Prateek Wadhavkar

ECON 454

Professor Amanda Gregg

Spring 2023

*Honor Code: I have neither given nor received unauthorized aid on this assignment.*

***Mastering Efficiency: How Plantations Combined Slavery with Managerial Hierarchies to Attain Economies of Scale***

***Research Question****:*

Did human capital management practices in plantations in the Antebellum South result in economies of scale?

***Introduction***

The role played by plantations in the Antebellum South in the advancement of modern managerial practices in highly contended. Some scholars argue that plantations were pre-capitalist and pre-modern institutions that operated in a crude and inefficient manner, and were hence disappeared by the invisible hand of the market. Meanwhile, some scholars contend that plantations were sophisticated businesses with innovative management practices and contributed to the development of capitalism.

This study aims to investigate the management practices employed in Antebellum South plantations and their impact on productivity levels. Specifically, the study explores whether larger plantations achieved economies of scale through more effective management and coordination. The analysis will utilize the Parker-Gallman Sample, a comprehensive dataset that includes records on agricultural output, human capital, land characteristics, and machinery valuation from major cotton-producing counties in the Antebellum South.

The study will employ the Cobb-Douglas function to calculate the total factor productivity of plantations, representing the efficiency and technological productivity of the firms. Multiple definitions of agricultural output will be considered, including raw quantities of major crops and estimated total revenue based on historical price data. A log-linear regression model will be used to assess the relationship between plantation size, productivity, and the presence of overseers.

By shedding light on the productivity levels and managerial practices of Antebellum South plantations, this study aims to contribute to the ongoing scholarly debate on the role of slavery and plantations in the development of business and capitalism. The findings will provide valuable insights into the economic dynamics of the era and deepen our understanding of the historical significance of plantations in shaping the modern business landscape.

***Background***

Before the American Civil War began in 1861, the use of slavery was not only legal but also widespread in the South. Due to geographical differences, and the legality of slavery, the Antebellum South[[1]](#footnote-1) had an economy that starkly differed from that of the North, primarily due to geographical variations and the institution of slavery. The Southern economy revolved around plantations, which were large farms owned by individuals or families. These plantations relied on the utilization of enslaved individuals and overseers to cultivate highly profitable cash crops, such as cotton and tobacco.[[2]](#footnote-2)

While the contentious issue of slavery itself was a subject of debate in the North, several historians and prominent abolitionists argued that slavery in the American South played a significant role in fueling growth in the North. The cheap supply of cotton provided by Southern plantations acted as a vital raw material for Northern factories during the era.[[3]](#footnote-3) While it is widely accepted that modern capitalism and the industrial revolution had their roots in Northern factories, the exact contribution of plantations in this process remains a matter of contention among scholars.

Plantations of the time primarily focused on cultivating cash crops, with cotton being the most lucrative. Planters meticulously documented the births and deaths of slaves, the amount of cotton harvested, and detailed records of the dates, prices, and quantities of cotton sold.[[4]](#footnote-4) The management structure of plantations also featured clear hierarchies. Enslaved individuals were responsible for arduous, labor-intensive, and often hazardous work on the farms, with some slaves also assuming supervisory roles. Free supervisors were hired to monitor cotton picking quantities, administer punishments, and take measures to optimize slave output. Plantation owners made executive decisions such as slave transactions and overseer recruitment.[[5]](#footnote-5) This hierarchical system created a potential framework for larger plantations to achieve greater efficiency and profitability. These management hierarchies could produce a system in which larger plantations could be more efficient and profitable.

The labor-intensive nature of plantation operations, coupled with the management hierarchies and emphasis on maximizing output, raises the question of whether economies of scale were attained in these plantations. By investigating the human capital management practices employed in Antebellum South plantations, we aim to determine if larger plantations experienced advantages in terms of economies of scale due to more effective management and coordination.

***Literature Review***

The role of slavery and plantations in the development of capitalism has been a subject of controversy and debate. While some argue that plantations were ancient forms of large-scale production with limited impact on modern business enterprise, others contend that they were sophisticated businesses with significant contributions to the history of business and capitalism. This section explores the contrasting perspectives presented by scholars such as Alfred Chandler, Rosenthal, Alan Olmstead, Paul Rhode, and Bill Cooke, shedding light on their views regarding the managerial control, innovation, and productivity levels within plantations.

In *The Visible Hand*, Alfred Chandler argues that, while the plantation overseer is the first example of a salaried overseer, the plantation system was an ancient form of large-scale production.[[6]](#footnote-6) This is because, he argues, plantations rarely relied on large amounts of capital or advanced technology, and that the tasks of the salaried overseer were decidedly “not complex.” It is important to note that Chandler, here, does not include the value of slaves in his analysis of capital. While overseers maintained a “plantation book” containing details about births and deaths of slaves, daily pickings, and the weather, they did not collect detailed data on financial information, and that this data was not systematic and was rarely used. He concludes that “although [the southern plantation] required some subdivision of labor and some coordination of the activities of the work force, [it] had little impact on the evolution of the management of modern business enterprise.”[[7]](#footnote-7)

In *Accounting for Slavery*, Rosenthal disputes Chandler's views about the place held by plantations in the history of business and capitalism. She argues that masters and overseers had a manager-like control over enslaved people, dictating factors like food, healthcare, and punishments to increase productivity.[[8]](#footnote-8) They were able to set up complex positive and negative incentive systems to meet agricultural targets.[[9]](#footnote-9) Additionally, planters pioneered sophisticated accounting techniques, which would later be used elsewhere, to make this happen. She sees plantations as labs for agricultural experimentation where labor efficiency was monitored with precision. Rosenthal contends that plantations were sophisticated businesses, with innovation in management and business practices, and were ahead of the North in labor efficiency monitoring.

Alan Olmstead and Paul Rhode expand upon this thesis in *Were Antebellum Cotton Plantations Factories in the Field?* Olmstead and Rhode show that output per worker and the capital to labor ratio increased a rate comparable to factories in the North.[[10]](#footnote-10) They, too, oppose Chandler’s argument about plantations, and argue that their findings show that plantations in the South met Chandler’s definition of a modern business enterprise.[[11]](#footnote-11) However, they disagree with the assertion that Southern plantations equivalent to Northern factories in all aspects. For example, they disagree with Rosenthal’s claim that the management of whippings and doling out of food had a parallel to workers in assembly lines in the North.[[12]](#footnote-12) They also argue that their record-keeping was highly unsystematic, and that they use little machinery. In another paper by them, titled *Productivity Growth and the Regional Dynamics of Antebellum Southern Development*, they show that the creation and diffusion of higher-yielding and easier to pick cotton varieties in Mississippi allowed for rapid increases in productivity.[[13]](#footnote-13) They argue that these results also go against Chandler’s argument about plantations not making use of advanced, labor-saving technologies.

In *The Denial of Slavery in Management Studies*, Bill Cooke argues against Chandler, Olmstead and Rhode’s claims about plantations being radically different from factories with respect to their impact on modern business and management practices. According to Cooke, management studies scholars ignore the history even though, in 1600, 38,000 managers were overseeing the work of 4 million slaves to avoid acknowledging the uncomfortable truth about these practices.[[14]](#footnote-14) This exclusion is often justified by claiming that slavery was pre-capitalist, unsophisticated, and lacked non-owner managers. The article ultimately concludes that slavery is intrinsic, but hitherto denied, relevance to management studies.

In my paper, I aim to study the productivity levels of different factors of production in plantations in the Antebellum South. I will study these productivity levels for different types of plantations, for different types of outputs, in different parts of the South. I will then look at how these productivity levels differ across plantations of different sizes. If productivity levels are increasing for an increase in size, I will conclude that plantations in the American South have reached economies of scale. While most papers I have read make arguments about the levels of sophistication of the plantation and the high levels output per worker, none of the studies I have read have assessed whether plantations had reached economies of scale. If larger plantations were also more productive, one could argue that this could, in part, be a result of a sophisticated system of managerial hierarchies as discussed by Chandler.

***Data***

My primary dataset for this paper is the Parker-Gallman Sample compiled by William Parker and Robert Gallman in 1984 as a part of their Southern Farms Study. This dataset contains records on agricultural output, human capital, livestock, land characteristics and valuation of machinery. The data on population is split into enslaved and free residents by age and sex. This data was compiled from the agriculture, slave and population schedules of the 1860 US manuscript Census. It covers 5228 farms in 405 major cotton producing counties for states in the Antebellum South. In each county, a random bloc of five farms is selected out of 280.

This dataset covers plantations that produce a variety of outputs, namely, cotton, corn, wheat, rye, tobacco, wool, food crops and animal produce. Cotton is, unsurprisingly, the most prominent crop in this dataset. Out of the 5228 farms in this dataset, 3769 produce cotton, 4991 produce corn, 2309 produce wheat, 388 produce rye, 248 produce tobacco, 124 produce rice and 979 produce oats. Table 1 describes the summary statistics related to agricultural outputs. For all agricultural outputs, we observe a large number of plantations with producing a small quantity of the product, and a small number of plantations producing an extremely high quantity of the product. This is evident in charts 1, 2 and 3 showing the distributions of cotton, corn and tobacco.

Table 2 describes the summary statistics for the inputs of all plantations. It describes the acres of improved and unimproved land, the valuation of the farm, its machinery and its livestock, and the number of enslaved people, overseers and paid laborers working on the plantations. The number of slaves and laborers have been further broken down by sex and whether they are aged between 15 and 40. We observe a similar skewed distribution for all of these variables, evident in charts 4 and 5 for total enslaved people and the value of the farm. Out of the 5228 farms in this dataset, 2579 use the labor of enslaved people, 336 employ paid laborers, and only 195 employed overseers. Chart 6 shows the distribution of the number of overseers for plantations that employed overseers. This chart shows us that, out of the few plantations that employed overseers, very few employed more than one overseer.

I will also be using data from Arthur Harrison Cole’s *Wholesale Commodity Prices in the United States, 1700-1861[[15]](#footnote-15)* for per unit prices for cotton, tobacco, rice, sugar, and other crops to estimate the overall revenue of each plantation. I will be using price data from 1850. This is because the 1860 US Census of Agriculture, from which the Parker Gallman Sample is extracted, was conducted for the years between 1855 and 1860. *Wholesale Commodity Prices in the United States* only contains price data for the years 1850 and 1860. Due to the political and economic volatility preceding the outbreak of the Civil War in 1861, the prices from 1850 are more representative for this period compared to the prices from 1860. Additionally, this source only provides us with price data for cotton, tobacco, sugar, wheat, rice, hops and wool, and our calculations for revenue will not include agricultural products such as oats, rye, barley and potatoes. This period also observed extremely volatile prices- with the price of hops increasing from 0.11 to .30 per pound within a 1 month period, and the price of cotton increasing from 0.10 to 0.14 within a 10 month period. This high level of price volatility decreases the reliability of this variable.

***Methods and Hypothesis***

I will be using the Cobb-Douglas function to calculate the total factor productivity for plantations in the American South. The total factor productivity of a plantation is calculated by storing the residual values of the Cobb-Douglas function. This value represents the portion of the output that cannot be attributed to changes in the inputs of production alone. Hence, it acts as a measure of the efficiency and technological productivity of a firm. However, this variable also includes the error term and the variance of other factors of production not included in the regression. Hence, it is essential for the metrics for our factors of production to be accurate and exhaustive for total factor productivity to be an accurate metric for the efficiency and technological productivity of plantations.

I will be considering multiple definitions of agricultural output. First, I will consider the raw quantities of major agricultural products, namely cotton and tobacco. Second, I will construct an estimate of the plantation’s total revenue based on historical price data. The following equation describes these variables.

In the above equation, Y is the output for plantation *i,* for our definition of output *j*. A is the total factor productivity (TFP), for a plantation for a given output. is the labor productivity for the type of labor *k* at plantation *i* for output *j*. is the capital productivity for the type of capital *m* at plantation *i* for output *j.* Our productivity indices , , and can help us identify what factors of production are most productive for a given type of output.

I will then use the following model to assess the degree to which a plantation achieves economies of scale for a given type of output *j* and a given type of productivity *n*. The following equations describe this model:

A positive coefficient on for these equations would indicate an increasing level of productivity for increasing size, which would suggest that plantations in the Antebellum South operate at economies of scale. This would suggest, as per Alfred Chandler’s arguments, that plantations were modern and sophisticated businesses, and that they made use of complex management hierarchies to maximize productive gains.

Overseers are a key component of the management hierarchy in plantations. We can test the effectiveness of overseers by using the following regressions:

We can also observe the productivity of enslaved people and laborers in the presence and absence of overseers with the following regression:

In these regressions, I will be controlling for the farm value, machine value, livestock value, improved land, and soil type for each plantation.

The summary statistics for this dataset point towards the existence of a small proportion of plantations with large quantities of improved land, enslaved people and overseers that produced an outsized quantity of agricultural output. To ensure that our analysis makes apples-to-apples comparisons, we will use multiple samples with our regressions. At first, we will run our regressions with all plantations in the data. Second, we will limit our sample to plantations that produce a certain good. Third, we will limit our sample to plantations that make use of the labor of enslaved people. Finally, as overseers are only employed by large plantations, we will use a sample that only contains plantations of a certain scale.

Based on my readings, I would predict that plantations operate at economies of scale. I further predict that plantations producing cash crops such as cotton and tobacco are more likely to operate at economies of scale compared to plantations producing food crops such as corn. I also predict that overseers play a large role in boosting productivity. I would expect the presence of overseers to be associated with a large increase in output. I would also expect a high coefficient for the interaction between the number of enslaved people and the presence of overseers, indicating higher productivity. Using these findings, I aim to prove that plantations in the Antebellum South used management hierarchies to boost output and achieve economies of scale.

***Results***

Table 3 gives us the output of our Cobb-Douglas production function for cotton. Column 1 shows us the coefficients for the production function for all plantations in the dataset. Column 2 restricts the sample to plantations that produce cotton. Column 3 further restricts the sample to only include plantations that use slave labor. Column 4 only includes plantations in the upper quartile with respect to farm value. Tables 4 and 5 do the same for tobacco and corn. From these tables, we can observe that our model has the greatest explanatory power for cotton followed by corn and then tobacco. We also observe that cotton production is significantly more impacted by the number of enslaved people at the plantation compared to corn and tobacco production. Our results for tobacco, especially in column 4, suffer from an extremely low sample size. We also observe a greater decrease in the number of observations between column 3 and 4 for corn and tobacco compared to cotton, indicating that plantations that produce cotton tend to be significantly larger than plantations that produce tobacco and corn.

In Table 6, we use the Cobb-Douglas production function for total revenue, which is calculated using price data from Cole’s *Wholesale Commodity Prices in the United States, 1700-1861.* Column 1 shows us the coefficients for the production function for all plantations in the dataset. Column 2 restricts the sample to plantations that used the labor of enslaved people, and column 3 further restricts the sample to the upper quartile of all plantations with respect to farm value. Table 7 explores how different agricultural outputs impact revenue. Table 7 shows us that cotton and corn have the greatest impact on revenue while hops and tobacco have a negligible impact on total revenue. The R-squared value for the regression with corn appears to be suspiciously high, and the R-squared value for the regression with tobacco appears to be suspiciously low- however this could be a result of the high proportion of plantations in our dataset producing corn and an extremely low proportion of plantations producing tobacco.

We can now explore our correlation between total factor productivity and size. Tables 8, 9 10 and 11 explore the correlation between the total factor productivity and the output concerned. We generally observe a high level of correlation between total factor productivity and output, suggesting that plantations do, in fact, operate at economies of scale. Let us further inspect the causes of higher levels of productivity in larger firms.

One of my hypotheses is that the presence of overseers results in increased productivity levels in plantations as they leverage management hierarchies. Table 12 shows the output for the regression between the presence of overseers and the amount of cotton produced, controlling for farm value, machine value, livestock value, improved land, and soil type for each plantation. Table 13 shows the same result, but for net revenue instead of total cotton produced. The first column of the table looks cotton producing plantations, the second column only includes plantations that produce cotton and use slave labor, and the final column includes the upper quartile of plantations by farm value. We observe that, in large plantations, the presence of overseers boosts cotton production by 30%, and revenue by 12.4%. This is highly indicative of plantations using managerial hierarchies to boost revenue.

***Conclusion***

These conclusions hold significant implications for our understanding of plantation economics during the Antebellum South era. They shed light on the interplay between labor management strategies, plantation size, and overall productivity. By recognizing the link between human capital management and economies of scale, plantation owners and managers can gain valuable insights into effective practices that can enhance operational efficiency and output levels. My research contributes to the broader understanding of historical plantation economies and offers valuable lessons that can be applied to contemporary business contexts seeking to optimize human capital management and achieve economies of scale.

In conclusion, I explore the research question of whether human capital management practices in plantations in the Antebellum South resulted in economies of scale has been explored through a comprehensive literature review and the use of relevant data. My analysis employs the Cobb-Douglas function to calculate total factor productivity (TFP) and assesses various factors of production, including labor and capital productivity. By examining multiple definitions of agricultural output, such as raw quantities and estimated revenues, the paper aimsto identify the efficiency and technological productivity of plantations.

The evidence strongly supports the notion that economies of scale were prevalent in larger plantations. As the size of the plantations increased, productivity levels exhibited a corresponding upward trend, indicating the presence of economies of scale. This suggests that larger plantations were able to leverage more extensive labor forces, streamlined management structures, and specialized divisions of labor to achieve higher levels of output. Overseers played a major role in increasing agricultural output. The presence of overseers was correlated with a 30% increase in cotton output in large plantations, and a 12.4% increase in total revenue. Hence, my findings support Rosenthal and Cooke’s arguments about plantations in the Antebellum South operating with some characteristics of modern and sophisticated businesses, utilizing management hierarchies to maximize productivity.

In summary, this paper contributes to the understanding of management practices in Antebellum South plantations and how they reached economies of scale. The findings support the notion that these plantations operated as complex businesses, demonstrating efficiency and productivity gains with increasing size. Large plantations used overseers in a manner similar to the use of managers in textile factories in the North. Hence, this paper argues that large plantations operated as Chandlerian firms.

Some limitations of these findings include the high price volatility in this period, as indicated by the price data in *Wholesale Commodity Prices in the United States.* Additionally, while I have tried to account for the discrepancies between large and small plantations by using four different samples, it is possible for a size-related confounder, which is highly correlated with the presence of overseers, to increase its coefficient.

Words: 4012

***Bibliography***

Parker, William N., and Gallman, Robert E. Southern Farms Study, 1860. Inter-university Consortium for Political and Social Research [distributor], 1992-02-16. https://doi.org/10.3886/ICPSR07419.v1

Russell Menard, Trent Alexander, Jason Digman, and J. David Hacker, Minneapolis: Minnesota Population Center, Public Use Microdata Samples of the Slave Population of 1850-1860

University of Minnesota, 2004

Field, Elizabeth B. “Free and Slave Labor in the Antebellum South: Perfect Substitutes or Different Inputs?” *The Review of Economics and Statistics* 70, no. 4 (November 1988): 654–59. https://doi.org/10.2307/1935829.

Olmstead, Alan L., and Paul W. Rhode. “Were Antebellum Cotton Plantations Factories in the Field?” *Enterprising America* 7 (September 2015): 245–76. https://doi.org/10.7208/chicago/9780226261768.003.0008.

Rosenthal, Caitlin. *Accounting for slavery: Masters and management*. Cambridge, MA: Harvard University Press, 2019.

Rosenthal, Caitlin C. “From Memory to Mastery: Accounting for Control in America, 1750–1880.” *Enterprise and Society* 14, no. 4 (October 2013): 732–48. https://doi.org/10.1093/es/kht086.

Chandler, Alfred D Jr. *The Visible Hand: The Managerial Revolution in American Business by Alfred D. Chandler, JR*. Cambridge, MA: Belknap, 1977.

Schermerhorn, Jack Lawrence. *Business of Slavery and the Rise of American Capitalism, 1815?1860*. New Haven, CT: Yale University Press, 2015.

Cooke, Bill. “The Denial of Slavery in Management Studies.” *Journal of Management Studies* 40, no. 8 (December 2003): 1895–1918. https://doi.org/10.1046/j.1467-6486.2003.00405.x.

Cole, Arthur C. “1850 to 1860.” Essay. In *Wholesale Commodity Prices in the United States, 1700-1861*, 313–56. Harvard University Press, 1938.

***Appendix***

***Tables***

Table 1: Summary Statistics for Agricultural Outputs

| count >0 values e(mean) e(Var) e(sd) e(min) e(max) e(sum)

----------+-------------------------------------------------------------------------------

cotton | 5228 3769 18.24656 2816.999 53.07541 0 1300 95393

tobacco | 5228 248 56.11362 345593 587.8715 0 21500 293362

rice | 5228 124 48.89862 1335552 1155.661 0 60000 255642

wheat | 5228 2309 34.03673 10168.84 100.8407 0 3600 177944

rye | 5228 388 2.314269 302.3399 17.38792 0 500 12099

corn | 5228 4991 631.7884 1155655 1075.014 0 25000 3302990

oats | 5228 979 18.77295 11354.08 106.5555 0 4400 98145

wool | 5228 1688 18.35329 15948.84 126.2887 0 5900 95951

Table 2: Summary Statistics for Agricultural Inputs

count mean sd min max sum

------------------------------------------------------------------------------------------

improved\_land 5228 138.2144 643.7571 0 44100 722585

unimproved\_land 5228 306.6385 774.6482 0 24100 1603106

farm\_value 5228 4365.026 14818.23 0 571000 2.28e+07

machine\_value 5228 194.3678 876.5442 0 36000 1016155

livestock\_value 5228 890.7353 1514.985 0 39660 4656764

male\_slaves\_15\_45 5228 1.740245 4.320153 0 77 9098

female\_slaves\_15\_45 5228 1.756886 4.14488 0 65 9185

male\_slaves 5228 3.900918 8.952083 0 170 20394

female\_slaves 5228 3.297628 7.516742 0 152 17240

slaves 5228 7.198546 16.2169 0 322 37634

male\_laborers 5228 .0732594 .3181102 0 4 383

female\_laborers 5228 .0149197 .1839329 0 5 78

laborers. 5228 .088179 .4113256 0 7 461

overseers 5228 .0745983 .5376412 0 10 390

------------------------------------------------------------------------------------------

Table 3: Cobb-Douglas production function for cotton

A picture containing text, screenshot, font, number

Description automatically generated

Table 4: Cobb-Douglas production function for Tobacco

A picture containing text, screenshot, number, font

Description automatically generated

Table 5: Cobb-Douglas production function for corn

A picture containing text, screenshot, font, number

Description automatically generated

Table 6: Cobb-Douglas production function for total revenue

***A picture containing text, screenshot, menu, font

Description automatically generated***

Table 7: Correlations between revenue and the agricultural outputs

***A screenshot of a document

Description automatically generated with low confidence***

Table 9: The correlation between total factor productivity and cotton production

A picture containing text, font, screenshot, number

Description automatically generated

Table 10: The correlation between total factor productivity and tobacco production

A picture containing text, receipt, font, screenshot

Description automatically generated

Table 11: The correlation between total factor productivity and corn production

A picture containing text, font, screenshot, number

Description automatically generated

Table 12

A picture containing text, screenshot, menu, font

Description automatically generated

Table 13

A picture containing text, screenshot, menu, font

Description automatically generated

***Charts***

Chart 1: Histogram showing distribution of cotton in cotton-producing plantations.

A picture containing text, screenshot, line, rectangle

Description automatically generated

Chart 2: Histogram showing distribution of corn in corn-producing plantations.

A picture containing text, screenshot, line, font

Description automatically generated

Chart 3: Histogram showing distribution of tobacco in tobacco-producing plantations.

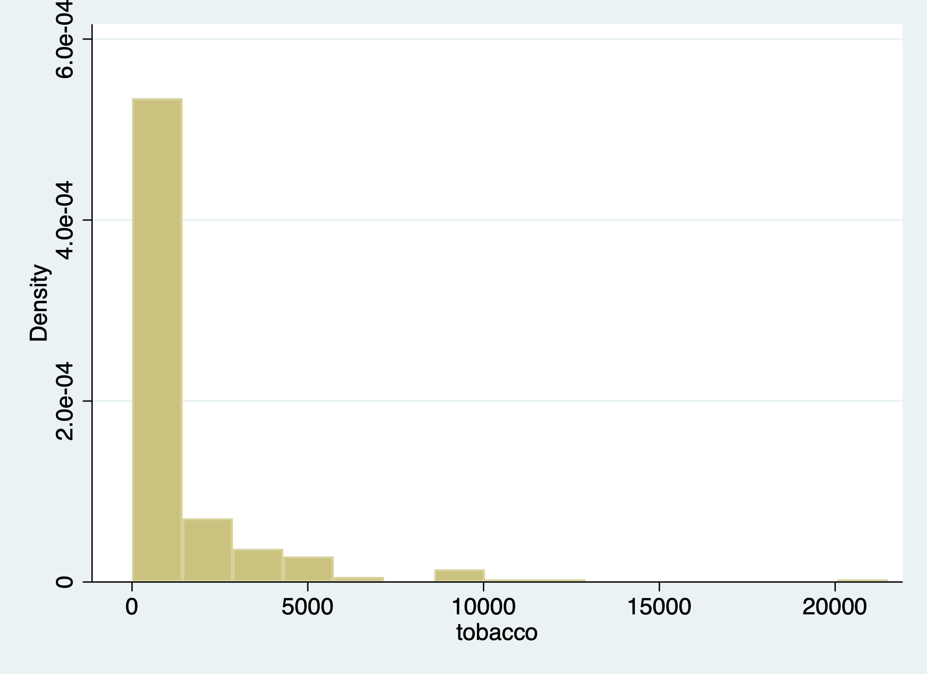


Chart 4: Histogram showing distribution of enslaved people in plantations that used the labor of enslaved people.

A picture containing text, screenshot, rectangle, line

Description automatically generated

Chart 5: Histogram showing distribution of farm value for all plantations.

A picture containing text, screenshot, line, rectangle

Description automatically generated

Chart 6: Histogram showing distribution of overseers in plantations that employ overseers.

A picture containing text, screenshot, line, diagram

Description automatically generated

1. The Antebellum South, or for the purposes of my study, is defined as the region encompassing the following states between 1812 and 1861: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, Virginia, West Virginia. [↑](#footnote-ref-1)
2. Gavin Wright, *Old South, New South: Revolutions in the Southern Economy since the Civil War,* (Baton Rouge: Louisiana State University Press, 1996), 14. [↑](#footnote-ref-2)
3. Jack Lawrence Schermerhorn, *Business of Slavery and the Rise of American Capitalism,* 3 [↑](#footnote-ref-3)
4. Caitlin Rosenthal, Introduction, *Accounting for Slavery: Masters and Management* (Cambridge, MA: Harvard University Press, 2019*,* 2*.* [↑](#footnote-ref-4)
5. Jack Lawrence Schermerhorn, *Business of Slavery and the Rise of American Capitalism,* 7. [↑](#footnote-ref-5)
6. Alfred D. Chandler, Traditional Economics in Production*, The Visible Hand,* 47-48. [↑](#footnote-ref-6)
7. Alfred D. Chandler, Traditional Economics in Production*, The Visible Hand,* 50. [↑](#footnote-ref-7)
8. Caitlin Rosenthal, Slavery’s Scientific Management, *Accounting for Slavery,* 87*.* [↑](#footnote-ref-8)
9. Caitlin Rosenthal, Introduction, *Accounting for Slavery,* 6*.* [↑](#footnote-ref-9)
10. Alan Olmstead and Paul Rhode, “*Were Antebellum Cotton Plantations Factories in the Field?*”, Enterprising America: Businesses, Banks, and Credit Markets in Historical Perspective, 257-259. [↑](#footnote-ref-10)
11. Olmstead and Rhode, “*Were Antebellum Cotton Plantations Factories in the Field?*” 268-269. [↑](#footnote-ref-11)
12. Olmstead and Rhode, “*Were Antebellum Cotton Plantations Factories in the Field?*” 272. [↑](#footnote-ref-12)
13. Alan Olmstead and Paul Rhode, “*Productivity Growth and the Regional Dynamics of Antebellum Southern Development?*”, Economic Evolution and Revolution in Practice, 1. [↑](#footnote-ref-13)
14. Bill Cooke, *The Denial of Slavery in Management Studies*, Jounal of Management Studies, 1895. [↑](#footnote-ref-14)
15. 1. Arthur C. Cole, “Statistical Supplement: 1850 to 1860,” Wholesale Commodity Prices in the United States, 1700-1861 (Harvard University Press, 1938), 313–17. [↑](#footnote-ref-15)