Institution Shocks and the Dynamics of Wealth Distribution. Did the Abolition of U.S. Slavery Reduce Wealth Inequality?

Mattia Fochesato
Samuel Bowles

SFI WORKING PAPER: 2017-02-004

SFI Working Papers contain accounts of scientific work of the author(s) and do not necessarily represent the views of the Santa Fe Institute. We accept papers intended for publication in peer-reviewed journals or proceedings volumes, but not papers that have already appeared in print. Except for papers by our external faculty, papers must be based on work done at SFI, inspired by an invited visit to or collaboration at SFI, or funded by an SFI grant.

©NOTICE: This working paper is included by permission of the contributing author(s) as a means to ensure timely distribution of the scholarly and technical work on a non-commercial basis. Copyright and all rights therein are maintained by the author(s). It is understood that all persons copying this information will adhere to the terms and constraints invoked by each author’s copyright. These works may be reposted only with the explicit permission of the copyright holder.

www.santafe.edu
Institution Shocks and the Dynamics of Wealth Distribution.

Did the Abolition of U.S. Slavery Reduce Wealth Inequality?

Mattia Fochesato○ and Samuel BowlesΔ

12 February 2017

Abstract

Identifying the effect of economic institutions on the distribution of wealth and income is challenging because exogenous differences or changes in institutions rarely are observed. We investigate the effects of a particular “institution shock” -- the 1865 abolition of slavery throughout the U.S. -- on the distribution of material wealth. The IPUMS 1860 and 1870 US wealth censuses allow us to use a difference in difference strategy to identify the effect of the Thirteenth Amendment of the U.S. Constitution (ratified in 1865) on the distribution of (non-slave) wealth at a county, state and regional level. (We are currently working on the county level analysis and provide the results soon.) We find that changes in wealth inequality between 1860 and 1870 (as measured by the Gini coefficient) diverged significantly between Confederate states where it declined significantly and Union states where it rose somewhat. The fact that the post abolition decline in wealth inequality was greater where slaves played a more important role in a state’s economy is prima facie evidence consistent with this being an “abolition effect.” But it could have been in part the result of the Confederate states’ defeat in Civil War rather than of the abolition of slavery per se. But this seems unlikely in light of two facts. First, confining attention to states that were not part of the Confederacy (so that this Civil War damage confound is absent) including those with an appreciable number of slaves, we find a similar albeit unsurprisingly smaller “abolition effect”. Second, the post-abolition decline in the Gini coefficient was not greater in the Confederate states than would be predicted based on the extent of slavery in those states and the evidence from slave states that did not join the Confederacy, suggesting that being on the losing side in the war is not the cause of the decline in inequality.

We are grateful to Peter Lindert for providing data and to the Behavioral Sciences Program of the Santa Fe Institute for support of this project. Affiliations: ○ New York University Abu Dhabi, Social Science Division, Abu Dhabi, UAE; Δ Santa Fe Institute.
1. Introduction

In the year of the Confederate secession that launched the U.S. Civil War, the inequalities in material wealth in the states with a significant number of slaves exceeded wealth inequalities in the non-slave states by a wide margin. The Gini coefficients of 0.885 and 0.733 respectively are based on our new estimates calculated counting slaves along with other members of the population with no recorded material wealth. Slave ownership as a form of wealth is itself included in “material wealth.” Is this difference of fifteen Gini points a measure of the effect of the institution of slavery on the distribution of wealth?

The fact that institutional changes are sometimes associated with changes in economic disparities is well established. It is illustrated, for example, by the substantial reduction in income inequality that coincided with significant institutional changes in France and other economies during Great Depression and the Second World War Piketty (2013). But establishing a causal connection between the two has proven challenging. The reason is that substantial changes in institutions are typically accompanied or even induced by changes in other economic fundamentals that could affect the degree of inequality.

The associated identification challenge has been met in variety of ways. Important advances have been made in studying the long term effects of institutional differences among adjacent or nearby geographical units. Banerjee and Iyer (2005); Dell (2010). Other studies exploiting temporal regression discontinuities and other temporal comparisons have contributed to our knowledge in this area (e.g. Chattopadhyay and Duflo (2004)) but not always in ways consistent with the hypothesis that institutions have a major impact on inequality Acemoglu, Naidu, Restrepo, and Robinson (2013).

The close study of one or more “institution shocks” is another lens with which to study the institutions-inequality nexus. To allow the relevant statistical analysis to yield causal inferences we need cases in which not only are the relevant data available but also there is an important change in institutions, the cause of which was arguably unrelated causally to the determinants of economic inequality. Few historical cases meet the two standards of adequate data and “sufficiently exogenous” institutional change.
Two cases that come close are the abolition of slavery in the U.S. and the economic measures adopted by the Japanese emperor in the years immediately prior to and during World War II including dividend and executive pay caps and a doubling of the marginal tax rate on high income groups Moriguchi and Saez (2008). Both cases are cited in the recent work of Lindert and Williamson (2016)

“In both the Japanese and Confederate crises, a polity that had been slow to liberalize had much of this top wealth suddenly confiscated and redistributed to those in the bottom 99 percent.”

The effect of the institution shock in Japan was dramatic: the share of income going to the richest 0.01 percent fell substantially in every year over the period 1938 to 1945 reaching a level less than a sixth of its initial value at war’s end. (The fact that most of this decline took place before Japan suffered any significant war damage suggests that the process was driven by institutional changes not by the destruction of material wealth.)

Do we also observe an effect of the abolition of slavery in the U.S. on the wealth distribution in the affected states? Several works have investigated the evolution of US wealth inequality in modern times as well as the changes of inequality that followed the 1865 Thirteenth Amendment of the US Constitution. Some pioneering works have provided estimates of the Gini coefficients of the total wealth owned by the free adult males of some of the American colonies in the 18th century, Jones (1977, 1980), while others have focused on the changes of wealth inequality at the end of the 19th century, providing Gini coefficients of the total free population in the 1860 and 1870 US Soltow (1975). More recently these estimates have been analyzed and framed in a broader picture of the evolution of US wealth inequality in the 18th-20th centuries Lindert (2000).

Some recent works have more directly investigated the effects of the abolition of slavery and the Civil War on the US social and economic inequality. A detailed analysis of the changes of income distribution between 1860 and 1870, showed that while inequality increased in the north, it substantially decreased among the southern slave states Lindert and Williamson (2016). Another recent study Dupont and Rosenbloom (2016) recently showed that the US Civil War resulted in a substantial change of the economic position of the southern elites.
Using the Integrated Public Use Microdata Series (IPUMS, Ruggles, Genadek, Goeken, Grover, and Sobek (2015)) for 1860 and 1870 US censuses, we compute new estimates of the Gini coefficient of US total wealth inequality that advance the state of the art in two aspects. First, they are computed on the total household population, including, for the 1860 estimate, the number of slave households in the southern slave states. Second, because they are computed at different administrative levels, country, regions and states, they provide a new comprehensive picture of the changes of wealth inequality postbellum U.S.

The new dataset, paired with the estimates of slave households in 1860 slave states allows us to implement a difference in difference analysis to check for the effect of slavery abolishment on the changes of wealth inequality. Our main result is that while wealth inequality in the non slave states increased from 1860 to 1870, it decreased in the slave states, with a more significant drop in those which had higher fraction of slave households on total population. Also, data on the slave states that were not part of the Confederacy (and hence were not losers in the war) provide some evidence the abolition of slavery per se reduced wealth inequality and that the wealth equalization in the former Confederate states was not simply the result of the wartime destruction of the assets of the vanquished southern wealth holders.

The rest of the paper is organized as follows. In section 2 and 3 we present the results of, respectively, the estimates of wealth inequality in the 1860 and 1870 US and the statistical analysis of the effects of the 1865 abolition of slavery abolition. In section 4 we explore the Lorenz curves for four states and seek to discern clues as to the mechanisms at work that generated the equalizing effects of the “abolition shock”. Section 5 concludes.

2. Wealth inequality before and after the US Civil War

The IPUMS censuses report the data of real and personal estates of individuals in the counties, states and regions in 1860 and 1870 US. (We show in table A1, appendix A, the list of available states for each region and those excluded from our computation.) Data are reported on an individual basis and, in order to transform them on a household basis, we have firstly aggregated them, using the variable *serial* in the censuses, which reports the household to which each individual belonged. Then, we used the variable *hhwt*, which represents the weight of the household in the total population, to obtain the total population (in households) in each county, state and
region, and the corresponding wealth distribution. To do so, we have multiplied each household (and its wealth) by the value given by the variable \(hhwt\), which represents the weight of each household in the total population. We obtained the estimates of the number of slave households in the 1860 US southern states from the IPUMS 1860 census.\(^1\)

Since the US 1860 census reports only the wealth owned by the free households, thus excluding the slave households from the distribution, we have added the number of slave households to the population of free households assuming that any slave household had a total property equal to 0. We have then used this new wealth distribution to estimate the Gini coefficient of 1860 US country, regions and states. Finally, we have computed the Gini coefficients of total population at the country, regional and state level from the 1870 household wealth distribution, and we have compared these estimates with the 1860 ones.\(^2\)

(a) Non slave states

---

\(^1\) The IPUMS 1860 census reports the number of individual slaves in each county in slave states. We thank Peter Lindert for sharing with us his estimated number of slave households in each state.

\(^2\) We will eventually provide the number of free households and the Gini coefficients in each county state and region, and for the whole country in 1860 and 1870 to interested researchers. The Gini we estimate for the 1860 after including the slave household as have-nots is 0.002 lower than the Gini reported in Lindert (2000), from Soltow (1975), which is computed only on free males. For the year 1870 we estimate a Gini coefficient for the whole country equal to 0.811 and different from the Gini coefficient reported in Lindert (2000) which is equal to 0.833 and is taken from Soltow (1975).
In Figure 1 we show the estimated Gini coefficients in 1860 and 1870 US at the state level. The estimates for the 26 non slave states included in our dataset (fig. 1 (a)), show a heterogeneous trend of wealth inequality. In 1870 the Gini coefficients markedly increased in some of them (e.g. California, Oregon and Connecticut), it clearly decreased in other states (e.g. Rhode Island, Iowa and Utah) or it only slightly positively (e.g. Pennsylvania) or negatively (e.g. New York) changed.

A more homogenous trend characterized the slave states between 1860 and 1870. (Fig. 1 (b).) Inequality decreased in almost all of them, with only some exceptions (District of Columbia and South Carolina.) The average Gini coefficients for slave and non slave states in 1860 and 1870, shown in figure 2, confirm that the change of wealth inequality differed between slave and non slave states. While, on average, inequality increased among the non slave states, the average Gini coefficient among the non slave states decreased after the 1865 slavery abolition, thus motivating a more rigorous statistical analysis of the effect of slavery abolition, slavery concentration and participation in the Confederation on wealth inequality.

We exclude from the comparison those states that are absent in one of the two censuses or whose observations do not allow for a consistent estimation of the Gini coefficient. (Table A1, appendix A.)
Figure 2: **Average Gini coefficients of the slave and non slave states before and after the 1865.** Shown are the average Gini coefficients, with standard errors, of the 17 slaves states and the 26 non slave states in our dataset before (grey bars) and after (dotted bars) the 1865 slavery abolition.

### 3. The institution shock, the Civil War, and the change in inequality.

Formalizing the results evident visually in Figure 2, we conduct a difference in difference exercise to check whether the abolition of slavery was associated with a change in the Gini coefficient of the states that had slavery in the 1860 that is not observed in the non slave states. The treatment group is the set of the states with no slavery and the treatment is the 1865 slavery abolition. The identifying assumption is that inequality in the slave states would have changed as it did in the non slave states had slavery not been ended.

<table>
<thead>
<tr>
<th></th>
<th>Non slave states (n=26)</th>
<th>Slave states (n=17)</th>
<th>Difference</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Civil War</strong></td>
<td>0.733 (0.011)</td>
<td>0.878 (0.010)</td>
<td>-0.145 (0.039)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>After Civil War</strong></td>
<td>0.753 (0.015)</td>
<td>0.848 (0.011)</td>
<td>-0.094 (0.094)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: **Difference in difference analysis of the effect of slavery abolition on wealth distribution.** Shown are the average Gini coefficients before and after the Civil War in the non slave states, column (2), and the slave states, column (3). The difference between the Gini coefficients is in column (4) with standard errors in parentheses. The t-statistics for the difference in difference is equal to 1.644. (p=0.104)
Though imprecisely estimated, the results of the difference in difference analysis, in the table are consistent with the view that the identified institution shock – abolition of slavery – accounted for a 5 percentage point reduction in the Gini coefficient in the “treated” states that would have not occurred in the absence of the treatment. The very marginal significance level of this estimate is a caution about the result, one that is perhaps unavoidable with such a small sample.

The magnitude of the change – if the estimate is taken at face value – is substantial. Even during periods of dramatic change in the degree of inequality, the Gini coefficient changes slowly. During the impressive increase in household income inequality in the U.S. since 1968, for example, an equivalent change (a 5 point increase in the Gini coefficient) took two decades or more.

We have some confidence in interpreting our difference in difference estimator as an effect of the abolition of slavery because (as we will see in column 2 of Table 3) the drop in the Gini coefficient following abolition was strongly related to the fraction of slaves in the state’s population.

But this does not address an important confound: abolition coincided with the Confederate states’ military defeat and associated destruction of property. We need a way to disentangle the effects of defeat from effects of the abolition of slavery. To do this we distinguish between the states in which there were an appreciable number of slaves but did not join the secession with the other Confederate states, and hence were not on the losing side of the war (Delaware, Maryland, Kentucky, West Virginia, Missouri, District of Columbia) and those that seceded from the U.S., forming the Confederate States of America (Florida, Georgia, North Carolina, South Carolina, Virginia, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas)

While neither is entirely adequate, we conduct two robustness tests.

We first implement the above difference in difference analysis on the Gini coefficients of the states that were not part of the Confederation and we check whether abolition was associated with a difference in the change of wealth inequality among the (non-Confederate) slave states compared to the non slave states. Table 2 and figure 3 (replicating Table 1 and figure 2 for this thought experiment) show that, even if not statistically significant, the institution shock was associated with a decline in inequality when contrasting only the states that did not lose the war. The fact that the difference estimate is smaller when excluding the Confederate states is to be expected given that, as we have just seen, the drop in the Gini coefficient in the slave
states was greater where there were more slaves as a fraction of the population and the Confederate states had a much larger fraction of slaves than did the non Confederate slave states.

<table>
<thead>
<tr>
<th></th>
<th>Non-Confederate non slave states</th>
<th>Non-Confederate slave states</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Before Civil War</td>
<td>0.733 (0.011)</td>
<td>0.835 (0.015)</td>
<td>-0.102</td>
</tr>
<tr>
<td>After Civil War</td>
<td>0.753 (0.015)</td>
<td>0.828 (0.015)</td>
<td>-0.075</td>
</tr>
</tbody>
</table>

Difference in difference

-0.027 (0.050)

Table 2: Difference in difference analysis of the effect of slavery abolition on wealth distribution of non confederate states. Shown are the average Gini coefficients before and after the Civil War in the non-Confederate non slave states, column (2), and the non-Confederate slave states, column (3). The difference between the Gini coefficients is in column (4) with standard errors in parentheses. The t-statistics for the difference in difference is equal to 0.548.

Figure 3: Average Gini coefficients of the slave and non slave non confederate states before and after the 1865. Shown are the average Gini coefficients, with standard errors, of the 6 non confederate slaves states and the 26 non slave states in our dataset, before (grey bars) and after (dotted bars) the 1865 slavery abolition.
Figure 4: **Slave ratio and the change in the Gini coefficient.** Shown is the relationship between the change of the Gini coefficient before and after the Civil War and the slave percentage of the total population in the 1860 southern Confederate (black dots) and the non-Confederate states (red dots.) The red line shows the estimated linear relationship between the change in Gini and the slave ratio in all the non-Confederate states (slave and non-slave states).

Our second robustness check is to ask if the Confederate state experienced a greater decline in their Gini coefficients than would be expected from the experience of the other states, taking account of the greater extent of slavery in the Confederate states. To do this we use the estimated relationship between the slave fraction of the population and the post abolition change in the Gini coefficient for the non Confederate states. This is shown in column (3) of Table 3, with the results also depicted (for the states with an appreciable number of slaves) in Figure 4. We then use this equation to predict the change in Gini coefficients of the confederate states.

<table>
<thead>
<tr>
<th>(1)</th>
<th>All US states</th>
<th>All US non confederate states</th>
<th>All slave states</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td>0.015**</td>
<td>0.018***</td>
<td>-0.012</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.006)</td>
<td>(0.122)</td>
</tr>
<tr>
<td><strong>Slave Ratio</strong></td>
<td>-0.110***</td>
<td>-0.188</td>
<td>-0.047</td>
</tr>
<tr>
<td></td>
<td>(0.024)</td>
<td>(0.117)</td>
<td>(0.031)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>43</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td><strong>Adj-R²</strong></td>
<td>0.31</td>
<td>0.31</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Table 3: **Results of the regression of the change in Gini on the slave ratio.** Shown in the table are the estimated coefficients of the dependent variables in eq. (3), column (1), when the regression is estimated on all the US states, column (2), only the US non confederate states (slave and non slave states) column (3) or all the US slave states, column (4). Standard errors in parentheses. *** Significant at 99%. ** Significant at 95%. Significant at 90%.
For the Confederate states we compute the observed change in the Gini coefficient minus the predicted value, finding their mean value, 0.027 (standard deviation: 0.039). The fact that the mean residual is positive is consistent with the view that the war-affected Confederate states had a lesser decline in wealth inequality than predicted based on the extent of slavery in the state and its effect on wealth equalization following abolition estimated from the non Confederate states. But in light of the substantial standard deviation, not much confidence should be placed on this test. Further caution is recommended by the fact that (in Figure 4) the positive relationship between the size of the slave population and the magnitude of the decline in wealth inequality does not hold, consistent with there being some other mechanism – such as war damage – involved.

4. Traces of mechanisms evident in a comparison of Lorenz curves.

We have confined our investigation to the above results without considering the causes of the effects we have identified. A possible mechanism accounting for an equalizing effect of the abolition of slavery is the withdrawal of a significant fraction of total hours of slave labor that followed Emancipation (documented by Lindert and Williamson (2016)) enhancing the bargaining power of labor (both ex slave and free). The effect could have been to reduce the rate of return on wealth and also to allow some wealth poor people to acquire more assets. Another could arise from a complementarity between coerced labor and the crops associated with concentrated land holdings – especially cotton -- which would result in a reduction in the returns to large land holdings. New (albeit limited) opportunities for former slaves to save and accumulate property may also have contributed to the observed changes in the Gini coefficients.

Identifying and exploring the importance of these and other possible mechanisms would be a valuable extension of our analysis, but could not be done without going considerably beyond the data we present here. However, these and alternative causal mechanisms would leave distinct traces in the nature of the changes evident in our estimated Lorenz curves that are the reason for the reduction in the Gini coefficients in the slave states. Four sets of before and after Lorenz curves selected to illustrate distinct patterns of change in the distribution of wealth appear in Figure 5.
Figure 5: **Lorenz curves of 1860 and 1870 selected slave states.** Shown in panels (a) through (d) are the Lorenz curves for the distribution of total wealth across households in 1860 (black line) and 1870 (red line) selected slave states.

We will look at three attributes of the Lorenz curve and how they changed: a) the fraction of those without wealth (the horizontal axis intercept); b) the slope of the Lorenz curve at low and high levels of wealth; and c) the population fraction at which the slope of the curve is equal to one. This last statistic is a measure of income polarization at the top, indicating the location in the continuum from poor to rich at which the wealth held is equal to the average wealth. Call this statistic the average wealth percentile. Not surprisingly, given that we are measuring material wealth inequality in a very unequal society, the average wealth percentile is substantially above 0.5 in all cases.

Consider, first, Tennessee. Prior to Emancipation 75 percent of the population had no recorded material wealth. Just ten years later the property-less had fallen to just 33 percent of the population. This and the decrease in the average wealth percentile is indicative of process of inclusive equalization.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tennessee</td>
<td>0.890</td>
<td>0.802</td>
<td>75%</td>
<td>33%</td>
<td>84&lt;sup&gt;n&lt;/sup&gt;</td>
<td>77&lt;sup&gt;n&lt;/sup&gt;</td>
</tr>
<tr>
<td>North Carolina</td>
<td>0.891</td>
<td>0.828</td>
<td>43%</td>
<td>49%</td>
<td>84&lt;sup&gt;n&lt;/sup&gt;</td>
<td>78&lt;sup&gt;n&lt;/sup&gt;</td>
</tr>
<tr>
<td>South Carolina</td>
<td>0.924</td>
<td>0.925</td>
<td>52%</td>
<td>46%</td>
<td>86&lt;sup&gt;n&lt;/sup&gt;</td>
<td>85&lt;sup&gt;n&lt;/sup&gt;</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>0.852</td>
<td>0.833</td>
<td>31%</td>
<td>50%</td>
<td>82&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>83&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Table 4: **Main statistics of the wealth distribution of four selected states.** Shown are for each of the 4 selected states, column (1), the main statistics of the wealth distribution in the years 1860 and 1870: the Gini coefficient, columns (2-3), the percentage of households owning nothing, columns (4-5) and the percentiles of the average wealth, columns (6-7) and the average wealth times two, columns (8-9) and times four, columns (10-11). Source: see text.

Contrast this with North Carolina in which the fraction of property-less slightly increased (from 43 percent to 49 percent), but the Lorenz curve steepened over the range of those with modest positive wealth resulting in a decrease in the average wealth percentile. The shift in the Lorenz curve in North Carolina may be the traces of an increase in the wealth of those already owning some property, a kind of egalitarianism among incumbent wealth holders without the traces of inclusion evident in Tennessee. North Carolina and Tennessee experienced an almost identical substantial drop in the Gini coefficient and decline in top wealth polarization, but as the result of evidently different mechanisms.

South Carolina exhibits gains among both modest positive wealth holders and among the very wealthy and losses for those in between, with no appreciable change in the Gini coefficient or the average wealth percentile..

Finally the District of Columbia the nation’s capitol, experienced a dramatic increase in those without property (from 31 percent to 50 percent) and a symmetrical increase in inequality among wealth holders resulting in a substantial rise in the Gini coefficient the only example of a slave ‘state” that saw an increase in wealth inequality.
6. Conclusions

Henry Aaron once quipped that tracking changes in the distribution of income was “like watching the grass grow” (Aaron (1978) p. 17). He was writing at the end of a long period during which aggregate measures of income inequality among Americans changed relatively little. But 1978 was also at the onset of a new era in which dramatic institutional changes (in regulatory and tax policy for example, and trade union bargaining power) were accompanied by sharp increases in most measures of inequality. In the 35 years after Aaron wrote, the household income Gini rose by about 10 points, a change commonly and plausibly attributed to the institutional and policy changes over the period. But is the attribution correct?

We have investigated the effect of an institutional shock, the 1865 abolition of slavery, on wealth inequality. While the “treatment” provides an unparalleled natural experiment to study the effects of institutions on economic disparities, and thought our results at least weakly survive a couple of robustness checks, the main findings are imprecisely estimated and should be considered to be subject to considerable error.

First, we found that after abolition wealth inequality significantly decreased in the slave states, while the non slave states experienced an increase of wealth concentration. Second, we have presented some evidence that the decrease in wealth inequality among the slave states was associated with the importance of slavery in the state’s economy rather than being driven by the wealth destruction due to the participation of some of those states on the losing side in the Civil War.

The treatment effect – considering the institution shock as the treatment – appears to be substantially less than the difference in wealth inequality between the slave and non slave states prior to the Civil War. The slave and non-slave states evidently differed in other relevant ways that were unaffected by the abolition of slavery.

Assessing the longer term effect of the abolition of slavery shock is complicated by the very brief period of that elapsed prior to the Compromise of 1877, which ended the Reconstruction period and ushered in a new post-slavery era of political and economic subjugation of former slaves and their descendants. Montgomery (1967); Ransom and Sutch (1977). This reversal of fortune for the African American populations may suggest characteristics of the political economy of the Confederate states that survived the abolition of their once defining institution.
what we have called the “abolition effect” is nonetheless substantial, considering the short time period over which the effect is measured.
Appendix A. Main information on states in the dataset.

The IPUMS version of the 1860 and 1870 US censuses of individual real and personal estates allows for the estimation of wealth inequality at the county, state, regional and country level in almost all the 1860 and 1870 US territory. In table A1 we report, for each US region, the states included and excluded from the censuses.

Table A1. States per regions in the 1860 and 1870 US IPUMS censuses. In each region, column (1), the table lists the states included and excluded from the 1860, columns (2-3), and the 1870 censuses, columns (4-5). Note that North Dakota is excluded because all the observations, both in the 1860 and the 1870 censuses, are equal to zero.

<table>
<thead>
<tr>
<th>Region</th>
<th>States included</th>
<th>States excluded</th>
<th>States included</th>
<th>States excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Atlantic</td>
<td>New York, New Jersey, Pennsylvania</td>
<td>-</td>
<td>New York, New Jersey, Pennsylvania</td>
<td>-</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia</td>
<td>-</td>
<td>Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia</td>
<td>-</td>
</tr>
<tr>
<td>East North Central Division</td>
<td>Illinois, Indiana, Michigan, Ohio, Wisconsin</td>
<td>-</td>
<td>Illinois, Indiana, Michigan, Ohio, Wisconsin</td>
<td>-</td>
</tr>
<tr>
<td>West North Central Division</td>
<td>Iowa, Kansas, Minnesota, Missouri, Nebraska</td>
<td>North Dakota, South Dakota</td>
<td>Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota</td>
<td>North Dakota</td>
</tr>
<tr>
<td>East South Central Division</td>
<td>Alabama, Kentucky, Mississippi, Tennessee</td>
<td>-</td>
<td>Alabama, Kentucky, Mississippi, Tennessee</td>
<td>-</td>
</tr>
<tr>
<td>West South Central Division</td>
<td>Arkansas, Louisiana,</td>
<td>-</td>
<td>Arkansas, Louisiana,</td>
<td>Oklahoma</td>
</tr>
<tr>
<td>Region</td>
<td>1860 States included (2)</td>
<td>1860 States excluded (3)</td>
<td>1870 States included (4)</td>
<td>1870 States excluded (5)</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Mountain</td>
<td>Oklahoma, Texas</td>
<td>Texas</td>
<td>Arizona, Colorado, Nevada, New Mexico, Utah, Idaho, Montana, Wyoming</td>
<td>-</td>
</tr>
<tr>
<td>Pacific</td>
<td>California, Oregon, Washington</td>
<td>-</td>
<td>California, Oregon, Washington</td>
<td>-</td>
</tr>
</tbody>
</table>
Bibliography


