

## The “New History of Capitalism” and Slavery

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Abstract: The "New History of Capitalism" grounds the rise of industrial capitalism on the production of raw cotton by slaves. Recent works include Walter Johnson's *River of Dark Dreams*, Sven Beckert's *Empire of Cotton*, and Edward Baptist's *The Half Has Never Been Told*. Although all of these authors analyze economic phenomena and all make fundamental errors in economic reasoning that affect their major interpretations, we will concentrate on Baptist's celebrated volume. He relies on our estimates showing that the quantity of cotton picked per slave per day quadruped between 1800 and 1860; but he dismisses the role of improved cotton varieties. Instead, he argues that the calibrated use of torture caused the increase. Baptist asserts enslavers employed a ratchet mechanism, whereby increases in current production led to higher future targets. We investigate the ratchet hypothesis, using our sample of cotton picking records for the period 1801-1862. This sample includes data from 114 separate plantations and a total of 397 plantation-years, covering 602,219 individual observations of daily cotton picking performed by 5,598 enslaved African-Americans. Our results suggest that Baptist's hypothesis is inconsistent with the data on picking. This finding should not be surprising given that the economics literature predicts that the adverse dynamic incentives effect of the ratcheting reduces production.

Very Preliminary: Comments welcome.

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A surge of studies on the "New History of Capitalism" [NHC] grounds the rise of industrial capitalism on the production of raw cotton by slaves. Recent works include Walter Johnson's *River of Dark Dreams*, Edward Baptist's *The Half Has Never Been Told*, and Sven Beckert's *Empire of Cotton*, among others.<sup>1</sup> These works have had a significant impact on scholarship and teaching within and beyond the history profession. We compare and contrast the approaches and findings of this influential literature with those the New Economic History of the past generation. We also point to new data and tests. Taken as a whole, our perspective leads to new understandings on the economic history of cotton and labor institutions. Our findings cast doubt on many claims popularized by the New Historians of Capitalism.

We first examine the valuation of slaves in the U.S. capital stock by Thomas Piketty and Edward Baptist. Next, we survey the findings of Beckert and Johnson. We show the NHC literature is impoverished by a lack of engagement with the large economic history literature on slavery. We then focus on the work and methods of Edward Baptist. In his account of the rise of cotton economy of the American South, Baptist argues that masters became ever more efficient torturers, extracting ever more labor from their chattel. According to Baptist, an ever-evolving “whipping machine” accounted for the growth in picking output per slave—as individuals learned to pick cotton faster (Baptist 2014, pp. 111-144, esp. 126-28, 134). While he relies on our evidence about rising picking rates, Baptist all but ignores our claim that picking rates had increased due to a *succession* of improved cotton varieties. Instead, Baptist (2014, pp. 271, 395) has quotas continuously ratcheting up and makes the direct causal assertion (p. 134) that “Cotton-picking increased because quotas rose.” Baptist (2014, p. 130) goes so far as to argue that the calibrated torture was “the *ultimate cause* of the massive increase in the production of high-quality, cheap cotton: an *absolutely necessary* increase if the Western world was to burst out of the 10,000-cycle Malthusian cycle of agriculture” [emphases added]. Using evidence from ex-slave narratives and plantation cotton books, we evaluate Baptist’s widely-touted claims.

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<sup>1</sup> Walter Johnson, *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom* (Cambridge, MA: Harvard Univ. Press, 2013); Edward E. Baptist, *The Half Has Never Been Told: Slavery and the Making of American Capitalism* (New York: Basic Books, 2014); Sven Beckert, *Empire of Cotton: A Global History* (New York: Knopf 2014).

## Capital in Slaves

Advocates of the NHC often question the importance of “quantitative expertise” for understanding capitalism, while at the same time selectively drawing on quantitative findings to buttress their views.<sup>2</sup> Writing in the *Chronicle of Higher Education*, Jeremy Adelman and Jonathan Levy complain that conventional economic history is the “obscure province of mathematical formulas” and that articles in the leading field journal are filled with statistical tables and graphs. They add that the “preference for numbers was less troublesome than the assumptions [of neoclassical economics] hitched to them.”<sup>3</sup> The aversion to numbers is selective: although Thomas Piketty is no stranger to quantitative evidence, he is embraced by many in the NHC fold.<sup>4</sup>

One of the most widely noted findings in Piketty’s *Capital in the Twenty-First Century* was the great importance of slave capital in U.S. wealth in the antebellum period. His Figure 4.10 shows the value of slaves in the United States relative to the nation’s income and in comparison to various forms of wealth. Human chattel comprised 32.0 percent of the combined wealth in 1770 and 27.6 percent in 1810, and 24.1 percent in 1850. The stock of slaves was worth 147 percent of national income in 1770, 110 percent in 1810, and 108 percent in 1850 (as reported in Piketty-Zucman 2013, “Capital is Back Appendix” Table US.6f). The importance of slave wealth was striking, especially given its concentration in one region, the American South. Piketty took the data to indicate how slaves substituted in wealth for land in the resource-abundant New World.<sup>5</sup> The top panel of Figure 1 graphs Piketty’s data for the 1770-1900 period.

But Piketty’s slave-value data stand in stark contrast to established estimates. His population numbers are the same as Series Bb214 in the 2006 *Historical Statistics*; their prices

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<sup>2</sup> Benjamin Hein, “Stanford humanities scholars put the human back into economics,” *Stanford Reporter* 10 Feb. 2015. <http://news.stanford.edu/news/2014/february/humanities-capitalism-workshop-021014.html>

<sup>3</sup> Jeremy Adelman and Jonathan Levy, “The Fall and Rise of Economic History,” *Chronicle of Higher Education*, 1 Dec. 2014.

<sup>4</sup> Thomas Piketty, translated by Arthur Goldhammer, *Capital in the Twenty-First Century* (Cambridge, MA: Harvard Univ. Press, 2014).

<sup>5</sup> Other scholars took the continued rise in the wealth-income ratio after Civil War as a sign that the accumulation of slave capital crowded out other forms of accumulation. Some commentators complained that the statistics included the human capital of slaves but not of the free citizens.

are very different from the standard series (Bb212).<sup>6</sup> Piketty and Zucman (2013, “Capital is Back Appendix,” p. 63) derive their slave stock estimates for 1810, 1850, and 1860 by “multiplying the numbers of slaves (from the population censuses) by the average prices given by modern research (namely, 500\$ for 1810, 800\$ for 1850 and 1,000\$ for 1860). The resulting estimates are consistent ... with the current consensus on the total slave value at the eve to the Civil war (namely, about 4 billions [sic] current dollars in 1860, see Wahl, 2008).”<sup>7</sup> They also cite investigations of slave prices by Fogel and Engerman. Piketty and Zucman (2014, p. 1301) assert their slave prices and population are the “best available,” but they fail to cite the *Historical Statistics* (2006) or Ransom-Sutch (1988), which are the standard for scholars in the field.

Table 1 details the differences. The Piketty-Zucman prices are 87 percent higher than the *Historical Statistics* (2006) prices in 1810, 100 percent higher in 1850, and 29 percent higher in 1860.

Table 1: Comparing Piketty-Zucman and the *Historical Statistics*

	Piketty-Zucman		<i>Historical Statistics</i>	
	Value	Prices	Value	Prices*
1810	\$0.6b	500	\$0.316b	\$265
1850	2.6b	800	1.286b	401
1860	4.0b	1000	3.059b	774

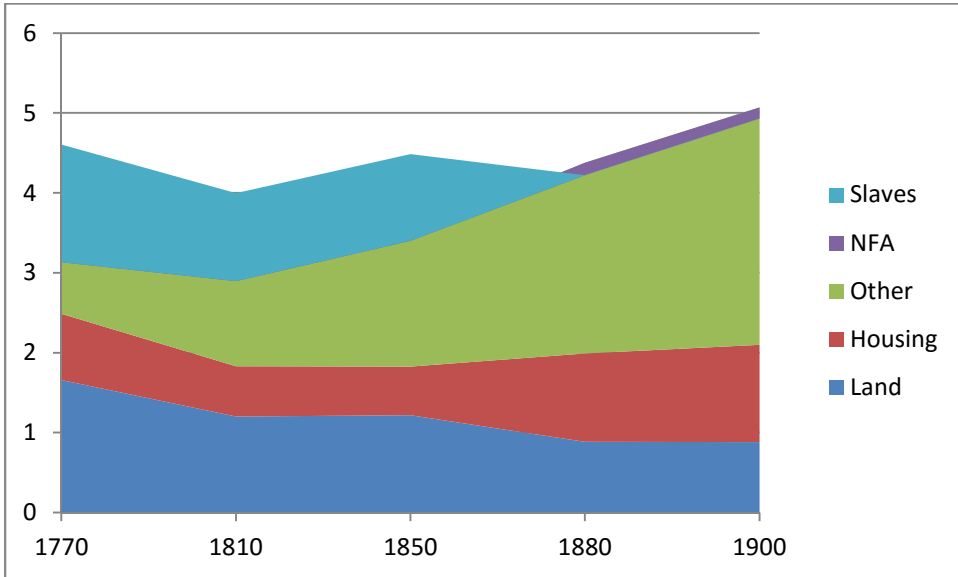
\*These are three-year averages of in Series Bb 212. The values (Series Bb 214) are based on the populations (Series Bb213) times the three-year average of prices (Series bb212).

<sup>6</sup> Sutch, Richard, “Slave prices, value of the slave stock, and annual estimates of the slave population: 1800–1862.” Table Bb209-214 in *Historical Statistics of the United States, Earliest Times to the Present: Millennial Edition*, edited by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright. New York: Cambridge University Press, 2006. <http://dx.doi.org/10.1017/ISBN-9780511132971.Bb209-218>; Roger Ransom and Richard Sutch, “Capitalists without Capital: The Burden of Slavery and the Impact of Emancipation,” *Agricultural History* 62, no. 3, *Quantitative Studies in Agrarian History* (Summer 1988), pp. 133-60.

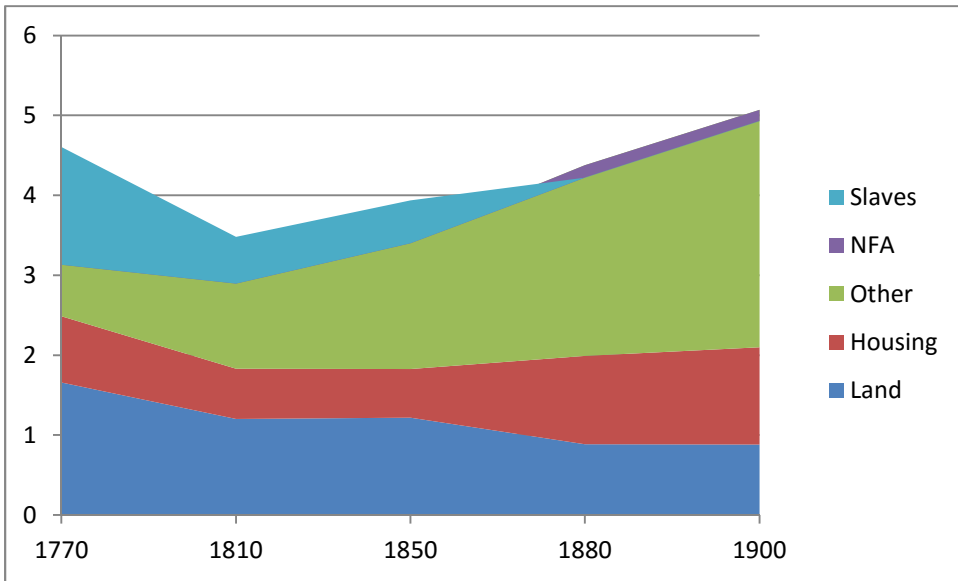
<sup>7</sup> See Jenny Wahl (2008), “Slavery in the United States.” EH.Net Encyclopedia, edited by Robert Whaples. March 26, 2008. Jenny Bourne (nee Wahl) provides a figure in the EH.Net Encyclopedia of “nearly 4 billion.” In private correspondence, she writes her calculations generated numbers “between 3.3 and 3.6 billion.” Claudia Goldin, “The Emancipation,” *Journal of Economic History* 31, no. 1 (March 1973), pp. 66-85, esp. pp. 73-74 puts the value at \$2.7 billion in 1860. So does Gerald Gunderson, “The Origin of the American Civil War,” *Journal of Economic History* 34, no. 4 (Dec. 1974), pp. 915-50, esp. 917. In personal communication on 2 Nov. 2015, Stanley Engerman writes of Piketty's prices that he “can think of no source that would have those.”

Figure 1: Value of Slaves Compared to Income and Other Forms of Wealth

A. Original Piketty Data



B. Historical Statistics



Note: The data for 1770 are the same in both charts.

The Piketty-Zucman series shows relatively little increase over the 1850s, increasing 2.2 percent per annum. The conventional wisdom is that slave prices boomed in the 1850s. The Phillips prices (Bb209) for prime-age males rose by 4.9 percent per annum between 1850 and 1860; the Engerman (Bb210) series rose by 6.9 percent; and the Kotlikoff (Bb211) series by 7.3 percent. In the *Historical Statistics*, Series Bb 215-18, Richard Sutch provides detailed derivation of conventional 1850 prices based on the Fogel-Engerman data.

Piketty's slave wealth was so startlingly high because he used his own series of slave prices that were double the conventional estimates. In personal correspondence (5 Nov. 2015), Thomas Piketty acknowledges "some of our estimates of aggregate slave values might be on the high side." But as he understandably adds, "this is not central for our purpose," which involves generating wealth statistics for nine developed countries over a 300-year period.

Panel B of Figure 1 replaces the Piketty-Zucman slave value estimates with the *Historical Statistics* (2006) estimates. The categories are reordered to highlight the contrast. The numbers for 1770 are the same as Piketty used and are based on the well-known work of Alice Hansen Jones (1980) on American probates records circa 1774.<sup>8</sup>

In *The Half Has Never Been Told*, Edward Baptist also offers high estimates for the ratios of slave capital to both U.S. income and wealth. He (p. 352) writes "the 3.2 million people enslaved in the United States had a market value of \$1.3 billion in 1850—one-fifth of the nation's wealth and almost equal to the entire gross national product." In endnote 14, he cites Robert Gallman (1986).<sup>9</sup> When Gallman says something, economic historians take note.

But Baptist's ratios are inconsistent with Gallman's income and wealth numbers. There are several layers to the problem. In the source Baptist cited, Gallman (1986) does NOT provide any direct estimate of GNP, nominal or real, for 1850. Elsewhere he does, and his estimates are not in line with Baptist's numbers. Gallman (2002, Table 3) gives an average for the 1844/53 period of \$2,649 million; Gallman (1966, p. 26) estimates current value GNP in 1849 at \$2,320 million. Each of Gallman's income estimates is *twice* the market value of slaves reported. There are more accessible numbers on GDP in the *Historical Statistics* (2006) that tell

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<sup>8</sup> Alice Hanson Jones, *Wealth of the Nation to Be: The American Colonies on the Eve of the Revolution* (New York: Columbia Univ. Press, 1980). Jones produced wealth statistics and then estimated income assuming the capital-output ratio was three.

<sup>9</sup> Baptist also cites Richard Kilbourne's work, but this is only relevant for material after the quote. Unlike Piketty, Baptist uses total value data, which are consistent with the numbers reported in the 2006 *Historical Statistics*.

the same story. Ca10 reports the 1850 nominal GDP was \$2,537 million. The United States was a growing economy; its GNP and GDP had exceeded \$1.3 billion since the early 1830s.

Gallman (1986, p. 204) does provide estimates the current-value national wealth. Gallman always treats slaves as people and not as property, as a consequence, his wealth number, \$7.89 billion in 1850, excludes the value of slaves. To maintain the same number of significant digits, we will use a value of slaves in 1850 of \$1.29 billion. This number is 14.1 percent of 9.18 ( $=7.89+1.29$ ), which would be total wealth including the value of slaves. This fraction is 40 percent lower than Baptist reported.<sup>10</sup>

Baptist's citation to Gallman (1986) is an unfounded claim of authority for what are in reality Baptist's own estimates. On p. 246, Baptist produces Table 7.1 showing the value of the enslaved population as a share of U.S. wealth by decade from 1790 to 1870. He inexplicitly cites the original (1947) edition of the *Historical Statistics* and the millennial (2006) edition of the *Historical Statistics*. He provides no further details other than to note that the slave values for 1790 and 1800 are his own. The slave values from 1810 to 1860 are consistent with the *Historical Statistics* (2006) series Ba 212-213. The surprising numbers in his Table 7.1 are the decadal wealth estimates for 1830, 1840, 1850, 1860, and 1870. They match those in Series A2 from the *Historical Statistics* (1947, 1, 9); Baptist cites the volume but not the series number. The problem is that Series A2 is a long-discredited and now discarded series constructed by the Director of the U.S. Mint Horatio Burchard as part of the monetary policy debates of the early 1880s.<sup>11</sup>

The source notes in the *Historical Statistics* (1947) make clear that the series' dubious nature. It reads: "These wealth estimates (series A2), purport to be based for 1825-1850 on Pitkin's figure for 1815 and the Census total for 1850. The derivation of the 1851-1880 estimates is not explained, but apparent the result of interpolation between decennial census totals. [new paragraph] Burchard's estimates include taxable property only, and probably

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<sup>10</sup> Baptist's assertion that slaves represented one-fifth of American wealth in 1850 is the headline claim in Braden Goyette, "5 Things About Slavery You Probably Didn't Learn In Social Studies: A Short Guide To 'The Half Has Never Been Told.'" Huffington Post, 23 Oct. 2014.

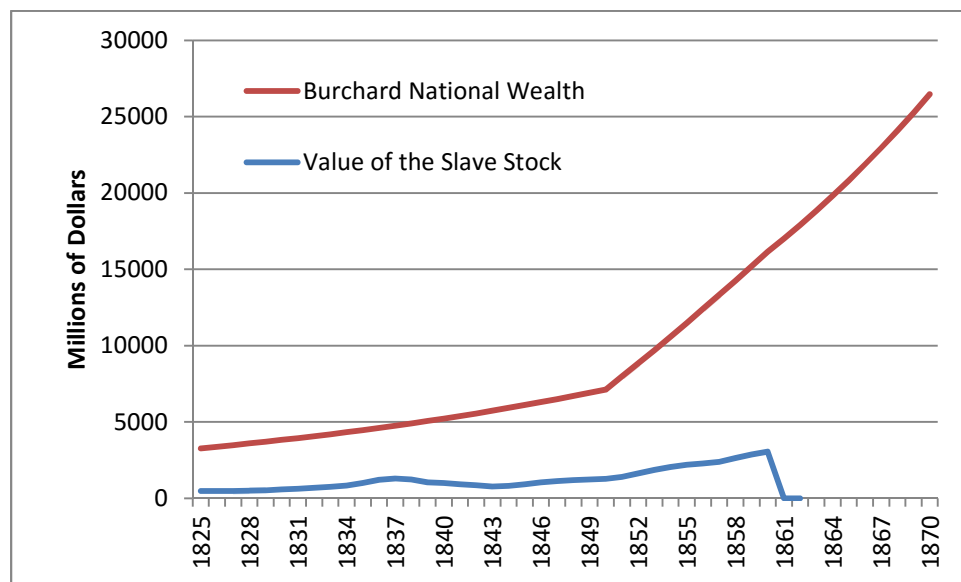
<sup>11</sup> Horatio C. Burchard, *Annual Report of the Director of the Mint, 1881*, House Exec. Doc. No. 2, 47 Cong., 1<sup>st</sup> Sess., p. 71. George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York, Rinehart, 1951), p. 437 referred to the Burchard series as "faulty," but the best available at that time. The series is mentioned but excluded from 1960 edition of the *Historical Statistics* (p. 146). Raymond W. Goldsmith, who was editor of the 1960 wealth section and one of the foremost experts on the topic, apparently found the data wanting.

exclude a good share of that in 1849 and prior years. His figures for 1850-1879 share the characteristics of the census totals of the period....”

In a survey of these data, Stephen Hoenack (1964, p. 198) observed “the 1850, 1860, and 1870 Censuses of Wealth should be treated most circumspectly.” He (p. 203) reported that the “potential usefulness of the censuses of wealth for analysis has been shown to be limited because of the inaccuracies and unclear meanings of the estimates and the lack of adequate categorization for meaningful comparisons of the components of wealth.”<sup>12</sup>

Figure 2, which graphs the Burchard’s annual data, makes the dubious nature of his series even clearer. The first half of the series is geometrically interpolated (assuming a constant growth rate) between the observations for 1815 and 1850; the derivation of the second half of the series is not explained or justified. Most telling the great economic events of the era fail to register: there is no sign of the boom of the 1830s, of the bust of the 1840s, and of the Civil War/Emancipation shocks. More damning, the 1850 value is based on the Census, and this estimate was both then and now considered too low. Burchard’s number in 1850, \$7.135 million, is only 78 percent of the sum of the value of slaves and Gallman’s estimate. Burchard’s series is “bad” and has been discarded by serious students of income and wealth for over 60 years.

Figure 2: Wealth Data Underlying Baptist’s Calculations



<sup>12</sup> Stephan A. Hoenack, “Appendix I: Part B, Historical Censuses and Estimates of Wealth in the United States,” in John W. Kendrick (ed.), *Measuring the Nation’s Wealth: Studies in Income and Wealth*, Vol. 29 Joint Committee Print, 88<sup>th</sup> Congress, 2d Sess. (Washington, DC: GPO, 1964), pp. 177-218.



For each decade, Baptist calculates, to *three* significant digits, the share of enslaved people using a wealth series (A2) that was essentially made-up (by Burchard). The upshot is that Baptist uses and thus disseminates to historians and the reading public long-discarded wealth estimates. More accurate estimates were readily available for 1850, 1860, and 1870; no creditable estimates exist for 1830 or 1840. Baptist does not document the income numbers used in his comparison at all. The end result is that for 1850 he overstates the value of slaves relative to total wealth by about 40 percent and relative to income by about 100 percent. Both Piketty and Baptist muddy the waters rather than adding to the interpretation of and evidence on slave capital offered by Gavin Wright (2006) and others.<sup>13</sup>

### The New History of Capitalism at Harvard

Sven Beckert's *Empire of Cotton* received the 2015 Bancroft Prize and was the runner up for the Pulitzer Prize in History. *Empire* is a grand undertaking that traces the development and impacts of the cotton economy on several continents, but as with the other NHC books discussed here, it would have benefitted immensely from a more systematic use of numbers and less creative, and more orthodox, economic reasoning. The examples of problems are numerous but among the most inexplicable is the assertion that American cotton planters “enjoyed access to large supplies of cheap labor—what the *American Cotton Planter* would call ‘the cheapest and most available labor in the world.’” He goes on to assert that in India and Asia Minor labor was scarcer than in the American South. This argument reflects a basic lack of understanding of the opportunity cost of slave labor and of the relative wage rates at the time.

In *Empire*, numbers are plentiful, but so are the inconsistencies. Beckert claims that “as late as the eighteenth century, women in Southeast Asia... needed a month to spin a pound of cotton (p. 16),” but he later asserts (p. 66) that Indian women required 500 hours to spin a pound of raw cotton. By this latter rate, to achieve a pound a month a worker would have had to spin about 17 hours a day 7 days a week. Not likely. Beckert uncritically cites Baptist's assertion that the American cotton planters devised *increasingly* brutal methods and these innovations in torture were at the root of American planters' ability to produce ever more cotton (pp. 115-16).

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<sup>13</sup> Gavin Wright, *Slavery and American Economic Development* (Baton Rouge: Louisiana State Univ. Press, 2006).

Beckert paints a top down conspiratorial view of history that ascribes almost superhuman powers to cotton capitalists (planters and industrialists) and financiers to manipulate events around the world. Although Beckert sometimes notes schisms within the capitalist class, too often interests that were at odds with one another are portrayed as working as one in a united front. As an example, amidst the chaos of the immediate post-Civil War era freedmen and landowners experimented with new systems of labor organization—a process that would rapidly lead to the rise of sharecropping. This story has been told many times, but Beckert imposes order and a worldwide design to the groping: “...cotton capitalists searched for new ways to mobilize cotton-growing labor (p. 267)” and “emancipation forced cotton capitalist toward their own revolution—a frantic search for new ways to organize the cotton-growing labor of the world (p. 275).” “Throughout Europe and the United States, economic and political elites agreed that former slaves must continue to grow cotton (p. 281),” and “...by the 1870s, from the perspective of cotton capitalists, the crisis of the empire of cotton that had emerged from the emancipation of cotton growing workers had been resolved (p. 311).” This established a model that allowed capitalists “to transform the global cotton-growing countryside...(p. 311; also see p. 343).” In many cases, one gets the impression that puppeteers operating in board rooms in London, Manchester, and Liverpool somehow pulled strings in faraway lands that would be hard if not impossible to imagine even with modern communications systems.

In *River of Dark Dreams*, Beckert’s Harvard colleague Walter Johnson portrays the antebellum cotton plantation as part of a modernizing, technologically advancing economy. According to Beckert, “Johnson sees slavery not just as an integral part of American capitalism, but as its very essence.”<sup>14</sup> This view that slavery was both central and necessary for capitalist development has become dogma for NHC historians. Steamboats plying the western rivers become Johnson’s symbols of progress and represent the application of science in the slave society. In a sign of what is to come, Johnson ignores an important economic history literature on inland water transportation.<sup>15</sup> He provides little new on the spread of the cotton gin, of presses, of mules in place of horses and oxen, or of the myriad other changes in production

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<sup>14</sup> Sven Beckert, “Slavery and Capitalism,” *The Chronicle of Higher Education* (14 Dec. 2014), <http://chronicle.com/article/SlaveryCapitalism/150787/>.

<sup>15</sup> Erik Haites, James Mak, and Gary Walton, *Western River Transportation: The Era of Early Internal Development, 1810-1860* (Baltimore: Johns Hopkins Univ. Press, 1975); Taylor (1951).

practices. His account of biological innovation is, if anything worse, than his treatment of mechanization.

Johnson completely garbles the story of one of the most important antebellum southern innovations—the development and diffusion of improved cotton varieties.<sup>16</sup> He centered attention on Petit Gulf, which was developed and introduced in the early 1830s, to the exclusion of Mexican cottons that spread earlier and to numerous later advances. He (pp. 8, 9, 151) incorrectly labels Petit Gulf as *G. barbadense*, as a type of Sea Island cotton, when Petit Gulf was, in fact, a type of *G. hirsutum*, or Upland cotton. This is a significant error because Sea Island and Upland cottons were different crops, sold in segmented markets, grown in different areas, and produced using different techniques and labor regimes. Relatively little Sea Island cotton was grown anywhere near the Mississippi Valley, which lies at the heart of his steamboat story. He (p. 152) claims falsely that Petit Gulf was “patented,” which was impossible under prevailing U.S. intellectual property law. It became possible to “patent” cotton varieties only with the passage of Plant Variety Protection Act in 1970 (7 U.S.C. §§ 2321-2582).

Johnson (p. 53) claims that “bales per hand per acre” was the South’s “ruling trinomial.” As Gavin Wright (2014) has pointed out, the trinomial makes no mathematical or economic sense.<sup>17</sup> Adding to the confusion, Johnson sometimes cites his trinomial as “bales per hand per acre” (p. 153, 177, 197) and sometimes as “bales per acre per hand” (pp. 217, 246-47, 254), as if the ratios are interchangeable. Wright notes Johnson provides no evidence that cotton planters ever used either of his ratios. Johnson cannot do this because planters did not. Instead, they wrote about bales per hand, acres per hand, and at times, bales per acre. And they took careful note of bale weights, which varied greatly over time and space. Writing about “bales per hand” or “bales per acre” is meaningless without defining (implicitly or explicitly) the number of pounds of lint per bale. The “bales per hand” measure appeared in the agricultural press by the 1830s and became a commonplace in the 1840s and 1850s (after bale weights had been

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<sup>16</sup> Alan L. Olmstead and Paul W. Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (New York: Cambridge Univ. Press, 2008).

<sup>17</sup> Gavin Wright, “Review of Walter Johnson,” *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom*. *Journal of Economic Literature* 52 (Sept. 2014): 27-29. The order of division matters; A/B/C is mathematically ambiguous because (A/B)/C need not equal A/(B/C). For example: (1/2)/3=1/6, but 1/(2/3)=3/2.

standardized at about 400 pounds). A number of scholars, including Robin Einhorn, have gone into print, treating Johnson's fictitious trinomial as if it ruled the plantation South.<sup>18</sup>

Economic historians (including scholars in history departments) engaged in two prolonged debates on slavery and southern development. One, in the 1960s and 1970s, centered on Douglass North's export growth hypothesis, which North maintained was based on an extensive North-South interregional trade. The second involved a long exchange from the mid-1970s into the 1990s following Robert Fogel and Stanley Engerman's publication of *Time on the Cross* on the efficiency of slave labor and the treatment of slaves.<sup>19</sup> Johnson ignores both debates. These omissions are costly. Most glaring is Johnson's (p. 177) assertion that due to the focus on their bale-dominated measures of performance, the "cotton-crazed planters" overspecialized in the cash crop and failed to produce sufficient food crops. He does not bother to confront the large economic history literature to the contrary.<sup>20</sup> This notion of overspecialized in cotton and with a heavy dependency on the importation of Midwestern foodstuffs is a persistent theme: "Throughout the antebellum period, the Lower Mississippi Valley...imported most of the wheat, corn, beef and pork its residents required to live from the Midwest and the Ohio Valley. The entire economy was devoted to agriculture, yet it could not feed itself."<sup>21</sup>

For over forty years, thanks to the work of Albert Fishlow, Robert Gallman, Diane Lindstrom, William Parker, Gavin Wright, and many others, we have had strong evidence based on plantation and census records that the South was largely self-sufficiency in food production.<sup>22</sup> (This literature also quantified the extent that northern manufacturers depended on southern

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<sup>18</sup> Robin Einhorn, "A Review of Walter Johnson's *River of Dark Dreams*," *The Nation*, Feb 11, 2014; Christa Dierksheide, *Amelioration and Empire: Progress and Slavery in the Plantation Americas* (Charlottesville, VA: Univ. of Virginia Press, 2014), p. 218. See also The Junto, "Science, Meet Slavery: 'River of Dark Dreams' and the Future of Slavery Scholarship." <http://earlyamericanists.com/2013/06/08/science-meet-slavery-walter-johnsons-river-of-dark-dreams-and-the-future-of-slavery-scholarship/>.

<sup>19</sup> Douglass C. North, *The Economic Growth of the United States: 1790-1860* (Englewood Cliffs, NJ: Prentice Hall, 1961); Robert W. Fogel, and Stanley L. Engerman, *Time on the Cross: The Economics of American Negro Slavery* Vols. I and II (Boston: Little, Brown, 1974); Robert W. Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery*. Vol. I (New York: Norton, 1989); Robert W. Fogel, *The Slavery Debates, 1952-1990: A Retrospective* (Baton Rouge: Louisiana State Univ. Press, 2003).

Economic historians have not debated, at least since the path-breaking work of Conrad and Meyer, whether slave-owners were capitalists. See Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Antebellum South," *Journal of Political Economy* 66, no. 2 (April 1958), pp. 95-130. Nor have they debated whether the South was growing economically in the late antebellum period. See Jeremy Atack and Peter Passell, *A New Economic View of American History: From Colonial Times to 1940* (New York: Norton, 1994), pp.321-23.

<sup>20</sup> See Caitlin Rosenthal, "Review of Johnson, Walter, *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom*." H-Business, H-Net Reviews. Feb. 2015. [www.h-net.org/reviews/showrev.php?id=42153](http://www.h-net.org/reviews/showrev.php?id=42153)

<sup>21</sup> Johnson, pp. 8, 12, 156,176, 177-78, 285-86; quotation from p. 176.

<sup>22</sup> Atack and Passell,(1994), pp. 160-64.

demand.) There is more. Following the Civil War, the South specialized much more in cotton production than it had during the reign of the “cotton-crazed” slave owners. This post war increase in specialization (and thus dependency) stemmed in large part from the increased efficiency and comparative advantage of Midwestern farmers in growing corn and improved transportation.<sup>23</sup> The broader issue is that trade and specialization are not necessarily bad as Johnson implies; to the contrary, they are generally a major source of economic growth and prosperity. In addition, trade potential depends in large part on developments outside any specific region, which are beyond that region’s ability to control.

### Baptist and the Torture-Led Growth Thesis

We now return to the work of Edward Baptist, another leading contributor to the NHC literature. Baptist relied on our estimates showing that the quantity of cotton picked per slave per day quadruped between 1800 and 1860.<sup>24</sup> He then argues that masters became ever more efficient torturers, incessantly extracting more labor from their chattel. Baptist reaches this conclusion by stringing together statements by a few ex-slaves asserting that as soon as they reached a quota the target was raised. (The most famous of these ex-slaves is Solomon Northup who was immortalized in the 1853 book and 2013 motion picture *Twelve Years a Slave*.) If an individual fell short of the target, the punishment was immediate and severe. It was this ever evolving “whipping machine” that largely defined plantation existence and accounted for the growth in picking output per slave, as, by Baptist’s telling, individuals repeatedly learned new “secret” methods to pick cotton faster and faster (Baptist 2014, pp. 111-144, esp. 126-28, 134). The enslavers’ secret methods of calibrated torture and slaves’ secret picking innovations accumulated for 60 years: they represented the true source of southern cotton productivity growth. Many, perhaps most, of Baptist’s examples came from slaves who were new to cotton

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<sup>23</sup> It may have reflected problems with the new southern land-labor and credit structures. See Gavin Wright and Howard Kunreuther, “Cotton, Corn and Risk in the Nineteenth Century,” *Journal of Economic History* 35, 3 (September 1975), pp. 526-51; Olmstead and Rhode, *Creating Abundance* (2008a), pp. 64-97.

<sup>24</sup> Olmstead and Rhode, *Creating Abundance* (2008a); Alan L. Olmstead and Paul W. Rhode, “Biological Innovation and Productivity Growth in the Antebellum Cotton Economy,” *Journal of Economic History* 68, no. 4 (2008b): 1123-1171. Also see “Productivity Growth and the Regional Dynamics of Antebellum Southern Development,” in *Economic Evolution and Revolution in Historical Time*, edited by Paul W. Rhode, Joshua Rosenbloom, and David Weiman (Stanford, CA: Stanford Univ. Press, 2011), pp. 180-213.

picking and thus might well have seen planter expectations rise as they acclimated to the job.<sup>25</sup> In advancing his argument, Baptist all but ignored our claim that picking rates had increased primarily due to a *succession* of improved cotton varieties. Instead, he makes the direct causal assertion that “Cotton-picking increased because quotas rose.” If slaves failed to meet their quotas, they were brutally whipped. In Baptist’s account (2014, pp. 271, 395), quotas continuously rose; they never went down.

Given that we will have much to say in the following sections about citing sources carefully and accurately, it behooves us to quote directly from the *The Half* and related material. Baptist (2014, p. 112) notes: “The first slavery had not yielded continuous improvements in labor productivity. On the nineteenth-century cotton frontier, however, enslavers extracted more production from each enslaved person every year. [New paragraph] The source of this ever-rising productivity... was a whip.” He says (p. 117): “Innovation in violence, in fact, was the foundation of the widely shared pushing system.” The “new pushing system... extracted more work by using oppressively direct supervision combined with torture ratcheted up to far higher levels...(p. 121).” Baptist (p. 127) asserts “picking totals rose continuously.” “Enslavers used torture to exert continuous pressure on all hands (p. 140).” Calibrated torture was “the secret that, over time, drove cotton-picking to continually higher levels of efficiency (p. 131).”

Baptist (2014, p. 133) writes “on the cotton frontier, each person was given *a unique, individual quota* rather than a limit of work fixed by general custom” [emphasis added].<sup>26</sup> After weighing the cotton picked at the end of the day and recording the individual’s total in chalk on a slate, the enslaver (p. 134) “transferred the chalk totals into more lasting ink and paper of a ledger. Then he erased the slate. And then he wrote down new and higher minimums.” (Also see p. 143.) The “minimums increased for all over time (p. 136).” “On the cotton frontier, however, quotas kept rising (p. 138).”<sup>27</sup>

He references (p. 135) “dynamically increasing picking quotas”; (p. 166) “the ever-increasing demand made on hands in the field”; (p. 173) “the output of cotton per enslaved person—an output that was...rising under the influence of the whipping machine”; (p. 267) the “ever-growing whipping-machine.” On p. 271, Baptist argues that in the mid-1830s, “The

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<sup>25</sup> Examples include Solomon Northup, *Twelve Years a Slave* (Auburn, NY: Derby and Miller, 1853) and Charles Ball, *Fifty Years in Chains; or, the Life of an American Slave* (New York: H. Dayton, 1859).

<sup>26</sup> Baptist (2014, p. 149) elaborates “the pushing system pitted migrants against each other. When picking season came, one person’s skill could push up another’s quota.”

<sup>27</sup> The cotton frontier evolved; in 1800, it was in South Carolina and other Atlantic states.

number of hands on cotton plantations expanded dramatically, and the need to repay loans only accelerated the *whipping-machine, collectively forcing* the total picking that hands could accomplish just *a little higher each day*” [emphasis added]. On p. 413, he argues “The steadily increasing productivity of hands on the cotton frontier kept cheap raw materials flowing to the world’s newest and most important industry, the cotton textile factories of Britain, Western Europe, and the North.”

Baptist (2009, p. 57) is even more explicit: “enslavers *ratcheted up* the demands of the picking ‘tasks’” [emphasis added]. In a recent essay appearing at the website *The Junto*, Baptist succinctly summarizes his argument: “As my book demonstrates, in the new, non-lowcountry areas, enslavers often demanded a specific number of pounds of cotton as a minimum, but pickers had to keep going until dark. Poundage in deficit led to whippings. Poundage in excess of one’s quota led to increases in the quota.”<sup>28</sup>

Baptist’s book has received wide recognition, and he has gained laudatory reviews in both the popular press and in professional journals.<sup>29</sup> Most of these reviews have singled out the causal relationship between torture and productivity growth. As one example, Noam Chomsky notes that U.S. slave plantations “were highly efficient. Productivity increased even faster than in industry, thanks to the technology of the bullwhip and pistol, and the efficient practice of brutal torture, as Edward E. Baptist demonstrates....”<sup>30</sup>

### The Origins of the “Pushing System”

In the publicizing his book in *Publishers Weekly*, Baptist relates slavery to modern work practices: “If you work in an office you probably recognize the management technique that a supervisor named Mr. Belfer [sic] once used on a young man named Israel Campbell. Belfer established a productivity quota tailored to Campbell’s level of training. If Campbell’s ‘metrics’ didn’t reveal enough work output, Belfer would evaluate him negatively. If Campbell could meet the target, Belfer would raise Campbell’s quota even higher, and they’d go through the whole

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<sup>28</sup> *The Junto*, 4 Nov. 2015, <http://earlyamericanists.com/2015/11/04/guest-post-correcting-an-incorrect-corrective/#more-12752>

<sup>29</sup> The book’s honors include the 2015 Avery O. Craven Award given by the Organization of American Historians for the best book dealing with the coming of the Civil War, the Civil War years, and the Era of Reconstruction.

<sup>30</sup> George Yancy and Noam Chomsky, “Noam Chomsky on the Roots of American Racism,” *New York Times*, 18 March 2015.

process again.... Belfer invented this system back in 1825, at a Mississippi slave labor camp.... When sundown came and Campbell's 'pick sack' didn't contain at least 100 pounds of cotton picked since daybreak... he was whipped: one blood-drawing, back-muscle-cutting lash with the bullhide whip for each pound Campbell came up short." Baptist adds here that "Belfer set targets that would be unreachable unless Campbell created new, faster ways to move up and down the cotton rows."<sup>31</sup>

Israel Campbell had recently been transported from Kentucky to Mississippi and hired out by this owner to pick on the Bellfer (not Belfer) plantation. Baptist (2014, p. 134) asserts: "After Israel Campbell figured out how to meet his quota, Belfer [sic] raised Campbell's requirement to 175 pounds per day." But Campbell's narrative (1861, pp. 33-39) includes no direct mention of Bellfer or his overseer raising Campbell's or anyone else's quota. There is no mention of Campbell inventing faster ways to move down the rows. Campbell was withdrawn from the Bellfer plantation at the end of season. It was a different planter, Mr. Garner, in a different season, at a different location, who set Campbell's 175-pound task. Garner also paid a bonus for extra picking (Campbell 1861, pp. 39, 56).<sup>32</sup> (See the online appendix for detail, <https://www.dropbox.com/s/b7x9ginhbacldzi/NHC%20Appendix.pdf?dl=0>. Please note we are quoting language as it appears in the original sources; this language may be offensive to some.)

The general tenor of Campbell's account on the Bellfer plantation is how he repeatedly outwitted the brutal master and overseer. How Campbell induced Mrs. Bellfer to intercede to prevent his whipping when he first picked too little and attempted to run away; how he figured out how to meet his 100-pound quota by adding melons, pumpkins, or dirt to his basket; how he taught the trick to others; how he returned secretly to the ginhouse, when possible, to remove the gourds; how he was smart enough to avoid being caught. There is nothing in the account about Bellfer inventing the pushing system in 1825. Based on the narrative (1861, pp. 16-24) and other biographical information, Campbell was still in his home-state of Kentucky (not Mississippi) in that year.<sup>33</sup>

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<sup>31</sup> Edward E. Baptist, "On Slavery and Management," *Publisher's Weekly*, 3 Aug. 2014, p. 38 and 1 Aug. 2014, <http://www.publishersweekly.com/pw/by-topic/authors/interviews/article/63523-edward-e-baptist-on-slavery-and-management.html>

<sup>32</sup> Campbell and his wife regularly exceeded his quota to earn spending money; he makes no mention of the quota being raised immediately after he exceeded it.

<sup>33</sup>"Israel S. Campbell," in Gerald L. Smith, Karen Cotton McDaniel, John A. Hardin, editors, *Kentucky African American Encyclopedia* (Lexington, KY: University Press of Kentucky, 2015), p. 88 dates his birth to 1815.



Edward Baptist's claim in *Publisher's Weekly* in August 2014 that (no first name) Belfer invented in the pushing system in Mississippi in 1825 is directly contradicted by another source. Namely, by Edward Baptist writing in *Slate* in August 2015, "Picking Cotton Under the Pushing System," about the experience of Charles Ball, after he was sent to South Carolina in the early 1800s. Baptist writes: "We do not know who invented the widely shared 'pushing system': a system that extracted more work by using oppressively direct supervision combined with torture ratcheted up to far higher levels than Ball had experienced before. But it was already present when Ball got to Congaree [SC] in 1805. Innovation in violence was the foundation of the pushing system. Enslaved migrants in the field quickly learned what happened if they lagged or resisted." "Belfer" [sic] appears in the *Slate* account too, but he is not credited with inventing the pushing system. Here Baptist asserts enslavers had deployed the labor control method "as early as 1800."<sup>34</sup>

After reading Baptist's book, Eric Foner maintained that planters called these practices the "pushing system."<sup>35</sup> One will search in vain in the antebellum agricultural press or in the records of cotton plantations for this usage. A few contemporaries wrote critically about the operation of the "pushing system" in sugar production in the West Indies. J. Stewart (1823, p. 186) noted: "Formerly, when slaves could be easily replaced, much oppression and a great waste of life was occasioned by what was called the pushing system, that is, extracting from the soil as much as possible by an over-working of the slaves...."<sup>36</sup> John Riland (1827, p. 138) added "The sight of the jobbing gang remained me of what is called in the West Indies the pushing system—that is, extracting from the soil as much as possible by an over-working of the slaves."<sup>37</sup> This meaning is clearly different from the ratcheting system.

Baptist (2014, p. 116) says slaves called the work regime the "pushing system." Again, one will look in vain in the ex-slave narratives for any direct mention of the "pushing system." For example, a search for "pushing system" at [memory.loc.gov/cgi-bin/query](http://memory.loc.gov/cgi-bin/query) (*Born in Slavery*:

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<sup>34</sup> [www.slate.com/articles/life/the\\_history\\_of\\_american\\_slavery/2015/08/slavery\\_under\\_the\\_pushing\\_system\\_why\\_systematic\\_violence\\_became\\_a\\_necessity.2.html](http://www.slate.com/articles/life/the_history_of_american_slavery/2015/08/slavery_under_the_pushing_system_why_systematic_violence_became_a_necessity.2.html) which is a revised excerpt of Baptist (2014) fourth chapter.

<sup>35</sup> Eric Foner, "A Brutal Process: The Half Has Never Been Told," by Edward E. Baptist," *New York Times*, 3 Oct. 2014. Foner also denies any technological changes in cotton picking.

<sup>36</sup> J. Stewart, *A View of the Past and Present State of the Island of Jamaica* (Edinburgh, Oliver & Boyd, 1823). This was reproduced in Parliamentary Debates. See *Substance of the Debate in the House of Commons. On the 15<sup>th</sup> May, 1823, On a Motion for the Mitigation and Gradual Abolition of Slavery throughout the British Dominions* (London: Ellerton and Henderson, 1823), p. 169.

<sup>37</sup> John Riland, *Memoirs of a West-India Planter* (London: Hamilton, Adams, & Co., 1827).

*Slave Narratives from the Federal Writers' Project, 1936-1938*) yields no accounts using the phrase “pushing system” or its phonic analogs. The one hit using both “pushing” and “system” is a composite that is inconsistent with Baptist’s argument.<sup>38</sup>

In a chapter published in an earlier collective volume, Baptist (2009, p. 49. note 35) provides clues to its origin.<sup>39</sup> Baptist’s “pushing system” appears to have been inspired by the letters to the *Ohio Atlas* from Philemon Bliss, a northern visitor to Tallahassee in 1834-35.<sup>40</sup> The key passage, reproduced in an 1836 American Anti-Slavery Society pamphlet, reads as follows:<sup>41</sup> (p. 37) “Some planters, I am told, give tasks which can be finished before night, but I know of none such. One planter I *do know* of, who sometimes gives tasks, and if by extraordinary exertion they finish before dark, it is increased the next day, and the slave is whipped if he does not finish it. [new paragraph] I asked an old man I saw the other night, making fence by torch-light, if he was tired when he came from the field. ‘One can't help being tired,’ said he, ‘beginning before we can well tell the cotton from the grass, and working without stopping till dark.’ ‘Don't you stop at all?’ ‘Just long enough to eat our bread at noon, sir: men grow mighty *pushing* when they are trying to get rich,’ &c. &c. ‘I'd be mighty glad,’ says one, ‘if I [p. 38] could be free; I'd work mighty hard to earn money to buy myself if I could get a chance.’ I told him he would have to work if he was free. ‘I know it,’ he said, ‘but I wouldn't work nights. We didn't have to work nights in Virginia, but folks are mighty pushing about here.’”

Baptist appears to have created the “pushing system” based on the reported use of the word “pushing” by one slave in Florida in a chance conversation with a northern abolitionist. The anonymous slave was complaining of his pushing master, in the specific context of

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<sup>38</sup> In the one hit, Sam Kilgore (Texas Narratives, Volume XVI, Part 2, p. 256) says “De plantation am run on system and everything clean and in order” and then adds “Dat place am so well manage dat whippin’s am not nec’sary.”

<sup>39</sup> Edward E. Baptist, “The Slave Labor Camps of Antebellum Florida and the Pushing System,” pp. 31 in Robert Cassanello and Melanie Shell-Weiss (eds.), *Florida's Working-Class Past: Current Perspectives on Labor, Race, and Gender from Spanish Florida to the New Immigration* (Gainesville: Univ. Press of Florida, 2009). The reference in Baptist (2014, p. 107, note 10), where he introduces the phrase in the book is less than transparent.

<sup>40</sup> According to the *Ohio Statesman* (25 Feb. 1840), p. 3, Philemon Bliss, was “better known as ‘Philemon the fugitive,’ a lawyer and an abolitionist, who had to flee from Florida some five or six years ago to escape a summary trial before Judge Lynch, for lecturing amongst the slaves in that ‘benighted region.’”

<sup>41</sup> “Slavery in Florida, No. 1,” *Narrative of Amos Dresser. With... Two Letters from Tallahassee, Relating to the Treatment of Slaves* (New York: American Anti-Slavery Society, 1836). This was one of two letters from the same unnamed author to the *Elyria, Ohio Atlas*, edited by Albert Bliss.

Theodore Dwight Weld, *American Slavery As It is* (New York: American Anti-Slavery Society, 1839), pp. 102-05 attributed the second letter to Philemon Bliss, Albert’s younger brother. It also named Philemon Bliss as the author of three letters on “Slavery in Florida” in the *New York Evangelist*, 23 and 30 April, and 7 May 1836. In the last of the *Evangelist* letters, Bliss emphasizes the “pushing” theme. See also Philemon Bliss, “Letters on Slavery,” Oberlin College, Special Collections Library.

increasing task requirement for non-harvest work. The northerner wrote of one planter who sometimes ratcheted up tasks if completed early. In fact, the concept that underscores Baptist's story of productivity growth was invented by Baptist: there is no evidence of a system, there is no evidence that slaves in general regularly used the term, and there is no evidence (re: Eric Foner) that slave owners regularly used the term anywhere in Baptist's sources or in the archival and contemporary literature we have searched. Long ago, Avery Craven offered a similar observation: "Slaves found life and labor in new districts far more severe than in the older ones because the master trying to get rich was more pushing." Craven, however, made no reference to a "system" and, contrary to Baptist in the *Half Has Never Been Told*, argued conditions were harder in the frontier period than in the late antebellum period.<sup>42</sup>

### Baptist's Reading of the Narrative Evidence

As with his treatment of Israel Campbell's narrative, Baptist's use of contemporary testimony leaves much to be desired. As one example, consider page 133 in his book. Baptist (2014, p. 133) writes "Southern whites themselves sometimes admitted that enslavers used the vocabulary of credit and debit accounting to frame weighing and whipping—like this Natchez doctor, who in 1835 described the end of a picking day: 'The overseer meets all hands at the scales, with the lamp, scales, and whip. Each basket is carefully weighed, and the nett weight of cotton set down upon the slate, opposite the name of the picker.... [O]ccasionally the countenance of an idler may be seen to fall': 'So many pounds short, cries the overseer, and takes up his whip, exclaiming, "Step this way, you damn lazy scoundrel," or "Short pounds, you bitch".'<sup>39</sup>" We added the underlined and italicized print to help the reader follow our argument.

One might expect to find the passage in italicized print in the same account of the Natchez doctor as the passage in underlined print. The underlined passage is from the well-known account of Dr. J. W. Monett of Mississippi, appended to Joseph Holt Ingraham's *The South-West, by a Yankee*. But the italicized passage is not there (see online appendix). Nor is it

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<sup>42</sup> Avery Craven, *The Coming of the Civil War* (Chicago: Univ. of Chicago Press, 1942), p. 114. Avery Craven, "The 'Turner Theories' and the South," *Journal of Southern History* 5, no. 3 (Aug. 1939), p. 309 (291-314) writes based on a survey of southwestern newspapers that in that area: "Slavery was less diffused and the masters, as one slave complained, 'more pushing'."

in *any* of the cited slave testimony in endnote 39.<sup>43</sup> The italicized passage appears to be a *modified* version of Rev. Francis Hawley’s account in Theodore Dwight Weld’s *American Slavery, As It Is: Testimony of a Thousand Witnesses*, published by the American Anti-Slavery Society in 1839. On p. 96, Hawley writes: “*So many pounds short, cries the overseer, and takes up his whip, exclaiming, 'Step this way, you d—n lazy scoundrel,' or ' bitch' [italics added].*” Baptist includes *American Slavery As It Is* in his “abbreviations” but fails to reference Hawley in the quote attributed to the “Natchez doctor.” (See online appendix.)

In the next paragraph, Baptist (2014, p. 133) writes. “Charles Ball’s first-day total on his slate became the new minimum on his personal account. He understood that if he failed on the next day to pick at least his minimum, thrifty-eight pounds, ‘it would go hard with me.... I knew the lash of the overseer would become familiar with my back.’” But the actual quote does not end here; Baptist clips Ball’s statement to advance his argument. Ball (1837, pp. 215-16) says: “for I knew that the lash of the overseer would soon become familiar with my back, if I did not perform as much work as any of the other young men.” He is referring to two younger men who picked 58 and 59 pounds of cotton on the day that Ball picked 38 pounds. The words “slate” and “minimum” appear nowhere in Charles Ball’s narrative. In the passage quoted, Ball explicitly says he would be judged compared to the other similar workers whereas Baptist asserted Ball will be judged compared to his past performance. The direct reading of this passage is that the overseer, with whip in hand, was testing the workers to set the “standard for the season” and determine the rating of individuals. Ball (1837, p. 217) related that the next week the overseer “fixed the days [sic] work at fifty pounds; and that all those who picked more than that, would be paid a cent a pound, for the overplus.” The overseer set lower daily tasks for old, the young, and women with children.<sup>44</sup>

The next paragraph on Baptist (2014, p. 133) begins with the testimony of Sarah Wells. In the WPA Slave Narratives, Sarah Wells, of Little Rock, Arkansas, says (p. 2): “Some of the

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<sup>43</sup> His note 39 reads: “John Brown, *Slave Life in Georgia* (London, 1855), 128–132; Anderson, *Life and Narrative*, 19–20; Henry Watson, *Narrative of Henry Watson: A Fugitive Slave* (Boston, 1848), 19–20; ST; Works Progress Administration interviews from the 1930s, e.g., GSMD, 199; Gus Askew, AS, 6.1 (AL), 15; Rufus Dirt, AS, 6.1 (AL), 117; Sarah Wells, AS, 11.1 (AR), 89; Sarah Ashley, S2 2.1 (TX), 87; Jesse Barnes, S2, 2.1 (TX), 175. Also J. Monett, Appendix C, J. W. Ingraham, *The South-West, by a Yankee* (New York, 1836), 2:285–286.”

<sup>44</sup> Ball (1837, p. 212) observed: “On all estates, the standard of a day’s work is fixed by the overseer, according to the quality of the cotton; and if a hand gathers more than this standard, he is paid for it; but if... the standard quantity has not been picked, the delinquent picker is sure to receive a whipping.” The quotas Ball discusses refer to his experience in South Carolina circa 1805, well before the introduction of Mexican varieties.

slaves would pick five hundred pounds of cotton in a day; some of them would pick three hundred pounds; and some of them only picked a hundred. IF YOU DIDN'T PICK TWO HUNDRED FIFTY POUNDS, THEY'D PUNISH YOU, put you in the stocks.” Capitalization is in the original; the sentence ends at “stocks.”<sup>45</sup>

Here is how Baptist (2014, p. 133) retells her story: “Sarah Wells remembered that near Warren County, Mississippi, where she grew up, some slaves picked 100 pounds a day, some 300 pounds, and some 500 pounds. But if your quota was 250 pounds, and one day you didn't reach it, ‘they'd punish you, put you in the stocks’ and beat you.” In the paragraph immediately above, Baptist wrote: “on the cotton frontier, each person was given *a unique, individual quota* rather than a limit of work fixed by general custom [emphasis added].” The sentences after the Wells retelling also relate to individual capacities to pick. Wells in fact describes a uniform 250 pound minimum—it applies to everyone—and individuals picking varying amounts. Baptist changes her meaning by making the quotas individually specific. And he adds “and beat you.”<sup>46</sup>

These are not cases of reading between the lines, filling in the gaps based on other accounts, or cleaning up the language to avoid offense. These are cases of misattribution and obfuscation, of dropping the narrators' own words, or of changing their clear meaning in order to advance one's own argument. The problem of quotations differing in a material way from the source and of inaccurate, incomplete, and misleading citations are not limited to these examples, all drawn from the single page. Baptist must treat the narrative evidence in this way because a direct reading does not support his argument.

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<sup>45</sup> *From Born in Slavery: Slave Narratives from the Federal Writers' Project, 1936-1938*, Arkansas Narratives, Vol. II, Part 7, p. 89.

<sup>46</sup> In the next paragraph Baptist, (2014, p. 133): “As William Anderson moved toward his [picking] quota in a Mississippi field, his new enslaver repeatedly knocked him down with a heavy stick, claiming William was lagging.” Williams Anderson (<http://docsouth.unc.edu/neh/andersonw/andersonw.html>) attests to being whipped if (p. 18) “for leaving patches of grass, and not working fast, or for even looking at my master” and (p. 19) “if I did not pick enough, or if there was trash found in it.” Anderson (p. 19) says: “My master often went to the house, got drunk, and then came out to the field to whip, cut, slash, curse, swear, beat and knock down several, for the smallest offence, or nothing at all.” But Anderson does not specifically claim his master stuck him with a heavy stick as he attempted to pick enough cotton to reach his quota. Baptist (2014, p. 139) also adds telling details, absent in the original, in his treatment of Adeline Hodges.

## A Different Reading of the Narrative Evidence

Table 2 summarizes our reading of the selected narratives of ex-slaves. A fuller treatment is provided in the online appendix. Most narratives that mention cotton picking also attest to the prevalence of whipping and brutal punishment. (But a few explicitly deny it happened on the plantation where they lived and worked.) Many refer to picking quotas; some (H. Bibb, H. Bland, J. Brown, J. John, M. Butler, B. Henderson, S. Wells, and G. Womble) to general quotas, some (C. Ball, C. Bellus, J. Bertrand, W. Brown, and A. Lindsay) to quotas determined by gender or work status; and some (S. Northup, E. Suggs, C. Thompson, and H. Watson) to individual quotas. Several early narratives note that women can pick as much or more than men. A few (L. Brown, I. Campbell, P. Stills, and J. Williams) mention prizes and contests; a few (C. Ball and I. Campbell) discuss payments for picking above the quotas. Almost all that mention quotas refer to set amounts without any indication of changes over time. Some (C. Ball and S. Northup) refer to being tested when first arriving at the plantation before being assigned a quota. Some assert that picking more in the initial testing period led to a larger assignment. The only unambiguous statement of a ratcheting quota over time appears in Solomon Northup's account. Northup wrote about his own experiences. He did not make claims about how slavery operated before his kidnapping (or after his release) or in places other than where he was held captive. Baptist generalizes from Northup and extends the ratcheting system found in this one account to the whole cotton South over the entire antebellum period.

There was much variation in practices across plantations and even on a given plantation under different managers. There was great scope of arbitrary behavior and ambiguity about work expectations. In Solomon Northup's narrative (1853, pp. 253-61), Epps flogged Patsey, even though she was a phenomenally productive cotton picker. In Israel Campbell's (1861, p. 38) account, Bellfer's overseer found reasons to whip Mary, "an extraordinary hand" and top picker. (According to Bennet H. Barrow's diary, he whipped those who picked large amounts as well as those who pick low amounts.)<sup>47</sup>

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<sup>47</sup> Edwin A. Davis, *Plantation Life in the Florida Parishes of Louisiana, 1836-1846* (New York: AMS Press, 1967) for 1840-41. Baptist (2014, p. 140) notes that the best pickers were whipped. He (p. 446) also notes the use of contests to determine picking possibilities. He does not detail precisely how one's quota depended on others' picking performance.

Baptist's account is also at odds with Stephen Crawford's quantitative analysis of the WPA and Fisk University narratives. Crawford found that out of the more than 2000 ex-slaves interviewed, 444 provided information on the frequency of punishment. Of these commentators, between 36 and 45 percent noted that punishment was "frequent;" 16 percent asserted that there was no physical punishment on their plantations, and the remainder said punishment was "infrequent." Of the ex-slaves who had resided on plantations where punishment was frequent, 31 percent recalled that they or their parents had been whipped. When asked the reason for the punishment, 24 percent of the ex-slaves who had resided on such plantations said it was due to inadequate production. Baptist's account that implies that a high percentage of slaves were whipped almost daily for not making their quotas is not supported by the memories of most of the survivors interviewed.<sup>48</sup>

### The Case against Ratcheting

Economists have extensively studied the quota-setting process—what became known in the twentieth century as the "ratchet effect"—which Baptist claims drove the increase in slave productivity.<sup>49</sup> In Martin Weitzman's classic analysis, the agent's (in this case a slave's) optimal level of production does not depend on the prevailing quota, but rather on the current-period reward (punishment) for exceeding (falling short) of the quota, the extent that the future quota is adjusted, and the interest rate. In a static deterministic environment, the agent's optimal level of production is constant over time. And in general, the ratcheting of quotas creates a dynamic disincentive that diminishes output in each period. The agent holds back on costly effort that reduces the prospect of being punished today because it increases the prospect of being punished in every period in the future.<sup>50</sup> In 2014, Jean Tirole won a Nobel Prize in Economics in part

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<sup>48</sup> Stephen C. Crawford, "Qualified Memory: A Study of the WPA and Fisk University Slave Narrative Collections," PhD dissertation, Department of History, University of Chicago, 1980, pp. 85, 90, and 92. Among the ex-slaves who had resided on the plantations where physical punishment was termed infrequent, 16 percent inadequate work as a cause for punishment.

<sup>49</sup> Joseph S. Berliner, *Factory and Manager in the Soviet Union* (Cambridge, MA: Harvard Univ. Press, 1957). See Jean-Jacques Laffont and Jean Tirole, *A Theory of Incentives in Procurement and Regulation* (Cambridge, MA: MIT Press, 1994), Ch. 9 for a modern theoretical treatment of these issues; and Raffi J. Indjejikian, Michal Matějka, and Jason D. Schloetzer, "Target Ratcheting and Incentives: Theory, Evidence, and New Opportunities," *Accounting Review* 89, no. 4 (July 2014): 1259-67 for a recent survey.

<sup>50</sup> Martin L. Weitzman, "The 'Ratchet Principle' and Performance Incentives," *Bell Journal of Economics* 11, no. 1 (Spring 1980): 302-08. Weitzman consider an environment without technical change. The agent's optimal

based on his work on the dynamic disincentive effects created by potential for ratcheting.<sup>51</sup> (A reading of the narrative of ex-slaves reveals that slaves faced with ratcheting work expectation were keenly aware of these effects.)

Referring to torture, Baptist (2014, p. 141) asserts: “Economics teachers don’t put it on the chalkboard as a variable in a graph (“T” stands for torture, one component of “S,” supply.)” There is, of course, a sizeable literature on the economics of coercion, including works by Ronald Findlay, Stefano Fenoltea, Giuseppe Dari-Mattiacci, Michael Chwe, and Daron Acemoglu and Alexander Wolitzky.<sup>52</sup> Fogel and Engerman discusses the roles of punishments and rewards in *Time on the Cross*, arguing “Pecuniary incentives were no more an incidental feature of slavery than force. Both were indispensable to the existence of the plantation system.”<sup>53</sup> Baptist makes no reference to this literature.

There can be little doubt that over time work expectations rose in terms of output (it is hard to know about effort). The expected quantity picked increased as a worker attained adulthood, and moved from the status of a half hand to a full hand. The expected quantity picked varied with the crop year. As general picking rates increased so did those for individuals. There was undoubtedly a process of learning about picking by recent migrants from non-cotton areas. There was a dynamic process of setting work standard for new arrivals. And there were adjustments as new areas entered cultivation and new cotton varieties were adopted. But there was a fundamental mismatch between the ratchet system and the realities of the cotton harvest.

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production is independent of the current quota and is constant over time. It depends on long-run incentive parameters—the rewards (punishments) for exceeding (falling short) of the quotas, the extent of adjustment of future quotas, and the interest rate. The bonus/penalty applies on either side of the quota and the future quota can be adjusted down as well as up.

In Weitzman’s model in the non-stochastic setting without technological change, the agent received a linear bonus (penalty) if current production exceeded (fell short of) the current quota,  $q_t$ :  $B=b(y_t-q_t)$ . The future quota was adjusted by a factor,  $\lambda$ :  $q_{t+1}=\lambda(y_t-q_t)+q_t$ . The agent produced subject to a cost function,  $C(y_t)$ , where  $C'>0$ ,  $C''>0$ . At the optimum, the agent sets production,  $y^*$ , where  $C'(y^*)=b/(1+\lambda/r)$ . Production with the ratchet,  $\lambda>0$ , is lower than without it ( $\lambda=0$ ). The results do not require long foresight—Weitzman labels the solution myopic.

<sup>51</sup> “Jean Tirole: Market Power and Regulation,” [https://www.nobelprize.org/nobel\\_prizes/economic-sciences/laureates/2014/advanced-economicsciences2014.pdf](https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2014/advanced-economicsciences2014.pdf).

<sup>52</sup> Ronald Findlay, “Slavery, Incentives, and Manumission: A Theoretical Model,” *Journal of Political Economy* 83, no. 5 (1975): 923-34; Stefano Fenoltea, “Slavery and Supervision in a Comparative Perspective: A Model,” *Journal of Economic History* 44, no. 3 (1984): 635-668; Giuseppe Dari-Mattiacci, “Slavery and Information,” *Journal of Economic History* 73, no. 1 (2013): 79-116; Michael Chwe, “Why Were Workers Whipped? Pain in a Principal-Agent Model,” *Economic Journal* 100 (1990): 1109-1121; Daron Acemoglu and Alexander Wolitzky, “The Economics of Labor Coercion,” *Econometrica* 79, no. 2 (March 2011): 555–600; and Sandeep Baliga and Jeffrey Ely, “Torture” (2013), <http://www.kellogg.northwestern.edu/faculty/baliga/htm/torture.pdf>.

<sup>53</sup> Robert Fogel and Stanley Engerman, *Time on the Cross: The Economics of American Negro Slavery*, Vol. 1 (New York: Norton, 1974): 239-40.



## Evidence from Plantations with Picking Quotas

Our examination of the records of hundreds of southern plantations has only uncovered a handful of examples consistent with the use of picking quotas or tasks. These are cases where the pounds picked are constant for individuals across long stretches of time. Such evidence is also consistent with bad record keeping or the use of very coarse weights. Moreover, if individual or group quotas were common, one might expect to see a place to record them in the pre-printed cotton books such as Affleck's, or at least find quotas discussed and recorded in these and other plantation records; this would have been useful information for owners and overseers. Baptist (2014, p. 134) explicitly states the enslavers measured daily picking rates and updated the quotas or minimums in their record books in ink, and (p. 136) these quotas continually increased.

We have seen only two examples of explicitly-defined picking tasks: one on the Hillyer plantation near Augusta, Georgia, and the other on the James A. Tait plantation in Wilcox County, Alabama. Neither set of records is supportive of Baptist's ratchet hypothesis.

The Hillyer plantation kept cotton books from 1817 to 1819.<sup>54</sup> The books reported both individual picking rates for three years and the tasks for 1818. They allow us to investigate how prior picking performance was related to the tasks and how the tasks were related to subsequent performance. The tasks varied across individuals (see Table 3). But they were large round numbers which showed no variation over time. The tasks were more closely correlated with 1817 mean picking than with the 1817 maximum rate records. The tasks were correlated with the 1818 mean and maximum amount picked. But the 1818 mean picking rates were below the tasks in all 11 cases where comparisons are possible; the maximum was below in 8 of the 11 cases. In only 6 percent of picking observations did the quantity picked equal to or exceed the individual's daily task on the Hillyer plantation.

The memorandum books of James A. Tait's Alabama plantation also listed picking tasks for individual slaves for 1823, 1824, 1826 and 1850. Tait's books did not record individual-level picking performance, but they did have multiple lists of individual quotas. Tait's records have demographic detail on the specific slaves that allow us to investigate how the quotas varied

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<sup>54</sup> Hillyer family papers, (ca.) 1797-1860, University of Virginia. The Hillyer accounts also include extensive records of payments to slaves for cotton. The tasks listed may have been used in calculations for overwork or to assist in planning production. There are most likely other examples mentioning picking quotas or tasks, but our search indicates they are rare in the surviving records.

across individuals, over time, and between different varieties of cotton.<sup>55</sup> Tait reported separate picking tasks for regular Green Seed cotton and for the newly-introduced Mexican cotton in 1823. In line with our statements regarding the greater ease of picking the new variety, individual slaves were expected, on average, to pick 25 percent more Mexican cotton than regular Green Seed cotton per day. The tasks listed for 1824 were lower than either the 1823 Mexican or Green Seed numbers. The documentary evidence makes the reason clear: "These tasks are small on account of the badness of cotton from long rains 30th Sept." The 1823 and 1824 records do not show changes, or any sign of ratcheting up over the crop year.

The tasks varied by gender and age, but they were not fine-tuned to individuals. Focusing on the 1823 and 1824 data, we find that the coefficient of variation, that is, the standard deviation divided by the mean is 0.280, a relatively small figure. In a regression of (the log of) picking task, we find that roughly one-half of the variation is explained by the gender and adult status of the worker and the crop being picked (Mexican or Green Seed). One can summarize the relationship in the regression:

$$\begin{array}{rcccccc}
 \text{task} = & 3.348 & +0.450\text{Male} & + & 0.774\text{Adult} & -0.383\text{Adult\_Male} & +0.133\text{MEX\_23} & -0.034\text{GS\_24} \\
 & (0.080) & (0.128) & & (0.080) & (0.136) & (0.050) & (0.053) \\
 \\
 N=130 & & R\text{-squared}=0.52 & & & & & \text{Standard Errors in Parentheses}
 \end{array}$$

The tasks are large, round numbers, differing by increments of 10 pounds. An experienced cotton picker would have been able to judge whether he or she was close to quota that was defined in 10-pound increments. Overshooting the target greatly seems unlikely, especially if disposing of the picked cotton (by giving it to others with low weights or leaving it in the field to collect later) was easy.<sup>56</sup>

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<sup>55</sup> James B. Sellers, *Slavery in Alabama* (University, AL: Univ. of Alabama Press, 1950), p. 68 errs in his discussion of Tait's tasks. He writes: "Tait lists the tasks for picking Mexican cotton..." He continues: "The above tasks seem small, but Tait notes that this was due to the poor crop of cotton after the long rains." This discussion mixes different years. The tasks for picking Mexican cotton were for 1823. The reduced tasks to pick the rain-damaged crops relate to 1824.

<sup>56</sup> Based on one source, Baptist (2014, p. 136) says sharing cotton was not allowed, but there is contrary evidence that it was done at times.

Table 3: Picking and Tasks at the Hillyer Plantation

Pounds	1818 Tasks	1817 Mean	1817 Max	1818 Mean	1818 Max	Percent Days below Task
Daniel	60	58.9	107	36.5	40	100
Sam	75	62.9	89	40.6	57	100
Bedford	75	63.3	92	46.6	58	100
Simon	80	85.3	117	54.7	83	82
Silvia	65	54.9	65	32.0	32	100
Jinny	60	48.3	61	20.9	37	100
Fanny	60	46.6	60	32.4	42	100
Randall	65	54.0	66	39.9	67	90
Anna	65	53.2	68	37.0	47	100
Harry	80	80.8	92	63.4	98	66
Cynthy	65	59.3	63	30.8	38	100
Correlation with Task	1.00	0.89	0.64	0.88	0.83	-0.47

Unlike the 1823 and 1824 numbers, the 1826 record did show internal adjustments. There is overwriting for several of the tasks for females. There is one number next to each name that is the same size, density, and style as the writing of person's name. There is another number that is slightly larger script and in a bolder ink. A reasonable conjecture is the first is the original and the second is the revision. Based on this interpretation and our best efforts to decipher the writing, the numbers were revised downward for 10 or 11 individuals and upward in 2 or 3 cases.<sup>57</sup> Tait clearly was adjusting picking tasks up and down to meet conditions and slave performance—there is no support for the claim that quotas only increased.

Tait also reports tasks for 1850, for picking to 12 noon. The numbers imply higher picking rates per hour of work. But they have the same general patterns—large round numbers. The increments are 5 pounds instead of 10. The coefficient of variation is 0.323.

To summarize, the only explicit plantation records of picking tasks that we have seen are not consistent with Baptist's statements about ever-increasing quotas driving up picking rates. The one example of higher picking rates is explicitly associated with harvesting Mexican cotton (which was noted for its relative ease of picking) in 1823. Tasks in the next year were lower on account of crop conditions. For some years, the tasks show no sign of changing. When they were changed, they went down as well as up. The fact many planters meticulously recorded picking rates but few recorded tasks offers circumstantial evidence that ratcheting was not a common phenomenon.

#### Evidence from Plantations with Daily Picking Records

We can investigate empirically the relationship between of current picking on future picking output. As we have noted many masters kept logs detailing the daily work activity of *individual* slaves, including the amount of cotton picked. Absentee owners often required their overseers to keep such records in order to better assess day-to-day farm activities, but many resident owners also caught the record-keeping bug. The data allowed for comparisons with past years, and helped set expectations for picker performance. Over time record keeping became more formalized with many planters employing bound account books with printed templates

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<sup>57</sup> Under an alternative (but we think less probable) reading of the numbers, one still observes that the tasks of some slaves increased and those of others declined.

designed especially for this purpose. The most popular cotton account book was produced by Thomas Affleck, beginning in 1847. In addition to the pages efficiently laid out for recording picking, the Affleck books provided forms for listing the slaves' names, ages, and values, births and deaths, stock and equipment inventories, the weight of individual bales, and other information. Our sample of picking records for the period 1801-1862 includes data from 114 separate plantations and a total of 397 plantation-years, covering 602,219 individual observations of daily cotton picking performed by 5,598 enslaved African-Americans.

Table 4 shows the distribution of picking totals by day for adult females and males. (Adults are persons age 15 years and older.) Columns (1) and (2) show the distribution for our entire sample over the 1840-62 period. So for example, the cell in the first column, first row indicated that for 64.6 percent of daily observations for adult females, 100 pounds or more was gathered. The cell below indicates that for 47.2 percent of the observations 125 or more was gathered. And so on. Columns (3) and (4) show the distribution for our entire sample over the 1840-62 period during the peak season from 15 September to 15 November. Columns (5) to (8) repeat the exercise for a sample restricted to Mississippi and Louisiana in the 1850s. These columns represent a place and time with high picking rates.

The information in Table 4 points to several findings. Picking 150 pounds per day was hardly a minimum. But the share picking this amount or more exceeded 50 percent only for adult males working at the peak season in Mississippi and Louisiana during the 1850s. In most places at most times, pickers gathered less than 150 pounds per day. Picking 200 pounds or more was about one-half as common as 150 pounds or more. Picking 300 pounds or more was exceptional. As for picking 500 pounds or more per day, in the entire sample of 426,720 picking observations, this occurred on 203 picking days. (Of these, 137 were by women and 66 were by men.) Franky, a female slave on the J. P. Bolton plantation in Wharton, Texas was recorded picking 500 pounds or more 70 times (all during 1858). Three other women in our sample did this ten times or more. Such performances were phenomenal and highly unrepresentative of the typical: Frankly and the three other women accounted for half of all such observations. With such evidence, it is reasonable to question some ex-slave accounts that claim individual daily quotas in the 400 to 900 pound range was the norm over a season.<sup>58</sup>

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<sup>58</sup> For examples see the WPA Slave Narratives, Sarah Ashely, Texas Narratives, Vol. XVI, Part 1; Cyrus Bellus, Arkansas Narratives, Vol. II, Part 1, p. 2; Monroe Brackins, Texas Narratives, Vol. XVI, Part 1, p. 2.

Our data show picking rates varied enormously, over the lifecycle, the season, and even from day-to-day. They generally rose and then gradually fell over a slave's life. Figure 3, Panel A, which shows the (log of) the picking rates over a two-decade period of Creesy, an enslaved African-American on the Francis Leak plantation, is representative.

Picking rates varied both within and across seasons. As Charles Ball (1837, p. 212) noted, a "day's work" depended on the quality and condition of the crop: "In a good field of cotton, fully ripe, a day's work is sixty pounds; but where the cotton is of inferior quality..., fifty pounds is the day's work; and where the cotton is poor, or in bad order, forty, or even thirty pounds, is as much as one hand can get in a day." Figure 3, Panel B shows the picking rates of males across the harvest season: the quantities picked per slave per day were low at the start, rose as the crop matured, and then fell at the end of the season. Picking rates for women show a similar pattern. The time between sun-up and sun-down of course grew shorter as picking progressed from August to December. (At the latitude of Natchez, MS, there are three more hours of sunlight per day on the 22 of August, about when the picking season began than on the 22 of December, near when the season ended.) Also contributing variations with the season was the progressive opening of the cotton bolls from the bottom of the plant to the top. Morning frost was more common later in the season shorting the picking day.

Within this general pattern, there were sharp ups and downs due to the weather and other factors. Figure 4 compares picking rates of the same individuals from one day to the next (in a sample of approximately 494,000 individual observations). The y-axis shows picking on a given day and the x-axis shows the picking on the previous day. A 45-degree line drawn from the origin would capture instances where pickers picked the same amount on consecutive days. Dots above the hypothetical 45-degree line indicate cases when picking increased and dots below the line cases when picking decreased. The figure shows that in 5.3 percent of the observations, the slave picked the same amount as the day before. The enslaved worker picked a larger amount in 49.1 percent of the observations, and 30.8 percent picked at least 10 percent more. But it was not always up-and-up or even always the same (which is what ratcheting incentives encourage). The enslaved worker picked a smaller amount in 45.6 percent of the observations, and 29.3 percent picked at least 10 percent less. The correlation between picking today and yesterday was 0.826, high but indicating substantial variability.

Table 4: Distribution of Daily Picking Totals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All Regions, 1840-62				Mississippi and Louisiana, 1850-60			
Pick X	All		Peak Season		All		Peak Season	
or More	Female	Male	Female	Male	Female	Male	Female	Male
Pounds	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
100	64.6	72.8	70.1	76.3	70.0	78.8	75.9	82.3
125	47.2	57.5	52.3	61.5	52.2	64.2	57.8	68.2
150	33.2	43.6	37.2	47.3	37.5	50.0	41.9	53.7
175	22.1	31.3	25.2	34.3	25.8	37.0	29.0	40.3
200	14.4	21.9	16.6	24.4	17.0	26.6	19.6	29.4
225	8.5	14.1	10.2	16.1	10.0	17.4	11.9	19.9
250	5.2	9.3	6.4	10.8	6.1	11.6	7.4	13.5
300	2.0	3.7	2.6	4.7	2.2	4.7	2.9	5.7
400	0.2	0.3	0.3	0.5	0.1	0.4	0.2	0.5
500	0.06	0.03	0.07	0.03	0.03	0.03	0.05	0.04
Obs	222529	214191	128521	126333	95115	91755	52743	52227

Table 5: Percent of Days of Deficit when Hypothetical Target Exceeds Picking

Probability	Lifetime			New Season Reset		
	Increment (Adjust if picking exceeds target by)					
	5	10	20	5	10	20
0.5	88.9	88.2	86.1	79.1	78.1	75.2
0.9	91.8	91.1	89.1	83.8	82.8	79.8
1	92.2	91.6	89.6	84.6	83.6	80.4

Figure 3: Variations in Picking Rates over the Lifecycle and Season

Panel A: Creesy (born 1836)

GRAPH SENT SEPARATELY

Panel B: Male Picking Rates over the Season (Sept. 28=90)

GRAPH SENT SEPARATELY

Figure 4: Picking Today versus Yesterday

GRAPH SENT SEPARATELY

Notes: ~494,000 picking observations

49.1%	More
5.3%	Same as yesterday
45.6%	Less
30.8%	Over 10 percent more
29.3%	Over 10 percent less



One can use the picking data to conduct another exercise. We will look at the sample for all pickers over the 1840-62 period. Suppose every picker's quota ratcheted as suggested. How frequently did the realized picking rate fall below the hypothetical individual quota? We can add cases where the target was reset each season, where the adjustment occurred only if the increment was above specified thresholds (5, 10, and 20 pounds), and where the adjustment occurred with a probability of less than one (50 percent chance, 90 percent chance). Table 5 indicates the fraction of days in the actual picking data that the performance fell below quota ratcheting as specified. The bottom-line is that even in the less aggressive scenario (new season rest, 20 pound increments, 50 percent probability of adjustment), a deficit occurred *three* days out of *four*.

Unless they intended to whip virtually every slave almost all of the time, planters and overseers who assigned quotas would have had to change them regularly, sometimes daily, over the course of the season to reflect the abundance of the crop, the weather, and the condition of the fields. Over the longer run, picking rates and presumably work expectations rose as the characteristics of cotton improved, but this does not necessarily mean that slaves were pushed harder in 1860 than say in 1825.

Conclusion:

Estimates of the relative importance of the capital stock invested in slaves recently popularized by Thomas Piketty and Edward Baptist significantly overstate the capital in slaves relative to both total wealth and GNP. These estimates are not based on the best sources and should be rejected. Our cursory review of three foundational books in the NHC literature indicates a common lack of understanding of basic economic reasoning. Our more extensive review of Baptist's contribution suggests serious problems in using and interpreting qualitative historical information. Most significantly we find little evidence in his sources supporting his key message that increases in punishment and a constant ratcheting up of the effort demanded of enslaved laborers accounted for the observed increase in cotton picking rates over the antebellum years. Furthermore, a large body of narrative and quantitative evidence is incompatible with the ratchet hypothesis.

The amount of cotton that an individual could pick per day depended on his or her skill and effort and also on many factors outside one's control. The weather and the number of open bolls in the field mattered. Our data show that individual picking rates varied enormously from day-to-day, over the season, and over a slave's life-cycle. If the quota actually ratcheted in the way that Baptists asserts (up and up, and never down), almost all slaves would have been whipped almost every day after reaching early adulthood. Some ex-slave narratives (Northup) testify that whipping occurred every day but not to almost every person on every day. Northup offers the clearest statement of dynamic ratcheting, but only two or three other ex-slave narratives come anywhere close to making such claims. These examples refer to testing on entry to establish initial work expectations. Many ex-slave narratives offer a picture of static uniform picking quotas. There is little discussion of change over time. We did not see direct evidence of ratcheting quotas in the cotton books of any the plantations for which we have daily picking rates. We have found two plantation accounts (Hillyer and Tait) that explicitly mentioned picking quotas, but their quotas did not behave as the ratchet hypothesis suggests.

The ratchet system in fact provides strong dynamic incentives to not work hard, so as not to cause one's quota to increase. More work today means more work is required every day in the future, and (given fatigue) more chances of being whipped every day in the future. Solomon Northup was savvy enough to see this. John Brown, who mentioned ratcheting in the context of setting initial quotas, recognized the adverse consequences of picking more. The theoretical literature on incentives, following Martin Weitzman, observes that conditioning future targets on current performance reduces (rather than increases) current production. The empirical literature on the use of ratcheting in other economic contexts (e.g. the Soviet Union) also recognizes that it is a poor incentive system.

Table 2: Summary of Narratives of Ex-Slaves on Cotton Picking

First Name	Last Name	State	Whipping	Nature of Quota, if any	Change Ratchet	Contests of Prizes	Payments for Excess	Early Dfc/ Learning	Other
William	Anderson	MS	Yes	Yes, but unspecified					
Charles	Ball	SC	Yes	By category	Static		Yes	Yes	
J. H.	Banks	AL	Yes						
Henry	Bibb	LA	Yes	Uniform					Generalizes
John	Brown	GA/MS	Yes	Uniform	Dynamic				
William	Brown	MO							Severe
Israel	Campbell	MS	Yes	Tasks		Yes	Yes		Uses trickery
Jackson	John	SC	Yes	Uninform					
Solomon	Northup	LA	Yes	Individual	Dynamic			Yes	Patsey whipped
Peter	Still	AL		Targets in Contests		Yes		Yes	
Henry	Watson	MS	Yes	Individual					
James	Williams	AL	Yes						
Octavia	Albert	GA	Yes	Own Quota					
Levi	Branham	GA							
William	Brown	MO		Men: 150 lb; Women: 140 lb.					Purchaser
Henry	Bruce	MS	Yes						
Eliza	Suggs	MS	Yes	Individual					
Charles	Thompson	MS	Yes	Individual					
William	Walker	MS	Yes						
William	Webb	MS	~	Acres					
Rachel	Adams	GA							
Sarah	Ashley	MS	Yes	Own 300 lb quota					
Cyrus	Bellus	MS	Yes	Men have 400 lb quota, women 300 lb					
James	Bertrand	AR	No	Men have 300 lb quota, women 200 lb					
Henry	Bland	GA	No	Uniform 200 lb					

Fannie	Borum	SC	Yes	100 lb quota		
Monroe	Brackins	MS	Yes	900 lb quota		
Lewis	Brown	MS	Yes	Tasks	Yes	
Jesse	Butler	SC	Yes	Tasks		
Marshall	Butler	GA	Yes	Uniform 200lb		
Thomas	Cole	AL	Yes			
Charles	Dortch	AR		Didn't know		
Jake	Green	AL				Great pickers
Benjamin	Henderson	GA	Yes	Uniform 150 lb		
Adeline	Hodges	MS	Yes	~Individual		
Mary	Island	LA				Own picking
Abbie	Lindsay	AR	Yes	Men have 200-300lb quota, women 150		
Sam	Polite	MS	Yes	Tasks		
Mary	Raines	SC				Own picking
Berry	Smith	AL/MS			Yes	Own picking
Addie	Vinson	GA	Yes	Task of 1000lb per week		Day off
Sarah	Wells	AR	Yes	Uniform 250 lb		
Jesse	Williams	SC			Yes	Trickery
Robert	Wilson	AR				Own picking
George	Womble	GA	Yes	Uniform 300 lb		Trickery
Henry	Wright	GA	Yes	200 lb		Trickery

