhibit lower social capital in the present-day.[2] Moreover, this finding does not seem to depend on a specific set of cultural contexts. The US and Brazil have disparate racial makeups, levels of education, average levels of interpersonal trust, and cultural heritages. Yet, the finding holds across both countries. These differences suggest that, as Putnam noted, the institution of second slavery was capable of eroding social capital.[3]

Figure 4 indicates that the findings are substantively significant as well. Figure 4 reports the predicted probability that an individual will state that "most people can be trusted" over all observed values of historical slavery.[4] The results are presented when all other variables are held at their mean values. The first graph plots the predicted probability for the US sample while the second graph plots the predicted probability for the Brazilian sample. Both plots find a negative

association of slavery on interpersonal trust. Moving from the minimum to the maximum observed value of slavery in the US – essentially a free state to South Carolina, the state with the largest proportion of slavery – is associated with a substantively significant 18 percent reduction in the probability that an individual will report that "most people can be trusted".

I find a similar relationship between second slavery on interpersonal trust for Brazil. Moving from the minimum to the maximum observed proportion of slavery in Brazil – Amazonas to Rio de Janeiro – is associated with a 12 percent reduction in the probability that an individual will indicate, "most people can be trusted". Additionally, at low and medium levels of historic slavery in Brazil, interpersonal trust is positive; at high levels of slavery, interpersonal trust is no longer significantly different from zero. Even though the US and Brazil have unique levels of interpersonal trust the effect of slavery is the same which suggests that second slavery is responsible for this association.

[Figure 3 about here]

Additional Tests of the Relationship

To investigate further the impact of second slavery, a series of alternative models and tests are reported in Table 2 using US data. All reported models find consistent evidence in support of the slavery and social capital hypothesis. Data were collected from two sources the 2000 ANES and pooled 2008 through 2012 Common Content data from the Cooperative Congressional Election Study (CCES).[5]

I present a series of new dependent variables to evaluate the slavery's effect on social capital. The first two models in Table 2 operationalize social capital as a measure of involvement

in civic groups (*Civic Organizations*). The first model in the table is a dichotomous measure, coded 1 if the respondent indicates that she is a member of a civic group outside of work. The second model is a count of the number of civic organizations that the respondent is a member of – ranging from 0 to 5 or more.

The second set of models use a dichotomous measure that indicates if a respondent has attended local political meetings (e.g. a legislative town hall or school board session) within the last year (*Attends Local Meetings*). The variable is coded 1 if the respondent indicates that she has attended a meeting in the past year. The first attends meetings model uses the same ANES data that has presented throughout the paper. The latter model uses data from the CCES. I leverage CCES data as it allows me to disaggregate the data down the county level. The 2008, 2010, and 2012 Common Content section of the CCES asks respondents is they have attended a local political meeting within the last year. I pooled the three years of CCES data together, providing a sample of 89,132 respondents. In addition, using data from Nunn (2008b) and the 2010 US Census, I create county-level estimates of sub-national covariates for the CCES model.

The same series of respondent level covariates are included in all models reported in Table 2. In addition, I include a dummy variable controlling for survey-year in the CCES model. The ANES models report standard errors that are clustered by state while the CCES model reports standard errors that are clustered by county. Wild cluster bootstrap z statistics are reported in brackets below the coefficients.

All models in Table 2 find a negative relationship between historic levels of slavery and social capital. Looking first at membership in civic organizations, I find evidence of a significant decline in the probability of civic organization membership in states with high levels of historic slavery. In the logistic regression moving from the minimum to the maximum observed level of

historic slavery is associated with a 15 percent decrease in the likelihood that a respondent is a member of a civic organization. The ordered logistic regression reports a similar finding, indicating a 14 percent drop in the likelihood a respondent will be a member of any civic organization when residing a state with high levels of historic slavery. Urbanity is also negatively associated with civic organization membership in both models.

Turning to the meeting attendance measure of social capital, I again find evidence of meeting membership decreases in the in areas with historic slavery. The ANES model finds a negative albeit marginally significant association of slavery on meeting attendance. Moving from the minimum to the maximum observed levels of historic slavery is associated with a 3.2 percent decrease in the probability of meeting attendance in the ANES model. The model leveraging county-level CCES finds a negative and significant relationship between historic slavery and social capital. Moving from a county with none of its population in slavery to the county with the highest proportion of its population in slavery—91 percent—is associated with a 4 percent decrease in the probability of a respondent attending a local meeting. The probability of a respondent attending a meeting is low—a respondent residing a county with no history of slavery only has an 18-percentage point probability of attending a local meeting on average—evidence that the impact of slavery is substantively significant. Overall, the data find further support for the hypothesis that second slavery is negatively associated with present day social capital.

[Table 2 about here]

Is Social Capital's Decline Linked to Inequality or Attitudes?

Finding a negative association between second slavery and social capital, I now test whether this association is attributable to historic inequality or mass political attitudes using 1860 US census data.

To compare the hypotheses, I adapt the analyses presented in Nunn (2008a). To achieve this, I introduce three new independent variables—two of these variables measure the inequality hypothesis and were used by Nunn, while the third variable captures the attitudinal hypothesis. Throughout the section, the dependent variable in the analyses remains social capitol measured as interpersonal trust (*Trust in People*). The variable is measured identically as the US logit model presented previously in the paper – a dichotomous measure, coded one if a respondent feels that "in general most people can be trusted" and a zero if they feel that "can't be too careful".

The first independent variable is a Gini coefficient of land inequality in 1860 averaged by state (*Gini coefficient of inequality (1860)*). The 1860 US census recorded the acreage sizes of all farms in each state. The variable is bounded between 0 and 1. If all farms within a state were the same size the Gini coefficient would be zero while states with a broader range of farm acreages – many small and a few large farms – will report a higher Gini coefficient. The inequality hypothesis predicts that past inequality leads to lower modern social capital.

The inequality hypothesis also predicts that a dependence on plantation slavery is what allowed for the depression of social capital. The second independent variable captures the scope of plantation slavery at the state level—the ratio of slaves on holdings of ten or more slaves at the time of the 1860 Census (*Slaves on holdings with 10+ / Total population (1860)*.[6] The inequality hypothesis predicts a negative relationship between large scale, plantation slavery and social capital.

The third independent variable operationalizes the attitudinal hypothesis, measured as the number of lynchings that occurred in each state in the period following the abolition of slavery (*N. of lynchings (100s)*). The variable is a direct measure of the violence and upheaval surrounding the societal reorganization due to slavery as postulated by Acharya et al. (2016). The attitudinal hypothesis would predict a negative association between past upheaval and social capital.

In Table 3, I model three logistic regressions evaluating the inequality and the attitudinal hypotheses. In the first model, the independent variable of interest is the state level Gini coefficient of land inequality in 1860, the second model includes the measure of plantation slavery, and the third measure includes the measure of lynchings. In addition, all models also include the previously leveraged measure of ratio of the population enslaved in 1860 and the same collection of state and respondent level covariates as in previously reported models. Models are estimated with both robust standard errors clustered by state and with the wild cluster bootstrap z statistics.

The results reported in Table 3 find evidence that attitudes – not inequality – are associated with the decline of social capital. In the first model, the Gini coefficient of historic land inequality is negative but fails to reach conventional levels of statistical significance. Moreover, the coefficient for the ratio of the enslaved population, while marginally significant, is still negatively associated with interpersonal trust.

The second model finds a similar result. The coefficient which measures the scope of plantation scale slavery is negative but fails to be significantly associated with present day interpersonal trust. In this model, the ratio of the population in slavery also fails to be associated with social capital. Together, both models do not find support for the inequality hypothesis.

The third model finds support for the attitudinal hypothesis. The number of lynchings is negatively associated with interpersonal trust. The finding is substantively significant – on average the addition of one hundred lynchings in a state is associated with a 3.6 percent decrease that an individual will indicate that most people can be trusted, with all other variables held at their means.

Across models, historical population density is negatively and significantly associated with modern interpersonal trust. Furthermore, present day urbanity is not significantly associated with present day levels of interpersonal trust. Finally across the three models, the attitudinal model reports the lowest AIC and BIC, suggesting that this particular hypothesis does a better job of fitting the data than either of the inequality models.

.

[Table 3 about here]

The results from Table 3 find support for the attitudinal hypothesis. It is mass political attitudes, not inequality, which is associated with a decrease in modern social capital. In Table 4, I present the results of a series of Clarke tests for non-nested model selection (Clarke 2003, 2007). This nonparametric test is implemented by calculating the log-likelihoods of each observation in the sample based on each of the two non-nested models. A simple paired sign test applied to the observations-specific differences in the log-likelihoods from the two models indicates whether one model fits the data significantly better. Compared to the suite of similar tests, the Clarke test is the most appropriate choice to assess model fit for this particular data as the distributions of the log-likelihood differences is leptokurtic in the models (see Appendix D).

I produce a series of five comparisons in Table 4. The first three tests examine fit between each model reported in Table 3 against the model of slavery and social capital reported in Table 1. The null hypothesis is that each model represents the 'true' underlying data generating process equally well. When the observed number of log-likelihoods is higher than the expected number of log-likelihoods, this is evidence that the alternative model better fits the data generating process than the stand-alone measure of slavery model. Conversely, when the observed number of log-likelihoods is lower than the expected number of log-likelihoods, this is evidence of the reverse – that the original specification in Table 1 does a better job of fitting the data generating process of modern social capital.

The Clarke test indicates that the attitudinal model fits that data better than the institutional depth of slavery model and the difference is significant at the one percent level. I observe a different relationship when examining the two inequality models. The Land Gini model is inconclusive -- fitting the data generating process of social capital neither better nor worse than the depth of slavery model. The plantation slavery model is substantively weaker, in this comparison against the depth of slavery model the measure of plantation slavery reports a significantly lower number of observed log-likelihoods compared to the expected number. This suggests that the depth of slavery model does a better job of fitting the data than the plantation slavery model.

I can also test the model specification against one another. This is reported in the final two Clarke tests assessing the attitudinal specification against both inequality specifications. In both tests, I find evidence for the attitudinal model over either inequality measure. Table 4, thus suggests that: the attitudinal model does a better job of explaining modern levels of social capital than the depth of slavery model. The inequality models are, at best, indistinguishable or, at worst,

explain levels of modern social capital worse than the depth of slavery model; and the attitudinal model fits the data consistently better than the either measure of inequality[7].

[Table 4 about here]

These results provide further validity to the historical institutions analysis and provide insight into how social capital decreased in response to slavery. The preponderance of evidence suggests that mass political attitudes, not past inequality, are associated with social capital's decline.

Discussion

Putnam was correct in asserting that slavery in the nineteenth century negatively affects social capital. Regions in which second slavery predominated exhibit significantly lower social capital today compared to regions that had a limited history of slavery. Furthermore, tests of the linkages indicate that the decline of social capital is attributable to a change in mass political attitudes surrounding slavery's demise.

This study expands upon other recent examinations on the historical legacy of slavery. While previous studies have focused on slavery's role in future economic performance or inequality, this paper demonstrates that – under the appropriate historical contexts – slavery also sizably decreased social capital. This study thus helps identify how social capital developed. Furthermore, the paper adds to the recent spate of research identifying how the American South developed unique institutions relative to other geographic areas of the US.

While the focus of this paper is examining the long-run effects of slavery at a more aggregate level, this does not mean that slavery did not affect social cohesion at the interpersonal and kinship level. Slavery was an entrenched institution that influenced an individual's experiences with economic (Einhorn 2006), inequality (Wright 2006), political, and cultural norms (Merrit 2017), and the topic warrants further study.

Additional scholarship must also contend with how to measure social capital cross-nationally. I used a conceptualization of social capital measured as interpersonal trust in line with many previous studies that have used the same measure (for example, Kawachi et al. 1999; Knack 2002). However, social capital, and more broadly trust, is a multifaceted concept that is difficult to measure with large amounts of variation (Delhey, Newton, and Welzel 2011). Scholars have yet to come to a consensus on how to measure trust and what survey questions best estimate the underlying concept (Gleaser et al. 2000; Bjørnskov 2007). Using interpersonal trust as a measure of social capital in this paper is an adequate first attempt at studying this question, and the reported results are robust to other measures of social capital. Still, future research needs to estimate additional conceptualizations of social capital and determine how variation in the measurement of social capital affects the theory.

This study evaluates two prominent theories in the social science literature leveraged to explain slavery's long run effects. However, the analysis of pathways is this paper is not exhaustive. Future scholarship should work to identify if other pathways exist in explaining slavery's effect on social capital. One pathway worth exploring is slavery's effect on social capital vis-a-vis diversity. However, a number of theoretical obstacles need to be overcome before this potential hypothesis could be evaluated (see discussion in Van der Meer and Tolsma 2014). Scholars should also examine how the negative association between slavery and social

capital is moderated and what potential remedies can be implemented to increase social capital in regions where slavery predominated.

How slavery influenced modern political institutions is an intricate relationship. Yet, this study finds that second slavery remains capable of casting a long shadow and its impact is still observed today.

Notes

[1] The wild cluster bootstrap evaluates inference using a cluster bootstrap-t procedure that accounts for with-in group dependence in estimating standard errors. The typical solution with clustered data is to estimate cluster-robust standard errors (CRSE). However, CRSE may over-reject the null hypothesis when the number of clusters is small (~35). The wild cluster bootstrap is an estimation technique that relaxes some of the resampling and replacement procedures of a traditional bootstrap. The wild cluster bootstrap preforms quite well, even when the number of clusters is as low as six.

[2] These findings remain similar even when interacting respondents' race with historic slavery. Regardless of a race, slavery decreases all respondents' level of social capital by a similar level.

[3] A reviewer suggested a subsample analysis of Tables 1 and 2 limited to southern states. A subsample of Table 2 is impractical with only one wave of ANES data. Following recommendations provided in Esarey and Menger (2018), a subset analysis included so few regions is discouraged. However, a replication of data specified as random effects logistic regressions is generally supportive of the findings.

[4] In Figure 3, US slavery is bounded between 0 and 0.58. For Brazil, slavery is bounded between 0 and 0.37.

[5] The CCES is national stratified sample survey administered by YouGov. Conducted every two years, the survey asks a series of questions surrounding demographics, politics and public policy.

[6] The selection of 10 or more slaves is a replication of the coding scheme presented in Nunn (2008a). I use 10 or more slaves on a farm as a measure of plantation slavery as the 1860 US Census categorizes the number of slaves held on farms, with 10 or more representing the largest category.

[7] In addition to the discrimination tests. I also perform a mediation analysis on each hypothesis. The results of the mediation analysis comport with the findings of the discrimination tests. However, mediation analysis relies on a strict set of assumptions that are challenging to prove in observation studies and indications are that this particular set of data is sensitive to potential confounders. A discussion of the assumptions, findings, and sensitivity of mediation results can be found in Appendix E.

References

Andrews, Rhys. 2011. "Exploring the impact of community and organizational social capital on government performance: Evidence from England." *Political Research Quarterly,* 64(4): 938-949.

Acemoglu, Daron, Simon Johnson and James A. Robinson. 2000. "The Colonial Origins of Comparative Development: An empirical investigation. Technical report, *National Bureau of Economic Research*.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. Reversal of Fortune: Geography and institutions in the making of the modern world income distribution. *The Quarterly Journal of Economics,*.117(4):1231–1294.

Acemoglu, Daron, Camilo Garcia-Jimeno and James A. Robinson. 2012. "Finding Eldorado: Slavery and long-run development in Colombia." *Journal of Comparative Economics.* 40 (4) 534-564.

Acemoglu, Daron, Simon Johnson and James A. Robinson. 2012. "The Colonial Origins of Comparative Development: An Empirical Investigation: Reply." *The American Economic Review.* 102 (6) 3077-3110.

Acharya, Avidit, Matthew Blackwell, and Maya Sen. 2016. "The political legacy of American slavery." *The Journal of Politics.* 78 (3): 621-641.

Acharya, Avidit, Matthew Blackwell, and Maya Sen. 2018a. *Deep Roots: How Slavery Still Shapes Southern Politics*. Princeton University Press.

Acharya, Avidit, Matthew Blackwell, and Maya Sen. 2018b. " Explaining Preferences from Behavior: A Cognitive Dissonance Approach." *Journal of Politics.* 80(2): 400-411.

Arceneaux, Kevin and David W. Nickerson. 2009. ``Modeling Certainty with Clustered Data: A Comparison of Methods." *Political Analysis* 17: 177-190.

Atlas of Industrializing Britain, 1780-1914. 1986. eds. John Langton and R.J. Morris (New York: Methum), p.*xxx*.

Banerjee, Abhijit, and Lakshmi Iyer. (2005). History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India. *The American Economic Review.* 95(4):1190–1213.

Bergad, Laird. 2007. *The comparative histories of slavery in Brazil, Cuba, and the United States*. Cambridge University Press.

Beyerlein, Kraig, and John R. Hipp. 2005. "Social capital, too much of a good thing? American religious traditions and community crime." *Social Forces* 84 (2): 995-1013.

Bowles, Samuel. (1998). "Endogenous preferences: The cultural consequences of markets and other economic institutions." *Journal of Economic Literature*. 36(1):75–111.

Brehm, John, and Wendy Rahn. 1997. "Individual-Level Evidence for the Causes and Consequences of Social Capital." *American Journal of Political Science* 41 (3) 999-1023.

Bjørnskov, Christian. 2007 "Determinants of generalized trust: A cross-country comparison." *Public Choice*. 130(1): 1-21.

Cigler, Allan, and Mark R. Joslyn. 2002. "The extensiveness of group membership and social capital: The impact on political tolerance attitudes." *Political Research Quarterly* 55(1): 7-25.

Clarke, Kevin A. 2003. "Nonparametric model discrimination in international relations." *Journal of Conflict Resolution* 47 (1): 72-93.

Clarke, Kevin A. 2007. "A simple distribution-free test for nonnested model selection." *Political Analysis* 15 (3): 347-363.

Curtis, Katherine J., and Heather A. O'Connell. 2017. "Historical Racial Contexts and Contemporary Spatial Differences in Racial Inequality." *Spatial Demography* 5 (2): 73-97.

Darden, Keith and Anna Grzymala-Busse. 2006. "The Great Divide: Literacy, Nationalism, and the Communist Collapse." *World Politics*. 59(1):83–115.

Delhey, Jan, Kenneth Newton, and Christian Welzel. 2011. "How general is trust in 'most people'? Solving the radius of trust problem." *American Sociological Review* 76 (5): 786-807.

De Juan, Alexander, and Jan Henryk Pierskalla. 2016 "Civil war violence and political trust: Microlevel evidence from Nepal." *Conflict Management and Peace Science* 33 (1): 67-88.

De Tocqueville, Alexis. 203 [1835]. *Democracy in America*. Vol. 10. Regnery Publishing.

Dimico, Arcangelo, Alessia Isopi, and Ola Olsson. 2017. "Origins of the Sicilian Mafia: The Market for Lemons." *The Journal of Economic History*. 77(4): 1083-1115.

Einhorn, Robin L. 2006. *American Taxation, American Slavery*. University of Chicago Press.

Eltis, David. 2001. "The volume and structure of the transatlantic slave trade: a reassessment." *The William and Mary Quarterly*. 58(1): 17-46.

Engerman, Stanley. L. and Kenneth L. Sokoloff. 1997. "Factor endowments, institutions, and differential paths of growth among new world economies." *How Latin America Fell Behind*, pages 260–304.

Esarey, Justin, and Andrew Menger. 2018. "Practical and effective approaches to dealing with clustered data." *Political Science Research and Methods* 6(1): 1-19.

Fernandez, Roberto M., Emilio J. Castilla, and Paul Moore. 2000. "Social capital at work: Networks and employment at a phone center." *American Journal of Sociology* 105 (5): 1288-1356.

Fukuyama, Francis (1995). *Trust: The social virtues and the creation of prosperity*. Number D10 301 c. 1/c. 2. Free Press Paperbacks.

Glaeser, Edward L. and Andrei Shleifer. 2002. "Legal origins." *The Quarterly Journal of Economics*, 117(4):1193–1229.

Glaeser, Edward L., David I. Laibson, Jose A. Scheinkman, and Christine L. Soutter. 2000 "Measuring Trust." *The Quarterly Journal of Economics*. 115(3): 811-846.

Godefroidt, Amélie, and Arnim Langer. 2018. "How Fear Drives Us Apart: Explaining the Relationship between Terrorism and Social Trust." *Terrorism and Political Violence* (1): 1-24.

Grosjean, Pauline. 2014. "Conflict and social and political preferences: Evidence from World War II and civil conflict in 35 European countries." *Comparative Economic Studies* 56 (3): 424-451.

Harir, Jacob G. 2012. "The Autocratic Legacy of Early Statehood." *American Political Science Review*. 106 (3): 471-494.

Hood III, M.V., Quentin Kidd, and Irwin L. Morris. 2014. *The Rationalizing Southerner: Black Mobilization, Republican Growth, and the Partisan Transformation of the American South*. Oxford University Press.

Imai, Kosuke, Luke Keele, Dustin Tingley, and Teppei Yamamoto. 2011. "Unpacking the black box of causality: Learning about causal mechanisms from experimental and observational studies." *American Political Science Review*. 105(4): 765-789.

Kawachi, Ichiro, Bruce P. Kennedy, and Roberta Glass. 1999. "Social capital and self-rated health: a contextual analysis." *American Journal of Public Health*. 89(8):1187-1193.

Key, Vincent. O. 1949. *Southern politics in state and nation*. Alfred Knopf.

Klein, Herbert S. 2010. *The Atlantic Slave Trade*. Cambridge University Press.

Klein, Herbert S., and Francisco Vidal Luna. 2010. *Slavery in Brazil*. Cambridge University Press.

Knack, Stephen. 1992. "Civic Norms, Social Sanctions, and Voter Turnout." *Rationality and Society* 4 (2) 133-56.

Knack, Stephen. 2002. "Social Capital and the Quality of Government: Evidence from the States." *American Journal of Political Science*. 46 (4) 772-785.

Knack, Stephen. and Phillip Keefer. 1997. "Does social capital have an economic payoff a cross-country investigation." *The Quarterly Journal of Economics*. 112(4):1251–1288.

Knack, Stephen. And Paul J. Zak. 2003. "Building trust: public policy, interpersonal trust, and economic development." *Supreme Court Economic Review*, 10:91–107.

Kuran, Timur. 2004. "Why the Middle East is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation." *The Journal of Economic Perspectives*. 18 (3): 71-90.

Kwon, Seok-Woo, Colleen Heflin, and Martin Ruef. 2013. "Community social capital and entrepreneurship." *American Sociological Review* 78 (6): 980-1008.

Merritt, Keri Leigh. 2017. *Masterless Men: Poor Whites and Slavery in the Antebellum South*. Cambridge University Press.

Mickey, Robert. 2015. *Paths Out of Dixie: The Democratization of Authoritarian Enclaves in America's Deep South, 1944-1972*. Princeton University Press.

Mishler, William and Richard Rose. 2001. "What are the origins of political trust? Testing institutional and cultural theories in post-communist societies." *Comparative Political Studies*. 34(1):30–62.

Mishler, William, and Richard Rose. 2005. "What are the political consequences of trust? A test of cultural and institutional theories in Russia." *Comparative Political Studies*. 38(9): 1050-1078.

Moore, Barrington. 1993. *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*, volume 268. Beacon Press.

North, Douglas C. 1990. *Institutions, institutional change, and economic performance.* Cambridge University Press.

Nunn, Nathan. 2008. "Slavery, inequality, and economic development in the Americas." *Institutions and economic performance*, pages 148–180.

Nunn, Nathan. 2008 b. "The Long-Term Effects of Africa's Slave Trades". *Quarterly Journal of Economics*, 123 (1): 139-176.

Nunn, Nathan and Wantchekon, Leonard. 2011. "The slave trade and the origins of mistrust in Africa." *The American Economic Review*, 101(7):3221–3252.

O'Connell, Heather A. 2012. "The impact of slavery on racial inequality in poverty in the contemporary US South." *Social Forces* 90 (3): 713-734.

Pop-Elches, Grigore. 2007. "Historical Legacies and Post-Communist Regime Collapse." *The Journal of Politics*. 69 (4): 908-926.

Putnam, Robert D. 2001a. Social capital: Measurement and consequences. *Canadian Journal of Policy Research*, 2(1), 41-51.

Putnam, Robert D. 2001b. *Bowling alone: The collapse and revival of the American community*. Simon and Schuster.

Putnam, Robert. D., Robert Leonardi, and Raffaella Y. Nanetti. 1994. *Making democracy work: Civic traditions in modern Italy*. Princeton university press.

Reece, Robert L., and Heather A. O'Connell. 2016. "How the legacy of slavery and racial composition shape public school enrollment in the American South." *Sociology of Race and Ethnicity* 2 (1): 42-57.

Rohner, Dominic, Mathias Thoenig, and Fabrizio Zilibotti. 2013. "Seeds of distrust: Conflict in Uganda." *Journal of Economic Growth* 18, (3): 217-252.

Rosenfeld, Richard, Eric P. Baumer, and Steven F. Messner. 2001. "Social capital and homicide." *Social Forces* 80 (1): 283-310.

Rothstein, Bo and Eric M. Uslaner. 2005. "All for all: Equality, corruption, and social trust." *World Politics* 58 (1): 41-72.

Skocpol, Theda. 1979. *States and Social Revolutions: A Comparative Analysis of France, Russia, and China*. Cambridge: Cambridge University Press.

Sokolof, Kenneth. L. and Stanley Engerman. 2000. "History lessons: Institutions, factors endowments, and paths of development in the new world." *The Journal of Economic Perspectives*, 14(3):217–232.

Soss, Joe, and Lawrence R. Jacobs. 2009. "The place of inequality: Non-participation in the American polity." *Political Science Quarterly* 124 (1): 95-125.

Tavits, Margit. 2006. "Making democracy work more? Exploring the linkage between social capital and government performance." *Political Research Quarterly*. 59(2): 211-225.

Teachman, Jay D., Kathleen Paasch, and Karen Carver. 1997. "Social capital and the generation of human capital." *Social Forces* 75 (4): 1343-1359.

Tomich, Dale W. 2004 *Through the Prism of Slavery: Labor, Capital, and World Economy.* Rowman & Littlefield Publishers.

Transatlantic Slave Trade Database, 2006, www.slavevoyages.org/assessment/estimates.

Uslaner Eric M. 2002. *The Moral Foundations of Trust*. Cambridge, UK: Cambridge University Press.
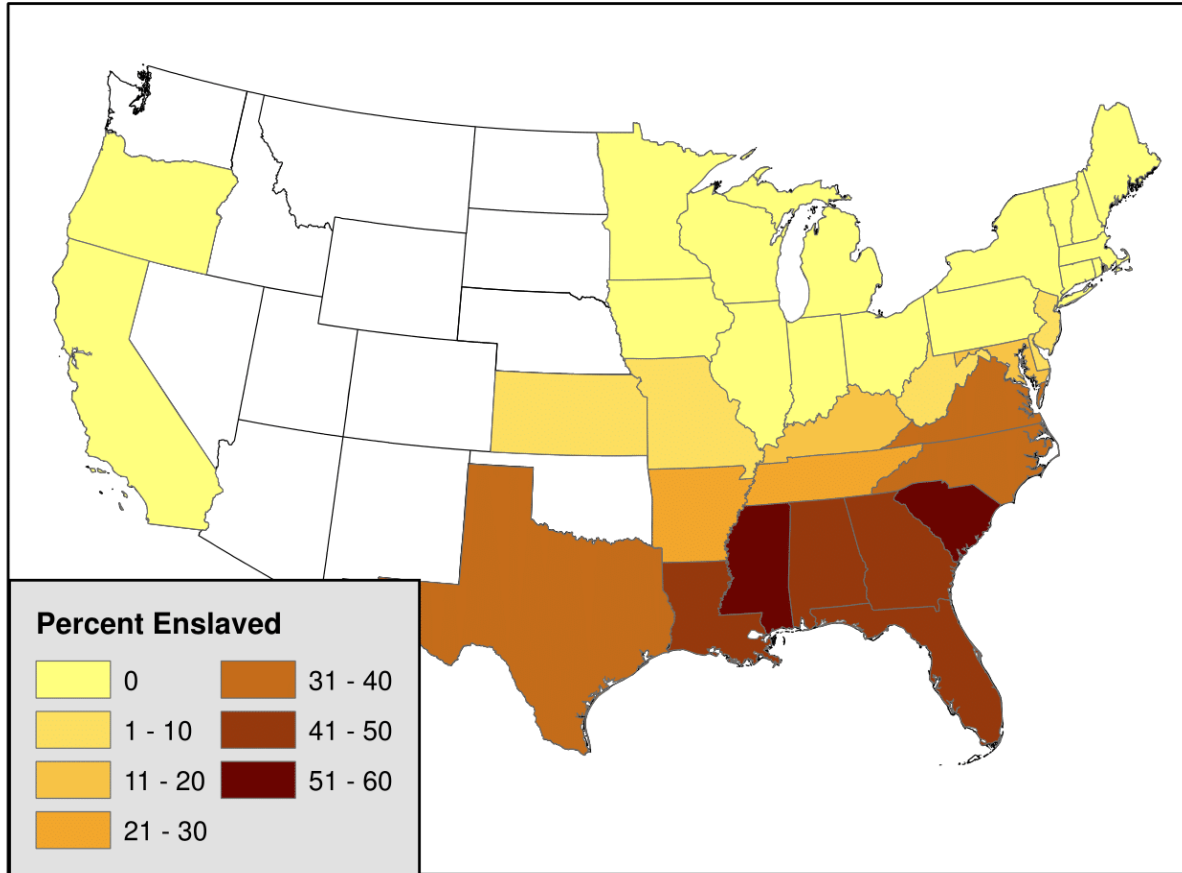
Van der Meer, Tom, and Jochem Tolsma. 2014. "Ethnic diversity and its effects on social cohesion." *Annual Review of Sociology* 40 (1): 459-478.

Wright, Gavin. 2006. *Slavery and American Economic Development*. Louisiana State University Press

Figure 1a: United States

N

Distribution of historical slavery

Percent Enslaved

	0		31 - 40
	1 - 10		41 - 50
	11 - 20		51 - 60
	21 - 30		

Distribution of modern social capital

Percent trusting

	0 - 35
	36 - 45
	46 - 55
	56 - 65
	66 - 100
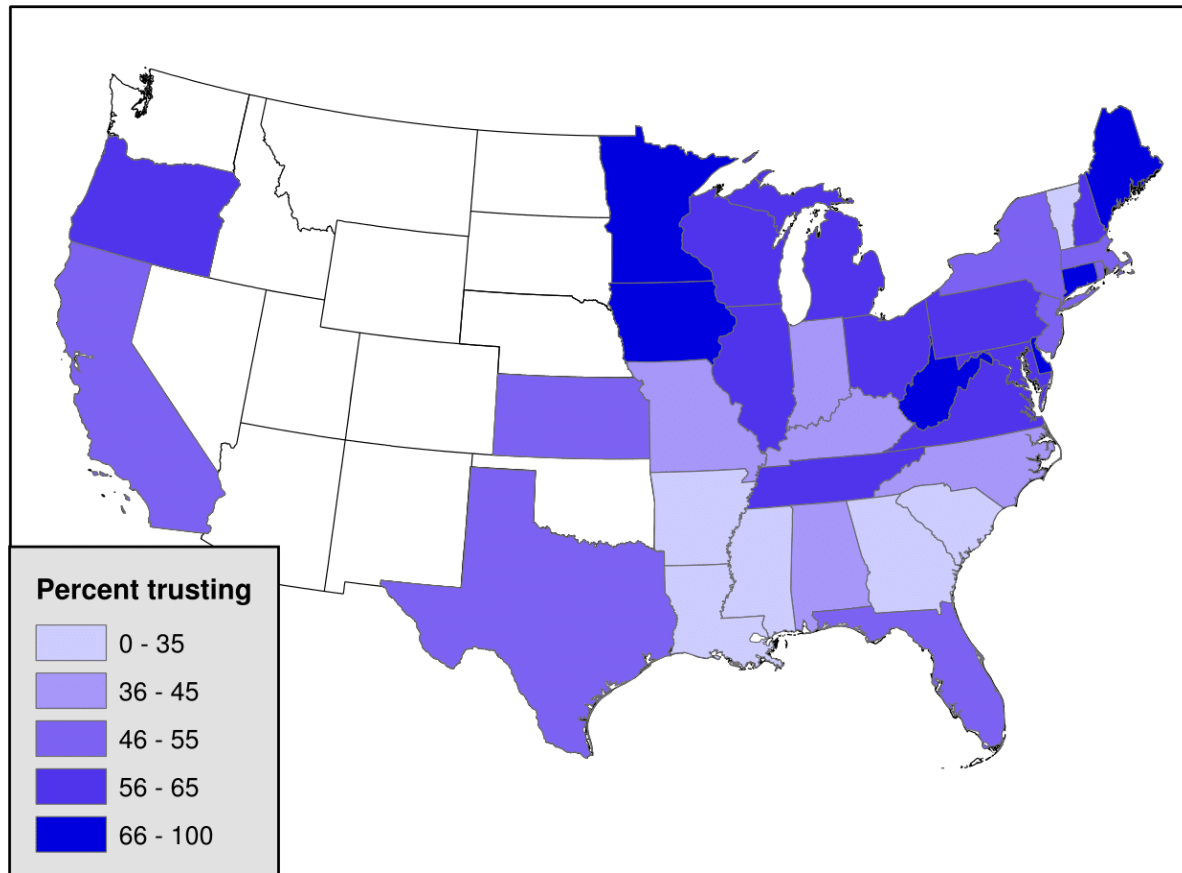
Figure 1b: Brazil

Distribution of historical slavery

Percent enslaved

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- 26 - 40

Distribution of modern social capital

Percent trusting

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
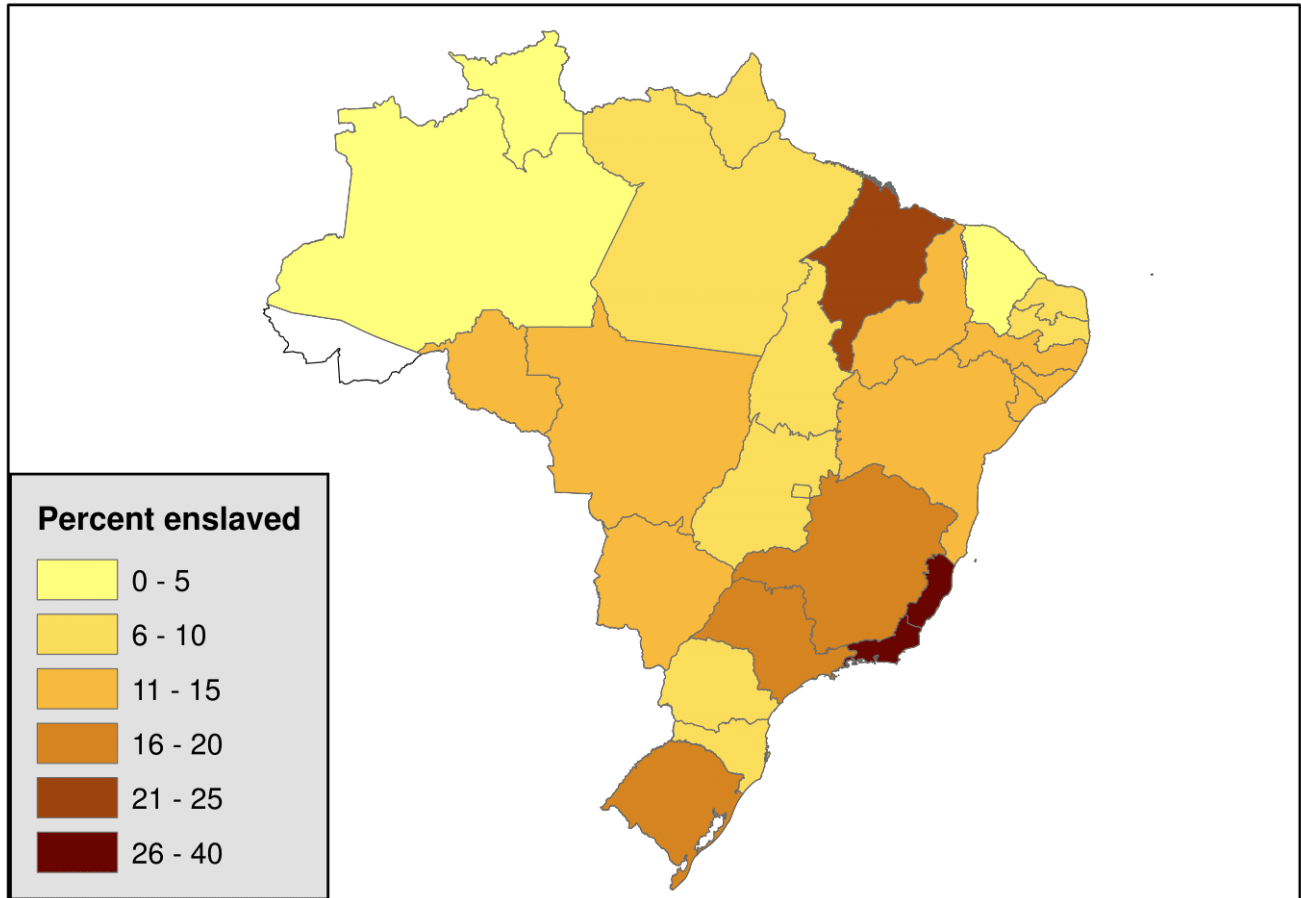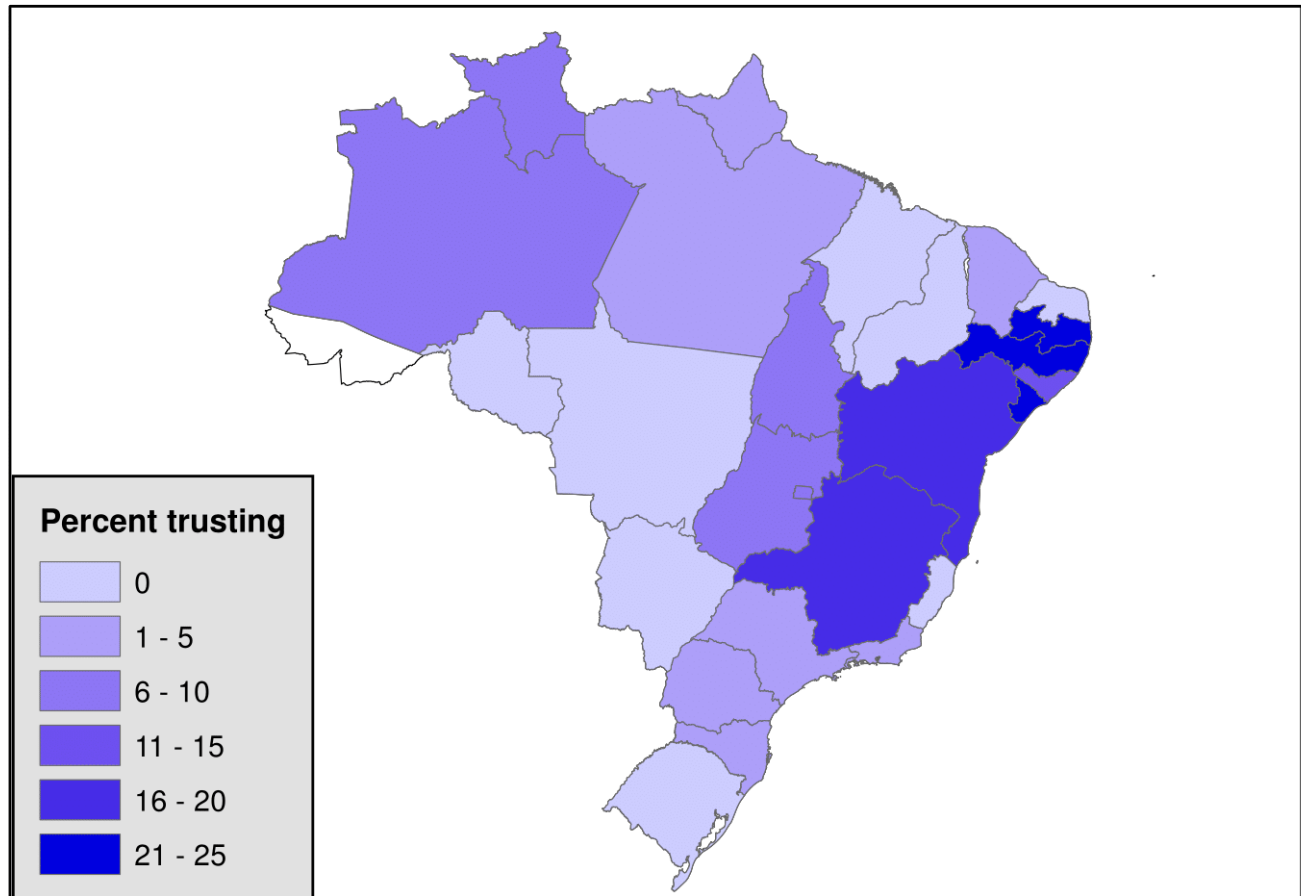
Figures 1a & 1b notes: All maps use Albers Equal Area Conic projections. Legends are independently scaled due to unique differences in subnational variation to each nation. US trust measures are coded using 2000 ANES data. Uncolored states in maps reflect subnational units that were not used in analysis. In the US the 35 existing states at the time of the 1860 census are included. In Brazil Acre was excluded from analysis as geographic boundaries were disputed and subsequently changed in the 1899 Acre War. Additionally, Brazil went through a series of administrative restructurings in which states were subdivided. In cases where states were subdivided, respondents from new states are grouped with the historic 'parent' state. Coding decisions for Brazil can be found in supplemental appendix A, Figure A2.

Figure 2: Bivariate relationship between a state's average interpersonal trust and scope of slavery in the US and Brazil.
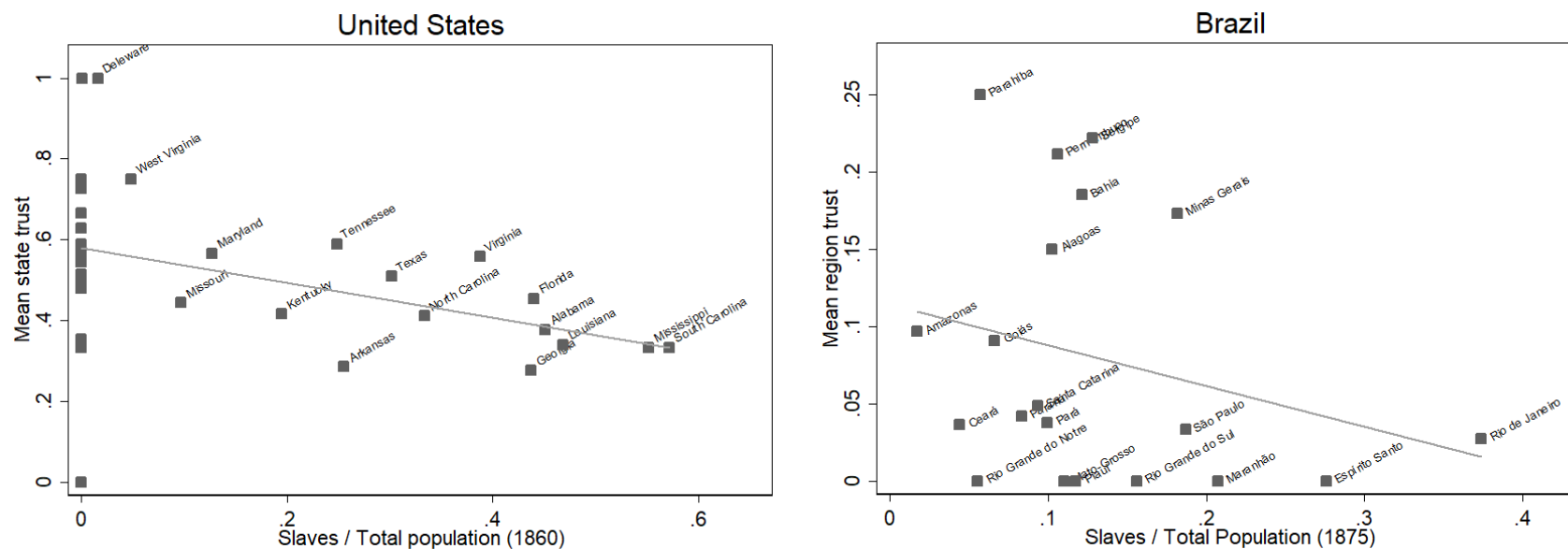
Notes: States with less than half of one percent of their population enslaved are unlabeled. US plotted using 2000 ANES data only.

Figure axes are not scaled identically between graphs.

Figure 3: Predicted probabilities of interpersonal trust in the US and Brazil over observed levels of slavery
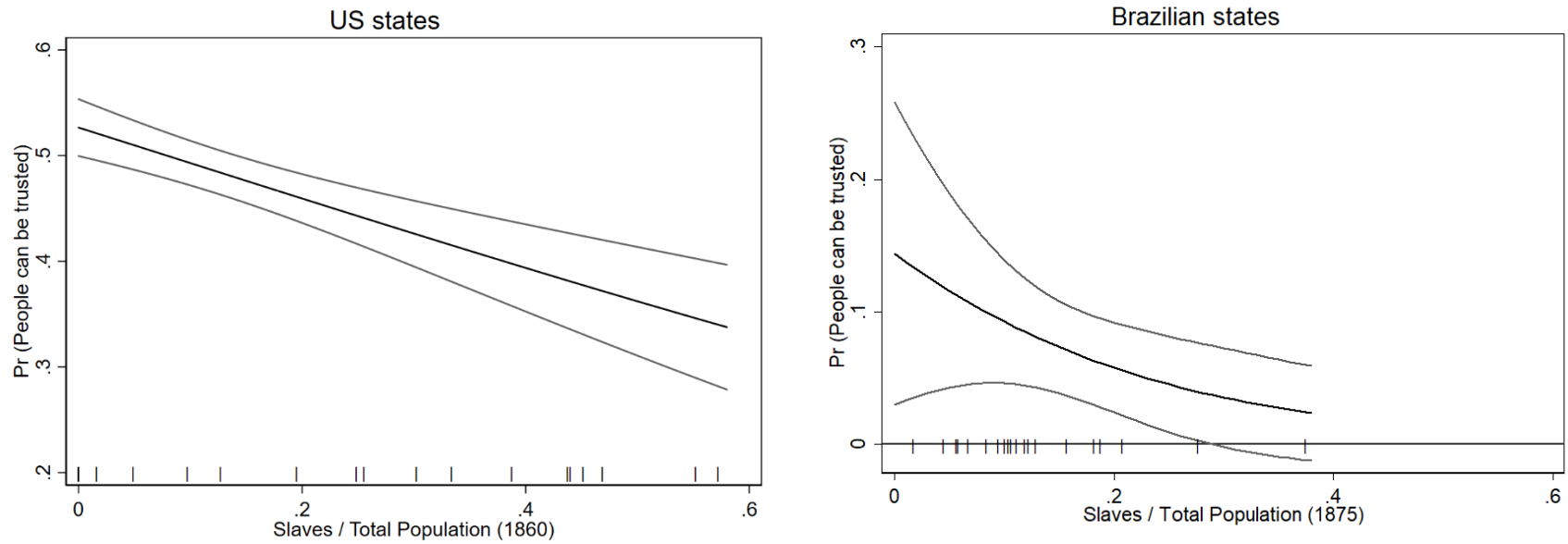
Notes: 95% confidence intervals. Graphs scaled along x-axis. The rug plot indicates a states' level of slavery at the time of the historic census.

Table 1: Extent of historical slavery and modern social capital

	DV: Trust in People:	
	Logit (United States)	Logit (Brazil)
State covariates		
Slaves / Total population (1860)	-1.345** (0.281) [-3.482]	
Slaves / Total population (1875)		-5.392* (3.223) [-2.038]
Population density (1860)	-0. 229* (0.122) [1.324]	
Population density (1872)		0. 135 (0. 084) [2.010]
Percent state population urban	-0.014** (0.004) [-3.037]	
State Area (sq. km.)	0.001** (0.000) [1.557]	0.000 (0.000) [0.805]
Controls	Yes	Yes
Constant	-3.399** (0.815)	-2.846* (1.217)
N. of cases	2293	1185
AIC	2872.018	594.293
BIC	3032.671	690.766

Notes: + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ one tailed tests. AIC (Akaike information criterion), BIC (Bayesian information criterion). Standard errors clustered on 35 states (US) and 20 states (Brazil). Wild cluster bootstrap z statistic reported in brackets. Individual level covariates include: respondent race, gender, age, age squared, education, religiosity, income, occupation, and urbanity (Brazil only). Variable definitions and summary statistics can be found in Appendix A. Full model specified in Appendix B. Results are robust to mixed-effects logistic regression (see Appendix C).

Table 2: Slavery decreases social capital – alternative specifications

Data Source	ANES			CCES
Dependent Variable	Civic Organization		Attends Local Meetings	
	Logit (Is a member of Civic Organization)	Ordered Logit (N. of Civic Organizations)	Logit (Attended Local Meeting)	Logit (Attended Local Meeting)
State/county covariates				
Slaves / Total population (1860)	-1.167**	-1.111**	-1.364+	-0.361**
	(0.342)	(0.314)	(0.934)	(0.067)
	[-2.651]	[-2.769]	[-1.425]	[-5.124]
Population density (1860)	0.228	0.282	-0.654	-0.001**
	(0.228)	(0.181)	(0.719)	(0.000)
	[1.147]	[1.652]	[-0.842]	[-1.113]
Pct. region population urban	-0.016**	-0.017**	-0.032**	-0.006**
	(0.006)	(0.006)	(0.016)	(0.000)
	[-2.056]	[-2.301]	[-1.817]	[-9.286]
Region Area (sq. km.)	0.000	0.000	-0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
	[0.918]	[0.831]	[0.391]	[2.933]
Controls	Yes	Yes	Yes	Yes
Survey-year Controls	-	-	-	Yes
Constant	-1.981	-	-3.559*	-3.994**
	(0.702)		(1.852)	(0.157)
$\tau = 1$		2.001		
		(0.654)		
$\tau = 2$		2..958		
		(0.670)		
$\tau = 3$		3.907		
		(0.670)		
$\tau = 4$		4.735		
		(0.665)		
$\tau = 5$		5.389		
		(0.659)		
N. of cases	1358	1358	1324	89,132
AIC	1722.486	3222.230	1521.278	75783.361
BIC	1910.340	3410.138	1708.868	76234.459

Notes: $+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, one-tailed tests. AIC (Akaike information criterion), BIC (Bayesian information criterion). Standard errors are clustered on 35 states in ANES models and 1,941 counties in the CCES model. Wild cluster bootstrap z statistic reported in brackets. Covariates are measured at the state-level in the ANES model and measured at the county-level in

the CCES model. Individual level covariates include: respondent race, gender, age, age squared, education, religiosity, income, and occupation. Variable definitions and summaries can be found in Appendix A. Full model specifications in Appendix B. Results are robust to mixed-effect specification, located in Appendix C.

Table 3: Attitudes, Not Inequality is Associated with Social Capital

	Logit (Land Gini)	Logit (Plantation Slavery)	Logit (Attitudes)
		DV: Trust in People:	
State covariates			
Gini coefficient of inequality (1860)	-0.451		
	(2.121)		
	[-0.215]		
Slaves on holdings with 10+ / Total population (1860)		-2.681	
		(4.023)	
		[-0.638]	
N. of lynchings (100s)			-0.168**
			(0.030)
			[-2.252]
Slaves / Total population (1860)	-1.272**	0. 749	-0.095
	(0.418)	(3.052)	(0.301)
	[-2.368]	[0.820]	[-0.292]
Population density (1860)	0.226+	-0. 194	0.292*
	(0.007)	(0. 140)	(0.127)
	[1.267]	[1.060]	[3.811]
Percent state population urban	-0.013+	-0.013**	-0.018**
	(0.006)	(0.005)	(0.004)
	[-1.780]	[-2.464]	[-1.502]
State Area (sq. km.)	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
	[1.573]	[0.077]	[1.781]
Individual Controls	Yes	Yes	Yes
Constant	-2.799**	-3.428**	-1.311*
	(1.033)	(0.827)	(0.588)
N. of cases	2293	2293	2293
AIC	2873.954	2873.462	2864.778
BIC	3040.345	3039.853	3031.169

Notes: + p < 0.10, * p < 0.05, ** p <0.01. AIC (Akaike information criterion), BIC (Bayesian information criterion). Standard errors clustered on 35 states presented in parentheses. Wild cluster bootstrap z statistic reported in brackets. Individual level covariates include: respondent race, gender, age, age squared, education, religiosity, income, and occupation. Variable definitions and summary statistics can be found in Appendix A. Full model specified in Appendix B. Results are robust to mixed-effects logistic regression (see Appendix C).

Table 4: Results of Discrimination Tests

Model Comparison	Expected higher log-likelihoods	Observed higher log-likelihoods	P-value H_0: median of differences $= 0$
Models Compared Against Depth of Slavery Alone:			
Attitudes	1146.5	1210	0.009
Land Gini	1146.5	1169	0.358
Plantation Slavery	1146.5	1087	0.014
Models Compared Against Each Other:			
Attitudes *v.* Land Gini	1146.5	1206	0.014
Attitudes *v.* Plantation Slavery	1146.5	1203	0.019

Notes: Clarke discrimination tests. Two tailed tests reported in the right-hand column.