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The failed promise of freedom: Emancipation and wealth inequality in the Caribbean[*]

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Abstract: Was there any redistribution of resources in the Caribbean societies after emancipation from slavery? What were ex-slaves' prospects to improve their socio-economic status after emancipation? To shed some light on these questions this paper provides unique empirical evidence on patterns of wealth inequality before and after emancipation for the island of St. Croix, a typical slave-based sugar island in the Caribbean. Our findings suggest that there was no decrease in inequality following the institutional break of emancipation. A key explanation, we argue, rest on factor endowments and more specifically on the restrictive land-labor ratios that prevailed on several Caribbean islands, such as St. Croix. Due to these factor endowments, former slaves remained unable to accumulate any substantial amounts of wealth for decades after emancipation.

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Keywords: inequality, wealth, slavery, Caribbean, emancipation

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1. Introduction

Slavery is one of the most long-standing and geographically widespread institutions in human history. During the early modern period, enslaved persons were, as a rule, the subject of violence and exploitation, and – in most slave societies – had few opportunities to improve their economic or social standing. It is therefore not surprising that many enslaved hoped for and struggled to achieve freedom – whether by manumission, by marronage, by rebellion or when the chance came for legal emancipation from slavery. Emancipation from slavery would, it was hoped, not only mean freedom from violence and oppression by the masters. It would also mean that the liberated slaves would have a chance to finally improve their socio-economic conditions, e.g., by finding work where their efforts were adequately remunerated, or by establishing a freehold or business of their own where they could enjoy the fruits of their own labor.

The colonial societies of the early modern era that did exhibit the highest concentrations of slaves were found in the plantation complex of the Caribbean. These societies would, for that reason, be the perfect cases for studying the socio-economic consequences of emancipation. There is certainly much previous research on the socio-economic consequences of emancipation in various parts of the Americas. Most of this research has, however, empirically examined the outcomes of emancipation in the United States. There is also a historiography that indirectly discusses the role of emancipation in the Caribbean. None of this previous research has, however, systematically tried to quantitatively estimate the effects of emancipation. This paper aims to fill this gap of knowledge by studying how the distribution of wealth changed over time in a typical Caribbean slave-based society. The key issue at stake is whether formerly enslaved people were able to accumulate any wealth, i.e., by acquiring agricultural land, after emancipation. The research question this study aims to answer is: *how did the distribution of resources change with emancipation in the Caribbean slave-based plantation complex*?

To shed light on this question, we provide unique, quantitative empirical evidence of wealth inequality before and after emancipation for a slave-based sugar-producing island in the Caribbean: the island of St. Croix in the former Danish West Indies (current day U.S. Virgin Islands). This island provides an ideal case study of a rather typical slave colony established in the Caribbean for the development of sugar plantation agriculture, with extraordinarily rich and unusually well-preserved primary sources that enable us to study the distribution of key resources for the entire population on the island over a long period of time. The typicality of the island as a common Caribbean slave-based society furthermore allows us to discuss the present article's findings within the Caribbean slave-based context more generally.

Our study shows that, despite much anticipation of the social and economic effects of gaining freedom, emancipation did not translate, in practice, into any discernible wealth accumulation for the formerly enslaved individuals. The distribution of wealth on the island remained extremely concentrated long after emancipation. We argue that this may be due to factor endowments. As the island was comparatively small, virtually all cultivable land had come under occupation decades prior to emancipation. Former slaves' opportunities of becoming freeholders by taking up new land under the plow were non-existent, contrary to what occurred in some other parts of the Americas. Despite the market price for land on the island being not as high as on some of the most densely populated islands in the Caribbean, many of the elites appear to have held on to their land, parceling out only small fractions of it. Wages paid to laborers after emancipation were furthermore very low, leaving them with little opportunities for capital accumulation. The vast majority of the population were, therefore, unable to accumulate any wealth at all.

2. Emancipation and Wealth Accumulation

There is a rich and large historiography stretching back to the nineteenth century on the significance of emancipation, the legacy of slavery in the Americas and the process of reconfiguration of ex-slaves' economic conditions from bondage labour to waged labour.[1] Most of this research has, however, focused on the United States while studies on the Caribbeans are few.

Many of the studies on the United States have stressed the role of racism and that of 'flawed institutions' that hindered ex-slaves progress and economic welfare in the aftermath of emancipation. An early account of such research is for instance the seminal study by Ransom and Sutch that investigated ex-slaves' ability to improve their wellbeing and enter economic life as independent (free) agents. The authors argued that although ex-slaves did manage to improve their material income and economic wellbeing after emancipation, their

[1] For an overview see Schmidt-Nowara, 'Emancipation', pp. 578–97.

freedom remained 'incomplete'.[2] The reason for this was the institutions established after the Civil War that perpetuated racial discrimination and effectively prevented the black population from gaining access to wealth. Surely, as Robert Higgs has demonstrated, emancipated slaves in the United States did experience a rapid growth in wealth, but that was only because the former slaves started out from a very low base (effectively almost from zero).[3] Robert A. Margo has estimated that in 1870 the mean black/white per capita wealth ratio in the US was a mere 0.04, while a more recent working paper shows that, even though this racial wealth gap decreased in the twentieth century, the current black/white wealth ratio remains as high as 0.2 today.[4] With such an enormous wealth gap shortly after emancipation, the wealth of the former slaves remained disproportionally lower than the wealth held by the white population for decades to come. This has been shown to be the case when it comes to e.g., real estate and land.[5] This would come to have adverse repercussions several generations down the line. Additionally, the lack of institutions that would grant access to free land directly after emancipation reinforced the pre-existing racial prejudice that deepened wealth inequality.[6] In conclusion, this research shows that in the United States, although former slaves gained, on paper, the opportunity to accumulate wealth upon emancipation, this opportunity was, in practice, often very limited. One limitation of much of this previous research is that it refrains from directly estimating how the distribution of resources was affected by emancipation. The sole exception is recent research by Fochesato and Bowles.[7] The authors find that with emancipation wealth inequality in non-slave states increased, while it decreased in the southern Confederate states during this period. After attempting to distinguish the effect from the destruction of (physical) capital during the Civil War, they attribute the reduction of inequality in the Confederate states to the abolition of slavery, as the former slave-owners lost a substantial share of their wealth once slavery was abolished.

Beyond research on the United States, the few existing studies on emancipation and wealth accumulation in the Caribbean sugar-colonies are mainly qualitative in nature, and

[2] Ransom and Sutch, *One kind of freedom*, p. 198.
[3] Higgs, 'Accumulation of property by southern Blacks', p.729.
[4] Margo, 'Obama, Katrina, and the persistence of racial inequality', 326. The more recent work is by Derenoncourt et al., 'Wealth of two nations', p. 34, Fig. 2.
[5] For estimates of house ownership shares See Collins and Margo, 'Race and home ownership', p. 356 and for ownership of land see Collins, et al. 'Black Americans', pp. 2, 9–10.
[6] Miller, 'Land and racial wealth inequality'; idem, '"The righteous and reasonable ambition to become a landholder"'; Collins, et al., 'Black Americans'.
[7] Fochesato and Bowles, 'Institution shocks and the dynamics of wealth distribution'

only a few provide some quantitative empirical evidence on the subject. Research from Cuba has shown that sugar plantations largely remained in the hands of the planter elite in the years immediately following emancipation.[8] In Jamaica, British Guiana and Trinidad, by contrast, the number of freeholds increased substantially after emancipation, so that towards the end of the nineteenth century there were more peasant producers than there were waged laborers on the plantations.[9] The situation on more densely populated islands – such as Barbados, Antigua, Grenada, Montserrat or St. Vincent – looked substantially more constrained. On these islands, most of the land remained in the hands of the original planter elite, leaving little opportunity for emancipated slaves to become freeholders. If former slaves were able to acquire any land at all, the plots were as a rule very small, leaving the ownership of most of the acreage in the hands of the large landowners.[10] In addition to this literature that provides some descriptive estimates, there is an older historiography that has discussed the emergence of a Caribbean `peasantry´ and small farmers' holding after emancipation, albeit mostly from a qualitative perspective.[11] Overall, at the core of this former historiography on the Caribbean an underlying assumption has been that peasant farming was the most optimistic scenario of economic differentiation that ex-slaves could achieve in their efforts to acquire wealth and that this opportunity could only materialize when an unexploited land frontier was still available after emancipation.

While previous research has argued – largely based on qualitative or anecdotal evidence – that liberated slaves in the Caribbean were only able to acquire land to a limited degree, there is no previous attempt to quantitatively estimate the distribution of wealth before and after emancipation for any island in the region. Additionally, there is a significant dearth of studies that provide comparative empirical estimates of the economic conditions that characterized emancipated slaves on these islands after emancipation and that could explain the dynamics of resource (re)distribution. The present study contributes by providing unique empirical evidence on both these accounts.

[8] Scott, 'Defining the boundaries of freedom in the world of cane', p. 86.
[9] Eisner, *Jamaica 1830-1930*, p. 220; Riviere, 'Labour shortage', p. 15; Bolland, 'Systems of domination after slavery', p. 599; Moohr, 'The Economic impact of slave emancipation in British Guiana', pp. 590–91.
[10] Butler, *The Economics of emancipation*, pp. 115–16, 118; Riviere, 'Labour shortage', pp. 16–17.
[11] Farley, 'The Rise of the peasantry in British Guiana'; Marshall, 'Notes on peasant development in the West Indies'; Mintz et al., 'Slavery and the Rise of Peasantries'; Besson, 'Land Tenure in the Free Villages of Trelawny, Jamaica'.

3. St. Croix in the Caribbean Context

St. Croix is one of the smaller islands in the Caribbean, situated in the Lesser Antilles. The island has a tropical climate, just as other Caribbean islands. The tropical climate made the Caribbean islands of key interest for European powers during the early modern era, as it allowed for the cultivation of many lucrative crops that could not be grown domestically in Europe. Cane sugar came to become the most important in the region.[12]

Denmark entered the scramble for colonies in the Caribbean relatively late compared to other major European powers, coming to occupy three islands in the region only in the late seventeenth to early eighteenth century. The island of St. Thomas was colonized in 1671, St. John in 1717, while St. Croix was purchased from France in 1733. Apart from two short-lived British occupations during the Napoleonic Wars, in 1801 and during the period 1807-1815, the three islands remained in Denmark's possession until 1917, when they were sold to the United States to become the U.S. Virgin Islands. As in most other Caribbean plantation economies, the colonizers sought to develop the economy of the islands through the establishment of sugar plantation agriculture sustained on slave labor. Denmark was rather active as a slave trader, with an estimated 110,000 slaves traded across the Atlantic to fuel the need for labour on its colonies. As common in the region, slaves made up the largest share of the St. Croix population.[13]

Among the three islands, St. Croix was the largest and the most apt to plantation agriculture. Due to being a latecomer in the colonial venture and due to the reluctance of the Danes to migrate to the Caribbean, Danish plantation agriculture on the island was organized largely in the image of plantation agriculture found on other Caribbean islands. A scheme to attract planters from nearby islands through convenient rates on land was established already in the early eighteenth century. As a result, only one fifth of the plantation owners were ever Danes, while the remainder were the subjects of other colonial powers, predominantly British, Dutch and French.[14]

The first half of the nineteenth century saw some major changes taking place in the Danish West Indies. In 1803, slave trade was effectively abolished, while with the Free Birth Proclamation Act of 1847 all offspring of enslaved parents were born legally free. The aim of the proclamation was to appease critics of slavery, but at the same time pave

[12] Rönnbäck, 'Sugar plantation slavery'.
[13] Rönnbäck, 'Scandinavia in the Atlantic world', p. 9.
[14] Hall, *Slave society*, p. 16, tab. 1.3.

the way for a gradual process of emancipation that would leave planters ample time to adjust. This was, however, not to be the case. The final blow to slavery came instead abruptly, following a slave revolt on St. Croix on the night of the 2nd of July 1848. To reestablish control on the island, the Governor Peter von Scholten declared the legal termination of slavery in the Danish West Indies with immediate effect. This decision effectively drew the curtains on a long history of slavery in the Danish West Indies and ensured a rather peaceful transition to freedom.

The largely unanticipated arrival of emancipation contributed to an undisrupted economic structure, which constitutes perhaps the main difference between St. Croix and most other slave colonies in the Americas. In the United States, slave emancipation was only achieved following a highly disruptive Civil War. In the British Caribbean, emancipation was peaceful but, as a rule, followed by a period of `apprenticeship´ which essentially amounted to a new form of labor coercion. In Saint-Domingue (current-day Haiti), the 1791 revolution brought both emancipation and independence. Yet, in its aftermath large destructions were inflicted upon the productive capacity on the island, while the post-revolutionary regime introduced highly coercive labour measures of its own.

In the Danish West Indies, the emancipated slaves became free overnight, without any regulatory framework to dictate the conditions of their subsequent liberty. Despite being offered their freedom, however, ex-slaves were not provided with any monetary or material resources directly after emancipation. A compensation scheme was put in place after emancipation but that exclusively targeted former slave owners for their capital losses. The newly liberated individuals would, furthermore, soon see their newly gained freedom severely curtailed. One year after emancipation, the Labor Act of 1849 was approved in the Danish colonies. It came to regulate the relations between planters and the new rural waged labour.[15] As the elites' managed to maintain their power following emancipation, it is no surprise that the Labor Act favored the interest of the planters whilst depriving laborers of much negotiating power over their labor contracts. As a result of the Act, laborers had to enter yearly contracts, while wage compensation was stipulated by law and fixed at very low levels.[16] It would seems as if former slaves did indeed gain freedom, yet this freedom was much limited in what real opportunities it brought about as new forms of coercion

[15] Jensen, *From serfdom to fireburn and strike*.

[16] Laborers were divided in three categories, first, second and third class, depending on how much they could produce. They were paid a very low wage of 15, 10 and 5 cents respectively.

seem to have curtailed ex-slaves chances to improve their socio-economic standing.[17] Additionally, the Labor Act was even more restrictive for migrant workers from the neighboring overpopulated Caribbean islands (mainly Barbados), but the newly introduced Indian indentured laborers ('coolies') were also treated discriminately. Newly arrived Indian indentured laborers' wages were well below what the laborers were promised and far below the standard wage levels on St. Croix.[18] Overall, the institutional labor setting that formed after emancipation is expected to have severely affected ex-slaves' economic conditions curtailing their opportunities to accumulate wealth.

4. Data

To provide estimates on wealth inequality and on the economic conditions that dictated ex-slaves prospects to accumulate wealth after emancipation, original primary and secondary sources are employed in this study. The Danish authorities kept exceptionally rich records of their colonies, and the records have been well preserved, allowing us to study the distribution of resources for the full population on the island over a very long period of time. The richness of the sources, along with the colony characteristics makes St. Croix an ideal case to study when it comes to the relationship between emancipation and the distribution of resources.

In this paper we estimate wealth inequality using information from colonial records pertaining to the Danish West Indies during the period 1830-1870. Tax registers *(matrikler)* are the main sources for the present study, albeit supported by additional primary sources.[19] These records were collected on an annual basis by the local Danish colonial administration during the period 1758-1915. The present research draws upon the largest of the three islands constituting the Danish West Indies, St. Croix. This island was responsible for the vast majority of the plantation output produced in the Danish West Indies.[20]

The tax registers contain consistent information on the ownership of the assets that were taxed during this time in a typical Caribbean plantation economy, namely: *land*, *real*

[17] Roopnarine, 'Contract labor migration'.
[18] Sircar, 'Emigration of Indian indentured labor', pp. 135, 140; Roopnarine, 'Contract labor migration', p. 699.
[19] A detailed description of the sources and the dataset used in this study is available in a working paper.
[20] Sveistrup, 'Bidrag til de tidligere Dansk-Vestindiske øers økonomiske Historie'; Hall, *Slave Society*.

estate and *slaves*. The registers, carrying information at the household-level also recorded household composition for each household/plantation along with servants, slaves, slave-rentiers and their hired-out slaves until slavery was outlawed in 1848. In other words, the tax registers also served effectively as a crude census until that date. The records do not, unfortunately, provide any detailed information regarding family relations neither for the enslaved population nor for free servants living in households. It is therefore not possible to determine the number of households holding zero wealth. Excluding these people would, however, seriously bias any estimates of wealth inequality. We, for this reason, estimate inequality among (adult) *individuals* in the population. For the period when slavery was legal, we use the information available from the tax records. For the period after emancipation, we complement the tax records with information from proper censuses, undertaken on several occasions following emancipation, to include the propertyless population in our inequality estimates. Details of how this is done is provided in the appendix to the paper.

A limitation inherent in all studies that rely on tax-registers concerns the exclusion of non-taxable wealth. Undoubtedly, financial assets or sugar producers' durable goods (such as the sugar boiling and distillery houses, and sugar mills) could make up significant portions of a plantation owners' wealth but, unfortunately for our research, were not considered taxable by the Danish authorities at the time. Albeit we cannot solve the issue of financial assets, we were able to include what would be considered important non-taxed durable goods into our study, namely mills, by relying on additional sources, linked to the tax records through the use of geographical indicators. Overall, we have compiled data for the four main types of assets in a typical slave-based sugar-producing colony in the Caribbeans, namely agricultural land, real estate, slaves and sugar mills.[21]

Another limitation of the tax registers is that they contain information on each assets' tax value, but not on their market value. If tax rates were reflective of market values, this limitation would not be problematic, as the taxes levied on assets could give us a measure of resource distribution and of relative wealth. Unfortunately, the tax rate that the Danish authorities imposed remained flat throughout the period and for all assets. As a result, the level of taxes paid are mere artifacts created by the colonial authorities and do not reflect the real assets' relative market-valuations. To overcome these limitations, we have opted

[21] Estimates from the US South found in Jones, *Wealth of a nation to be*, tab. 4.3 suggest that these types of assets made up approximately 90% of total households' wealth.

for using market prices to estimate assets' values and ultimately wealth. Prices were collected from primary sources and transcribed for the purpose, for all assets but slaves. The price of slaves was extracted from previously collected data, and used to calculate price series for six different categories of slaves, distinguished by age group (child or adult), gender (male or female) and skill level (skilled/domestic or field slaves). [22]

To provide estimates on the economic conditions that characterized emancipated slaves in St. Croix and in other Caribbean islands after emancipation we have further complemented the primary sources from St. Croix, with estimates on population densities, labor wages and land prices for various islands in the British Caribbean found in secondary published literature and specifically in the seminal works by W. Emanuel Riviere and Stanley Engerman.[23]

5. Method

Our aim in this paper is to estimate quantitatively the levels of wealth inequality over time, prior to and after emancipation, by relying on individual-level wealth estimates. For the purpose of comparability across space and time, we rely on Gini indices. To better inform on wealth distribution across groups, however, we also expand our analysis by including percentile ratios.[24]

The present study aims to investigate the effect of emancipation on the distribution of wealth in a slave-based-society as a whole. It would thus be incorrect to conduct an analysis at the household level or to exclude slaves from the analysis prior to emancipation and include them as members of the society only after this event. Previous research, that has followed a similar approach, has included slaves as zero wealth-holding members of the total population.[25] We follow a similar standard approach in the present study. To account for slaves as zero wealth-holding members of a population is, however, not without limitations. As Lars Osberg and Fazley Siddiq have argued, ´counting slaves as possessors of zero wealth has the dubious implication that free individuals with debts exceeding assets

[22] Bendtsen, 'Domestic slave trading in St. Croix, 1764–1848'.

[23] Riviere, 'Labour shortage', pp. 18–9; Engerman, 'Economic adjustments to emancipation', p. 196.

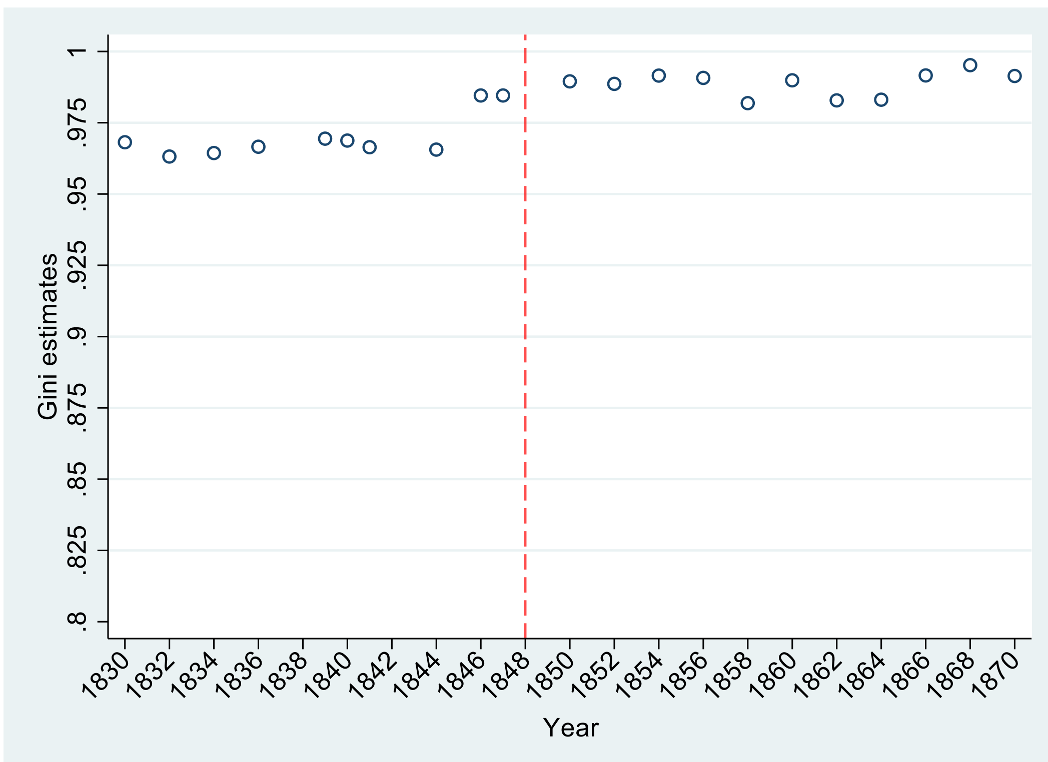
[24] Percentile ratios are an efficient way of expressing the wealth held by the top x per cent of the population in terms of the x per cent at the lower end of the distribution.

[25] See for example Jones, *Wealth of a Nation to Be*; Frank, 'Wealth Holding in Southeastern Brazil, 1815-60'; Johnson and Frank, 'Cities and Wealth in the South Atlantic'; Fourie and von Fintel, 'The Dynamics of Inequality in a Newly Settled, Pre-Industrial Society'.

are counted as 'worse off' than slaves´.[26] In the present study, we do not record debt as part of our wealth estimates for any member of the population, due to the unavailability of such historical data. This limitation is thus effectively not affecting our study's estimates. A deeper implication – that our estimates effectively will treat propertyless free individuals as equally poor as slaves – is more difficult to resolve. Even though there are no clear-cut solutions on how to deal with this problem, in this study we perform an additional analysis that allows us to move beyond this dichotomy, which also serves as a sensitivity analysis to our main results (see Appendix A). We discuss the robustness of our main findings on inequality in relation to these additional estimates.

6. Emancipation and Inequality in St. Croix

FIGURE 1. *Wealth inequality: Gini index, St. Croix, 1830-1870*



Sources: see Data section

In figure 1, the Gini index between all individuals (including slaves) residing on the island of St. Croix is presented for the years prior to and after emancipation. Our Gini estimates show that inequality was extremely high throughout the whole period under investigation. The average Gini estimate for the period before emancipation was a staggering 0.97, which

[26] Osberg and Siddiq, 'The inequality of wealth in Britain's North American colonies', p. 156.

is extremely high in international comparison.[27] Additionally, inequality was rather stable with only negligible divergence from this mean value throughout the years prior to emancipation. This is perhaps not surprising, as wealth-holding for the vast majority of the population (the slaves) was institutionally constrained during the years of slavery. Yet, even among the free members of the population, wealth was extremely concentrated into the hands of a few individuals, most of them engaged in slave-based plantation agriculture.

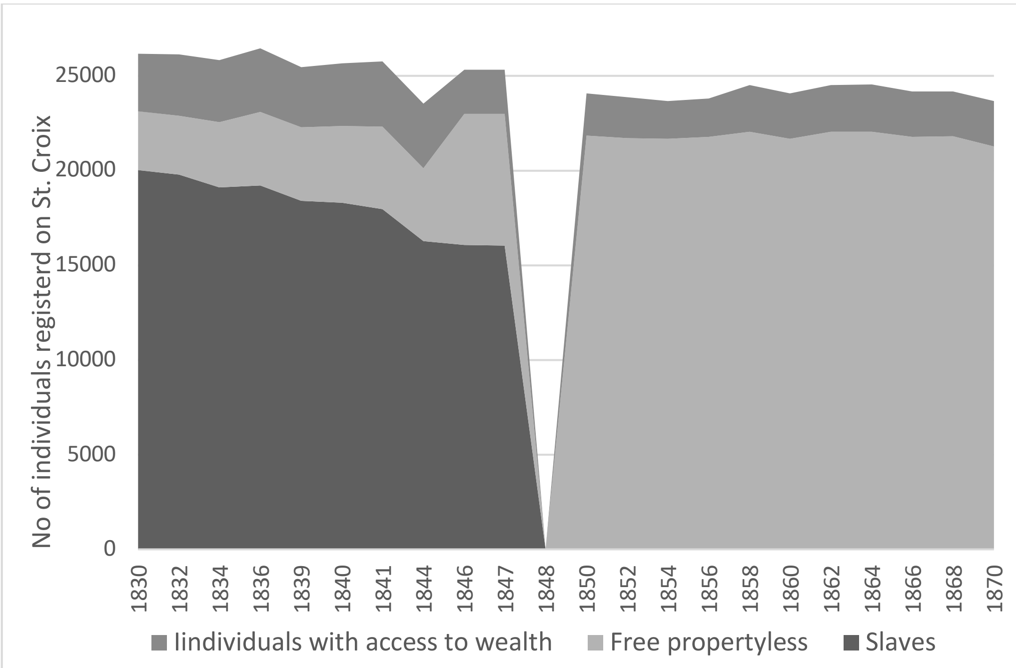
What is rather surprising, however, is that the institutional breaking point of emancipation is not followed by any reduction in the concentration of wealth on St. Croix. The Gini index does not decline after emancipation, but rather increases slightly to extremely high levels that are retained throughout the post-emancipation years. Already in the immediate years before emancipation in 1846 and 1847 the Gini index marks a slight increase to the extremely high levels that are retained throughout the post-emancipation years. After emancipation, the average Gini estimate reached a stable level of 0.988 units. Such an extreme level represents an almost perfectly unequal distribution of measurable wealth, with literally all material wealth that we are able to measure concentrated into the hands of a handful of very wealthy individuals. This pattern of a very stable inequality at very high levels with minor fluctuations is also corroborated by our sensitivity analysis (see Appendix A).

To better understand this pattern of extremely high Gini estimates, and the absence of fluctuations in the pre-emancipation years it is necessary to investigate closer the developments that occurred in the various strata of the population. Figure 2 reports the shares of the population that owned no wealth and those that had access to material wealth respectively. Throughout the period, the vast majority of the population on St. Croix possessed no measurable material wealth. Zero-wealth holders ranged between 85 to 90 percent of the total population during most of the pre-emancipation years and increased to make up more than 90 per cent of the total population of the island after emancipation. This extreme polarization of society was of course mainly driven by the share of slaves. In the decades prior to emancipation, slaves constituted around 60 to 70 per cent of the population. Such shares are rather representative for slave societies in the Caribbean and St. Croix is no way special in this respect. The slave population does, however, show a gradually declining trend up to 1840, and the decline becomes more abrupt in the years

[27] For a review of historical Gini estimates internationally see Galli et al. 'Economic inequality in L. America and Africa'

immediately prior to emancipation. This pattern seems to suggest that some slave owners may have anticipated emancipation, manumitting their slaves - who then joined the ranks of the free (but propertyless) individuals. Free propertyless made up roughly 10 per cent of the whole population in 1830, albeit their significance had increased to roughly a quarter of the whole population in the immediate pre-emancipation years.

FIGURE 2. *Shares of various population strata, 1830-1870*



Sources: see Data section

Table 1 reports the development of cumulative wealth available on the island throughout this period, as well as various percentile ratios that capture the relative position of individuals belonging to the lower bottom of the distribution in relation to others that made up the wealthier (upper) percentiles of the wealth distribution. What is noteworthy is that the total wealth available on the island (table 1, column C) was decreasing for several decades during the period under study. By the mid-1840s, the total value of the four main wealth assets available on the island had more than halved, while by 1870 the total available wealth on the island was a mere 30 per cent of the 1830 levels. This decline in total wealth was to a large extent due to falling asset prices for all assets in our sample. But despite this secular depreciation of wealth assets on the island of St. Croix, the possession of wealth continued to be extremely polarized in the island.

In the literature on inequality, it is customary to estimate the 90 to 10 or 90 to 50 percentile ratios of a wealth distribution, as in the lower percentiles (i.e. the 10^{th} and the 50^{th}) we usually find individuals that possess some (albeit negligible) wealth and thus the ratios become meaningful. In slave societies where the largest segment of the population is comprised by zero-wealth-holders, however, it often becomes mathematically impossible to calculate such ratios as the respective 10th- and 50th-percentiles of the distribution hold zero wealth.[28] This is very much the case on St. Croix, where more than half of the population on the island was completely impoverished. Throughout the period under investigation, the propertyless segment of the population made up at least 85 per cent of the population. In other words, the first percentile of the distribution that was held by some non-zero wealth-holding individual was at best the 85^{th} percentile. For this reason, table 1 reports the first percentile ratio which is mathematically possible to estimate under each year, as well as the 99 to 90 and 99 to 95 percentile ratios under all years.[29]

[28] It is mathematically impossible to define a division by zero as the calculus becomes meaningless.

[29] It is worth mentioning that in non-slave contemporary societies or in our modern societies today such a ratio would actually only capture inequality between people that belonged in the so called "elite" and would not be a representative measure of wealth inequality for the society overall. This may, however, not be the case in a highly polarized slave-based societies such as that of St. Croix.

TABLE 1. *Population, total wealth and percentile ratios on St. Croix, 1830-1870*

	A	B	C	D	E	F
	Population	Total No of slaves	Total assets' value (1830=100)	99 to first non-zero wealth percentile ratio	99 to 90 percentile ratio	99 to 95 percentile ratio
1830	26,182	20,022	100	5,380	57	10
1832	26,125	19,802	89	515	46	7
1834	25,835	19,102	76	2,055	43	9
1836	26,453	19,215	67	1,002	57	11
1839	25,450	18,408	57	853	55	11
1840	25,649	18,316	54	770	56	11
1841	25,766	17,971	50	796	46	10
1844	23,519	16,267	41	1,996	43	8
1846	25,338	16,084	47	687	452	8
1847	25,334	16,039	47	637	111	8
1848						
1850	24,062		38		685	35
1852	23,882		28		364	18
1854	23,658		31		370	22
1856	23,790		33		275	18
1858	24,503		39		101	6
1860	24,087		33	687	198	19
1862	24,529		38	637	52	6
1864	24,543		36	663	49	6
1866	24,163		30		670	19
1868	24,161		49		712	21
1870	23,668		28	815	199	19

Notes: the missing values in the years 1850-58 and 1866-68 in column D are due to the unavailability of any zero-wealth holding individuals at a lower than 90th percentile.

Sources: see Data section

All measures of inequality clearly display the polarization of wealth distribution. The data (column D in table 1) suggests that individuals belonging to the top 1 per cent of the wealth distribution may have owned *at least* 515 to a staggering 5380 times more wealth than the rest of the population. This extreme polarization seems to have prevailed throughout the period under investigation. The 99 to 90 and 99 to 10 percentile ratios provide some further illustrative patterns. The 99 to 90 percentile ratio (column E in table 1) suggests that in the pre-emancipation years, people at the top of one per cent of the wealth distribution may have owned approximately 40 to a staggering 450 times more wealth than their fellow Crucians who, while only being ranked among the top 10 per cent, would still be considered as the 'elite' in many contemporary studies of inequality. After emancipation, however, the people belonging in top 1 per cent seem to have strengthened even further their relative position, owning at least 50 and, in some years, up to approximately 700 times more wealth than their other elite-counterparts. The 99 to 95 percentile ratios (column F in table 1) illustrate a similar picture of wealth polarization with a marked increased during the whole period which is, however, relatively weaker than the increase in the 99 to 90 ratio. The figures suggest that people who belonged in the 99th percentile of the wealth distribution owned at least seven to 11 times more wealth than people ranked only slightly lower in the wealth distribution, i.e. in the 95th percentile before emancipation. After emancipation, we find wealth distribution to have become even more polarized but relatively less so in comparison to the 90/10 percentile ratio. This suggests that the top one per cent strengthened its positions further in relation to the top 10 per cent as well as in relation to the whole impoverished population.

Overall, emancipation seems to have been followed by a further consolidation and concentration of wealth into the hands of an even smaller number of individuals in the society. Emancipation did provide an opportunity for redistribution of resources. That opportunity was, however, not at all materialized for the poorer segments of the population. Emancipation seems instead to have been followed by a fierce competition for further accumulation among the extremely wealthy individuals (the top one per cent) that had the economic means to concentrate more wealth.

7. Conditions after Emancipation in St. Croix and the Caribbean

Why were the poorer segments of the population not able to seize any opportunities from emancipation and decrease inequality in St. Croix? To understand this pattern, it is necessary to investigate the economic conditions for emancipated slaves not only in St. Croix but in the wider Caribbean and understand the underlying dynamics that dictated resource (re)distribution in the region.

Post-emancipation, the population density in the British Caribbean had been a subject of serious consideration.[30] Factor endowments can be one critical element affecting the (re)distribution of wealth by determining the access to land of individuals in a society.[31] The famous Nieboer-Domar hypothesis suggests that labor coercion is more likely to emerge in regions with relatively high land/labor ratios, i.e. with a low population density.[32] This would be the case since, in a setting of low population density, there are several alternatives available to working for a particular employer to the individual worker, allowing workers to demand a high reservation wage from any employer. From the perspective of the landowner, the worker's reservation wage could in such a context become prohibitively high.[33] Higher population densities would – all else equal – *vice versa* tend to put a lid on wage rates, as any free worker would have considerably fewer alternative opportunities available to him/her. As a result, this would also hamper savings and investments for wealth accumulation. It can therefore be expected that in densely populated colonies, control over land by the planter class would heavily influence the outcome on the labor market after emancipation.

Table 2 shows cropland prices in the Caribbean region, including on the island of St. Croix. On the eve of emancipation, land prices on St. Croix were on par with those found in several other Caribbean sugar-producing colonies. What is slightly surprising, however, is that land prices on St. Croix do not seem to match the prices levels of other Caribbean islands with similar population densities such as for instance Antigua, Barbados and St. Vincent.[34] A lower price of land would suggest that the newly liberated slaves on St. Croix potentially faced comparatively more favorable economic conditions than their counterparts on some of the other islands in the Caribbean. Land prices on St. Croix were, for example, similar to the price levels in Jamaica, an island significantly larger and more

[30] Green, *British Slave Emancipation*, 196; Mintz et al., 'Slavery and the Rise of Peasantries', pp. 225,229; Engerman, 'Economic adjustments to emancipation', pp. 197–98.
[31] Engerman and Sokoloff, 'Factor endowments'; Sokoloff and Engerman, 'History lessons'; Engerman and Sokoloff, *Economic development in the Americas*.
[32] Nieboer, *Slavery as an industrial system*; Domar, 'The causes of slavery or serfdom'.
[33] Rönnbäck, 'Were slaves cheap laborers?'.
[34] Land prices in St. Croix had reached the levels of Barbados, Antigua and St. Vincent when prices in the island were at their peak during the period 1815-25. During that period, the price of all land ranged between £4-50 per acre while the average price of cane-land was £30 per acre.

sparsely populated, where numerous emancipated slaves came to establish themselves as freeholders.

TABLE 2. *Cropland prices in the British West Indies and in St. Croix in the 1840s.*

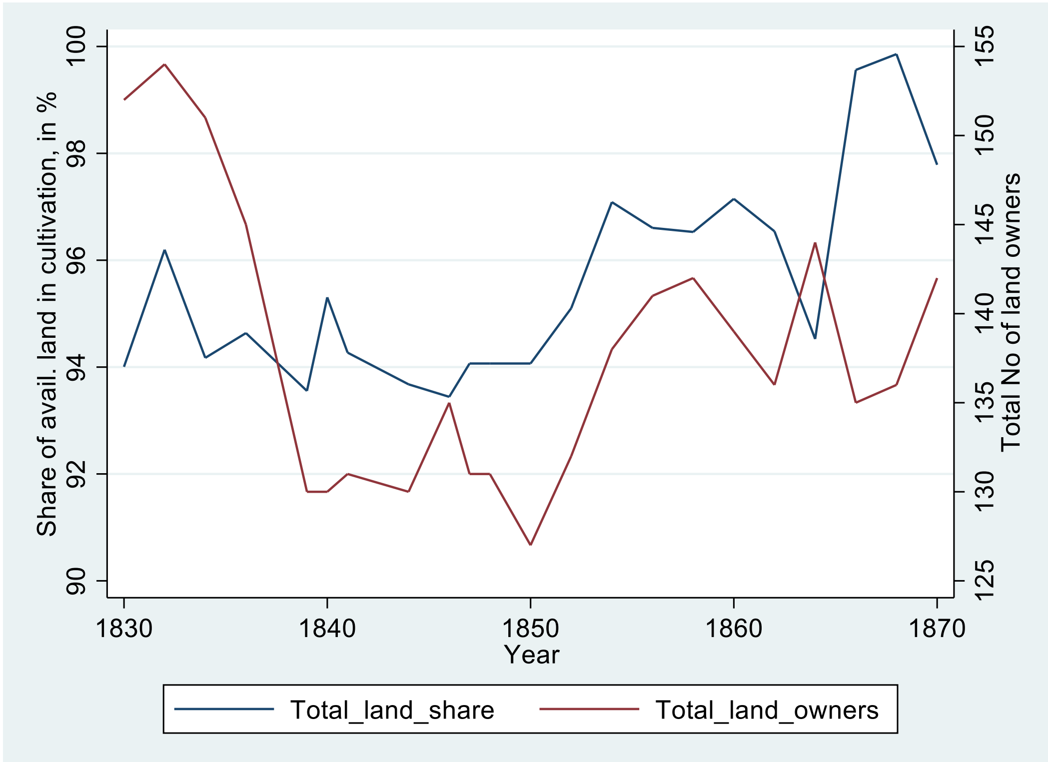
Location	Price per acre, in £	
	Min	Max
Antigua	40	80
Barbados	60	200
Dominica	1	3
Grenada	5	10
Guiana	1	50
Jamaica	4	20
St. Vincent	30	30
Tobago	20	20
Trinidad	1	13
St. Croix	1	15

Notes: The estimates for the British West Indies are average land prices for the 1840s. The estimates reported in the table for St. Croix correspond to average cropland prices during the period 1836-1846.

Sources: Land price estimates for the British West Indies are obtained from Riviere, 'Labour shortage', pp. 18–19, Table 1. Estimates for St. Croix are obtained from the auction and bailiff protocols housed in the Danish National Archives.

That land prices on St. Croix were so low in comparison with those that existed on other islands in the region is somewhat puzzling. Looking at the factor endowments of St. Croix we can find no peculiarity in the availability of land to warrant such a pattern. Figure 3 shows the development of the land frontier on St. Croix during the period under study. From the figure It becomes evident that the vast majority of all cultivable land on the island was already occupied prior to emancipation. The total area reported under plantation agriculture from 1830 onwards constituted more than 95 per cent of the island's total surface area (approx. 54 000 acres). The land frontier on the island was thus effectively closed long before emancipation.

FIGURE 3. *Land in cultivation and land ownership on the island of St. Croix, 1830-1870*



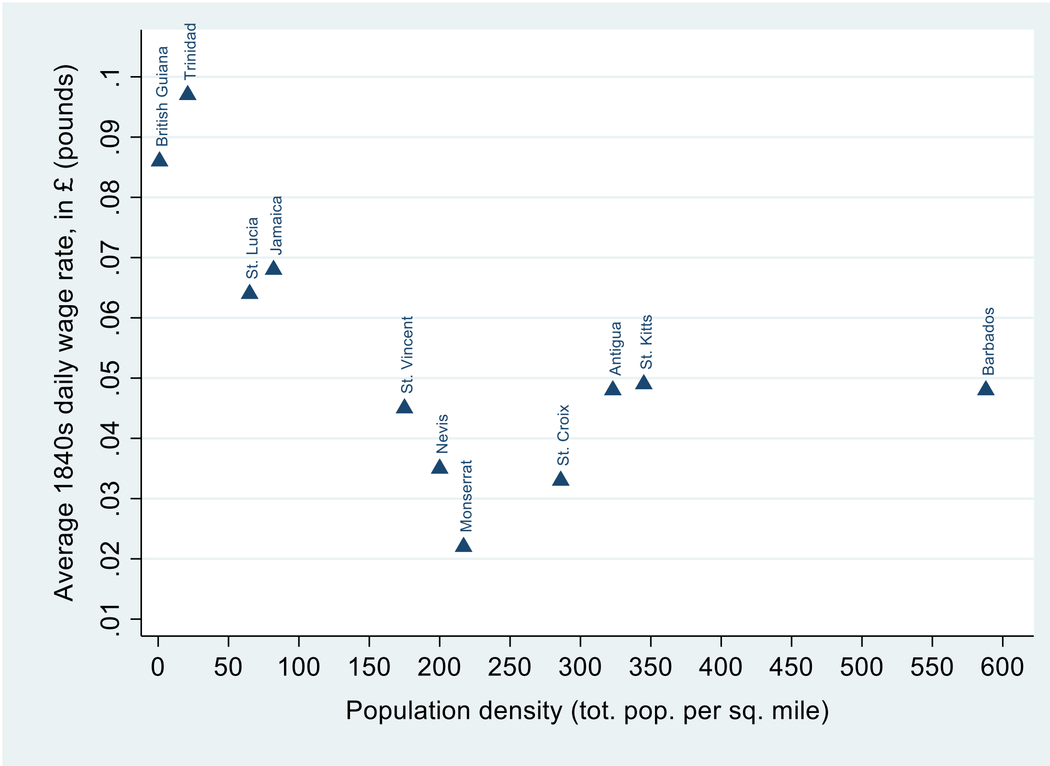
Sources: see Data section

Figure 3 also reports the number of household heads that were landowners on the island during the period under examination. Although there is some volatility, landowners' numbers show a steady downward trend prior to emancipation – a development that had been going on already from the late eighteenth century. There is remarkably little change following emancipation; the number of landowners increases only marginally in the early 1850s, to then show minor fluctuations into 1870. The pattern suggests that only a handful of landowners were able to acquire land following emancipation and that land was furthermore only parceled out from pre-existing plantations as a result of a closed frontier.

But ex- slaves' economic opportunity to get hold of land (the only asset of some substantial value after emancipation), was, of course, not solely dependent on the market for land, but also on the incomes that they were able to earn after emancipation. It was their income levels that would eventually determine the amount of capital they would have been able to save and eventually invest in land. Figure 4 shows the position of St. Croix in terms of population density and wage levels after emancipation relative to other Caribbean islands. In St. Croix, wage levels were quite similar to those that prevailed in many other islands in the Lesser Antilles with similar population densities, suggesting that the factor endowments were crucial determinants for the wage levels. But even in comparison with these islands, St. Croix wages were low – the only island with lower wages was seemingly Montserrat. The institutionally regulated wages by the Danish authorities (through the Labor Act of 1849), might thus have contributed to pushing the wages down even lower than on many of the other densely populated islands in the region. It is interesting that St. Croix's levels are very close to those of Antigua, an exceptional British colony where emancipation was not followed by the system of apprenticeship. The planter class of Antigua considered apprenticeship to have been redundant simply because they believed that former slaves did not have other alternatives after slavery than to continue working as free waged laborers on the same plantations where they previously had been toiling as slaves.[35]

[35] This peculiarity of Antigua has been stressed in much previous research (see for instance Bolland, 'Systems of domination after slavery', p. 594; Engerman, 'Economic change', p. 137; Engerman, 'Slavery and emancipation', p. 335); but also in the works of contemporary observers (see Davy, *The West Indies*, p. 397).

FIGURE 4: *Population density and daily wage rates of unskilled plantation workers in the Caribbean in the 1840s.*



Notes: wage rates for the British West Indies are the average of all estimates provided for the 1840s in each colony. The wage rate for St. Croix is a point estimate in 1848. The wage rate for St. Croix is reported in cents in the source. It is assumed that these are cents of the Danish West Indian dollar which according to [36] was equal to 1.5625 Rdl (vestindiske Curant). The West Indian Rdl is converted to the Rigsbankdaler based on the exchange rate also found in [37]. The wage rates for St. Croix is then converted from Rigsbankdaler to pound sterling (£) based on the 1848 exchange rate in [38].

Sources: Population density estimates for the British West Indies are for c. 1843 obtained from Robert Montgomery Martin found in [39]. Population density estimates for St. Croix have been calculated based on population data for 1846 found in [40]. Wage rates for the British West Indies are obtained from [41]. The wage rate for St. Croix is obtained from [42].

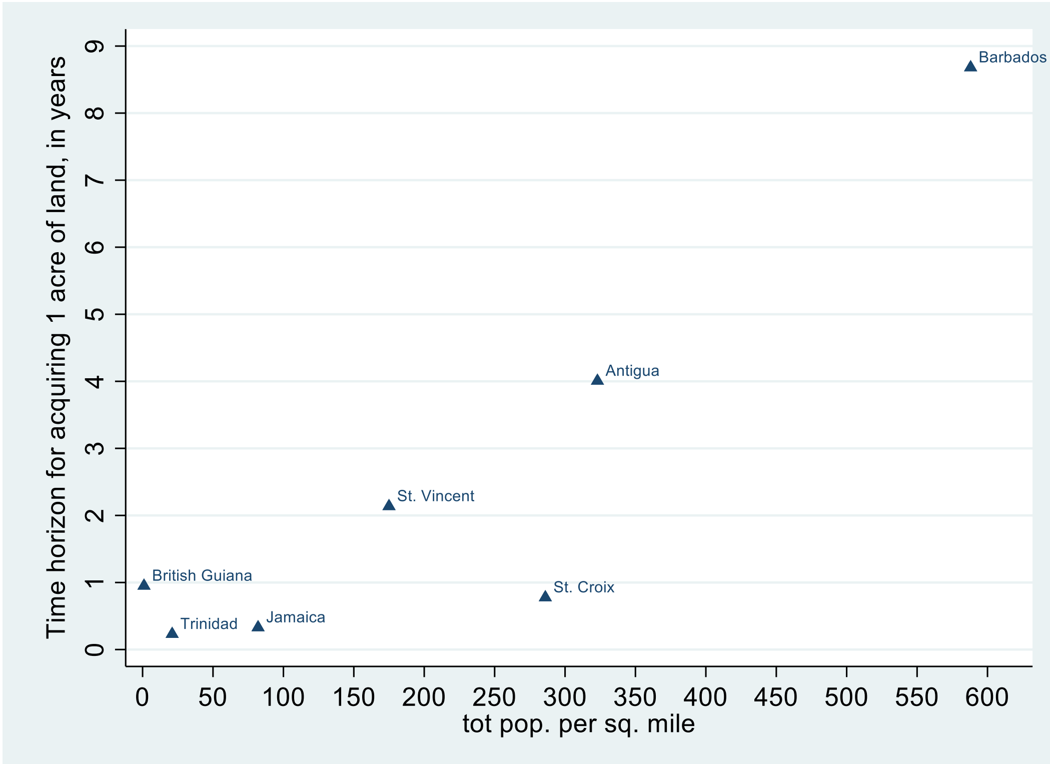
Combining the minimum land price per acre and the average daily wage rate in the 1840s and making the crude assumption that the whole wage could be saved to be eventually invested in land acquisition, we can construct a crude proxy of ex-slaves' opportunities in

[36] Sveistrup, 'Bidrag til de tidligere Dansk-Vestindiske øers økonomiske Historie', p. 120.
[37] idem, p. 120.
[38] Denzel, *Handbook of world exchange rates, 1590-1914*, p. 334.
[39] Engerman, 'Economic adjustments to emancipation', p. 196.
[40] Hall, *Slave society in the Danish West Indies*, 4–5.
[41] Riviere, 'Labour shortage', Appendix.
[42] Sircar, 'Emigration of Indian indentured labour to the Danish West Indian island of St. Croix 1863–68', p. 135.

terms of the actual time horizon required for wealth accumulation across the Caribbean. As shown in figure 5, the average time horizon for ex-slaves' wealth accumulation varied widely across the Caribbean region. In densely populated islands, such as Barbados and Antigua, ex-slaves would be required to save longer than 4 to 8 years in order to be able to purchase just one acre of land.[43] All else equal, however, liberated slaves in St. Croix seem to have had a comparatively more `favorable horizon`. Newly liberated slaves' horizon for wealth accumulation in St. Croix was only one fourth or less of that necessary for their counterparts in the most densely populated British Caribbean colonies, such as Barbados, but comparatively worse off than the liberated slaves on the larger islands, such as Trinidad and Jamaica. In fact, the island of St. Croix seems like an outlier for what could otherwise have been an almost perfectly linear relationship between population density and the propensity of ex-slaves' ability to accumulate wealth in land assets. This is largely attributable to the comparatively low prices for land shown in table 2 above.

[43] To understand the insignificance of one acre, it is worth mentioning that in the aftermath of the US Civil War and during the so called 'Reconstruction' era there had been a public debate of allotting up to 40 acres of land to ex-slaves (see Oubre, *Forty Acres and a Mule*). That amount of land was considered to provide ex-slaves with a fair economic opportunity. On the basis of our wage and land price estimates, ex-slaves in the Caribbean would have required virtually a lifetime in order to merely acquire the same amount of 40 acres of land.

FIGURE 5. *Time required to purchase 1 acre of land in the 1840s (assuming a six-days' work week and no consumption), in years*



Sources: see table 2 and figure 3

The relatively shorter time span for wealth accumulation does not mean, however, that ex-slaves on St. Croix, or on any other of the Caribbean islands, would have been able to purchase land easily. In addition to the very bleak time horizon necessary to accumulate enough capital to purchase any land, ex-slaves would also have to overcome non-economic barriers such as social and institutional discrimination that were prevalent in slave societies. Racial prejudice and the unwillingness of the establish elite to parcel out their land may have well continued to act as a rigid social barrier for ex-slaves' socio-economic differentiation for many decades after emancipation. Theoretically, one could also expect a number of additional determinants to play a role for wealth accumulation that we have been unable to control for. Such factors include the productivity of capital and the availability of institutions protecting private property, the levels of human capital, the nature of plantation agriculture, and the type of cultivated crop.[44]

[44] Higgs, 'Accumulation of property by southern Blacks', pp. 731–32.

8. Conclusions

This study constitutes one of the first attempts to estimate quantitatively the distribution of wealth in a Caribbean slave society before and after one of the most important institutional breaks of the nineteenth century – that of slave emancipation. The study is unique in that it accounts for the whole population, free and unfree alike. The island of St. Croix serves as a typical case of a Caribbean slave-based colony and provides a uniquely rich wealth of data that enables us to empirically estimate inequality levels before and after emancipation in the region.

Our findings suggest that the institutional break of emancipation did not have any substantial effect on the distribution of wealth on St. Croix. Slaves were legally emancipated, but economic inequality remained at as extremely high levels after emancipation as it had been in the period prior to emancipation. The results thus indicate a high degree of persistency of inequality, lingering on long after emancipation. The results contrast the findings in previous research focusing on the U.S. South, where it has been argued that inequality decreased just within a decade following the U.S. Civil War due to emancipation. Much of that levelling was due to old elites experiencing capital losses from emancipation, rather than to the emancipated slaves improving their lot to any degree. In the case of St. Croix, the old elites experienced no destruction of physical capital in connection with emancipation, while land and other assets remained as unequally distributed after emancipation as it had already been prior to this institutional rupture. The results from our research corroborate the previous (largely qualitative) research from the Caribbean colonies, suggesting that emancipated slaves faced very bleak opportunities at improving their economic conditions even after emancipation.

We argue that a key explanation for the lack of opportunities for redistribution of wealth rest on factor endowments in the form of land-labor ratios, in combination with the coercive labor practices that prevailed on the island of St. Croix. In contrast to the U.S. South, where a continental land frontier was still available after emancipation, on many Caribbean islands – including on St. Croix in particular, as we have shown in this article – the land frontier was effectively closed already prior to emancipation. Our findings thereby highlight the crucial importance that factor endowments had for the distribution of resources long after slavery had been legally abolished in the Caribbean. The emancipated slaves did in this case not gain much more than a nominal kind of freedom, for decades after emancipation.

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Appendix A

Estimating Individual-Level Wealth Inequality

As we are unable to determine family composition for the enslaved population, we are unable to estimate the true between-households wealth inequality of the total population on the island. We instead opt for estimating individual-level wealth inequality. For that reason, we estimate individual wealth during the period when slavery was legal by dividing total household wealth equally among what the sources report as 'blanke' (white) members of each household during these years. One discrepancy, however, is that between 1836 and 1844 there is a marked increase in the number of 'white' individuals reported under each household in the sources, while the total population of the island remains rather stable. That is seemingly due to changes in the recording practices by the Danish authorities, with 'fri negere' (i.e. 'free negroes') starting to be recorded under the 'blanke' (i.e. 'whites') category in the tax-registers. It is only in one year, in 1834, that these 'fri negere' and 'blanke' were reported separately by the local authorities. It is important to control for this discrepancy. An inflated number of white individuals under each household leads to an unreliable increase in the number of individuals with potential access to wealth. This data artifact creates a decline in the estimated wealth inequality prior to emancipation. To correct for this discrepancy in recording practices we use the 'blanke' to 'fri negere' ratio from 1834 and deflate the various categories of white individuals between 1836 and 1844 by this ratio. For the following period, 1846 to 1870, household composition and population data started being recorded in population censuses by the Danish authorities. Individual-level censuses were undertaken regularly between 1846 and 1870. We have used this census data and linked them to the tax records through the use of geographical identifiers.[45] For the years 1846 to 1870 we thus use this more granular information on household composition provided from the census and combine them with the wealth estimates at the household level obtained from the tax records to construct more precisely the individual wealth estimates for this period. The combination of this rich economic and demographic information enables us to study wealth inequality between all individuals throughout the period 1830 to 1870.

[45] i.e. using the address of each household or plantation

Value of Freedom

For this additional analysis we rely on a so-called 'value of freedom' approach that draws upon generally accepted arguments found in previous research on the economic value of freedom in slave societies and which helps us conceptualize individuals as being on a spectrum ranging from expropriated (slaves) to the expropriators (slave master), with the free, propertyless falling in between these extremes of the spectrum.

In some previous research on historical inequality, scholars have experimented with including an economic value of freedom in their calculations. That has been operationalized through the average slave price which has then been included in the estimates of wealth distribution.[46] The rationale for using slave prices as a proxy for the value of freedom is that in many parts of the Americas, slaves could (and in many cases did) purchase their own freedom.[47] The price that they would have to pay might have had little bearing upon how they themselves subjectively valued their own freedom, but many slaves apparently were willing to self-purchase even at prices higher than the general market price for slaves.[48] In parallel with these studies other scholars that investigate the total costs of slavery, and potential compensation schemes for slavery, have also used slave prices as a proxy for the economic value of the loss of freedom under slavery.[49]

Similar to this previous research, we estimate the value of freedom by using the average slave price as a proxy estimate of slaves' negative wealth. This represents the price that a slave presumably would have to pay for their freedom had they been able to accumulate the means to purchase their own freedom. This was thereby the price a slave would have to pay to be at least as well off as a free person who on net owned zero material wealth. One option is then to estimate inequality before emancipation, assuming that the slaves owned a negative wealth equal to the value of freedom, just because they were enslaved. As Osberg and Siddiq noted when trying to undertake a similar analysis, negative wealth hinders the use of several conventional measures of distribution, such as the Gini index, as this and

[46] Jones, *Wealth of a nation to be*, pp. 54, 100–101; Osberg and Siddiq, 'The inequality of wealth in Britain's north American colonies', p. 156. Alice Hanson Jones in her work argues that theoretically a better way to estimate free human capital would be to estimate the capital value of the average product of a free person. It is thus argued that the value of freedom for a slave may be calculated on the basis of the capital value of the average product that enslaved labour generated. In face of the absence of such data, however, the slave price can be taken as a valid proxy of that capital value.

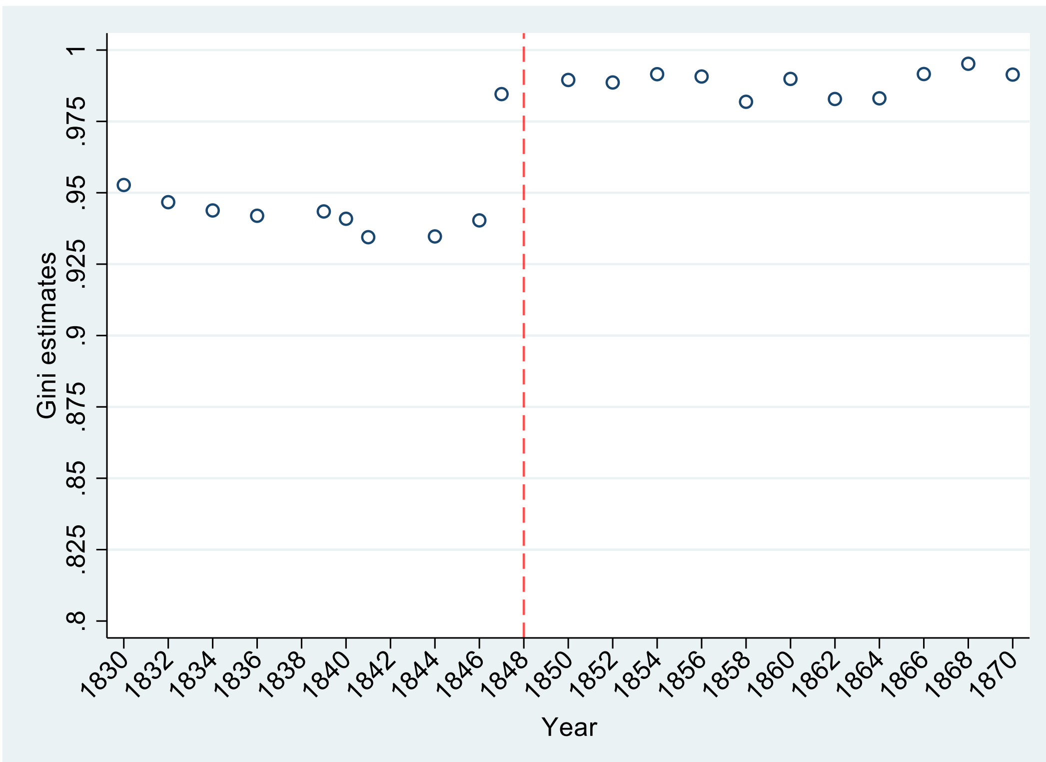
[47] Matison, 'Manumission by purchase'; Cole, 'Capitalism and freedom'; Heath, 'The meaning of freedom'.

[48] Cole, 'Capitalism and freedom', tab. 5.

[49] Ransom and Sutch, 'Who pays for slavery?'; Craemer et al., 'Wealth implications of slavery and racial discrimination'.

other similar measures can only be calculated mathematically when all members of the population have zero or positive wealth on net.[50] In this paper, we opt for an alternative method where we shift the center of the distribution under the assumption that all free individuals (with and without property) instead held an abstract wealth equal to the value of freedom (in addition to any material assets that they might have owned). A slave is, in contrast, assumed to have held zero wealth. This allows us to move beyond the dichotomy between wealth owners and propertyless populations and account for the relatively deprived condition of slaves, relative to the free propertyless, in conventional measures of inequality. In figure A1 we use the value of freedom approach and provide inequality estimates for St. Croix.

FIGURE A1. *Wealth inequality: Gini index, St. Croix, 1830-1870 , 'value of freedom' estimates*



Source: see Data section

[50] Osberg and Siddiq, 'The inequality of wealth in Britain's north American colonies', p. 156.

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